

STATEMENT AS OF SEPTEMBER 30, 2019 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	100,312,006,495		100,312,006,495	97,079,123,131
2. Stocks:				
2.1 Preferred stocks	742,482,575		742,482,575	744,092,065
2.2 Common stocks	18,112,790,025		18,112,790,025	12,827,375,153
3. Mortgage loans on real estate:				
3.1 First liens	25,917,732,144		25,917,732,144	23,623,807,529
3.2 Other than first liens.....			0	0
4. Real estate:				
4.1 Properties occupied by the company (less \$ encumbrances)	203,290,569		203,290,569	195,523,677
4.2 Properties held for the production of income (less \$ 890,933,976 encumbrances)	134,936,361		134,936,361	272,704,758
4.3 Properties held for sale (less \$ encumbrances)			0	20,078,118
5. Cash (\$ 332,659,529), cash equivalents (\$ 3,690,790,942) and short-term investments (\$ 1,090,298,991)	5,113,749,462		5,113,749,462	4,318,003,746
6. Contract loans (including \$ premium notes)	14,557,319,400	581,075	14,556,738,325	13,873,247,826
7. Derivatives	16,679,345,364		16,679,345,364	8,741,308,632
8. Other invested assets	9,083,687,594	37,564,892	9,046,122,702	8,599,455,873
9. Receivables for securities	1,292,801,820		1,292,801,820	941,182,855
10. Securities lending reinvested collateral assets			0	0
11. Aggregate write-ins for invested assets	(397,500)	0	(397,500)	0
12. Subtotals, cash and invested assets (Lines 1 to 11)	192,149,744,307	38,145,967	192,111,598,341	171,235,903,363
13. Title plants less \$ charged off (for Title insurers only)			0	0
14. Investment income due and accrued	2,586,144,063	12,295,284	2,573,848,779	3,018,299,945
15. Premiums and considerations:				
15.1 Uncollected premiums and agents' balances in the course of collection	127,875,540	1,968,439	125,907,101	164,205,761
15.2 Deferred premiums, agents' balances and installments booked but deferred and not yet due (including \$ earned but unbilled premiums)	755,364,470		755,364,470	732,697,836
15.3 Accrued retrospective premiums (\$) and contracts subject to redetermination (\$)			0	0
16. Reinsurance:				
16.1 Amounts recoverable from reinsurers	63,564,293	22,653,708	40,910,585	72,095,690
16.2 Funds held by or deposited with reinsured companies			0	0
16.3 Other amounts receivable under reinsurance contracts	16,833,543		16,833,543	31,016,552
17. Amounts receivable relating to uninsured plans			0	0
18.1 Current federal and foreign income tax recoverable and interest thereon	263,820,612		263,820,612	611,902,202
18.2 Net deferred tax asset	871,433,849		871,433,849	982,725,684
19. Guaranty funds receivable or on deposit	17,472,310		17,472,310	17,736,925
20. Electronic data processing equipment and software	226,392,447	212,367,977	14,024,470	15,645,327
21. Furniture and equipment, including health care delivery assets (\$)	63,309,361	63,309,361	0	0
22. Net adjustment in assets and liabilities due to foreign exchange rates			0	0
23. Receivables from parent, subsidiaries and affiliates	59,116,124	1,389	59,114,735	81,873,078
24. Health care (\$) and other amounts receivable			0	0
25. Aggregate write-ins for other than invested assets	3,503,558,721	1,121,398,376	2,382,160,345	2,204,643,872
26. Total assets excluding Separate Accounts, Segregated Accounts and Protected Cell Accounts (Lines 12 to 25)	200,704,629,639	1,472,140,502	199,232,489,139	179,168,746,235
27. From Separate Accounts, Segregated Accounts and Protected Cell Accounts	69,211,444,127	0	69,211,444,127	64,478,100,585
28. Total (Lines 26 and 27)	269,916,073,766	1,472,140,502	268,443,933,266	243,646,846,820
DETAILS OF WRITE-INS				
1101. Miscellaneous	(397,500)		(397,500)	
1102.				
1103.				
1198. Summary of remaining write-ins for Line 11 from overflow page	0	0	0	0
1199. Totals (Lines 1101 through 1103 plus 1198)(Line 11 above)	(397,500)	0	(397,500)	0
2501. Corporate owned life insurance	2,242,802,317		2,242,802,317	2,115,001,571
2502. Fully refundable deposits, prepayments and miscellaneous assets	183,365,416	97,610,340	85,755,076	22,091,419
2503. Employee insurance plan advances	40,804,680	13,445	40,791,235	40,908,972
2598. Summary of remaining write-ins for Line 25 from overflow page	1,036,586,308	1,023,774,591	12,811,717	26,641,910
2599. Totals (Lines 2501 through 2503 plus 2598)(Line 25 above)	3,503,558,721	1,121,398,376	2,382,160,345	2,204,643,872

STATEMENT AS OF SEPTEMBER 30, 2019 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 \$124,078,001,468 less \$ included in Line 6.3 (including \$138,539,816 Modco Reserve)	124,078,001,468	119,010,301,284
2. Aggregate reserve for accident and health contracts (including \$ Modco Reserve)	3,027,187,671	2,967,573,431
3. Liability for deposit-type contracts (including \$ Modco Reserve)	15,289,176,106	14,369,907,287
4. Contract claims:		
4.1 Life	431,384,512	408,860,759
4.2 Accident and health	28,710,388	27,487,143
5. Policyholders' dividends/refunds to members \$6,442,040 and coupons \$ due and unpaid	6,442,040	7,952,382
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)	1,760,477,719	1,704,768,185
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 \$9,783,487 accident and health premiums	55,843,048	32,700,041
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	17,755,751	10,424,232
9.3 Other amounts payable on reinsurance, including \$4,331,292 assumed and \$9,357,461 ceded	13,688,753	17,212,429
9.4 Interest Maintenance Reserve	306,241,058	0
10. Commissions to agents due or accrued-life and annuity contracts \$33,258,983 , accident and health \$272,494 and deposit-type contract funds \$12,986,840	46,518,317	7,506,755
11. Commissions and expense allowances payable on reinsurance assumed	3,539,136	4,994,328
12. General expenses due or accrued	1,007,155,763	1,095,534,762
13. Transfers to Separate Accounts due or accrued (net) (including \$(121,270,009) accrued for expense allowances recognized in reserves, net of reinsured allowances)	(137,564,838)	(146,648,819)
14. Taxes, licenses and fees due or accrued, excluding federal income taxes	60,249,977	50,761,771
15.1 Current federal and foreign income taxes, including \$ on realized capital gains (losses)		3,434
15.2 Net deferred tax liability		
16. Unearned investment income	281,406,213	175,081,674
17. Amounts withheld or retained by reporting entity as agent or trustee	35,775,804	35,906,971
18. Amounts held for agents' account, including \$ agents' credit balances	367,139,002	333,630,886
19. Remittances and items not allocated	1,304,508,491	890,822,640
20. Net adjustment in assets and liabilities due to foreign exchange rates		
21. Liability for benefits for employees and agents if not included above	189,793,050	179,825,843
22. Borrowed money \$249,805,632 and interest thereon \$	249,805,632	249,786,188
23. Dividends to stockholders declared and unpaid		
24. Miscellaneous liabilities:		
24.01 Asset valuation reserve	5,067,275,629	3,306,820,067
24.02 Reinsurance in unauthorized and certified (\$) companies	175,775	189,342
24.03 Funds held under reinsurance treaties with unauthorized and certified (\$) reinsurers		
24.04 Payable to parent, subsidiaries and affiliates	8,966,458	(17,130,060)
24.05 Drafts outstanding		
24.06 Liability for amounts held under uninsured plans		
24.07 Funds held under coinsurance	4,203,204,796	4,098,648,265
24.08 Derivatives	12,208,926,273	4,911,983,117
24.09 Payable for securities	202,860,726	81,963,034
24.10 Payable for securities lending		
24.11 Capital notes \$ and interest thereon \$		
25. Aggregate write-ins for liabilities	9,881,298,322	9,742,092,195
26. Total liabilities excluding Separate Accounts business (Lines 1 to 25)	179,995,943,041	163,558,959,566
27. From Separate Accounts Statement	69,211,444,127	64,478,100,585
28. Total liabilities (Lines 26 and 27)	249,207,387,168	228,037,060,151
29. Common capital stock		
30. Preferred capital stock		
31. Aggregate write-ins for other than special surplus funds	0	0
32. Surplus notes	2,268,457,119	2,268,096,211
33. Gross paid in and contributed surplus		
34. Aggregate write-ins for special surplus funds	3,256,298	3,250,000
35. Unassigned funds (surplus)	16,964,832,680	13,338,440,458
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)	19,236,546,098	15,609,786,669
38. Totals of Lines 29, 30 and 37	19,236,546,098	15,609,786,669
39. Totals of Lines 28 and 38 (Page 2, Line 28, Col. 3)	268,443,933,266	243,646,846,820
DETAILS OF WRITE-INS		
2501. Repurchase agreements	3,934,875,172	4,803,587,340
2502. Derivative collateral	3,676,131,321	2,945,652,368
2503. Derivative accrued interest	2,167,970,815	1,898,874,859
2598. Summary of remaining write-ins for Line 25 from overflow page	102,321,014	93,977,628
2599. Totals (Lines 2501 through 2503 plus 2598)(Line 25 above)	9,881,298,322	9,742,092,195
3101.		
3102.		
3103.		
3198. Summary of remaining write-ins for Line 31 from overflow page	0	0
3199. Totals (Lines 3101 through 3103 plus 3198)(Line 31 above)	0	0
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	6,298	
3498. Summary of remaining write-ins for Line 34 from overflow page	0	0
3499. Totals (Lines 3401 through 3403 plus 3498)(Line 34 above)	3,256,298	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	16,454,608,645	16,713,495,443	22,905,684,993
2. Considerations for supplementary contracts with life contingencies	17,462,747	16,491,506	23,694,419
3. Net investment income	5,352,985,106	5,244,082,725	7,709,838,336
4. Amortization of Interest Maintenance Reserve (IMR)	15,754,476	59,425,344	63,947,853
5. Separate Accounts net gain from operations excluding unrealized gains or losses		(20)	20
6. Commissions and expense allowances on reinsurance ceded	176,202,165	106,940,163	183,575,292
7. Reserve adjustments on reinsurance ceded	(13,089,420)	(109,711,407)	(120,338,587)
8. Miscellaneous Income:			
8.1 Income from fees associated with investment management, administration and contract guarantees from Separate Accounts	298,607,524	294,472,168	393,312,833
8.2 Charges and fees for deposit-type contracts			0
8.3 Aggregate write-ins for miscellaneous income	531,609,458	447,990,815	561,716,288
9. Totals (Lines 1 to 8.3)	22,834,140,701	22,773,186,737	31,721,431,447
10. Death benefits	1,571,967,229	1,345,808,857	1,801,487,193
11. Matured endowments (excluding guaranteed annual pure endowments)	13,083,646	11,614,830	15,155,252
12. Annuity benefits	1,618,125,010	1,498,836,228	2,004,550,137
13. Disability benefits and benefits under accident and health contracts	280,486,261	274,652,410	369,893,030
14. Coupons, guaranteed annual pure endowments and similar benefits			0
15. Surrender benefits and withdrawals for life contracts	14,721,381,534	12,266,505,921	18,213,757,819
16. Group conversions			0
17. Interest and adjustments on contract or deposit-type contract funds	303,785,561	324,987,618	426,166,626
18. Payments on supplementary contracts with life contingencies	12,312,831	11,097,533	14,836,103
19. Increase in aggregate reserves for life and accident and health contracts	5,063,130,882	5,105,189,175	7,507,800,736
20. Totals (Lines 10 to 19)	23,584,272,954	20,838,692,572	30,353,646,896
21. Commissions on premiums, annuity considerations, and deposit-type contract funds (direct business only)	717,018,030	707,487,222	978,144,683
22. Commissions and expense allowances on reinsurance assumed	54,376,578	67,360,211	83,452,865
23. General insurance expenses and fraternal expenses	1,699,747,103	1,753,177,061	2,366,077,039
24. Insurance taxes, licenses and fees, excluding federal income taxes	203,929,874	185,679,905	257,788,721
25. Increase in loading on deferred and uncollected premiums	(26,102,125)	(33,146,382)	(27,564,856)
26. Net transfers to or (from) Separate Accounts net of reinsurance	(3,682,704,205)	(1,064,737,895)	(3,008,428,954)
27. Aggregate write-ins for deductions	(789,493,644)	(832,043,642)	(1,031,463,367)
28. Totals (Lines 20 to 27)	21,761,044,564	21,622,469,052	29,971,653,027
29. Net gain from operations before dividends to policyholders and federal income taxes (Line 9 minus Line 28)	1,073,096,135	1,150,717,685	1,749,778,420
30. Dividends to policyholders and refunds to members	1,236,750,225	1,145,025,266	1,695,253,440
31. Net gain from operations after dividends to policyholders, refunds to members and before federal income taxes (Line 29 minus Line 30)	(163,654,090)	5,692,419	54,524,980
32. Federal and foreign income taxes incurred (excluding tax on capital gains)	(76,001,287)	20,795,137	(168,384,146)
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)	(87,652,803)	(15,102,718)	222,909,126
34. Net realized capital gains (losses) (excluding gains (losses) transferred to the IMR) less capital gains tax of \$ 56,653,810 (excluding taxes of \$ 51,885,249 transferred to the IMR)	132,031,186	(1,284,037,002)	(1,044,256,266)
35. Net income (Line 33 plus Line 34)	44,378,383	(1,299,139,720)	(821,347,140)
CAPITAL AND SURPLUS ACCOUNT			
36. Capital and surplus, December 31, prior year	15,609,786,669	15,705,216,653	15,705,216,653
37. Net income (Line 35)	44,378,383	(1,299,139,720)	(821,347,140)
38. Change in net unrealized capital gains (losses) less capital gains tax of \$ 188,289,564	5,174,249,031	342,686,970	1,778,861,989
39. Change in net unrealized foreign exchange capital gain (loss)	(467,521,787)	(383,904,983)	(594,081,445)
40. Change in net deferred income tax	(47,280,215)	301,197,710	289,824,267
41. Change in nonadmitted assets	750,656,665	(375,565,915)	(716,309,297)
42. Change in liability for reinsurance in unauthorized and certified companies	13,567	10,955	15,137
43. Change in reserve on account of change in valuation basis, (increase) or decrease			0
44. Change in asset valuation reserve	(1,760,455,562)	490,890,212	(99,750,481)
45. Change in treasury stock			0
46. Surplus (contributed to) withdrawn from Separate Accounts during period		3,153	3,153
47. Other changes in surplus in Separate Accounts Statement		(3,113)	(3,153)
48. Change in surplus notes	360,907	360,907	468,924
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		0	0
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	(67,641,561)	(59,651,036)	66,888,062
54. Net change in capital and surplus for the year (Lines 37 through 53)	3,626,759,429	(983,114,860)	(95,429,984)
55. Capital and surplus, as of statement date (Lines 36 + 54)	19,236,546,098	14,722,101,793	15,609,786,669
DETAILS OF WRITE-INS			
08.301. Management and administrative fees	218,055,401	215,590,331	284,985,025
08.302. Change in corporate owned life insurance	127,827,585	35,208,132	10,599,028
08.303. Experience refunds on reinsurance contracts	101,737,407	95,073,620	132,207,033
08.398. Summary of remaining write-ins for Line 8.3 from overflow page	83,989,065	102,118,732	133,925,202
08.399. Totals (Lines 08.301 through 08.303 plus 08.398) (Line 8.3 above)	531,609,458	447,990,815	561,716,288
2701. Change in reserves due to reinsurance agreement	(1,004,362,315)	(1,007,140,646)	(1,221,343,804)
2702. Reinsurance ceded adjustment	(10,359,059)	(10,909,122)	(14,545,497)
2703. Market value adjustment transfer	(4,562,564)	(4,138,340)	(2,947,226)
2798. Summary of remaining write-ins for Line 27 from overflow page	229,790,294	190,144,466	207,373,160
2799. Totals (Lines 2701 through 2703 plus 2798)(Line 27 above)	(789,493,644)	(832,043,642)	(1,031,463,367)
5301. Other changes in surplus	(57,288,800)	(48,741,914)	(46,534,072)
5302. Reinsurance ceded adjustment	(10,359,059)	(10,909,122)	(14,545,497)
5303. Miscellaneous	6,298		
5398. Summary of remaining write-ins for Line 53 from overflow page	0	0	127,967,631
5399. Totals (Lines 5301 through 5303 plus 5398)(Line 53 above)	(67,641,561)	(59,651,036)	66,888,062

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

CASH FLOW

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
Cash from Operations			
1. Premiums collected net of reinsurance	15,978,461,200	17,098,898,087	22,608,709,332
2. Net investment income	6,390,522,793	5,132,951,322	6,761,697,857
3. Miscellaneous income	846,297,563	680,233,008	1,015,740,250
4. Total (Lines 1 to 3)	23,215,281,556	22,912,082,417	30,386,147,439
5. Benefit and loss related payments	18,608,973,997	16,025,021,056	22,915,622,389
6. Net transfers to Separate Accounts, Segregated Accounts and Protected Cell Accounts	(3,691,788,186)	(1,125,233,992)	(3,090,655,493)
7. Commissions, expenses paid and aggregate write-ins for deductions	1,738,601,583	1,850,281,394	2,702,636,293
8. Dividends paid to policyholders	1,182,617,004	1,111,570,898	1,588,224,238
9. Federal and foreign income taxes paid (recovered) net of \$ (64,588,809) tax on capital gains (losses)	(328,492,022)	(229,851,893)	(162,241,559)
10. Total (Lines 5 through 9)	17,509,912,376	17,631,787,463	23,953,585,868
11. Net cash from operations (Line 4 minus Line 10)	5,705,369,180	5,280,294,954	6,432,561,571
Cash from Investments			
12. Proceeds from investments sold, matured or repaid:			
12.1 Bonds	16,607,576,083	13,181,436,527	19,213,999,109
12.2 Stocks	762,692,533	1,408,252,726	2,708,586,089
12.3 Mortgage loans	1,774,192,875	2,113,563,651	2,330,683,301
12.4 Real estate	190,962,861	275,807,609	275,807,610
12.5 Other invested assets	666,940,848	1,643,999,163	2,155,259,323
12.6 Net gains or (losses) on cash, cash equivalents and short-term investments	12,263,443	(1,202,053)	13,072,429
12.7 Miscellaneous proceeds	866,903,605	(281,279,798)	71,696,828
12.8 Total investment proceeds (Lines 12.1 to 12.7)	20,881,532,248	18,340,577,825	26,769,104,689
13. Cost of investments acquired (long-term only):			
13.1 Bonds	19,637,381,958	19,638,992,662	26,525,627,843
13.2 Stocks	1,574,604,408	816,280,459	895,103,810
13.3 Mortgage loans	4,213,033,622	2,993,883,118	3,698,401,345
13.4 Real estate	77,845,469	20,088,141	(233,372,268)
13.5 Other invested assets	901,588,542	1,383,746,130	1,652,995,507
13.6 Miscellaneous applications	138,058,882	212,560,350	724,893,581
13.7 Total investments acquired (Lines 13.1 to 13.6)	26,542,512,881	25,065,550,860	33,263,649,818
14. Net increase (or decrease) in contract loans and premium notes	683,467,845	727,536,384	545,869,329
15. Net cash from investments (Line 12.8 minus Line 13.7 and Line 14)	(6,344,448,478)	(7,452,509,419)	(7,040,414,458)
Cash from Financing and Miscellaneous Sources			
16. Cash provided (applied):			
16.1 Surplus notes, capital notes	0	0	0
16.2 Capital and paid in surplus, less treasury stock	0	0	0
16.3 Borrowed funds	149,410	(116,542)	(234,576)
16.4 Net deposits on deposit-type contracts and other insurance liabilities	(358,451,336)	(253,552,471)	86,596,125
16.5 Dividends to stockholders	0	0	0
16.6 Other cash provided (applied)	1,793,126,940	536,684,195	1,259,929,462
17. Net cash from financing and miscellaneous sources (Line 16.1 through Line 16.4 minus Line 16.5 plus Line 16.6)	1,434,825,014	283,015,182	1,346,291,011
RECONCILIATION OF CASH, CASH EQUIVALENTS AND SHORT-TERM INVESTMENTS			
18. Net change in cash, cash equivalents and short-term investments (Line 11, plus Lines 15 and 17)	795,745,716	(1,889,199,283)	738,438,124
19. Cash, cash equivalents and short-term investments:			
19.1 Beginning of year	4,318,003,746	3,579,565,622	3,579,565,622
19.2 End of period (Line 18 plus Line 19.1)	5,113,749,462	1,690,366,339	4,318,003,746

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

20.0001. Bonds received as consideration for group annuity contract	641,637,984		
20.0002. Premium income recognized for group annuity contracts	598,727,705		292,360,873
20.0003. Bond conversions and refinancing	545,726,357	414,633,566	1,058,254,566
20.0004. Change in market value of corporate owned life insurance	128,203,773	35,561,515	11,073,742
20.0005. Transfer of mortgage loan to other invested assets	95,320,520	81,265,450	244,153,148
20.0006. Stock conversion	63,847,077	61,620,127	128,169,724
20.0007. Net investment income payment in-kind bonds	5,321,348	8,207,371	9,227,709
20.0008. Dividend reinvestment	2,891,602	11,029,312	11,434,061
20.0009. Transfer of other invested assets to other than invested assets	506,621		

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

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

20.0010. Stock distributions to other invested assets	268,168		
20.0011. Net investment income payment in-kind stocks	78,219	460,873	460,873
20.0012. Transfer of common stocks – subsidiaries and affiliated to other invested assets	52,176	0	1,333,718,935
20.0013. Transfer from bonds to other invested assets		199,694,466	199,694,466
20.0014. Transfer of bonds to partnerships			81,111,847
20.0015. Other invested assets contributed to Insurance Road LLC		188,119,173	476,114,707
20.0016. Premium liabilities to bonds		117,071,776	
20.0017. Bonds and common stock contributed to EM Opportunities LLC		74,068,049	74,063,408
20.0018. Transfer of other invested assets to real estate		56,615,096	56,615,096
20.0019. Bank loan rollovers		49,020,563	55,096,955
20.0020. Dividend declared from Insurance Road LLC		40,000,000	
20.0021. Return of capital		105,953	105,953

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			0
2. Ordinary life insurance	6,360,441,489	5,101,143,526	7,405,145,430
3. Ordinary individual annuities	2,374,408,590	1,640,979,367	3,303,332,907
4. Credit life (group and individual)			0
5. Group life insurance	78,888,587	574,742,050	701,120,304
6. Group annuities	8,156,189,272	8,566,567,892	11,111,242,611
7. A & H - group	291,093	259,329	371,603
8. A & H - credit (group and individual)			0
9. A & H - other	565,462,043	558,454,239	747,932,707
10. Aggregate of all other lines of business	0	0	0
11. Subtotal (Lines 1 through 10)	17,535,681,074	16,442,146,403	23,269,145,562
12. Fraternal (Fraternal Benefit Societies Only)			
13. Subtotal (Lines 11 through 12)	17,535,681,074	16,442,146,403	23,269,145,562
14. Deposit-type contracts	3,892,267,385	2,892,406,836	4,486,037,688
15. Total (Lines 13 and 14)	21,427,948,459	19,334,553,239	27,755,183,250
DETAILS OF WRITE-INS			
1001.			
1002.			
1003.			
1098. Summary of remaining write-ins for Line 10 from overflow page	0	0	0
1099. Totals (Lines 1001 through 1003 plus 1098)(Line 10 above)	0	0	0

NOTES TO FINANCIAL STATEMENTS

TABLE OF CONTENTS

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

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 #	2019	2018
NET INCOME					
(1) State basis (Page 4, Line 35, Columns 1 & 3)	XXX	XXX	XXX	\$ 44,378,383	\$ (821,347,140)
(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>\$ 44,378,383</u>	<u>\$ (821,347,140)</u>
SURPLUS					
(5) State basis (Page 3, Line 38, Columns 1 & 2)	XXX	XXX	XXX	\$ 19,236,546,098	\$ 15,609,786,669
(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>\$ 19,236,546,098</u>	<u>\$ 15,609,786,669</u>

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

c. Accounting policy:

(1-5) No change

(6) For loan-backed and structured securities, such as asset-backed securities, mortgage-backed securities, including residential mortgage-backed securities and commercial mortgage-backed securities, 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 nine months ended September 30, 2019, 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
Contract claims and other benefits	(5,200,429)	(5,200,429)	5,200,429
Liabilities for deposit-type contracts	42,188,338	42,188,338	(42,188,338)
Other than invested assets	\$ (4,564,234)	\$ 113,935,766	\$ 113,935,766
Policyholders' reserves	(82,225,275)	(82,225,275)	82,225,275
Other liabilities	(7,282,586)	(7,282,586)	7,282,586
Total	<u>\$ (57,084,186)</u>	<u>\$ 61,415,814</u>	

Of the \$61,415,814 increase to surplus for prior years' errors, \$57,084,186 was recorded as prior period adjustments with an additional amount of \$118,500,000 that was recorded as a change in nonadmitted assets, net of taxes.

NOTES TO FINANCIAL STATEMENTS

For the nine months ended September 30, 2018, corrections of prior years' errors were recorded in capital and surplus, net of tax:

	Increase (Decrease) to:		
	Prior Years' Net Income	Current Year Surplus	Asset or Liability Balances
Partnerships and limited liability companies	\$ -	\$ (58,641,016)	\$ (58,641,016)
Deferred income taxes	-	(36,021,141)	(36,021,141)
Policyholders' reserves	(45,344,914)	(45,344,914)	45,344,914
Policyholders' dividends	(3,397,000)	(3,397,000)	3,397,000
Total	\$ (48,741,914)	\$ (143,404,071)	

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

Of the \$143,404,071 decrease to surplus for prior years' errors, \$48,741,914 was recorded as prior period adjustments with offsets of \$58,641,016 that was recorded as a change in nonadmitted assets, net of taxes and \$36,021,141 that was recorded as a change in net deferred income taxes in the Summary of Operations.

b. Adoption of new accounting standards:

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

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

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

In April 2019, the NAIC adopted modifications to SSAP No. 16R, Electronic Data Processing Equipment and Software, effective January 1, 2020, the Company elected to early adopt effective April 1, 2019. This guidance aligns and clarifies the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract, with the requirement for capitalizing implementation costs incurred to develop or obtain internal-use software. Costs for implementation activities in the application development stage is capitalized, depending on the nature of the costs and would be nonadmitted, while costs incurred during preliminary project or post implementation stages are expensed as incurred. The amendments also require the entity to expense the capitalized implementation costs of a hosting arrangement that is a service contract over the lesser of the expected term of the hosting arrangement or five years. The Company adopted this guidance on a prospective basis and the adoption did not have a significant impact to its 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 - No change

b. Debt restructuring - No change

c. Reverse mortgages - No change

d. Loan-backed securities:

(1) Prepayment assumptions for loan-backed and structured securities are based on various assumptions and inputs obtained from external industry sources along with internal analysis and actual experience.

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

	(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>7,789,431</u>	<u>-</u>	<u>154,794</u>	<u>7,634,637</u>
c. Total first quarter	<u>\$ 7,789,431</u>	<u>\$ -</u>	<u>\$ 154,794</u>	<u>\$ 7,634,637</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>6,980,030</u>	<u>-</u>	<u>793,001</u>	<u>6,187,029</u>
f. Total second quarter	<u>\$ 6,980,030</u>	<u>\$ -</u>	<u>\$ 793,001</u>	<u>\$ 6,187,029</u>
OTTI recognized in the third quarter				
g. Intent to sell	\$ -	\$ -	\$ -	\$ -
h. Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis	<u>25,779,166</u>	<u>-</u>	<u>4,027,345</u>	<u>21,751,821</u>
i. Total third quarter	<u>\$ 25,779,166</u>	<u>\$ -</u>	<u>\$ 4,027,345</u>	<u>\$ 21,751,821</u>
OTTI recognized in the fourth quarter				
j. Intent to sell	\$ -	\$ -	\$ -	\$ -
k. Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
l. Total fourth quarter	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
m. Annual aggregate total		<u>\$ -</u>	<u>\$ 4,975,140</u>	

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

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

NOTES TO FINANCIAL STATEMENTS

CUSIP	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value at Time of OTTI	Date of Financial Instrument Where Reported
61750MAB1	\$ 5,275	\$ 4,933	\$ (341)	\$ 4,933	\$ 4,989	March 31, 2019
65106FAG7	232,843	215,726	(17,118)	215,726	6,316	March 31, 2019
18974BAA7	285,889	270,801	(15,088)	270,801	278,616	March 31, 2019
18974BAN9	149,774	139,333	(10,441)	139,333	148,234	March 31, 2019
32051GCF0	22,786	(6,720)	(29,506)	(6,720)	17,553	March 31, 2019
761118FM5	3,259,303	3,218,368	(40,935)	3,218,368	3,244,154	March 31, 2019
17309FAE8	200,512	200,501	(11)	200,501	208,828	March 31, 2019
466247UG6	467,713	452,359	(15,354)	452,359	459,812	March 31, 2019
57643QAE5	3,114,325	3,109,376	(4,949)	3,109,376	3,256,107	March 31, 2019
US74951PBV94	51,011	29,960	(21,051)	29,960	58,411	March 31, 2019
61750MAB1	4,942	4,899	(42)	4,899	4,344	June 30, 2019
18974BAN9	143,913	143,911	(2)	143,911	141,999	June 30, 2019
761118FM5	3,338,972	3,276,460	(62,512)	3,276,460	3,468,889	June 30, 2019
79548KXQ6	335,309	321,864	(13,445)	321,864	218,663	June 30, 2019
55274SAM3	114,173	79,608	(34,565)	79,608	119,029	June 30, 2019
57643QAE5	3,042,722	2,360,287	(682,435)	2,360,287	3,180,695	June 30, 2019
05535DCF9	3,311,270	2,997,893	(313,377)	2,997,893	4,275,367	September 30, 2019
61750MAB1	5,274	4,891	(383)	4,891	4,194	September 30, 2019
65106FAG7	412,640	207,305	(205,335)	207,305	6,384	September 30, 2019
07384YPP5	370,776	197,832	(172,945)	197,832	111,784	September 30, 2019
12667F2A2	642,800	484,346	(158,455)	484,346	68,241	September 30, 2019
18974BAA7	274,461	270,666	(3,795)	270,666	244,479	September 30, 2019
18974BAN9	152,278	141,835	(10,443)	141,835	135,566	September 30, 2019
22541QQR6	24,705	(15,310)	(40,015)	(15,310)	-	September 30, 2019
32051GCF0	31,560	(9,959)	(41,519)	(9,959)	4,356	September 30, 2019
32053LAA0	47,447	40,280	(7,167)	40,280	47,846	September 30, 2019
76110H4M8	4,906	-	(4,906)	-	-	September 30, 2019
761118FM5	2,946,839	2,789,133	(157,706)	2,789,133	2,918,992	September 30, 2019
79548KXQ6	350,688	277,239	(73,449)	277,239	60,979	September 30, 2019
23332UBW3	78,084	76,934	(1,150)	76,934	43,636	September 30, 2019
576433H33	1,579,401	1,448,247	(131,155)	1,448,247	1,448,863	September 30, 2019
12669GWN7	1,037,688	957,205	(80,484)	957,205	936,853	September 30, 2019
17309FAE8	162,671	129,536	(33,135)	129,536	159,357	September 30, 2019
36298XAA0	10,097,887	8,887,246	(1,210,641)	8,887,246	8,841,272	September 30, 2019
466247UG6	399,796	384,442	(15,354)	384,442	391,621	September 30, 2019
55274SAM3	110,359	75,794	(34,565)	75,794	103,204	September 30, 2019
57643QAE5	3,472,756	2,305,288	(1,167,468)	2,305,288	2,986,979	September 30, 2019
92990GAE3	89,614	85,680	(3,934)	85,680	87,117	September 30, 2019
939336Z48	116,820	(787)	(117,607)	(787)	93,306	September 30, 2019
US74951PBV94	58,443	16,087	(42,357)	16,087	26,602	September 30, 2019
Totals	\$ 40,548,627	\$ 35,573,488	\$ (4,975,140)	\$ 35,573,488	\$ 37,813,636	

(4) As of September 30, 2019, 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	\$ (37,374,915)
2. 12 months or longer	\$ (84,074,721)
b. The aggregate related fair value of securities with unrealized losses:	
1. Less than 12 months	\$ 3,356,580,015
2. 12 months or longer	\$ 3,829,838,999

(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.

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.

NOTES TO FINANCIAL STATEMENTS

The carrying value, which is at cost, reported in the Company's assets 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	YES	-
b. Tri-Party (YES/NO)	NO	NO	NO	-

(3) Original (Flow) & Residual Maturity

	FIRST QUARTER				SECOND QUARTER			
	1 MINIMUM	2 MAXIMUM	3 AVERAGE DAILY BALANCE	4 ENDING BALANCE	5 MINIMUM	6 MAXIMUM	7 AVERAGE DAILY BALANCE	8 ENDING BALANCE
a. Open – No Maturity	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
b. Overnight	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
c. 2 Days to 1 Week	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
d. > 1 Week to 1 Month	\$ 25,112,500	\$ 478,331,250	\$ 191,700,481	\$ 478,331,250	\$ -	\$ -	\$ -	\$ -
e. > 1 Month to 3 Months	\$ 1,378,958,732	\$ 2,443,289,210	\$ 1,847,670,788	\$ 1,381,711,232	\$ 634,567,500	\$ 1,289,114,357	\$ 858,482,355	\$ 726,494,338
f. > 3 Months to 1 Year	\$ 2,518,781,700	\$ 4,217,378,750	\$ 3,068,496,660	\$ 3,009,547,950	\$ 3,338,682,975	\$ 3,937,000,995	\$ 3,624,799,097	\$ 3,795,019,538
g. > 1 Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

	THIRD QUARTER				FOURTH QUARTER			
	9 MINIMUM	10 MAXIMUM	11 AVERAGE DAILY BALANCE	12 ENDING BALANCE	13 MINIMUM	14 MAXIMUM	15 AVERAGE DAILY BALANCE	16 ENDING BALANCE
a. Open – No Maturity	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
b. Overnight	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
c. 2 Days to 1 Week	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
d. > 1 Week to 1 Month	\$ -	\$ 519,900,713	\$ 131,092,363	\$ -	\$ -	\$ -	\$ -	\$ -
e. > 1 Month to 3 Months	\$ 749,306,838	\$ 2,407,597,213	\$ 1,671,108,007	\$ 2,241,552,238	\$ -	\$ -	\$ -	\$ -
f. > 3 Months to 1 Year	\$ 1,670,697,126	\$ 3,824,405,038	\$ 2,539,605,613	\$ 1,670,697,126	\$ -	\$ -	\$ -	\$ -
g. > 1 Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

(4) The company did not have any repurchase agreements where securities sold and/or acquired resulted in default as of September 30, 2019.

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

	FIRST QUARTER				SECOND QUARTER			
	1 MINIMUM	2 MAXIMUM	3 AVERAGE DAILY BALANCE	4 ENDING BALANCE	5 MINIMUM	6 MAXIMUM	7 AVERAGE DAILY BALANCE	8 ENDING BALANCE
a. BACV	XXX	XXX	XXX	\$ 4,869,590,432	XXX	XXX	XXX	\$ 4,521,513,876
b. Nonadmitted - Subset of BACV	XXX	XXX	XXX	\$ -	XXX	XXX	XXX	\$ -
c. Fair Value	\$ 4,784,106,400	\$ 6,685,780,461	\$ 5,107,867,929	\$ 4,869,590,432	\$ 4,291,141,966	\$ 5,010,738,932	\$ 4,483,281,452	\$ 4,521,513,876

	THIRD QUARTER				FOURTH QUARTER			
	9 MINIMUM	10 MAXIMUM	11 AVERAGE DAILY BALANCE	12 ENDING BALANCE	13 MINIMUM	14 MAXIMUM	15 AVERAGE DAILY BALANCE	16 ENDING BALANCE
a. BACV	XXX	XXX	XXX	\$ 3,912,249,364	XXX	XXX	XXX	\$ -
b. Nonadmitted - Subset of BACV	XXX	XXX	XXX	\$ -	XXX	XXX	XXX	\$ -
c. Fair Value	\$ 3,908,484,206	\$ 4,906,823,857	\$ 4,341,805,982	\$ 3,912,249,364	\$ -	\$ -	\$ -	\$ -

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

ENDING BALANCE

	1 NONE	2 NAIC 1	3 NAIC 2	4 NAIC 3	5 NAIC 4	6 NAIC 5	7 NAIC 6	8 NON- ADMITTED
	a. Bonds - BACV	\$ -	\$ 3,912,249,364	\$ -	\$ -	\$ -	\$ -	\$ -
b. Bonds - FV	-	3,912,249,364	-	-	-	-	-	-
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	\$ -	\$ 3,912,249,364	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
q. Total Assets - FV	\$ -	\$ 3,912,249,364	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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			
	1 MINIMUM	2 MAXIMUM	3 AVERAGE DAILY BALANCE	4 ENDING BALANCE	5 MINIMUM	6 MAXIMUM	7 AVERAGE DAILY BALANCE	8 ENDING BALANCE
a. Cash	\$ 6,100,802	\$ 23,884,197	\$ 12,360,041	\$ 14,619,197	\$ 14,996,687	\$ 15,771,687	\$ 15,231,443	\$ 14,996,687
b. Securities (FV)	\$ 3,568,544,223	\$ 4,903,138,950	\$ 4,655,778,775	\$ 4,407,590,406	\$ 3,705,744,296	\$ 4,562,749,659	\$ 4,269,765,500	\$ 4,562,749,659

NOTES TO FINANCIAL STATEMENTS

	THIRD QUARTER				FOURTH QUARTER			
	9	10	11	12	13	14	15	16
	MINIMUM	MAXIMUM	AVERAGE DAILY BALANCE	ENDING BALANCE	MINIMUM	MAXIMUM	AVERAGE DAILY BALANCE	ENDING BALANCE
a. Cash	\$ 7,184,078	\$ 33,088,152	\$ 15,375,209	\$ 18,223,152	\$ -	\$ -	\$ -	\$ -
b. Securities (FV)	\$ 3,766,290,479	\$ 4,668,551,075	\$ 4,217,448,226	\$ 3,926,023,623	\$ -	\$ -	\$ -	\$ -

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

ENDING BALANCE

	1	2	3	4	5	6	7	8
	NONE	NAIC 1	NAIC 2	NAIC 3	NAIC 4	NAIC 5	NAIC 6	DOES NOT QUALIFY AS ADMITTED
a. Cash	\$ 18,223,152	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
b. Bonds - FV	-	3,926,023,623	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-
Total Collateral Assets - FV (Sum of a through i)	\$ 18,223,152	\$ 3,926,023,623	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

(9) Allocation of Aggregate Collateral by Remaining Contractual Maturity

	FAIR VALUE
a. Overnight and Continuous	\$ 93,043,125
b. 30 Days or Less	\$ 2,706,144,087
c. 31 to 90 Days	\$ 1,113,062,152
d. > 90 Days	\$ -

(10) The company did not have any repurchase agreements where cash collateral received was reinvested as of September 30, 2019.

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

	FIRST QUARTER				SECOND QUARTER			
	1	2	3	4	5	6	7	8
	MINIMUM	MAXIMUM	AVERAGE DAILY BALANCE	ENDING BALANCE	MINIMUM	MAXIMUM	AVERAGE DAILY BALANCE	ENDING BALANCE
a. Cash (Collateral – All) Securities Collateral (FV)	\$ 6,100,802	\$ 23,884,197	\$ 12,360,041	\$ 14,619,197	\$ 14,996,687	\$ 15,771,687	\$ 15,231,443	\$ 14,996,687
b. Securities Collateral (FV)	\$ 3,568,544,223	\$ 4,903,138,950	\$ 4,655,778,775	\$ 4,407,590,406	\$ 3,705,744,296	\$ 4,562,749,659	\$ 4,269,765,500	\$ 4,562,749,659

	THIRD QUARTER				FOURTH QUARTER			
	9	10	11	12	13	14	15	16
	MINIMUM	MAXIMUM	AVERAGE DAILY BALANCE	ENDING BALANCE	MINIMUM	MAXIMUM	AVERAGE DAILY BALANCE	ENDING BALANCE
a. Cash (Collateral – All) Securities Collateral (FV)	\$ 7,184,078	\$ 33,088,152	\$ 15,375,209	\$ 18,223,152	\$ -	\$ -	\$ -	\$ -
b. Securities Collateral (FV)	\$ 3,766,290,479	\$ 4,668,551,075	\$ 4,217,448,226	\$ 3,926,023,623	\$ -	\$ -	\$ -	\$ -

- 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.
- h. Repurchase agreements transactions accounted for as a sale: The Company did not have any repurchase agreements transactions accounted for as a sale.
- 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.
- 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.
- 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.
- o. Structured notes:
A structured note is a direct debt issuance by a corporation, municipality, or government entity, ranking pari-passu with the issuer's other debt issuance of equal seniority where either: (a) the coupon and/or principal payments are linked, in whole or in part, to prices or payment streams from index or indices, or assets deriving their value from other than the issuer's credit quality, or (b) the coupon and/or principal payments are leveraged by a formula that is different from either a fixed coupon, or a non-leveraged floating rate coupon linked to an interest rate index, including but not limited to the London Interbank Offered Rate (LIBOR) or the prime rate. As structured notes are issuer obligations without a trust, they are within the scope of SSAP No. 26, "Bonds, Excluding Loan-backed and Structured Securities". Structured notes are different than the asset backed structured securities, which are accounted for under SSAP No. 43R, "Revised - Loan-Backed and Structured Securities", as they lack either a trust or assets backing them. The disclosure below allows regulators to assess the volume of activity in structured notes and to determine whether additional accounting or reporting revisions, such as valuation and risk-based capital, are needed. To satisfy this request, the Company is required to separately identify structured notes, on a CUSIP basis and provide information by CUSIP for actual cost, fair value, book/adjusted carrying value, and whether the

NOTES TO FINANCIAL STATEMENTS

structured note is a mortgage-referenced security. The following sets forth the actual cost, fair value and carrying value of structured notes as of September 30, 2019:

CUSIP Identification	Actual Cost	Fair Value	Book / Adjusted Carrying Value	Mortgage-Referenced Security (YES/NO)
30711XDK7	\$ 206,728	\$ 194,693	\$ 202,389	YES
391164AF7	1,638,959	1,572,773	1,546,330	NO
P7794GAH5	1,262,834	1,353,236	1,279,747	NO
912810FR4	4,944,283	6,390,212	5,798,809	NO
912810PS1	1,874,118	2,788,975	2,406,341	NO
49836MAA6	150,000,000	147,429,360	150,000,000	NO
Total	\$ 159,926,922	\$ 159,729,249	\$ 161,233,616	XXX

p. 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	93	92	\$762,509,982	\$669,688,836	\$756,580,457	\$651,777,531
(2) LB&SS - AC	-	-	-	-	-	-
(3) Preferred Stock - AC	5	4	15,313,137	15,232,649	22,767,351	19,902,853
(4) Preferred Stock - FV	-	-	-	-	-	-
(5) Total (1+2+3+4)	98	96	\$777,823,119	\$684,921,485	\$779,347,808	\$671,680,384

AC - Amortized Cost FV - Fair Value

q. Short Sales - The Company does not engage in short sale transactions.

r. Prepayment Penalty and Acceleration Fees:

	Nine Months Ended September 30, 2019	
	General Account	Separate Account
1. Number of CUSIPS	69	7
2. Aggregate Amount of Investment Income	\$ 54,741,497	\$ 2,827,248

Note 6 – Joint Ventures, Partnerships and Limited Liability Companies - No change

Note 7 – Investment Income – No change

Note 8 – Derivative Instruments - No change

Note 9 – Income Taxes – No change

Note 10 – Information Concerning Parent, Subsidiaries and Affiliates

a-c. MMHLLC paid \$300,000,000 in dividends to MassMutual for the period ended September 30, 2019 and paid \$250,000,000 in dividends for the period ended September 30, 2018.

MassMutual contributed capital of \$282,327,443 to MMHLLC for the nine months ended September 30, 2019 and \$371,488,639 for the nine months ended September 30, 2018.

On May 24, 2019, an indirectly wholly owned subsidiary of MassMutual, MM Asset Management Holding LLC (MMAMH) executed the sale of its retail asset management affiliate, OppenheimerFunds, Inc. (OFI), to Invesco Ltd. (Invesco), a global asset manager. Under the terms of the sale, MMAMH and OFI employee shareholders received 81.8 million of Invesco common shares and \$3,948,653,000 in perpetual, non-cumulative preference shares with a fixed cash dividend rate of 5.9%. MMAMH is a directly wholly owned subsidiary of MMHLLC. In turn, MMAMH received 15.7% common equity interest in post transaction Invesco and MMAMH entered into a shareholder rights, including the appointment of a director to Invesco's board of directors. MassMutual's investment in MMHLLC was increased from the impact of this sale through change in unrealized capital gains of approximately \$3,344,000,000, with an approximate net increase to surplus of \$2,500,000,000.

d-f. No change

g. Subsidiaries of MMHLLC and MMI 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-n. No change

Note 11 – Debt

a. No change

b. Federal Home Loan Bank agreements:

NOTES TO FINANCIAL STATEMENTS

(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 \$2,000,000,000. The Company's unused capacity was \$894,047,535 as of September 30, 2019.

(2) FHLB Boston capital stock

a. Aggregate totals:

		September 30, 2019		
		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		49,400,000	49,400,000	-
(d) Excess Stock		-	-	-
(e) Aggregate Total		\$ 59,400,000	\$ 59,400,000	\$ -
(f) Actual or Estimated Borrowing Capacity as Determined by the Insurer	\$	2,000,000,000	2,000,000,000	-
2. Prior Year-end:				
(a) Membership stock - Class A	\$	-	-	-
(b) Membership stock - Class B		25,000,000	25,000,000	-
(c) Activity Stock		48,700,000	48,700,000	-
(d) Excess Stock		-	-	-
(e) Aggregate Total		\$ 73,700,000	\$ 73,700,000	\$ -
(f) Actual or Estimated Borrowing Capacity as determined by the Insurer	\$	2,000,000,000	2,000,000,000	-

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

		Nine Months Ended September 30, 2019				
Membership Stock	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	-	-	-	-

NOTES TO FINANCIAL STATEMENTS

(3) Collateral pledged to FHLB:

a. Amount pledged as of September 30, 2019:

1. Current year total general and separate accounts:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 1,621,079,950	\$ 1,247,041,995	\$ 1,105,952,465

2. Current year general account:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 1,621,079,950	\$ 1,247,041,995	\$ 1,105,952,465

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	\$ 1,585,921,118	\$ 1,217,470,617	\$ 1,103,750,455

b. Maximum amount pledged for the nine months ended September 30, 2019:

1. Current year total general and separate accounts:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 1,641,958,960	\$ 1,263,269,414	\$ 1,108,532,168

2. Current year general account:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 1,641,958,960	\$ 1,263,269,414	\$ 1,108,532,168

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	\$ 1,635,548,627	\$ 1,246,429,701	\$ 1,103,750,455

NOTES TO FINANCIAL STATEMENTS

(4) Borrowing from FHLB:

a. Amount:

1. Current year:

	September 30, 2019			
	1 Total 2+3	2 General Account	3 Separate Account	4 Funding Agreements Reserves Established
(a) Debt	\$ -	\$ -	\$ -	\$ -
(b) Funding agreements	1,105,952,465	1,105,952,465	-	1,105,952,465
(c) Other	-	-	-	-
(d) Aggregate total	<u>\$ 1,105,952,465</u>	<u>\$ 1,105,952,465</u>	<u>\$ -</u>	<u>\$ 1,105,952,465</u>

2. Prior Year-end:

	December 31, 2018			
	1 Total 2+3	2 General Account	3 Separate Account	4 Funding Agreements Reserves Established
(a) Debt	\$ -	\$ -	\$ -	\$ -
(b) Funding agreements	1,103,750,455	1,103,750,455	-	1,103,750,455
(c) Other	-	-	-	-
(d) Aggregate total	<u>\$ 1,103,750,455</u>	<u>\$ 1,103,750,455</u>	<u>\$ -</u>	<u>\$ 1,103,750,455</u>

b. Maximum Amount:

	Nine Months Ended September 30, 2019		
	1 Total 2+3	2 General Account	3 Separate Account
1. Debt	\$ -	\$ -	\$ -
2. Funding	1,108,532,168	1,108,532,168	-
3. Other	-	-	-
4. Aggregate	<u>\$ 1,108,532,168</u>	<u>\$ 1,108,532,168</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

	Nine Months Ended September 30,					
	2019	2018	2019	2018	2019	2018
	Pension Benefits		Postretirement Benefits		Special or Contractual Benefits per SSAP No 11	
(4) Components of net periodic benefit cost						
a. Service cost	\$ 83,203,472	\$ 84,575,924	\$ 9,664,639	\$ 10,292,471	\$ -	\$ -
b. Interest cost	88,244,886	80,710,129	9,836,248	8,795,806	-	-
c. Expected return on plan assets	(119,630,318)	(128,631,300)	(47,672)	(58,886)	-	-
d. Transition asset or obligation	-	-	-	-	-	-
e. Gains and losses	42,370,103	41,097,802	(799,190)	1,637,621	-	-
f. Prior service cost or (credit)	-	2,342,013	(4,139,625)	(4,139,625)	-	-
g. Gain or loss recognized due to a settlement or curtailment	-	-	-	-	-	-
h. Total net periodic benefit cost	<u>\$ 94,188,143</u>	<u>\$ 80,094,569</u>	<u>\$ 14,514,400</u>	<u>\$ 16,527,386</u>	<u>\$ -</u>	<u>\$ -</u>

(5-21) No change

b-i. No change

NOTES TO FINANCIAL STATEMENTS

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

(1-3) No change

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

(5-13) No change

Note 14 – Liabilities, Contingencies and Assessments

a. Contingent commitments:

In the normal course of business, the Company enters into funding agreements. In March 2019, MassMutual entered into a Contingent Capital Facility Agreement (the Facility) with an unaffiliated entity (the Trust). Under the Facility, subject to regulatory approval in certain circumstances, MassMutual has the right, and upon the occurrence of certain events has an obligation, to issue up to \$800,000,000 of surplus notes to the Trust in exchange for all or a pro rata portion of certain principal and interest strips of U.S. Treasury Securities held by the Trust. MassMutual is required to pay a facility fee of approximately 2.00% per year to the Trust on the undrawn portion of the Facility, totaling approximately \$16,000,000 per year if the Facility remains undrawn, and certain additional administrative fees and expenses.

b. Assessments - No change

c. Gain contingencies - No change

d. Claims related to extra contractual obligations - No change

e. Joint and several liabilities - No change

f. All other contingencies:

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

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

Note 15 – Leases - No change

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

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

a. Transfers of receivables reported as sales - No change

b. Transfer and servicing of financial assets:

(1) No change

(2) The Company did not have any servicing assets or liabilities in 2019 or 2018.

(3) No change

(4) The Company did not have interests that continue to be held by a transferor in securitized financial assets in 2019 or 2018.

(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 nine months ended September 30, 2019 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.

NOTES TO FINANCIAL STATEMENTS

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.

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:

	September 30, 2019			Net Asset Value	
	Level 1	Level 2	Level 3	(NAV)	Total
Financial assets:					
Bonds:					
Industrial and miscellaneous	\$ 10,076,845	\$ 199,976,128	\$ 63,592,783	\$ -	\$ 273,645,756
Preferred stocks	-	-	11,702,660	-	11,702,660
Common stock - subsidiaries and affiliates	157,494,465	-	1,161,435,420	-	1,318,929,885
Common stock - unaffiliated	933,929,864	-	248,288,578	-	1,182,218,442
Derivatives:					
Interest rate swaps	-	14,306,217,660	-	-	14,306,217,660
Options	58,955,276	683,159,166	-	-	742,114,442
Currency swaps	-	1,499,053,557	-	-	1,499,053,557
Forward contracts	-	94,751,331	-	-	94,751,331
Financial futures	14,753,834	-	-	-	14,753,834
Separate account assets	46,099,747,111	22,120,022,317	991,674,699	-	69,211,444,127
Total financial assets carried at fair value	\$ 47,274,957,395	\$ 38,903,180,159	\$ 2,476,694,140	\$ -	\$ 88,654,831,694
Financial liabilities:					
Interest rate swaps	\$ -	\$ 12,006,404,295	\$ -	\$ -	\$ 12,006,404,295
Options	2,440,281	-	-	-	2,440,281
Currency swaps	-	99,894,670	-	-	99,894,670
Forward contracts	-	21,257,052	-	-	21,257,052
Credit default swaps	-	62,987	-	-	62,987
Financial futures	78,681,179	-	-	-	78,681,179
Total financial liabilities carried at fair value	\$ 81,121,460	\$ 12,127,619,004	\$ -	\$ -	\$ 12,208,740,464

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

NOTES TO FINANCIAL STATEMENTS

fair value for the reporting period in which the changes occur. For the period ended September 30, 2019, 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.

	December 31, 2018				
	Level 1	Level 2	Level 3	Net Asset Value (NAV)	Total
Financial assets:					
Bonds:					
Special revenue	\$ -	\$ 50,382	\$ -	\$ -	\$ 50,382
Industrial and miscellaneous	10,043,280	29,538,778	63,859,896	-	103,441,954
Parent, subsidiaries and affiliates	-	81,533,868	65,576,875	-	147,110,743
Preferred stocks	-	-	287,758	-	287,758
Common stock - subsidiaries and affiliates	233,070,805	-	164,920,846	-	397,991,651
Common stock - unaffiliated	194,455,569	-	305,537,860	-	499,993,429
Derivatives:					
Interest rate swaps	-	6,629,062,841	-	-	6,629,062,841
Options	-	910,876,374	-	-	910,876,374
Currency swaps	-	843,350,847	-	-	843,350,847
Forward contracts	-	106,021,420	-	-	106,021,420
Interest rate caps and floors	-	18,142,286	-	-	18,142,286
Financial futures	-	215,810,517	-	-	215,810,517
Separate account assets	41,358,963,395	22,568,484,678	550,652,512	-	64,478,100,585
Total financial assets carried at fair value	\$ 41,796,533,049	\$ 31,402,871,991	\$ 1,150,835,747	\$ -	\$ 74,350,240,787
Financial liabilities:					
Derivatives:					
Interest rate swaps	\$ -	\$ 4,646,939,586	\$ -	\$ -	\$ 4,646,939,586
Options	-	4,556,715	-	-	4,556,715
Currency swaps	-	231,601,523	-	-	231,601,523
Forward contracts	-	12,189,652	-	-	12,189,652
Credit default swaps	-	117,646	-	-	117,646
Financial futures	-	15,090,134	-	-	15,090,134
Total financial liabilities carried at fair value	\$ -	\$ 4,910,495,256	\$ -	\$ -	\$ 4,910,495,256

For the year ended December 31, 2018, \$298,342,115 of unaffiliated common stock were transferred from Level 2 to Level 1.

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

	Balance as of 01/01/2019	Transfers ⁽¹⁾		Gains (Losses) in Net Income	Gains (Losses) in Surplus	Purchases	Issuances	Sales	Settlements	Balance as of 9/30/2019
	In	Out	-	-						
Financial assets:										
Bonds:										
Industrial and miscellaneous	\$ 63,859,896	\$ 7,237,240	\$ -	\$ (1,981,556)	\$ (1,498,204)	\$ 224,739	\$ 541,019	\$ -	\$ (4,790,351)	\$ 63,592,783
Parent, subsidiaries and affiliates	65,576,875	-	(65,576,875)	-	-	-	-	-	-	-
Preferred stock	287,758	10,169,547	-	-	(176,680)	1,422,035	-	-	-	11,702,660
Common stock - subsidiaries and affiliates	164,920,846	-	-	824,411	768,025,132	233,020,954	-	-	(5,355,923)	1,161,435,420
Common stock - unaffiliated	305,537,860	-	(52,128)	11,348,943	(10,857,811)	3,977,019	-	(60,172,286)	(1,493,019)	248,288,578
Derivatives:										
Separate account assets	550,652,512	-	-	28,949,153	-	806,177,018	-	(393,959,306)	(144,678)	991,674,699
Total financial assets	\$ 1,150,835,747	\$ 17,406,787	\$ (65,629,003)	\$ 39,140,951	\$ 755,492,437	\$ 1,044,821,765	\$ 541,019	\$ (454,131,592)	\$ (11,783,971)	\$ 2,476,694,140

⁽¹⁾Level 3 transfers include assets that are consistently carried at fair value but have had a level change, are no longer carried at fair value, or have just begun to be carried at fair value, such as assets with no level changes but a change in the lower of cost or market carrying basis. Industrial and miscellaneous bonds in other transfers are assets that are no longer carried at fair value.

NOTES TO FINANCIAL STATEMENTS

	Balance	Transfers ⁽¹⁾		Gains	Gains	Purchases	Issuances	Sales	Settlements	Balance
	as of	In	Out	(Losses) in	(Losses) in					as of
	01/01/2018			Net Income	Surplus					12/31/2018
Financial assets:										
Bonds:										
Industrial and miscellaneous	\$ 55,266,237	\$ 26,264,839	\$ -	\$ (4,286,686)	\$ (5,094,597)	\$ 28,095	\$ 1,149,829	\$ -	\$ (9,467,821)	\$ 63,859,896
Parent, subsidiaries, and affiliates	60,662,659	4,823,319	-	4,095,453	(7,905,019)	9,443,000	-	-	(5,542,537)	65,576,875
Preferred Stock	1,510,480	-	(1,510,480)	-	(258,495)	-	546,253	-	-	287,758
Common stock - subsidiaries and affiliates	109,665,674	13,222,371	-	493,096	19,959,607	15,219,962	6,360,136	-	-	164,920,846
Common stock - unaffiliated	310,576,050	8	-	5,907,774	13,633,102	16,475,759	2,685,166	(133,809)	(43,606,190)	305,537,860
Derivatives:										
Currency swaps	1,255,252	-	(1,255,252)	-	-	-	-	-	-	-
Separate account assets	709,516,352	-	-	7,025,543	-	112,288,189	-	(277,950,548)	(227,024)	550,652,512
Total financial assets	\$ 1,248,452,704	\$ 44,310,537	\$ (2,765,732)	\$ 13,235,180	\$ 20,334,598	\$ 153,455,005	\$ 10,741,384	\$ (278,084,357)	\$ (58,843,572)	\$ 1,150,835,747
Financial liabilities:										
Derivatives:										
Interest rate swaps	\$ 193,806	\$ -	\$ (193,806)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Currency swaps	8,432,028	-	(8,432,028)	-	-	-	-	-	-	-
Total financial liabilities	\$ 8,625,834	\$ -	\$ (8,625,834)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

⁽¹⁾Level 3 transfers include assets that are consistently carried at fair value but have had a level change, are no longer carried at fair value, or have just begun to be carried at fair value, such as assets with no level changes but a change in the lower of cost or market carrying basis. The common stock unaffiliated assets were transferred from Level 2 to Level 3 due to a change in the observability of pricing inputs.

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

(4) *Valuation Techniques and Inputs*

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

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

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

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

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

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

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

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

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

NOTES TO FINANCIAL STATEMENTS

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

	September 30, 2019					Net	Not
	Aggregate	Admitted				Asset	Practicable
	Fair Value	Assets	Level 1	Level 2	Level 3	Value (NAV)	(Carrying Value)
Financial assets:							
Bonds:							
U. S. government and agencies	\$ 5,058,510,303	\$ 4,352,508,120	\$ -	\$ 5,058,180,457	\$ 329,846	\$ -	\$ -
All other governments	1,755,485,990	1,579,012,749	-	1,686,080,592	69,405,398	-	-
States, territories and possessions	614,775,246	550,520,518	-	614,775,246	-	-	-
Political subdivisions	600,298,496	536,969,004	-	600,298,496	-	-	-
Special revenue	6,701,788,173	5,801,599,236	-	6,691,810,180	9,977,993	-	-
Industrial and miscellaneous	87,384,477,739	81,343,233,745	10,076,845	49,709,742,499	37,664,658,395	-	-
Parent, subsidiaries and affiliates	6,321,878,354	6,148,163,122	-	438,598,708	5,883,279,645	-	-
Preferred stocks	768,459,348	742,482,575	11,304,013	-	757,155,336	-	-
Common stocks - subsidiaries and affiliates ⁽¹⁾	1,989,552,913	1,989,552,913	157,494,464	-	1,832,058,449	-	-
Common stocks - unaffiliated	1,182,218,442	1,182,218,442	933,929,864	-	248,288,578	-	-
Mortgage loans - commercial	24,755,447,049	23,512,811,830	-	-	24,755,447,049	-	-
Mortgage loans - residential	2,405,076,574	2,404,920,313	-	-	2,405,076,574	-	-
Cash, cash equivalents and short-term investments	5,113,749,462	5,113,749,462	332,659,529	4,781,089,933	-	-	-
Derivatives:							
Interest rate swaps	16,616,927,057	14,306,217,660	-	16,616,927,057	-	-	-
Options	742,114,442	742,114,442	58,955,276	683,159,166	-	-	-
Currency swaps	1,499,053,557	1,499,053,557	-	1,499,053,557	-	-	-
Forward contracts	94,751,331	94,751,331	-	94,751,331	-	-	-
Credit default swaps	22,501,053	22,454,539	-	22,501,053	-	-	-
Financial futures	14,753,834	14,753,834	14,753,834	-	-	-	-
Separate account assets	69,211,444,127	69,211,444,127	46,099,747,111	22,120,022,317	991,674,699	-	-
Financial liabilities:							
Repurchase agreements	3,912,249,364	3,912,249,364	-	3,912,249,364	-	-	-
Commercial paper	249,749,431	249,749,431	-	249,749,431	-	-	-
Guaranteed interest contracts	9,261,271,543	9,115,327,605	-	-	9,261,271,543	-	-
Group annuity contracts and other deposits	17,907,009,317	17,824,176,931	-	-	17,907,009,317	-	-
Individual annuity contracts	9,482,600,407	8,251,593,663	-	-	9,482,600,407	-	-
Supplementary contracts	1,172,943,243	1,171,853,499	-	-	1,172,943,243	-	-
Derivatives:							
Interest rate swaps	13,069,923,020	12,006,404,295	-	13,069,923,020	-	-	-
Options	2,440,281	2,440,281	2,440,281	-	-	-	-
Currency swaps	99,894,670	99,894,670	-	99,894,670	-	-	-
Forward contracts	21,257,052	21,257,052	-	21,257,052	-	-	-
Credit default swaps	299,058	248,796	-	299,058	-	-	-
Financial futures	78,681,179	78,681,179	78,681,179	-	-	-	-

⁽¹⁾Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had a statutory carrying value of \$14,941,018,670.

NOTES TO FINANCIAL STATEMENTS

December 31, 2018

	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	\$ 6,193,428,890	\$ 5,854,233,662	\$ -	\$ 6,192,947,715	\$ 481,174	\$ -	\$ -
All other governments	1,480,982,279	1,486,656,995	-	1,414,689,011	66,293,268	-	-
States, territories and possessions	646,576,736	613,530,541	-	646,576,736	-	-	-
Political subdivisions	571,557,366	547,158,039	-	571,557,366	-	-	-
Special revenue	6,420,868,430	5,927,223,715	-	6,411,389,089	9,479,341	-	-
Industrial and miscellaneous	74,537,526,494	75,125,303,136	10,043,280	42,694,321,928	31,833,161,285	-	-
Parent, subsidiaries and affiliates	7,570,106,836	7,526,017,122	-	1,171,337,829	6,398,769,007	-	-
Preferred stocks	733,775,843	744,092,065	11,668,660	-	722,107,184	-	-
Common stock - subsidiaries and affiliates ⁽¹⁾	397,991,651	397,991,651	233,070,805	-	164,920,846	-	-
Common stock - unaffiliated	499,993,428	499,993,428	194,455,569	-	305,537,860	-	-
Mortgage loans - commercial	22,793,945,324	22,357,118,876	-	-	22,793,945,324	-	-
Mortgage loans - residential	1,210,675,405	1,266,688,652	-	-	1,210,675,405	-	-
Cash, cash equivalents and short-term investments	4,318,003,746	4,318,003,746	175,136,350	4,142,867,396	-	-	-
Derivatives:							
Interest rate swaps	6,858,304,938	6,629,062,841	-	6,858,304,938	-	-	-
Options	910,876,374	910,876,374	-	910,876,374	-	-	-
Currency swaps	843,350,847	843,350,847	-	843,350,847	-	-	-
Forward contracts	113,066,759	106,021,420	-	113,066,759	-	-	-
Credit default swaps	6,238,219	18,044,346	-	6,238,219	-	-	-
Financial futures	215,810,517	215,810,517	-	215,810,517	-	-	-
Separate account assets	64,478,100,587	64,478,100,587	41,358,963,394	22,568,484,678	550,652,512	-	-
Financial liabilities:							
Repurchase agreements	4,768,493,900	4,768,493,900	-	4,768,493,900	-	-	-
Commercial paper	249,786,188	249,786,188	-	249,786,188	-	-	-
Guaranteed investment contracts	8,728,933,859	8,824,880,908	-	-	8,728,933,859	-	-
Group annuity contracts and other deposits	17,950,757,186	17,863,326,686	-	-	17,950,757,186	-	-
Individual annuity contracts	8,925,311,575	8,130,925,014	-	-	8,925,311,575	-	-
Supplementary contracts	1,179,488,114	1,178,326,789	-	-	1,179,488,114	-	-
Derivatives:							
Interest rate swaps	5,111,389,729	4,646,939,586	-	5,111,389,729	-	-	-
Options	4,556,715	4,556,715	-	4,556,715	-	-	-
Currency swaps	231,601,523	231,601,523	-	231,601,523	-	-	-
Forward contracts	27,811,672	12,189,652	-	27,811,672	-	-	-
Credit default swaps	1,957,447	1,605,508	-	1,957,447	-	-	-
Financial futures	15,090,134	15,090,134	-	15,090,134	-	-	-

⁽¹⁾Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of \$10,347,741,501.

- d. As of September 30, 2019 and December 31, 2018, 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:

Individual life includes corporate-owned life insurance, bank-owned life insurance, whole life, and term insurance. Group life includes group corporate-owned life insurance, group bank owned life insurance, group universal life and group variable universal life products. In 2019, certain corporate-owned life insurance and bank owned-life insurance policies were reclassified to individual as they did not meet the group classification qualifications.

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 2018 Annual Statement.

Insurance and underwriting risks

NOTES TO FINANCIAL STATEMENTS

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

Investment and interest rate risks

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

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

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

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

Currency exchange risk

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

Credit and other market risks

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

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

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

Political Uncertainties

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

- 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:	September 30, 2019			Nine Months Ended September 30, 2019
	Actual Cost	Carrying Value	Fair Value	OTTI
a. Residential mortgage-backed securities	\$ 234,897,490	\$ 271,182,566	\$ 296,968,553	\$ 523,394
b. Commercial mortgage-backed securities	-	-	-	-
c. Collateralized debt obligations	-	-	-	-
d. Structured securities	-	-	-	-
e. Equity investments in SCAs *	13,943,107	16,307,728	17,746,586	20,660
f. Other assets	-	-	-	-
g. Total	<u>\$ 248,840,597</u>	<u>\$ 287,490,294</u>	<u>\$ 314,715,139</u>	<u>\$ 544,054</u>

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

Alt-A:	December 31, 2018			Year Ended December 31, 2018
	Actual Cost	Carrying Value	Fair Value	OTTI
a. Residential mortgage-backed securities	\$ 219,822,592	\$ 256,906,006	\$ 296,513,786	\$ 800,251
b. Commercial mortgage-backed securities	-	-	-	-
c. Collateralized debt obligations	-	-	-	-
d. Structured securities	-	-	-	-
e. Equity investments in SCAs *	16,095,268	18,430,722	20,861,741	76,979
f. Other assets	-	-	-	-
g. Total	<u>\$ 235,917,860</u>	<u>\$ 275,336,728</u>	<u>\$ 317,375,527</u>	<u>\$ 877,230</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 November 12, 2019, the date the financial statements were available to be issued to state regulators and subsequently on the Company's website.

On October 11, 2019 MassMutual exchanged \$56,816,000 of its 5.625% surplus notes due 2033, \$180,403,000 of its 8.875% surplus notes due 2039, \$136,631,000 of its 5.375% surplus notes due 2041 and \$241,788,000 of its 4.5% surplus notes due 2065 for \$838,475,000 of surplus notes due 2070 and \$39,146,661 cash. Interest on the 2070 surplus notes is payable semi-annually at a fixed rate of 3.729%.

On October 17, 2019, MassMutual issued a £350,000,000 funding agreement with a 1.375% fixed rate and a 7-year maturity.

On October 25, 2019, MassMutual issued a \$178,000,000 funding agreement with a 2.479% fixed rate and a 10-year maturity.

No other events have occurred subsequent to the date of the Statements of Financial Position and before the date of evaluation that would require disclosure.

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 2019 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

NOTES TO FINANCIAL STATEMENTS

Note 32 – Analysis of Annuity Actuarial Reserves and Deposit Type Liabilities by Withdrawal Characteristics - No change

Note 33 – Premium and Annuity Considerations Deferred and Uncollected - No change

Note 34 – Separate Accounts - No change

Note 35 – Loss/Claim Adjustment Expenses - No change

GENERAL INTERROGATORIES

PART 1 - COMMON INTERROGATORIES

GENERAL

- 1.1 Did the reporting entity experience any material transactions requiring the filing of Disclosure of Material Transactions with the State of Domicile, as required by the Model Act? Yes [] No [X]
- 1.2 If yes, has the report been filed with the domiciliary state? Yes [] No []
- 2.1 Has any change been made during the year of this statement in the charter, by-laws, articles of incorporation, or deed of settlement of the reporting entity? Yes [] No [X]
- 2.2 If yes, date of change:
- 3.1 Is the reporting entity a member of an Insurance Holding Company System consisting of two or more affiliated persons, one or more of which is an insurer? Yes [X] No []
If yes, complete Schedule Y, Parts 1 and 1A.
- 3.2 Have there been any substantial changes in the organizational chart since the prior quarter end? Yes [] No [X]
- 3.3 If the response to 3.2 is yes, provide a brief description of those changes.
- 3.4 Is the reporting entity publicly traded or a member of a publicly traded group? Yes [] No [X]
- 3.5 If the response to 3.4 is yes, provide the CIK (Central Index Key) code issued by the SEC for the entity/group.
- 4.1 Has the reporting entity been a party to a merger or consolidation during the period covered by this statement? Yes [] No [X]
If yes, complete and file the merger history data file with the NAIC for the annual filing corresponding to this period.
- 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 [X] N/A []
If yes, attach an explanation.
- 6.1 State as of what date the latest financial examination of the reporting entity was made or is being made. 12/31/2014
- 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. 12/31/2014
- 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). 06/30/2016
- 6.4 By what department or departments?
Commonwealth of Massachusetts Division of Insurance
- 6.5 Have all financial statement adjustments within the latest financial examination report been accounted for in a subsequent financial statement filed with Departments? Yes [] No [] N/A [X]
- 6.6 Have all of the recommendations within the latest financial examination report been complied with? Yes [X] No [] N/A []
- 7.1 Has this reporting entity had any Certificates of Authority, licenses or registrations (including corporate registration, if applicable) suspended or revoked by any governmental entity during the reporting period? Yes [] No [X]
- 7.2 If yes, give full information:
- 8.1 Is the company a subsidiary of a bank holding company regulated by the Federal Reserve Board? Yes [] No [X]
- 8.2 If response to 8.1 is yes, please identify the name of the bank holding company.
- 8.3 Is the company affiliated with one or more banks, thrifts or securities firms? Yes [X] No []
- 8.4 If response to 8.3 is yes, please provide below the names and location (city and state of the main office) of any affiliates regulated by a federal regulatory services agency [i.e. the Federal Reserve Board (FRB), the Office of the Comptroller of the Currency (OCC), the Federal Deposit Insurance Corporation (FDIC) and the Securities Exchange Commission (SEC)] and identify the affiliate's primary federal regulator.

1 Affiliate Name	2 Location (City, State)	3 FRB	4 OCC	5 FDIC	6 SEC
Baring International Investment Limited	London, UK				YES
Barings Global Advisers Limited	London, UK				YES
Barings Securities, LLC	Charlotte, NC				YES
MML Distributors, LLC	Enfield, CT				YES
MML Investment Advisers, LLC	Enfield, CT				YES
MML Investors Services, LLC	Springfield, MA				YES
MML Strategic Distributors, LLC	Springfield, MA				YES
MMLISI Financial Alliances, LLC	Springfield, MA				YES
The MassMutual Trust Company, FSB	Enfield, CT	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: \$0

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:
 Repurchase agreements, Letter stock or securities restricted as to sale - excluding FHLB Capital Stock, FHLB Capital Stock, On deposit with states, pledged as collateral - excluding collateral pledged to an FHLB and Pledged as collateral to FHLB - including assets backing funding agreements
12. Amount of real estate and mortgages held in other invested assets in Schedule BA: \$2,051,507,736
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 | \$ 7,526,017,124 | \$ 6,027,947,927 |
| 14.22 Preferred Stock | \$ 0 | \$ 0 |
| 14.23 Common Stock | \$ 12,013,931,427 | \$ 16,930,571,583 |
| 14.24 Short-Term Investments | \$ 0 | \$ 0 |
| 14.25 Mortgage Loans on Real Estate | \$ 0 | \$ 0 |
| 14.26 All Other | \$ 5,685,872,120 | \$ 6,050,704,017 |
| 14.27 Total Investment in Parent, Subsidiaries and Affiliates (Subtotal Lines 14.21 to 14.26) | \$ 25,225,820,671 | \$ 29,009,223,527 |
| 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 []
 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. \$0
- 16.2 Total book adjusted/carrying value of reinvested collateral assets reported on Schedule DL, Parts 1 and 2 \$0
- 16.3 Total payable for securities lending reported on the liability page. \$0

STATEMENT AS OF SEPTEMBER 30, 2019 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

- 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
Apollo Aviation Group Capital Markets LLC	U.....
Invesco Ltd.	U.....
Barings LLC	A.....
Franklin Advisers, Inc.	U.....
Tortoise Capital Advisors, L.L.C.	U.....
PIMCO- Pacific Investment Management Company LLC	U.....
Earnest Partners LLC	U.....
KA Fund Advisors LLC	U.....
IFM Investors Pty Ltd	U.....
Ashmore Investment Management Limited	U.....
Jefferies Finance LLC	A.....
20 Gates Management, 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 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 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	Apollo Aviation Group Capital Markets LLC		SEC	NO.....
110363	Invesco Ltd.		SEC	DS.....
106006	Barings LLC	R6ZXK5P01NP6HXS1S07	SEC	DS.....
104517	Franklin Advisers, Inc.		SEC	NO.....
123711	Tortoise Capital Advisors, L.L.C.		SEC	NO.....
104559	PIMCO- Pacific Investment Management Company LLC		SEC	NO.....
107926	Earnest Partners LLC		SEC	NO.....
141037	KA Fund Advisors LLC		SEC	NO.....
162754	IFM Investors Pty Ltd		SEC	NO.....
185402	Ashmore Investment Management Limited	R6ZXK5P01NP6HXS1S07	SEC	NO.....
162264	Jefferies Finance LLC		SEC	DS.....
155480	20 Gates Management, LLC		SEC	NO.....

- 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 9/30/2019, 49 issues 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 \$898,553,662 or 0.76% 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]

Repurchase Agreements

**Schedule for Q3 2019 General Interrogatory

Transaction #1

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/29/2019
(2) Description of securities/collateral involved:		
	carry value:	\$25,301,647
	accrued interest:	56,549
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
(3) Number of shares or amount of bond or other security:		\$25,245,098
(4) Market value on date securities were delivered:	N/A Rolling Transaction	
(5) Market value on date securities were returned/Payback amount (Due at maturity)	N/A not returned yet	
(6) Collateral value held/Underlying asset value		\$25,232,071
(7) Form of collateral:	US Treasury #912828PX2	
(8) Collateral held by:	Credit Agricole Corporate and Investment Bank	
(9) Names and addresses of all other persons involved in transaction:	Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830	

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #2

(1) Dates of Transactions:	start date:	7/3/2019
	maturity date:	10/3/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$84,980,831
	accrued interest:	527,831
	maturity interest rates:	2.50%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$84,453,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$86,534,612
 (7) Form of collateral:		
		US Treasury #912803BJ1
 (8) Collateral held by:		
		JP Morgan Chase
 (9) Names and addresses of all other persons involved in transaction:		
		JP Morgan Chase 50 Rowes Wharf, 4th Floor Boston, MA 02110

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #3

(1) Dates of Transactions:	start date:	7/3/2019
	maturity date:	10/3/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$254,942,494
	accrued interest:	1,583,494
	maturity interest rates:	2.50%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$253,359,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$259,603,835
 (7) Form of collateral:		
		US Treasury #912803BJ1
 (8) Collateral held by:		
		JP Morgan Chase
 (9) Names and addresses of all other persons involved in transaction:		
		JP Morgan Chase 50 Rowes Wharf, 4th Floor Boston, MA 02110

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #4

(1) Dates of Transactions:	start date:	9/5/2019
	maturity date:	10/4/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$294,925,366
	accrued interest:	489,091
	maturity interest rates:	2.30%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$294,436,275
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$287,347,247
 (7) Form of collateral:		
		US Treasury #912810QQ4
 (8) Collateral held by:		
		HSBC Securities, Inc.
 (9) Names and addresses of all other persons involved in transaction:		
		HSBC Securities, Inc. 452 5th Avenue New York, NY 10018

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #5

(1) Dates of Transactions:	start date:	7/10/2019
	maturity date:	10/10/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$235,498,661
	accrued interest:	1,306,661
	maturity interest rates:	2.42%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$234,192,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$231,731,338
 (7) Form of collateral:		
		US Treasury # 912828PX2
 (8) Collateral held by:		
		HSBC Securities, Inc.
 (9) Names and addresses of all other persons involved in transaction:		
		HSBC Securities, Inc. 452 5th Avenue New York, NY 10018

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #6

(1) Dates of Transactions:	start date:	9/13/2019
	maturity date:	11/13/2019
(2) Description of securities/collateral involved:		
	carry value:	\$32,366,814
	accrued interest:	35,564
	maturity interest rates:	2.20%
	weighted average interest rates:	N/A
(3) Number of shares or amount of bond or other security:		\$32,331,250
(4) Market value on date securities were delivered:	N/A Rolling Transaction	
(5) Market value on date securities were returned/Payback amount (Due at maturity)	N/A not returned yet	
(6) Collateral value held/Underlying asset value		\$32,493,892
(7) Form of collateral:	US Treasury #912833LL2	
(8) Collateral held by:	Daiwa Securities America Inc.	
(9) Names and addresses of all other persons involved in transaction:	Daiwa Securities America Inc. Financial Square 32 Old Slip, 14th Floor New York, NY 10005-3538	

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #7

(1) Dates of Transactions:	start date:	8/13/2019
	maturity date:	11/13/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$153,242,873
	accrued interest:	467,873
	maturity interest rates:	2.25%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$152,775,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$151,608,533
 (7) Form of collateral:		
		US Treasury #912828MP2
 (8) Collateral held by:		
		Bank of Montreal
 (9) Names and addresses of all other persons involved in transaction:		
		Bank of Montreal 115 South LaSalle Street Chicago, IL 60603

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #8

(1) Dates of Transactions:	start date:	7/10/2019
	maturity date:	10/10/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$44,514,991
	accrued interest:	246,991
	maturity interest rates:	2.42%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$44,268,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$43,802,875
 (7) Form of collateral:		
		US Treasury #912828PX2
 (8) Collateral held by:		
		HSBC Securities, Inc.
 (9) Names and addresses of all other persons involved in transaction:		
		HSBC Securities, Inc. 452 5th Avenue New York, NY 10018

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #9

(1) Dates of Transactions:	start date:	7/3/2019
	maturity date:	10/3/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$56,061,206
	accrued interest:	348,206
	maturity interest rates:	2.50%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$55,713,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$56,054,633
 (7) Form of collateral:		
		US Treasury #912803AY9
 (8) Collateral held by:		
		JP Morgan Chase
 (9) Names and addresses of all other persons involved in transaction:		
		JP Morgan Chase 50 Rowes Wharf, 4th Floor Boston, MA 02110

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #10

(1) Dates of Transactions:	start date:	7/9/2019
	maturity date:	10/4/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$204,242,385
	accrued interest:	1,198,635
	maturity interest rates:	2.53%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$203,043,750
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$200,808,261
 (7) Form of collateral:		
		US Treasury #912828PX2
 (8) Collateral held by:		
		MUFG Securities Americas, Inc.
 (9) Names and addresses of all other persons involved in transaction:		
		MUFG Securities Americas, Inc. 1221 6th Ave New York, NY 10020

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #11

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/28/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$177,423,030
	accrued interest:	423,030
	maturity interest rates:	2.39%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$177,000,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$175,265,620
 (7) Form of collateral:		
		US Treasury #912803BM4
 (8) Collateral held by:		
		Mizuho Securities USA LLC
 (9) Names and addresses of all other persons involved in transaction:		
		Mizuho Securities USA LLC 125 High Street, 21st Floor Boston, MA 02110

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #12

(1) Dates of Transactions:	start date:	9/6/2019
	maturity date:	11/6/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$50,565,581
	accrued interest:	75,385
	maturity interest rates:	2.15%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$50,490,196
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$50,464,142
 (7) Form of collateral:		
		US Treasury #912828PX2
 (8) Collateral held by:		
		Credit Agricole Corporate and Investment Bank
 (9) Names and addresses of all other persons involved in transaction:		
		Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #13

(1) Dates of Transactions:	start date:	9/5/2019
	maturity date:	10/4/2019
(2) Description of securities/collateral involved:		
	carry value:	\$109,249,803
	accrued interest:	181,175
	maturity interest rates:	2.30%
	weighted average interest rates:	N/A
(3) Number of shares or amount of bond or other security:		\$109,068,627
(4) Market value on date securities were delivered:	N/A Rolling Transaction	
(5) Market value on date securities were returned/Payback amount (Due at maturity)	N/A not returned yet	
(6) Collateral value held/Underlying asset value		\$107,350,192
(7) Form of collateral:	US Treasury #912803BM4	
(8) Collateral held by:	HSBC Securities, Inc.	
(9) Names and addresses of all other persons involved in transaction:	HSBC Securities, Inc. 452 5th Avenue New York, NY 10018	

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #14

(1) Dates of Transactions:	start date:	9/13/2019
	maturity date:	11/13/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$64,470,840
	accrued interest:	70,840
	maturity interest rates:	2.20%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$64,400,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$64,719,813
 (7) Form of collateral:		
		US Treasury #912833LN8
 (8) Collateral held by:		
		Daiwa Securities America Inc.
 (9) Names and addresses of all other persons involved in transaction:		
		Daiwa Securities America Inc. Financial Square 32 Old Slip, 14th Floor New York, NY 10005-3538

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #15

(1) Dates of Transactions:	start date:	9/5/2019
	maturity date:	11/5/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$197,369,785
	accrued interest:	318,785
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$197,051,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$196,911,080
 (7) Form of collateral:		
		US Treasury #912828PX2
 (8) Collateral held by:		
		Morgan Stanley & Co. Inc.
 (9) Names and addresses of all other persons involved in transaction:		
		Morgan Stanley & Co. Inc. 1 International Place Suite 1300 Boston, MA 02110

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #16

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/29/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$87,696,000
	accrued interest:	196,000
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$87,500,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$85,867,734
 (7) Form of collateral:		
		US Treasury #912810RU4
 (8) Collateral held by:		
		Credit Agricole Corporate and Investment Bank
 (9) Names and addresses of all other persons involved in transaction:		
		Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #17

(1) Dates of Transactions:	start date:	7/3/2019
	maturity date:	10/1/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$93,659,297
	accrued interest:	616,172
	maturity interest rates:	2.52%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$93,043,125
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$91,908,469
 (7) Form of collateral:		
		US Treasury # 912828PX2
 (8) Collateral held by:		
		RBC Capital Markets
 (9) Names and addresses of all other persons involved in transaction:		
		RBC Capital Markets 3 World Financial Ctr 200 Vesey Street New York, NY 10281

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #18

(1) Dates of Transactions:	start date:	8/13/2019
	maturity date:	11/13/2019
(2) Description of securities/collateral involved:		
	carry value:	\$499,525,125
	accrued interest:	1,525,125
	maturity interest rates:	2.25%
	weighted average interest rates:	N/A
(3) Number of shares or amount of bond or other security:		\$498,000,000
(4) Market value on date securities were delivered:	N/A Rolling Transaction	
(5) Market value on date securities were returned/Payback amount (Due at maturity)	N/A not returned yet	
(6) Collateral value held/Underlying asset value		\$497,559,018
(7) Form of collateral:	US Treasury # 912810QK7	
(8) Collateral held by:	Bank of Montreal	
(9) Names and addresses of all other persons involved in transaction:	Bank of Montreal 115 South LaSalle Street Chicago, IL 60603	

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #19

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/29/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$3,036,198
	accrued interest:	6,786
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$3,029,412
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$25,232,071
 (7) Form of collateral:		
		US Treasury # 912828PX2
 (8) Collateral held by:		
		Credit Agricole Corporate and Investment Bank
 (9) Names and addresses of all other persons involved in transaction:		
		Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #20

(1) Dates of Transactions:	start date:	8/27/2019
	maturity date:	10/29/2019
(2) Description of securities/collateral involved:		
	carry value:	\$116,920,741
	accrued interest:	254,074
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
(3) Number of shares or amount of bond or other security:		\$116,666,667
(4) Market value on date securities were delivered:	N/A Rolling Transaction	
(5) Market value on date securities were returned/Payback amount (Due at maturity)	N/A not returned yet	
(6) Collateral value held/Underlying asset value		\$114,490,313
(7) Form of collateral:	US Treasury # 912810RU4	
(8) Collateral held by:	Credit Agricole Corporate and Investment Bank	
(9) Names and addresses of all other persons involved in transaction:	Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830	

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #21

(1) Dates of Transactions:	start date:	8/23/2019
	maturity date:	10/22/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$176,920,291
	accrued interest:	435,916
	maturity interest rates:	2.28%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$176,484,375
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$175,207,031
 (7) Form of collateral:		
		US Treasury #912810RU4
 (8) Collateral held by:		
		Canadian Imperial Bank of Commerce
 (9) Names and addresses of all other persons involved in transaction:		
		Canadian Imperial Bank of Commerce 161 Bay Street, Brookfield Place, 10th Floor Toronto, Ontario Canada M5J 2S8

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #22

(1) Dates of Transactions:	start date:	7/3/2019
	maturity date:	10/3/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$256,487,089
	accrued interest:	1,593,088
	maturity interest rates:	2.50%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$254,894,001
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$260,831,477
 (7) Form of collateral:		
		US Treasury # 912803BH5
 (8) Collateral held by:		
		JP Morgan Chase
 (9) Names and addresses of all other persons involved in transaction:		
		JP Morgan Chase 50 Rowes Wharf, 4th Floor Boston, MA 02110

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #23

(1) Dates of Transactions:	start date:	8/30/2019
	maturity date:	10/3/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$226,211,533
	accrued interest:	461,533
	maturity interest rates:	2.30%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$225,750,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$223,027,350
 (7) Form of collateral:		
		US Treasury # 912803BJ1
 (8) Collateral held by:		
		Canadian Imperial Bank of Commerce
 (9) Names and addresses of all other persons involved in transaction:		
		Canadian Imperial Bank of Commerce 161 Bay Street, Brookfield Place, 10th Floor Toronto, Ontario Canada M5J 2S8

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #24

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/29/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$8,570,626
	accrued interest:	19,155
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$8,551,471
 (4) Market value on date securities were delivered:		
	N/A Rolling Transaction	
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
	N/A not returned yet	
 (6) Collateral value held/Underlying asset value		
		\$21,025,408
 (7) Form of collateral:		
	US Treasury # 912810QQ4	
 (8) Collateral held by:		
	Credit Agricole Corporate and Investment Bank	
 (9) Names and addresses of all other persons involved in transaction:		
	Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830	

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

Repurchase Agreements

**Schedule for Q3 2019 General Interrogatory

Transaction #25

(1) Dates of Transactions:	start date:	9/6/2019
	maturity date:	11/6/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$118,190,908
	accrued interest:	176,203
	maturity interest rates:	2.15%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$118,014,706
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$116,543,777
 (7) Form of collateral:		
		US Treasury # 912810RV2
 (8) Collateral held by:		
		Credit Agricole Corporate and Investment Bank
 (9) Names and addresses of all other persons involved in transaction:		
		Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #26

(1) Dates of Transactions:	start date:	7/9/2019
	maturity date:	10/4/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$184,646,131
	accrued interest:	1,083,631
	maturity interest rates:	2.53%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$183,562,500
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$196,208,764
 (7) Form of collateral:		
		US Treasury # 912810RV2
 (8) Collateral held by:		
		MUFG Securities Americas, Inc.
 (9) Names and addresses of all other persons involved in transaction:		
		MUFG Securities Americas, Inc. 1221 6th Ave New York, NY 10020

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #27

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/29/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$21,426,565
	accrued interest:	47,888
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$21,378,676
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$21,025,408
 (7) Form of collateral:		
		US Treasury # 912810QQ4
 (8) Collateral held by:		
		Credit Agricole Corporate and Investment Bank
 (9) Names and addresses of all other persons involved in transaction:		
		Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #28

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/29/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$24,993,360
	accrued interest:	55,860
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$24,937,500
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$24,474,193
 (7) Form of collateral:		
		US Treasury # 912810RV2
 (8) Collateral held by:		
		Credit Agricole Corporate and Investment Bank
 (9) Names and addresses of all other persons involved in transaction:		
		Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #29

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/29/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$23,876,894
	accrued interest:	53,365
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$23,823,529
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$23,351,569
 (7) Form of collateral:		
		US Treasury # 912810RP5
 (8) Collateral held by:		
		Credit Agricole Corporate and Investment Bank
 (9) Names and addresses of all other persons involved in transaction:		
		Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #30

(1) Dates of Transactions:	start date:	8/26/2019
	maturity date:	10/29/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$12,855,939
	accrued interest:	28,733
	maturity interest rates:	2.24%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$12,827,206
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$21,025,408
 (7) Form of collateral:		
		US Treasury # 912810QQ4
 (8) Collateral held by:		
		Credit Agricole Corporate and Investment Bank
 (9) Names and addresses of all other persons involved in transaction:		
		Credit Agricole CIB 194 Wood Avenue South, 7th Floor Iselin, NJ 08830

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

Repurchase Agreements

****Schedule for Q3 2019 General Interrogatory**

Transaction #31

(1) Dates of Transactions:	start date:	8/30/2019
	maturity date:	10/3/2019
 (2) Description of securities/collateral involved:		
	carry value:	\$86,135,740
	accrued interest:	175,740
	maturity interest rates:	2.30%
	weighted average interest rates:	N/A
 (3) Number of shares or amount of bond or other security:		
		\$85,960,000
 (4) Market value on date securities were delivered:		
		N/A Rolling Transaction
 (5) Market value on date securities were returned/Payback amount (Due at maturity)		
		N/A not returned yet
 (6) Collateral value held/Underlying asset value		
		\$83,240,082
 (7) Form of collateral:		
		US Treasury # 912810RV2
 (8) Collateral held by:		
		Canadian Imperial Bank of Commerce
 (9) Names and addresses of all other persons involved in transaction:		
		Canadian Imperial Bank of Commerce 161 Bay Street, Brookfield Place, 10th Floor Toronto, Ontario Canada M5J 2S8

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 | \$ 2,404,920,313 |
| 1.13 Commercial Mortgages | \$ 23,512,811,829 |
| 1.14 Total Mortgages in Good Standing | \$ 25,917,732,142 |
| 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 | \$ 0 |
| 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 | \$ 0 |
| 1.5 Total Mortgage Loans (Lines 1.14 + 1.21 + 1.34 + 1.44) (Page 2, Column 3, Lines 3.1 + 3.2) | \$ 25,917,732,142 |
| 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 | \$ 0 |
| 2. Operating Percentages: | |
| 2.1 A&H loss percent | 64.261 % |
| 2.2 A&H cost containment percent | 1.000 % |
| 2.3 A&H expense percent excluding cost containment expenses | 44.501 % |
| 3.1 Do you act as a custodian for health savings accounts? | Yes [] No [X] |
| 3.2 If yes, please provide the amount of custodial funds held as of the reporting date | \$ |
| 3.3 Do you act as an administrator for health savings accounts? | Yes [] No [X] |
| 3.4 If yes, please provide the balance of the funds administered as of the reporting date | \$ |
| 4. Is the reporting entity licensed or chartered, registered, qualified, eligible or writing business in at least two states? | Yes [X] No [] |
| 4.1 If no, does the reporting entity assume reinsurance business that covers risks residing in at least one state other than the state of domicile of the reporting entity? | Yes [] No [] |

Fraternal Benefit Societies Only:

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

Date	Outstanding Lien Amount
.....

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE S - CEDED REINSURANCE

Showing All New Reinsurance Treaties - Current Year to Date

1	2	3	4	5	6	7	8	9
NAIC Company Code	ID Number	Effective Date	Name of Reinsurer	Domiciliary Jurisdiction	Type of Reinsurance Ceded	Type of Reinsurer	Certified Reinsurer Rating (1 through 6)	Effective Date of Certified Reinsurer Rating
.84824	04-6145677	.07/23/2019	Commonwealth Annuity & Life Insurance Co (CW19)	MA	CO/G	Authorized		
.66346	58-0828824	.01/23/2019	Munich American Reassurance (MUV5)	GA	CO/I	Authorized		
.66346	58-0828824	.01/23/2019	Munich American Reassurance (MUV6)	GA	CO/I	Authorized		
.66346	58-0828824	.01/23/2019	Munich American Reassurance (MUV7)	GA	CO/I	Authorized		
.66346	58-0828824	.01/23/2019	Munich American Reassurance (MUV8)	GA	CO/I	Authorized		
.74900	63-0483783	.12/05/2018	Partner Re (PRPK)	AR	YRT/I	Authorized		
.97071	13-3126819	.01/01/2018	SCOR Global Life USA Reins Co (SUE9)	DE	YRT/G	Authorized		
.97071	13-3126819	.01/23/2019	SCOR Global Life USA Reins Co (SUV5)	DE	CO/I	Authorized		
.97071	13-3126819	.01/23/2019	SCOR Global Life USA Reins Co (SUV6)	DE	CO/I	Authorized		
.97071	13-3126819	.01/23/2019	SCOR Global Life USA Reins Co (SUV7)	DE	CO/I	Authorized		
.97071	13-3126819	.01/23/2019	SCOR Global Life USA Reins Co (SUV8)	DE	CO/I	Authorized		
.82627	06-0839705	.01/01/2018	Swiss Re Life & Health America (SRE9)	MO	YRT/G	Authorized		
.82627	06-0839705	.01/23/2019	Swiss Re Life & Health America (SRV5)	MO	CO/I	Authorized		
.82627	06-0839705	.01/23/2019	Swiss Re Life & Health America (SRV6)	MO	CO/I	Authorized		
.82627	06-0839705	.01/23/2019	Swiss Re Life & Health America (SRV7)	MO	CO/I	Authorized		
.82627	06-0839705	.01/23/2019	Swiss Re Life & Health America (SRV8)	MO	CO/I	Authorized		

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE T - PREMIUMS AND ANNUITY CONSIDERATIONS

Current Year To Date - Allocated by States and Territories

States, Etc.	1	Life Contracts		Direct Business Only		6	7
		2	3	4	5		
	Active Status (a)					Total Columns 2 Through 5	Deposit-Type Contracts
1. Alabama	AL L	32,549,527	50,636,773	5,209,832	30,655,994	119,052,126	28,645,392
2. Alaska	AK L	8,270,006	4,102,129	302,123	4,383,791	17,058,049	2,932,323
3. Arizona	AZ L	51,797,403	98,504,345	7,826,263	17,454,782	175,582,794	28,387,517
4. Arkansas	AR L	18,602,796	29,762,020	1,785,964	1,062,152	51,212,933	6,050,968
5. California	CA L	714,268,474	554,373,556	48,225,707	433,721,607	1,750,589,344	304,670,957
6. Colorado	CO L	69,486,291	69,840,271	8,274,683	23,190,133	170,791,379	25,696,051
7. Connecticut	CT L	139,633,333	117,783,500	15,356,282	113,172,771	385,945,886	40,368,367
8. Delaware	DE L	80,307,408	12,036,274	1,337,296	6,324,637	100,005,615	1,507,614,229
9. District of Columbia	DC L	15,728,927	4,762,508	3,106,668	38,755,988	62,354,091	4,825,041
10. Florida	FL L	388,762,884	317,475,089	24,571,474	199,866,347	930,675,794	213,997,814
11. Georgia	GA L	135,757,210	133,579,372	17,710,825	128,120,336	415,167,743	70,914,877
12. Hawaii	HI L	16,403,930	13,347,609	2,292,461	5,274,711	37,318,711	27,655,158
13. Idaho	ID L	19,744,438	8,678,275	1,260,192	8,059,525	37,742,431	8,127,457
14. Illinois	IL L	363,592,421	192,477,458	18,681,218	408,681,185	983,432,282	77,741,737
15. Indiana	IN L	79,465,925	32,886,148	7,161,012	43,755,175	163,268,260	39,857,460
16. Iowa	IA L	31,056,508	16,749,592	2,917,078	132,248,042	182,971,221	14,989,043
17. Kansas	KS L	31,638,505	14,561,424	4,183,624	31,884,606	82,268,159	5,974,661
18. Kentucky	KY L	21,827,370	22,857,713	3,851,252	35,531,470	84,067,805	34,994,301
19. Louisiana	LA L	34,554,740	40,088,673	4,854,896	26,455,597	105,953,906	34,342,830
20. Maine	ME L	23,419,859	13,227,660	1,943,532	5,113,149	43,704,200	6,375,307
21. Maryland	MD L	92,794,611	45,989,688	20,697,865	159,761,462	319,243,626	55,403,762
22. Massachusetts	MA L	155,205,438	350,926,375	24,864,122	688,607,687	1,219,603,622	63,813,487
23. Michigan	MI L	93,901,576	103,675,188	11,050,485	171,338,039	379,965,288	71,212,102
24. Minnesota	MN L	41,910,594	55,118,276	6,877,016	233,931,129	337,837,015	84,512,697
25. Mississippi	MS L	42,725,505	35,590,061	7,813,995	1,936,260	88,065,821	12,522,798
26. Missouri	MO L	52,897,524	30,393,246	8,062,568	76,495,524	167,848,862	28,243,267
27. Montana	MT L	10,997,871	7,981,620	1,065,578	4,617,865	24,662,935	8,785,937
28. Nebraska	NE L	33,160,131	27,472,856	4,443,808	79,789,294	144,866,090	14,660,272
29. Nevada	NV L	30,470,129	19,617,597	2,477,717	46,758,095	99,323,538	13,567,489
30. New Hampshire	NH L	24,872,290	24,022,621	3,258,609	26,818,584	78,972,104	12,383,797
31. New Jersey	NJ L	302,003,775	143,545,764	29,703,484	1,093,375,127	1,568,628,150	92,887,318
32. New Mexico	NM L	16,005,683	23,490,418	1,893,185	1,590,084	42,979,370	6,406,586
33. New York	NY L	910,822,080	291,856,489	65,076,971	663,873,511	1,931,629,050	189,782,223
34. North Carolina	NC L	115,790,628	110,462,962	22,830,776	75,068,164	324,152,530	107,853,348
35. North Dakota	ND L	9,693,169	8,535,616	481,382	4,973,331	23,683,498	8,377,439
36. Ohio	OH L	113,043,347	110,581,157	12,698,332	231,316,555	467,639,391	82,240,361
37. Oklahoma	OK L	65,367,499	28,841,965	5,904,444	51,456,213	151,570,121	28,377,467
38. Oregon	OR L	25,167,991	30,604,196	3,781,774	20,537,981	80,091,943	21,009,397
39. Pennsylvania	PA L	289,223,236	147,817,634	29,488,405	309,309,373	775,838,648	25,547,444
40. Rhode Island	RI L	15,011,556	71,739,715	2,468,609	36,108,208	125,328,088	11,813,933
41. South Carolina	SC L	56,499,933	47,161,467	11,630,823	14,103,729	129,395,952	45,697,465
42. South Dakota	SD L	7,911,183	1,627,202	528,581	1,356,090	11,423,056	2,424,054
43. Tennessee	TN L	81,413,910	54,872,910	13,689,398	231,985,321	381,961,539	32,279,972
44. Texas	TX L	307,227,365	233,942,587	36,307,150	190,816,092	768,293,195	232,777,347
45. Utah	UT L	30,446,082	25,032,807	3,063,941	6,821,789	65,364,620	23,356,189
46. Vermont	VT L	17,983,979	11,107,156	1,086,464	11,998,259	42,175,859	1,579,741
47. Virginia	VA L	145,499,394	134,049,452	22,271,451	192,356,532	494,176,830	64,164,260
48. Washington	WA L	58,132,267	57,570,055	8,564,121	62,102,501	186,368,944	8,605,686
49. West Virginia	WV L	11,030,376	8,736,390	1,061,377	26,753,289	47,581,432	47,073,512
50. Wisconsin	WI L	39,459,659	37,581,586	4,827,197	50,178,323	132,046,765	7,328,851
51. Wyoming	WY L	4,143,824	3,023,226	453,141	244,615	7,864,806	2,283,170
52. American Samoa	AS N	0	0	0	0	0	0
53. Guam	GU N	1,000	1,125	4,899	0	7,024	49,729
54. Puerto Rico	PR L	57,387,626	4,812,912	7,185,557	11,592,220	80,978,315	790,934
55. U.S. Virgin Islands	VI N	7,549	21,270,330	18,862	0	21,296,741	22,800
56. Northern Mariana Islands	MP N	0	0	0	0	0	0
57. Canada	CAN N	747,625	665,565	87,217	414	1,500,821	271,061
58. Aggregate Other Aliens	OT XXX	12,276,533	216,187	400,587	(80,545)	12,812,762	0
59. Subtotal	XXX	5,548,100,895	4,057,664,790	556,972,280	6,471,603,113	16,634,341,078	3,892,267,385
90. Reporting entity contributions for employee benefits plans	XXX					0	
91. Dividends or refunds applied to purchase paid-up additions and annuities	XXX	983,203,651	1,329,956			984,533,607	
92. Dividends or refunds applied to shorten endowment or premium paying period	XXX					0	
93. Premium or annuity considerations waived under disability or other contract provisions	XXX	20,522,858		8,961,473		29,484,331	
94. Aggregate or other amounts not allocable by State	XXX	48,020,118	0	0	0	48,020,118	0
95. Totals (Direct Business)	XXX	6,599,847,522	4,058,994,746	565,933,753	6,471,603,113	17,696,379,134	3,892,267,385
96. Plus Reinsurance Assumed	XXX	37,036,806	13,608,705		1,026,665,170	1,077,310,681	1,003,669,082
97. Totals (All Business)	XXX	6,636,884,328	4,072,603,451	565,933,753	7,498,268,283	18,773,689,814	4,895,936,467
98. Less Reinsurance Ceded	XXX	772,452,135	1,358,576,560	65,472,215		2,196,500,910	
99. Totals (All Business) less Reinsurance Ceded	XXX	5,864,432,193	2,714,026,891	500,461,538	7,498,268,283	16,577,188,904	4,895,936,467
DETAILS OF WRITE-INS							
58001. ZZZ Other Alien	XXX	12,276,533	216,187	400,587	(80,545)	12,812,762	
58002.	XXX						
58003.	XXX						
58998. Summary of remaining write-ins for Line 58 from overflow page	XXX	0	0	0	0	0	0
58999. Totals (Lines 58001 through 58003 plus 58998)(Line 58 above)	XXX	12,276,533	216,187	400,587	(80,545)	12,812,762	0
9401. Reinvested Net Nonforfeiture Option Proceeds	XXX	48,020,118				48,020,118	
9402.	XXX						
9403.	XXX						
9498. Summary of remaining write-ins for Line 94 from overflow page	XXX	0	0	0	0	0	0
9499. Totals (Lines 9401 through 9403 plus 9498)(Line 94 above)	XXX	48,020,118	0	0	0	48,020,118	0

(a) Active Status Counts:

L - Licensed or Chartered - Licensed Insurance carrier or domiciled RRG 52 R - Registered - Non-domiciled RRGs 0
 E - Eligible - Reporting entities eligible or approved to write surplus lines in the state 0 Q - Qualified - Qualified or accredited reinsurer 0
 N - None of the above - Not allowed to write business in the state 5

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

PART 1 – ORGANIZATIONAL CHART

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

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY	04-1590850	65935	Massachusetts
Direct & Indirect Owned Subsidiaries:			
C.M. Life Insurance Company	06-1041383	93432	Connecticut
MML Bay State Life Insurance Company	43-0581430	70416	Connecticut
CML Mezzanine Investor III, LLC	06-1041383		Delaware
CML Special Situations Investor LLC	None		Delaware
Berkshire Way LLC	04-1590850		Delaware
MML Special Situations Investor LLC	None		Delaware
Timberland Forest Holding LLC	47-5322979		Delaware
Lyme Adirondack Forest Company, LLC	None		Delaware
Lyme Adirondack Timber Sales, Inc.	20-5305426		New York
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 Intellectual Property LLC	04-1590850		Delaware
Trad Investments I 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
JFIN GP Adviser LLC	None		Delaware
JFIN Fund III LLC	None		Delaware
JFIN Asset Management LLC	None		Delaware
JFAM GP LLC	None		Delaware
JFAM GP LP	None		Delaware
JFAM Loan Fund, LP	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, 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 Revolver CLO Holdings LLC	None		Delaware
JFIN Revolver Fund, L.P.	None		Delaware
JFIN CLO 2007 Ltd.	None		Cayman Islands

*This entity is owned by another or multiple entities in the group. Please refer to Schedule 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 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 MM CLO 2014 Ltd.*	None		Cayman Islands
JFIN CLO 2015 Ltd.*	None		Cayman Islands
Apex Credit CLO 2015-II Ltd.*	None		Cayman Islands
JFIN Revolver CLO 2015 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 Fund, L.P.	None		Delaware
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
MassMutual Mortgage Lending LLC	None		Delaware
MassMutual Retirement Services, LLC	04-1590850		Delaware
MM Copper Hill Road LLC	04-1590850		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
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
Rozier LLC	None		Delaware
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

*This entity is owned by another or multiple entities in the group. Please refer to Schedule 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>
Fern Street LLC	37-1732913		Delaware
Haven Life Insurance Agency, LLC	46-2252944		Delaware
MassMutual Assignment Company	06-1597528		North Carolina
MassMutual Capital Partners LLC	04-1590850		Delaware
MassMutual Ventures Holding 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 UK LLC	None		Delaware
MassMutual Ventures US I LLC	47-1296410		Delaware
MassMutual Ventures US II LLC	None		Delaware
MM Rothesay Holdco US LLC	04-1590850		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
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 Italy S.r.l.	None		Italy
Barings Sweden AB	None		Sweden
Barings Finland Oy	None		Finland
Barings Real Estate UK Holdings Limited	None		Delaware

*This entity is owned by another or multiple entities in the group. Please refer to Schedule 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>
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 Global Advisors Limited	98-1012393		United Kingdom
BCGSS 2 GP LLP	None		United Kingdom
Barings European Direct Lending 1 GP LLP	None		United Kingdom
Baring International Investment Limited	98-0457328		United Kingdom
Baring International Investment Management Holdings	98-0457587		United Kingdom
Baring Asset Management UK Holdings Limited	98-0457576		United Kingdom
Baring 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
Baring Pension Trustees Limited	98-0457574		United Kingdom
Baring Investment Services Limited	98-0457578		United Kingdom
Barings Investment Fund (LUX) GP S.à. r.l.	None		Luxembourg
Barings GPC GP S.à. r.l.	None		Luxembourg
Almack Mezzanine GP III Limited	None		United Kingdom
Almack Holding Partnership GP Limited	None		United Kingdom
Almack Mezzanine Fund Limited	None		United Kingdom
Almack Mezzanine Fund II Limited	None		United Kingdom
Barings (U.K.) Limited	98-0432153		United Kingdom
Barings Multifamily Capital Holdings LLC	None		Delaware
Barings Multifamily Capital LLC	None		Michigan
Barings Multifamily Capital Corporation	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
EIP Holdings I, LLC	None		Delaware
Tamiami Citrus, LLC	None		Delaware

*This entity is owned by another or multiple entities in the group. Please refer to Schedule 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>
Teaktree Acquisition, LLC	None		Delaware
U.S. Pharmaceuticals Holdings I, LLC	46-0687392		Delaware
U.S. Pharmaceuticals Holdings II, LLC	47-5436800		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 Global Investment Funds (U.S.) Management LLC	04-1590850		Delaware
Babson Global Loan Feeder Management, LLC	None		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 Global Energy Infrastructure Advisors, LLC	None		Delaware
Barings Global Real Assets Fund GP, LLC	None		Delaware
Barings Multi Asset Income Fund	None		Hong Kong
Barings North American Private Loan Fund Management, LLC	None		Delaware
Barings/LAZ Parking Fund GP LLC	None		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
Cornerstone Hotel Fund GP, LLC	None		Delaware
CREF X GP LLC	None		Delaware
CREF VIII 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 LLC	04-1590850		Delaware
Mezzco II LLC	02-0767001		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
Somerset Special Opportunities Management LLC	04-1590850		Delaware

*This entity is owned by another or multiple entities in the group. Please refer to Schedule 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>
Invesco Ltd.	None		Bermuda
MassMutual International LLC	04-3313782		Delaware
MassMutual Solutions LLC	None		Delaware
HarborTech (Asia) Limited	None		Hong Kong
Yunfeng Financial Group Limited	None		Hong Kong
MML Management Corporation	04-2443240		Massachusetts
MassMutual International Holding MSC, Inc.	04-3548444		Massachusetts
MassMutual Holding MSC, Inc.	04-3341767		Massachusetts
MML Mezzanine Investor II, LLC	04-1590850		Delaware
MML Mezzanine Investor III, LLC	04-1590850		Delaware
MassMutual External Benefits Group LLC	27-3576835		Delaware
Other Affiliates & Funds:			
100 w. 3 rd Street LLC	04-1590850		Delaware
300 South Tryon Hotel LLC	82-2432216		Delaware
300 South Tryon LLC	04-1590850		Delaware
Almack Mezzanine Fund I LP*	None		United Kingdom
Almack Mezzanine Fund II Unleveraged LP	None		United Kingdom
Almack Mezzanine Fund III LP*	None		United Kingdom
Barings Asset-Based Income Fund (US) LP	36-4868350		Delaware
Barings Emerging Markets Corporate Bond Fund	None		Ireland
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-I	None		Cayman Islands
Barings CLO 2019-II	98-1473665		Cayman Islands
Barings CLO 2019-III	None		Cayman Islands
Babson Euro CLO 2014-I BV	None		Netherlands
Babson Euro CLO 2014-II BV	None		Netherlands
Babson Euro CLO 2015-I BV	None		Netherlands
Babson Euro CLO 2016-I BV	None		Netherlands
Barings Global Em. Markets Equity Fund	82-5330194		North Carolina

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

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

PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
Barings 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 Middle Market CLO 2017-I Ltd & LLC	None		Cayman Islands
Barings Middle Market CLO 2018-I	None		Cayman Islands
Barings North American Private Loan Fund LP	38-4010344		Delaware
Barings RE Credit Strategies VII LP	98-1332384		Delaware
Baring International Small Cap Equity Fund	26-4142796		Delaware
Barings CLO Investment Partners LP	81-0841854		Delaware
Barings Real Estate European Value Add I SCSp*	None		United Kingdom
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
Cornerstone High Yield Venture LP	36-4770946		Delaware
Barings/LAZ Parking Fund LP	46-5437441		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
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
HB Naples Golf Owner LLC	45-3623262		Delaware
MM Debt Participations LLC	81-3000420		Delaware
RB Apartments LLC	82-4411267		Delaware
Reston Arboretum LLC	75-2901061		Delaware
Rockall CLO B.V.	None		United Kingdom
Rockville Town Center LLC	54-2055778		Virginia
Somerset Special Opportunities Fund L.P.*	20-8856877		Delaware
Ten Fan Pier Boulevard LLC	35-2553915		Delaware
Tower Square Capital Partners II, L.P.*	30-0336246		Delaware
Tower Square Capital Partners II-A, L.P.	32-0160190		Delaware

*This entity is owned by another or multiple entities in the group. Please refer to Schedule 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>
Tower Square Capital Partners III, L.P.	41-2280127		Delaware
Tower Square Capital Partners IIIA, L.P.	41-2280129		Delaware
Tower Square Capital Partners IV-A, L.P.	80-0920367		Delaware
Trailside MM Member LLC*	04-1590850		Delaware
Washington Gateway Two LLC*	83-1325764		Delaware
Washington Gateway Three LLC*	32-0574045		Delaware
West 46 th Street Hotel LLC	05-1590850		Delaware
Barings Affiliates & Funds:			
Barings Emerging Markets Debt Short Duration Fund	None		Ireland
Barings Emerging Markets Sovereign Debt Fund	None		Ireland
Babson Capital Loan Strategies Master Fund LP	None		Cayman Islands
Barings Global High Yield Fund	47-3790192		Massachusetts
Barings Total Return Bond Fund	47-3734770		Massachusetts
Barings U.S. High Yield Fund	47-3801860		Massachusetts
Great Lakes II LLC*	71-1018134		Delaware
Barings Real Estate Affiliates & Funds:			
Wood Creek Venture Fund LLC	04-1590850		Delaware
50 Liberty LLC*	36-4823011		Delaware
One Harbor Shore LLC*	80-0948028		Delaware
Budapester Strasse LLC	81-4382111		Delaware
Calgary Railway Holding LLC*	82-2285211		Delaware
Cornbrook PRS Holdings LLC	82-3307907		Delaware
Cornerstone California Mortgage Fund I LLC	95-4207717		California
Cornerstone California Mortgage Fund II LLC	95-4207717		California
Cornerstone California Mortgage Fund III LLC	95-4207717		California
Cornerstone Fort Pierce Development LLC*	56-2630592		Delaware
Cornerstone Permanent Mortgage Fund	45-2632610		Massachusetts
Cornerstone Permanent Mortgage Fund II	61-1750537		Massachusetts
Cornerstone Permanent Mortgage Fund III	35-2531693		Massachusetts
Cornerstone Permanent Mortgage Fund IV	61-1793735		Massachusetts
CREA Madison Member LLC	81-0890084		Delaware
CCB Montford Park LLC*	82-1563809		Delaware
Danville Riverwalk Venture, LLC	82-2783393		Delaware
Fan Pier Development LLC*	20-3347091		Delaware
Farringdon London Holdings LLC*	46-3880526		Delaware
Landmark Manchester Holdings LLC	81-5360103		Delaware
MM Island Member LLC	04-1590850		Delaware
NoHo West Venture LLC	83-0881588		Delaware
PACO France Logistics LLC	04-1590850		Delaware
PACO France Logistics 2 LLC	04-1590850		Delaware
PACO France Logistics 3 LLC	04-1590850		Delaware

*This entity is owned by another or multiple entities in the group. Please refer to Schedule 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>
Portland 400 Sixth Manager LLC	82-3393166		Delaware
Salomon Brothers Commercial Mortgage Trust 2001-MM	None		Delaware
Sawgrass Village Shopping Center LLC*	27-2977720		Delaware
Spain Avalon Holding LLC	04-1590850		Delaware
Three PW Office Holding LLC	81-5273574		Delaware
Twenty Two Liberty LLC*	35-2484550		Massachusetts
UK LIW Manager LLC	45-4606547		Delaware
UK LIW Member LLC	45-4606547		Delaware
Unna, Dortmund Holding LLC	82-3250684		Delaware
Via Ceresio Milan LLC	82-3281588		Delaware
Washington Gateway Apartments Venture LLC*	45-5401109		Delaware
Waterloo London Holdings LLC	47-1993493		Delaware
Ygnatio Valley Funding	20-5481477		Delaware
MassMutual Premier Funds:			
MassMutual Barings Dynamic Allocation Fund	45-3168892		Massachusetts
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
MassMutual Premier Value Fund	04-3277550		Massachusetts
MassMutual Select Funds:			
MassMutual Select Diversified International Fund	14-1980900		Massachusetts
MassMutual Select Diversified Value Fund	01-0821120		Massachusetts
MassMutual Select Fundamental Growth Fund	04-3512593		Massachusetts
MassMutual Select Large Cap Value Fund	04-3513019		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

*This entity is owned by another or multiple entities in the group. Please refer to Schedule 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>
MML Series Investment Funds:			
MML Series International Equity Fund	46-4257056		Massachusetts
MML Series Investment Funds II:			
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
MassMutual RetireSMART Funds:			
MassMutual RetireSMART 2055 Fund	46-3289207		Massachusetts
MassMutual RetireSMART 2060 Fund	47-5326235		Massachusetts
MassMutual RetireSMART Conservative Fund	45-1618155		Massachusetts
MassMutual RetireSMART Growth Fund	45-1618222		Massachusetts
MassMutual RetireSMART In Retirement Fund	03-0532464		Massachusetts
MassMutual RetireSMART Moderate Fund	45-1618262		Massachusetts
MassMutual RetireSMART Moderate Growth Fund	45-1618046		Massachusetts

STATEMENT AS OF SEPTEMBER 30, 2019 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 (MMLIC)	MA	RE	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0435	CM Life Ins Co	93432	06-1041383				C.M. Life Insurance Company	CT	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0435	MML Baystate Life Ins Co	70416	43-0581430				MML Bay State Life Insurance Company	CT	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
.0000			06-1041383				CML Mezzanine Investor III, LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
.0000							CML Special Situations Investor LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MML Special Situations Investor LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	Wood Creek Capital Management LLC	Management		MMLIC		
.0000							Lyme Adirondack Forest Company, LLC	DE	DS	Timberland Forest Holding LLC	Ownership	100.000	MMLIC		
.0000			20-5305426				Lyme Adirondack Timber Sales, Inc.	NY	DS	Timberland Forest Holding LLC	Ownership	100.000	MMLIC		
.0000							Lyme Adirondack Timberlands I, LLC	DE	DS	Timberland Forest Holding LLC	Ownership	100.000	MMLIC		
.0000							Lyme Adirondack Timberlands II, LLC	DE	DS	Timberland Forest Holding LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				Berkshire Way LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MSP-SC, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							EM Opportunities LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MassMutual MCAM Insurance Company, Inc.	VT	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				Insurance Road LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MassMutual Trad Private Equity LLC	DE	NIA	Insurance Road LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MassMutual Intellectual Property LLC	DE	NIA	Insurance Road LLC	Ownership	100.000	MMLIC		
.0000							Trad Investments I LLC	DE	NIA	Insurance Road LLC	Ownership	100.000	MMLIC		
.0000			27-0105644				Jefferies Finance LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	50.000	MMLIC		1
.0000							MassMutual Mortgage Lending LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Apex Credit Partners LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN GP Adviser LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Fund, L.P.	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Fund III LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Asset Management LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFAM GP LLC	DE	NIA	JFIN Asset Management, LLC	Ownership	100.000	MMLIC		
.0000							JFAM GP LP	DE	NIA	JFIN Asset Management, LLC	Ownership	100.000	MMLIC		
.0000							JFAM Loan Fund, LP	DE	NIA	JFIN Asset Management, LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Holdings LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Holdings II LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Co-Issuer Corporation	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Europe GP, S.a.r.l.	LUX	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							Jefferies Finance Europe, SCSp	LUX	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							Jefferies Finance Business Credit LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Business Credit Fund I LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN High Yield Investments LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN LC Fund LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Fund, L.P.	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO Holdings LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2007 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		

STATEMENT AS OF SEPTEMBER 30, 2019 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							JFIN CLO 2012 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2013 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2014-II Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN MM CLO 2014 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2015 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	44.000	MMLIC		
.0000							JFIN CLO 2015 Ltd.	.CYM	NIA	Apex Credit Partners LLC	Ownership	56.000	MMLIC		
.0000							JFIN Revolver Fund, L.P.	.DE	NIA	Jefferies Finance LLC	Ownership	58.000	MMLIC		
.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							JFIN Revolver CLO 2014 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2015 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2017 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2017-II Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2017-III Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2018 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2019 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2019-II Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							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				MassMutual Retirement Services, LLC	.DE	.DS	Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MM Copper Hill Road LLC	.DE	.DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-3356880				MML Distributors LLC	.MA	.DS	Massachusetts Mutual Life Insurance Company	Ownership	99.000	MMLIC		
.0000			04-3356880				MML Distributors LLC	.MA	.DS	MassMutual Holding LLC	Ownership	1.000	MMLIC		
.0000							MML Investment Advisers, LLC	.DE	.DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			46-3238013				MML Strategic Distributors, LLC	.DE	.DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			06-1563535	2881445			The MassMutual Trust Company, FSB	.CT	.DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC	Y	
.0000			26-0073611				MassMutual Asset Finance LLC	.DE	.DS	Company	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							Rozier LLC	.DE	.DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.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	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		

STATEMENT AS OF SEPTEMBER 30, 2019 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			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			46-2252944				Haven Life Insurance Agency, LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MassMutual Capital Partners LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures Holding LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							Crane Venture Partners LLP	.GBR	.DS	MassMutual Holding LLC	Ownership	33.000	MMLIC		
.0000							MassMutual Ventures Management LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures SEA Management Private Limited	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures Southeast Asia I LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures UK LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			47-1296410				MassMutual Ventures US I LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures US II LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MM Rothesay Holdco US 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			98-0236449				Barings Japan Limited	.JPN	.DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000							Barings Australia Holding Company Pty Ltd	.AUS	.DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0457456				Barings Australia Pty Ltd	.AUS	.DS	Baring Australia Holding Company Pty Ltd	Ownership	100.000	MMLIC		
.0000			80-0875475				Barings Finance LLC	.DE	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BCF Europe Funding Limited	.IRL	.DS	Barings Finance LLC	Ownership	100.000	MMLIC		
.0000							BCF Senior Funding I LLC	.DE	.DS	Barings Finance LLC	Ownership	100.000	MMLIC		
.0000							BCF Senior Funding I Designated Activity Company	.IRL	.DS	Barings Finance LLC	Ownership	100.000	MMLIC		
.0000			04-3238351				Barings Securities LLC	.DE	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			98-0437588				Barings Guernsey Limited	.GGY	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Europe Limited	.GBR	.DS	Barings Guernsey Limited	Ownership	100.000	MMLIC		
.0000							Barings Italy S.r.l.	.ITA	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings Sweden AB	.SWE	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings Finland Oy	.FIN	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings Real Estate UK Holdings Limited	.DE	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							BREA E AIFM LLP	.GBR	.DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MMLIC		

STATEMENT AS OF SEPTEMBER 30, 2019 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			98-0654401				Barings Real Estate Advisers (Continental Europe) Limited	.GBR	.DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0654388				Barings Real Estate Advisers Europe LLP	.GBR	.DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0654412				Barings Real Estate Advisers Europe Finance LLP	.GBR	.DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-1194368				Barings Real Estate GmbH	.DEU	.DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0241935				Baring Asset Management Limited	.GBR	.DS	MassMutual Holdings (Bermuda) Limited	Ownership	100.000	MMLIC		
.0000			98-1012393				Barings Global Advisors Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000							BCGSS 2 GP LLP	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings European Direct Lending 1 GP LLP	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-0457328				Baring International Investment Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-0457587				Baring International Investment Management Holdings	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-0457576				Baring Asset Management UK Holdings Limited	.GBR	.DS	Baring International Investment Management Holdings	Ownership	100.000	MMLIC		
.0000			98-0465031				Baring Asset Management GmbH	.DEU	.DS	Baring Asset Management UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0524272				Baring International Fund Managers (Ireland) Limited	.IRL	.DS	Baring Asset Management UK Holdings Limited	Ownership	100.000	MMLIC		
.0000							Baring Asset Management Switzerland Sarl	.CHE	.DS	Baring Asset Management UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0497550				Baring France SAS	.FRA	.DS	Baring Asset Management UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0457586				Baring Fund Managers Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-0457574				Baring Pension Trustees Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-0457578				Baring Investment Services Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings GPC GP S.à. r.l	.LUX	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings Investment Fund (LUX) GP S.à. r.l	.LUX	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Almack Mezzanine GP III Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Almack Holding Partnership GP Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Almack Mezzanine Fund Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Almack Mezzanine Fund II Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-0432153				Barings (U.K.) Limited	.GBR	.DS	Barings Guernsey Limited	Ownership	100.000	MMLIC		
.0000							Barings Multifamily Capital Holdings LLC	.DE	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Multifamily Capital LLC	.MI	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Multifamily Capital Corporation	.DE	.DS	Barings LLC	Ownership	100.000	MMLIC		
.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	Massachusetts Mutual Life Insurance Company	Ownership	26.600	MMLIC		
.0000			83-0560183				Aland Royalty Holdings LP	.DE	.NIA	Barings LLC	Management		MMLIC		
.0000			46-2344300				Intermodal Holdings II LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership	18.000	MMLIC		
.0000			47-3055009				Milestone Acquisition Holding, LLC.	.DE	.NIA	MassMutual Holding LLC	Ownership/Influence	18.300	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	20.700	MMLIC		
.0000			46-5460309				Red Lake Ventures, LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	31.500	MMLIC		

STATEMENT AS OF SEPTEMBER 30, 2019 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			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	66.700	MMLIC		
.0000			81-4065378				Remington L & W Holdings LLC	CT	NIA	Barings LLC	Influence		MMLIC		
.0000							Tamiami Citrus, LLC	DE	NIA	Massachusetts Mutual Life Insurance 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			46-0687392				US Pharmaceutical Holdings I, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Management		MMLIC		
.0000			20-2970495				US Pharmaceutical Holdings II, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	42.400	MMLIC		
.0000			20-2970495				US Pharmaceutical Holdings II, LLC	DE	NIA	Barings LLC	Influence		MMLIC		
.0000							EIP Holdings I, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	29.400	MMLIC		
.0000							EIP Holdings I, LLC	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Validus Pharmaceuticals LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	80.100	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							Barings Alternative Investments SLP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Asset-Based Income Fund (US) GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				Barings Global Investment Funds (U.S.) Management LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Babson Global Loan Feeder 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 CLO 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							Barings Global Energy Infrastructure Advisors, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Multi Asset Income Fund	HKG	DS	Barings LLC	Management		MMLIC		
.0000							Barings North American Private Loan Fund Management, 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/LAZ Parking Fund GP LLC	DE	DS	Barings LLC	Ownership	100.000	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							CEMF I GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							CHY Venture GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Cornerstone Hotel Fund GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							CREF X GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							CREF VIII 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			04-1590850				Mezzco LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			02-0767001				Mezzco II LLC	DE	DS	Barings LLC	Ownership	98.400	MMLIC		
.0000			41-2280126				Mezzco III LLC	DE	DS	Barings LLC	Ownership	99.300	MMLIC		

STATEMENT AS OF SEPTEMBER 30, 2019 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			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							Somerset Special Opportunities Management LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				Invesco Ltd.	BMJ	DS	Massachusetts Mutual Life Insurance Company	Ownership	15.700	MMLIC	Y	
.0000							MassMutual International LLC	DE	DS	Company	Ownership	100.000	MMLIC	Y	
.0000			04-3313782				MassMutual Solutions LLC	DE	DS	MassMutual International LLC	Ownership	100.000	MMLIC		
.0000							HarborTech (Asia) Limited	HKG	DS	MassMutual International LLC	Ownership	100.000	MMLIC		
.0000							Yunfeng Financial Group Limited	HKG	DS	MassMutual International LLC	Ownership	24.800	MMLIC		
.0000			04-2443240				MML Management Corporation	MA	DS	Company	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 Mezzanine Investor II, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MML Mezzanine Investor III, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			27-3576835				MassMutual External Benefits Group LLC	DE	DS	Company	Ownership	100.000	MMLIC		
.0000							100 w. 3rd Street LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			82-2432216				300 South Tryon Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							300 South Tryon LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Almack Mezzanine Fund I LP	GBR	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	41.400	MMLIC		
.0000							Almack Mezzanine Fund I LP	GBR	NIA	C.M. Life Insurance Company	Ownership	4.600	MMLIC		
.0000							Almack Mezzanine Fund II Unleveraged LP	GBR	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	72.900	MMLIC		
.0000							Almack Mezzanine Fund III LP	GBR	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	34.200	MMLIC		
.0000							Almack Mezzanine Fund III LP	GBR	NIA	C.M. Life Insurance Company	Ownership	3.800	MMLIC		
.0000							Almack Mezzanine Fund III LP	GBR	NIA	Barings (U.K.) Limited	Management		MMLIC		
.0000			36-4868350				Barings Asset-Based Income Fund (US) LP	DE	NIA	Company	Ownership/Influence	12.000	MMLIC		
.0000			36-4868350				Barings Asset-Based Income Fund (US) LP	DE	NIA	C.M. Life Insurance Company	Ownership/Influence	1.200	MMLIC		
.0000			36-4868350				Barings Asset-Based Income Fund (US) LP	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Emerging Markets Corporate Bond Fund			Massachusetts Mutual Life Insurance Company	Ownership/Influence	93.300	MMLIC		
.0000							Barings Emerging Markets Corporate Bond Fund	IRL	NIA	Company	Ownership/Influence		MMLIC		
.0000							Babson Capital Global Special Situation Credit Fund 2	IRL	NIA	Barings LLC	Management		MMLIC		
.0000			98-1206017				Babson Capital Global Special Situation Credit Fund 2	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	23.700	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	Massachusetts Mutual Life Insurance Company	Ownership/Influence		MMLIC		
.0000			37-1506417				Babson Capital Loan Strategies Fund, L.P.	DE	NIA	Barings LLC	Management		MMLIC		
.0000										Massachusetts Mutual Life Insurance Company	Ownership/Influence	75.800	MMLIC		

STATEMENT AS OF SEPTEMBER 30, 2019 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			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	61.900	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							Barings CLO 2018-IV	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2019-I	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000			98-1473665				Barings CLO 2019-II	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2019-III	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							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		
.0000							Massachusetts Mutual Life Insurance Company			Barings LLC	Ownership/Influence	99.300	MMLIC		
.0000			81-0841854				Barings CLO Investment Partners LP	DE	NIA	Barings LLC	Management		MMLIC		
.0000			81-0841854				Barings CLO Investment Partners LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	56.100	MMLIC		
.0000							Barings Real Estate European Value Add I SCSp	GBR	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	6.200	MMLIC		
.0000							Barings Real Estate European Value Add I SCSp	GBR	NIA	C.M. Life Insurance Company	Ownership		MMLIC		
.0000							Barings Real Estate European Value Add I SCSp	GBR	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Real Estate European Value Add I SCSp	GBR	NIA	Barings LLC	Management		MMLIC		
.0000			82-5330194				Barings Global Em. Markets Equity Fund	NC	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Global Energy Infrastructure Fund I LP	CYM	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	95.000	MMLIC		
.0000			98-1332384				Barings Global Energy Infrastructure Fund I LP	CYM	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Global Inv. Grade Strat Fund	IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Global Private Loan Fund	LUX	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	12.300	MMLIC		
.0000							Barings Global Private Loan Fund	LUX	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Global Real Assets Fund LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	40.900	MMLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	DE	NIA	C.M. Life Insurance Company	Ownership	7.200	MMLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Global Special Situations Credit Fund 3	IRL	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	21.200	MMLIC		
.0000							Barings Global Special Situations Credit Fund 3	IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Middle Market CLO 2017-I Ltd & LLC	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings Middle Market CLO 2018-I	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings North American Private Loan Fund LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	46.900	MMLIC		
.0000			38-4010344				Barings North American Private Loan Fund LP	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Barings RE Credit Strategies VII LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	34.700	MMLIC		

STATEMENT AS OF SEPTEMBER 30, 2019 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			98-1332384				Barings RE Credit Strategies VII LP	DE	NIA	Baring Asset Management Limited Massachusetts Mutual Life Insurance Company	Management				
.0000			26-4142796				Baring International Small Cap Equity Fund	DE	NIA	Baring International Small Cap Equity Fund	Ownership/Influence	10.500	MMLIC		
.0000			26-4142796				Baring International Small Cap Equity Fund	DE	NIA	Baring Asset Management Limited Massachusetts Mutual Life Insurance Company	Management				
.0000							Braemar Energy Ventures I, L.P.	DE	NIA	Braemar Energy Ventures I, L.P.	Ownership/Influence	89.100	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				
.0000							Barings European Core Property Fund SCSp	LUX	NIA	MassMutual Holding LLC	Ownership/Influence	12.800	MMLIC		
.0000							Barings European Core Property Fund SCSp	LUX	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000							Barings European Core Property Fund SCSp	LUX	NIA	Barings Real Estate Advisers LLC	Management				
.0000			38-4059932				Benchmark 2018-B2 Mortgage Trust	NY	NIA	Barings LLC	Influence				
.0000							Benchmark 2018-B4	NY	NIA	Barings LLC	Influence				
.0000			38-4096530				Benchmark 2018-B8	NY	NIA	Barings LLC	Influence				
.0000			04-1590850				Braselton Point LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			36-4770946				Cornerstone High Yield Venture LP	DE	NIA	Barings Real Estate Advisers LLC	Management				
.0000			36-4770946				Cornerstone High Yield Venture LP	DE	NIA	Barings Real Estate Advisers LLC	Management				
.0000			20-5578089				Barings Core Property Fund LP	DE	NIA	MassMutual Holding LLC	Ownership/Influence	14.400	MMLIC		
.0000			20-5578089				Barings Core Property Fund LP	DE	NIA	Barings Real Estate Advisers LLC Massachusetts Mutual Life Insurance Company	Management				
.0000			46-5432619				Cornerstone Real Estate Fund X LP	DE	NIA	Barings Real Estate Advisers LLC	Management				
.0000			46-5432619				Cornerstone Real Estate Fund X LP	DE	NIA	Barings Real Estate Advisers LLC	Management				
.0000			46-5432619				Cornerstone Real Estate Fund X LP	DE	NIA	Barings Real Estate Advisers LLC Massachusetts Mutual Life Insurance Company	Management				
.0000			35-2531693				Cornerstone Permanent Mortgage Fund III LLC	MA	NIA	Barings Real Estate Advisers LLC Massachusetts Mutual Life Insurance Company	Management				
.0000			46-5437441				Barings/LAZ Parking Fund LP	DE	NIA	Barings Real Estate Advisers LLC	Management				
.0000			46-5437441				Barings/LAZ Parking Fund LP	DE	NIA	Barings Real Estate Advisers LLC Massachusetts Mutual Life Insurance Company	Management				
.0000			90-0991195		0001597511		Gateway Mezzanine Partners II LP	DE	NIA	Barings Real Estate Advisers LLC Massachusetts Mutual Life Insurance Company	Management				
.0000			90-0991195		0001597511		Gateway Mezzanine Partners II LP	DE	NIA	Barings Real Estate Advisers LLC Massachusetts Mutual Life Insurance Company	Management				
.0000			90-0991195				Gateway Mezzanine Partners II LP	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Management				
.0000			37-1708623				Great Lakes III, L.P.	DE	NIA	Barings LLC	Management				
.0000			37-1708623				Great Lakes III, L.P.	DE	NIA	Barings LLC	Management				
.0000							JPMCC Commercial Mortgage Securities Trust 2017-JP7	NY	NIA	Barings LLC	Influence				
.0000			38-4041011				JPMDB Commercial Mortgage Securities Trust 2017-C5	NY	NIA	Barings LLC	Influence				
.0000			38-4032059				JPMDB Commercial Mortgage Securities Trust 2017-C5	NY	NIA	Barings LLC	Influence				
.0000			82-1512591				KKR-MM Vector LP	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	53.800	MMLIC		
.0000			46-4255307				Marco Hotel LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			04-1590850				Miami Douglas One GP LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	84.500	MMLIC		
.0000			04-1590850				Miami Douglas One GP LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	5.500	MMLIC		
.0000			45-3623262				HB Naples Golf Owner LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			81-3000420				MM Debt Participations LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			81-3000420				MM Debt Participations LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			82-4411267				RB Apartments LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		

STATEMENT AS OF SEPTEMBER 30, 2019 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			75-2901061				Reston Arboretum LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							Rockall CLO B.V.	GBR	NIA	Barings LLC	Influence		MLLIC		
.0000			54-2055778				Rockville Town Center LLC	VA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			20-8856877				Somerset Special Opportunities Fund L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	59.000	MLLIC		
.0000			20-8856877				Somerset Special Opportunities Fund L.P.	DE	NIA	C.M. Life Insurance Company	Ownership	2.900	MLLIC		
.0000			35-2553915				Ten Fan Pier Boulevard LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			30-0336246				Tower Square Capital Partners II, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	22.400	MLLIC		
.0000			30-0336246				Tower Square Capital Partners II, L.P.	DE	NIA	C.M. Life Insurance Company	Ownership	3.900	MLLIC		
.0000			32-0160190				Tower Square Capital Partners II-A, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	85.000	MLLIC		
.0000			41-2280127				Tower Square Capital Partners III, L.P.	DE	NIA	Barings LLC	Management		MLLIC		
.0000			41-2280127				Tower Square Capital Partners III, L.P.	DE	NIA	MassMutual Holding LLC	Ownership/Influence	17.700	MLLIC		
.0000			41-2280129				Tower Square Capital Partners IIIA, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	95.000	MLLIC		
.0000			41-2280129				Tower Square Capital Partners IIIA, L.P.	DE	NIA	Barings LLC	Management		MLLIC		
.0000			80-0920367				Tower Square Capital Partners IV-A, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	21.300	MLLIC		
.0000			04-1590850				Trailside MM Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	59.600	MLLIC		
.0000			04-1590850				Trailside MM Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	7.400	MLLIC		
.0000			83-1325764				Washington Gateway Two LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	88.300	MLLIC		
.0000			83-1325764				Washington Gateway Two LLC	DE	NIA	C.M. Life Insurance Company	Ownership	6.700	MLLIC		
.0000			32-0574045				Washington Gateway Three LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	83.600	MLLIC		
.0000			32-0574045				Washington Gateway Three LLC	DE	NIA	C.M. Life Insurance Company	Ownership	11.400	MLLIC		
.0000			04-1590850				West 46th Street Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							Barings Emerging Markets Debt Short Duration Fund	IRL	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Emerging Markets Sovereign Debt Fund	IRL	NIA	Barings LLC	Management		MLLIC		
.0000							Babson Capital Loan Strategies Master Fund LP	CYM	NIA	Barings LLC	Management		MLLIC		
.0000			47-3790192				Barings Global High Yield Fund	MA	NIA	Barings LLC	Management		MLLIC		
.0000			47-3734770				Barings Total Return Bond Fund	MA	NIA	Barings LLC	Management		MLLIC		
.0000			47-3801860				Barings U.S. High Yield Fund	MA	NIA	Barings LLC	Management		MLLIC		
.0000			71-1018134				Great Lakes II LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	11.200	MLLIC		
.0000			71-1018134				Great Lakes II LLC	DE	NIA	C.M. Life Insurance Company	Ownership	1.000	MLLIC		
.0000			04-1590850				Wood Creek Venture Fund LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	40.000	MLLIC		
.0000			36-4823011				50 Liberty LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	59.100	MLLIC		
.0000			36-4823011				50 Liberty LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.800	MLLIC		
.0000			80-0948028				One Harbor Shore LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	97.000	MLLIC		
.0000			80-0948028				One Harbor Shore LLC	DE	NIA	C.M. Life Insurance Company	Ownership	3.000	MLLIC		

STATEMENT AS OF SEPTEMBER 30, 2019 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			81-4382111				Budapester Strasse LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	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	84.400	MMLIC		
.0000			56-2630592				Cornerstone Fort Pierce Development LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.600	MMLIC		
.0000			45-2632610				Cornerstone Permanent Mortgage Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	98.700	MMLIC		
.0000			45-2632610				Cornerstone Permanent Mortgage Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000			61-1750537				Cornerstone Permanent Mortgage Fund II	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	99.100	MMLIC		
.0000			61-1750537				Cornerstone Permanent Mortgage Fund II	MA	NIA	Barings LLC	Management		MMLIC		
.0000			61-1793735				Cornerstone Permanent Mortgage Fund IV	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			81-0890084				CREA Madison Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	90.000	MMLIC		
.0000			82-1563809				CCB Montford Park LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	94.000	MMLIC		
.0000			82-1563809				CCB Montford Park LLC	DE	NIA	C.M. Life Insurance Company	Ownership	6.000	MMLIC		
.0000			82-2783393				Danville Riverwalk Venture, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			20-3347091				Fan Pier Development LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	60.000	MMLIC		
.0000			20-3347091				Fan Pier Development LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.000	MMLIC		
.0000			46-3880526				Farringdon London Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	94.500	MMLIC		
.0000			46-3880526				Farringdon London Holdings LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.500	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	95.000	MMLIC		
.0000			04-1590850				PACO France Logistics LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				PACO France Logistics 2 LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				PACO France Logistics 3 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							Salomon Brothers Commercial Mortgage Trust 2001-1M	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		

STATEMENT AS OF SEPTEMBER 30, 2019 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			27-2977720				Sawgrass Village Shopping Center LLC	DE	NIA	C.M. Life Insurance Company	Ownership	15.800	MMLIC		
.0000			04-1590850				Spain Avalon Holding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			81-5273574				Three PW Office Holding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.000	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			45-4606547				UK LIW Manager LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			45-4606547				UK LIW Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			82-3250684				Unna, Dortmund Holding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			82-3281588				Via Ceresio Milan 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	91.500	MMLIC		
.0000			45-5401109				Washington Gateway Apartments Venture LLC	DE	NIA	C.M. Life Insurance Company	Ownership	4.800	MMLIC		
.0000			47-1993493				Waterloo London Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			20-5481477				Ygnatio Valley Funding	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	90.000	MMLIC		
.0000			45-3168892				MassMutual Barings Dynamic Allocation Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			51-0529328		0000927972	0Q	MassMutual Premier Main Street Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	17.700	MMLIC		
.0000			26-3229251		0000927972	0Q	MassMutual Premier Strategic Emerging Markets Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	2.300	MMLIC		
.0000			04-3277550		0000927972	0Q	MassMutual Premier Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			14-1980900		0000916053	0Q	MassMutual Select Diversified International Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			01-0821120		0000916053	0Q	MassMutual Select Diversified Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	1.300	MMLIC		
.0000			04-3512593		0000916053	0Q	MassMutual Select Fundamental Growth Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			04-3513019		0000916053	0Q	MassMutual Select Large Cap Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			42-1710935		0000916053	0Q	MassMutual Select Mid-Cap Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	17.700	MMLIC		
.0000			02-0769954		0000916053	0Q	MassMutual Select Small Capital Value Equity Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			04-3584140		0000916053	0Q	MassMutual Select Small Company Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	11.500	MMLIC		
.0000			82-3347422		0000916053	0Q	MassMutual Select T. Rowe Price Retirement 2005 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	6.800	MMLIC		
.0000			82-3355639		0000916053	0Q	MassMutual Select T. Rowe Price Retirement 2010 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3382389		0000916053	0Q	MassMutual Select T. Rowe Price Retirement 2015 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3396442		0000916053	0Q	MassMutual Select T. Rowe Price Retirement 2020 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		

13.10

STATEMENT AS OF SEPTEMBER 30, 2019 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			82-3417420		0000916053	QO	MassMutual Select T. Rowe Price Retirement 2025 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3430358		0000916053	QO	MassMutual Select T. Rowe Price Retirement 2030 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3439837		0000916053	QO	MassMutual Select T. Rowe Price Retirement 2035 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3451779		0000916053	QO	MassMutual Select T. Rowe Price Retirement 2040 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3472295		0000916053	QO	MassMutual Select T. Rowe Price Retirement 2045 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3481715		0000916053	QO	MassMutual Select T. Rowe Price Retirement 2050 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3502011		0000916053	QO	MassMutual Select T. Rowe Price Retirement 2055 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3525148		0000916053	QO	MassMutual Select T. Rowe Price Retirement 2060 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3533944		0000916053	QO	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	94.800	MMLIC		
.0000			47-3559064				MML Series II Special Situations Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	97.200	MMLIC		
.0000			27-1933828		0000916053	QO	MassMutual RetireSMART 2015 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			27-1933389		0000916053	QO	MassMutual RetireSMART 2035 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	5.200	MMLIC		
.0000			27-1932769		0000916053	QO	MassMutual RetireSMART 2045 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	12.300	MMLIC		
.0000			46-3289207		0000916053	QO	MassMutual RetireSMART 2055 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	35.500	MMLIC		
.0000			47-5326235		0000916053	QO	MassMutual RetireSMART 2060 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	71.800	MMLIC		
.0000			45-1618155		0000916053	QO	MassMutual RetireSMART Conservative Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			45-1618222		0000916053	QO	MassMutual RetireSMART Growth Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			03-0532464		0000916053		MassMutual RetireSMART In Retirement Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	1.100	MMLIC		
.0000			45-1618262		0000916053	QO	MassMutual RetireSMART Moderate Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			45-1618046		0000916053	QO	MassMutual RetireSMART Moderate Growth Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		

Asterisk	Explanation
----------	-------------

13.11

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

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.

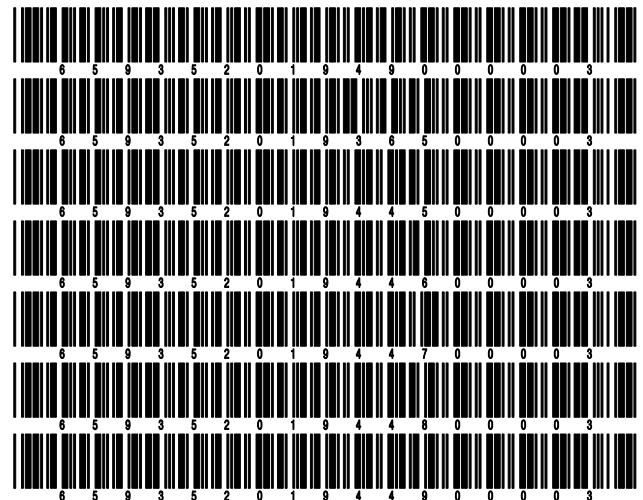
	Response
1. Will the Trusteed Surplus Statement be filed with the state of domicile and the NAIC with this statement?	NO
2. Will the Medicare Part D Coverage Supplement be filed with the state of domicile and the NAIC with this statement?	NO
3. Will the Reasonableness of Assumptions Certification required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

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

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]



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	27,253,152		27,253,152	26,641,910
2505. Cash advances to agents	217,991,581	217,747,255	244,326	0
2506. Pension plan asset	648,853,706	663,539,467	(14,685,761)	0
2507. Intangible assets	81,728,345	81,728,345	0	0
2508. Commissions and expenses on long-term lease	60,162,308	60,162,308	0	0
2509. Bills receivable	597,216	597,216	0	0
2597. Summary of remaining write-ins for Line 25 from overflow page	1,036,586,308	1,023,774,591	12,811,717	26,641,910

Additional Write-ins for Liabilities Line 25

	1 Current Statement Date	2 December 31 Prior Year
2504. Funds awaiting escheat and other miscellaneous	88,065,704	78,826,501
2505. Deferred income liability	14,255,310	15,151,127
2597. Summary of remaining write-ins for Line 25 from overflow page	102,321,014	93,977,628

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. Revenue sharing	53,562,173	91,197,527	118,220,703
08.305. Miscellaneous income	30,426,892	10,921,205	15,704,499
08.397. Summary of remaining write-ins for Line 8.3 from overflow page	83,989,065	102,118,732	133,925,202

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. Ceded income on funds withheld	154,039,195	149,546,059	200,347,847
2705. Change in liability for employee/agent benefit plans	52,612,086	25,330,567	(8,510,950)
2706. Miscellaneous charges to operations	23,139,013	15,267,840	15,536,263
2797. Summary of remaining write-ins for Line 27 from overflow page	229,790,294	190,144,466	207,373,160

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			127,967,631
5397. Summary of remaining write-ins for Line 53 from overflow page	0	0	127,967,631

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	488,306,553	857,001,296
2. Cost of acquired:		
2.1 Actual cost at time of acquisition	25,489,343	57,671,139
2.2 Additional investment made after acquisition	77,647,267	152,570,868
3. Current year change in encumbrances	(25,291,141)	(386,999,179)
4. Total gain (loss) on disposals	73,311,714	170,141,914
5. Deduct amounts received on disposals	190,962,861	275,807,610
6. Total foreign exchange change in book/adjusted carrying value		0
7. Deduct current year's other than temporary impairment recognized	40,793,428	2,208,173
8. Deduct current year's depreciation	69,480,517	84,063,702
9. Book/adjusted carrying value at the end of current period (Lines 1+2+3+4-5+6-7-8)	338,226,930	488,306,553
10. Deduct total nonadmitted amounts		0
11. Statement value at end of current period (Line 9 minus Line 10)	338,226,930	488,306,553

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	23,623,807,529	22,579,846,619
2. Cost of acquired:		
2.1 Actual cost at time of acquisition	3,874,138,873	3,229,830,662
2.2 Additional investment made after acquisition	338,894,749	468,570,683
3. Capitalized deferred interest and other	35,042,622	39,017,050
4. Accrual of discount	2,732,452	4,764,878
5. Unrealized valuation increase (decrease)		0
6. Total gain (loss) on disposals	981,049	(1,214,062)
7. Deduct amounts received on disposals	1,869,513,395	2,574,815,338
8. Deduct amortization of premium and mortgage interest points and commitment fees	16,284	(2,704,349)
9. Total foreign exchange change in book value/recorded investment excluding accrued interest	(88,335,451)	(124,897,312)
10. Deduct current year's other than temporary impairment recognized		0
11. Book value/recorded investment excluding accrued interest at end of current period (Lines 1+2+3+4+5+6-7-8+9-10)	25,917,732,144	23,623,807,529
12. Total valuation allowance		
13. Subtotal (Line 11 plus Line 12)	25,917,732,144	23,623,807,529
14. Deduct total nonadmitted amounts		0
15. Statement value at end of current period (Line 13 minus Line 14)	25,917,732,144	23,623,807,529

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	8,643,322,029	7,722,717,021
2. Cost of acquired:		
2.1 Actual cost at time of acquisition	195,483,389	1,841,133,266
2.2 Additional investment made after acquisition	802,200,462	2,020,426,390
3. Capitalized deferred interest and other		0
4. Accrual of discount		
5. Unrealized valuation increase (decrease)	497,025,699	652,916,795
6. Total gain (loss) on disposals	5,372,071	5,542,359
7. Deduct amounts received on disposals	1,020,662,097	3,509,181,095
8. Deduct amortization of premium and depreciation	522,851	567,724
9. Total foreign exchange change in book/adjusted carrying value	(25,460,806)	(60,633,528)
10. Deduct current year's other than temporary impairment recognized	13,070,302	29,031,457
11. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5+6-7-8+9-10)	9,083,687,594	8,643,322,029
12. Deduct total nonadmitted amounts	37,564,892	43,866,156
13. Statement value at end of current period (Line 11 minus Line 12)	9,046,122,702	8,599,455,873

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	110,650,590,353	106,837,837,246
2. Cost of bonds and stocks acquired	22,886,267,674	28,933,190,148
3. Accrual of discount	188,567,661	277,958,552
4. Unrealized valuation increase (decrease)	4,441,781,988	1,440,127,883
5. Total gain (loss) on disposals	129,469,806	72,777,254
6. Deduct consideration for bonds and stocks disposed of	18,508,117,856	24,859,504,095
7. Deduct amortization of premium	91,786,381	134,973,241
8. Total foreign exchange change in book/adjusted carrying value	(491,650,788)	(573,657,471)
9. Deduct current year's other than temporary impairment recognized	92,713,167	1,392,111,397
10. Total investment income recognized as a result of prepayment penalties and/or acceleration fees	54,869,805	48,945,474
11. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9+10)	119,167,279,095	110,650,590,353
12. Deduct total nonadmitted amounts		
13. Statement value at end of current period (Line 11 minus Line 12)	119,167,279,095	110,650,590,353

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE D - PART 1B

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

NAIC Designation	1 Book/Adjusted Carrying Value Beginning of Current Quarter	2 Acquisitions During Current Quarter	3 Dispositions During Current Quarter	4 Non-Trading Activity During Current Quarter	5 Book/Adjusted Carrying Value End of First Quarter	6 Book/Adjusted Carrying Value End of Second Quarter	7 Book/Adjusted Carrying Value End of Third Quarter	8 Book/Adjusted Carrying Value December 31 Prior Year
BONDS								
1. NAIC 1 (a)	53,748,302,507	4,797,937,839	5,442,841,787	46,233,133	54,836,066,772	53,748,302,507	53,149,631,692	54,426,947,350
2. NAIC 2 (a)	39,120,366,218	27,535,247,889	24,647,233,307	(218,356,095)	39,707,523,629	39,120,366,218	41,790,024,705	39,721,923,702
3. NAIC 3 (a)	2,639,062,536	780,521,967	759,829,015	(45,822,558)	2,792,333,508	2,639,062,536	2,613,932,930	2,851,626,812
4. NAIC 4 (a)	5,563,444,246	980,345,690	1,235,952,073	(406,698,368)	1,897,127,773	5,563,444,246	4,901,139,495	2,004,562,945
5. NAIC 5 (a)	1,522,647,184	93,049,469	65,911,438	339,454,334	1,509,117,188	1,522,647,184	1,889,239,549	1,496,376,273
6. NAIC 6 (a)	475,955,629	14,463,308	11,179,331	(49,962,356)	408,052,066	475,955,629	429,277,250	350,616,700
7. Total Bonds	103,069,778,320	34,201,566,162	32,162,946,951	(335,151,910)	101,150,220,936	103,069,778,320	104,773,245,621	100,852,053,782
PREFERRED STOCK								
8. NAIC 1	443,850,000				443,850,000	443,850,000	443,850,000	443,850,000
9. NAIC 2	125,183,288	0	0	(3,564,000)	127,805,688	125,183,288	121,619,288	125,632,088
10. NAIC 3	141,021,927				141,021,927	141,021,927	141,021,927	140,943,708
11. NAIC 4	669,179	0	0	(669,179)	669,179	669,179	0	669,179
12. NAIC 5	23,215,602	43,809	0	719,983	23,053,631	23,215,602	23,979,394	16,697,090
13. NAIC 6	12,086,426	0	0	(74,460)	11,399,453	12,086,426	12,011,966	16,300,001
14. Total Preferred Stock	746,026,422	43,809	0	(3,587,656)	747,799,878	746,026,422	742,482,575	744,092,066
15. Total Bonds and Preferred Stock	103,815,804,742	34,201,609,971	32,162,946,951	(338,739,566)	101,898,020,814	103,815,804,742	105,515,728,196	101,596,145,848

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

NAIC 1 \$ 1,052,127,781 ; NAIC 2 \$ 3,408,795,928 ; NAIC 3 \$ 0 ; NAIC 4 \$ 0 ; NAIC 5 \$ 0 ; NAIC 6 \$ 0

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	1,090,298,991	xxx	1,087,596,517	1,313,617	358

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	447,734,452	508,320,258
2. Cost of short-term investments acquired	2,343,454,066	2,219,939,077
3. Accrual of discount	13,869,290	9,958,973
4. Unrealized valuation increase (decrease)		0
5. Total gain (loss) on disposals	99,121	89,026
6. Deduct consideration received on disposals	1,714,857,939	2,290,572,883
7. Deduct amortization of premium		0
8. Total foreign exchange change in book/adjusted carrying value		0
9. Deduct current year's other than temporary impairment recognized		0
10. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9)	1,090,298,991	447,734,452
11. Deduct total nonadmitted amounts		0
12. Statement value at end of current period (Line 10 minus Line 11)	1,090,298,991	447,734,452

SCHEDULE DB - PART A - VERIFICATION

Options, Caps, Floors, Collars, Swaps and Forwards

1. Book/Adjusted Carrying Value, December 31, prior year (Line 9, prior year)	3,628,605,132
2. Cost Paid/(Consideration Received) on additions	258,956,575
3. Unrealized Valuation increase/(decrease)	976,466,295
4. Total gain (loss) on termination recognized	431,664,135
5. Considerations received/(paid) on terminations	759,287,787
6. Amortization	(2,057,914)
7. Adjustment to the Book/Adjusted Carrying Value of hedged item	
8. Total foreign exchange change in Book/Adjusted Carrying Value	
9. Book/Adjusted Carrying Value at End of Current Period (Lines 1+2+3+4-5+6+7+8)	4,534,346,436
10. Deduct nonadmitted assets	
11. Statement value at end of current period (Line 9 minus Line 10)	4,534,346,436

SCHEDULE DB - PART B - VERIFICATION

Futures Contracts

1. Book/Adjusted carrying value, December 31 of prior year (Line 6, prior year)	0
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	0
3.12 Section 1, Column 15, prior year	0
Change in variation margin on open contracts - All Other	
3.13 Section 1, Column 18, current year to date minus	(63,927,345)
3.14 Section 1, Column 18, prior year	200,720,383
	(264,647,728)
	(264,647,728)
3.2 Add:	
Change in adjustment to basis of hedged item	
3.21 Section 1, Column 17, current year to date minus	0
3.22 Section 1, Column 17, prior year	0
Change in amount recognized	
3.23 Section 1, Column 19, current year to date minus	(63,927,345)
3.24 Section 1, Column 19, prior year	200,720,383
	(264,647,728)
	(264,647,728)
3.3 Subtotal (Line 3.1 minus Line 3.2)	0
4.1 Cumulative variation margin on terminated contracts during the year	734,769,462
4.2 Less:	
4.21 Amount used to adjust basis of hedged item	
4.22 Amount recognized	534,049,079
	534,049,079
4.3 Subtotal (Line 4.1 minus Line 4.2)	200,720,383
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	(200,720,383)
6. Book/Adjusted carrying value at end of current period (Lines 1+2+3.3-4.3-5.1-5.2)	0
7. Deduct total nonadmitted amounts	
8. Statement value at end of current period (Line 6 minus Line 7)	0

STATEMENT AS OF SEPTEMBER 30, 2019 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*AA9	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	2	50,000,000	13,082,904	21,467,132	10/01/2012	10/01/2042	Interest Rate Swap	8,436,444		42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	13,082,904	13,030,688
57629*AA9	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	2		11,551,142	12,158,757	10/01/2012	10/01/2042	Interest Rate Swap			320808-AD-0	FIRST MARYLAND CAP I-LIMITED GUARANTEE NOTE	2	11,551,142	12,158,757
57629*AA9	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	2		17,944,010	18,023,313	10/01/2012	10/01/2042	Interest Rate Swap			38136M-AC-2	Goldentree Loan Management US Clo 2 Ltd	1	17,944,010	18,023,313
57629*AA9	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	2		10,000,000	9,934,780	10/01/2012	10/01/2042	Interest Rate Swap			09629L-AE-5	BLUEMOUNTAIN CLO XXIII L-BLUEM 2018-23A B	1	10,000,000	9,934,780
57629*AA9	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	2		5,000,000	4,814,215	10/01/2012	10/01/2042	Interest Rate Swap			03328Y-AG-9	Anchorage Capital CLO Lt-ANCHC 2018-1RA C	1	5,000,000	4,814,215
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3	50,000,000	2,483,711	10,861,540	10/01/2012	10/01/2042	Interest Rate Swap	8,377,829		77277L-A7-2	ROCKALL CLO BV Variable Funding Note- USD	1	2,483,711	2,483,711
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		4,299,399	4,416,257	10/01/2012	10/01/2042	Interest Rate Swap			83149E-AG-2	SLM STUDENT LN TR 2006-5-NOTE CL B	1	4,299,399	4,416,257
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		5,470,000	5,400,115	10/01/2012	10/01/2042	Interest Rate Swap			883310-AE-4	THAYER PARK CLO LTD.-THAYR 2017-1A B	1	5,470,000	5,400,115
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		6,430,000	6,417,275	10/01/2012	10/01/2042	Interest Rate Swap			77342K-AA-8	ROCKFORD TOWER CLO 2018-ROCKT 2018-2A A	1	6,430,000	6,417,275
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		8,000,000	7,842,208	10/01/2012	10/01/2042	Interest Rate Swap			09628F-AE-9	BlueMountain Fuji US Clo-SERIES 2017-3A CLASS B	1	8,000,000	7,842,208
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		4,000,000	3,983,796	10/01/2012	10/01/2042	Interest Rate Swap			13876J-AE-2	Canyon Capital CLO Ltd-CANVC 2012-1RA B	1	4,000,000	3,983,796
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		15,000,000	14,830,320	10/01/2012	10/01/2042	Interest Rate Swap			88432U-AC-0	Wind River CLO Ltd-SERIES 18-3A CLASS A2	1	15,000,000	14,830,320
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		6,800,000	6,754,732	10/01/2012	10/01/2042	Interest Rate Swap			03762Y-AH-0	Apidos Clo XXV-APID 2016-25A A2R	1	6,800,000	6,754,732
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	264,000,000	19,165,000	62,633,811	11/29/2012	11/29/2042	Interest Rate Swap	43,612,548		14316R-ZZ-6	Carlyle US CLO 2017-5 Re Term Loan	1	19,165,000	19,021,263
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,375,782	6,639,562	11/29/2012	11/29/2042	Interest Rate Swap			83149F-AD-6	SLM Student Loan Trust 2006-6	1	6,375,782	6,639,562
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,500,000	15,493,149	11/29/2012	11/29/2042	Interest Rate Swap			375415-AA-4	GILBERT PARK CLO LTD-SERIES 17-1A CLASS A	1	15,500,000	15,493,149
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,095,378	11/29/2012	11/29/2042	Interest Rate Swap			14310D-AY-3	CARLYLE GLOBAL MKT STRATEGIES CLO 2013-2 LTD MEZZ SECD DEF NT	1	13,500,000	13,095,378
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,100,000	12,798,071	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	12,798,071
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		27,761,873	28,710,102	11/29/2012	11/29/2042	Interest Rate Swap			57542Z-AO-7	MASSMUTUAL ASSET FIN LLC SR SECD REV NT	4	27,761,873	28,710,102
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		131,351,303	131,359,447	11/29/2012	11/29/2042	Interest Rate Swap			126611-AL-6	CVP CASCADE CLO LTD-CVPC 2014-2A A1R	1	131,351,303	131,359,447
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,200,000	6,111,563	11/29/2012	11/29/2042	Interest Rate Swap			94950G-AE-7	WELLFLEET CLO LTD-WELF 2017-1A B	1	6,200,000	6,111,563
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,525,000	5,459,827	11/29/2012	11/29/2042	Interest Rate Swap			01748R-AE-5	ALLEGRO CLO V LTD-SERIES 17-1A CLASS MEZ, FLT	1	5,525,000	5,459,827
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,771,580	11/29/2012	11/29/2042	Interest Rate Swap			38137M-AK-3	Goldentree Loan Oppor tun-GLD12 2016-12A AJR	1	15,000,000	14,771,580
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,500,000	4,336,191	11/29/2012	11/29/2042	Interest Rate Swap			03767M-AJ-7	Apidos CLO-APID 2018-29A B	1	4,500,000	4,336,191
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,971,995	11/29/2012	11/29/2042	Interest Rate Swap			17181T-AA-9	CIFC Funding 2018-IV Ltd-SERIES 18-4A CLASS A1	1	5,000,000	4,971,995
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,050,000	1,075,830	11/29/2012	11/29/2042	Interest Rate Swap			72403*-MP-4	PIONEERS GATE LLC 2017-9 DT Warehouse Class B	1	1,050,000	1,075,830
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	12,000,000	32,072,405	12/27/2012	12/27/2042	Interest Rate Swap	20,202,041		67112K-AC-3	OPC CLO Ltd-SEREIS 18-15A CLASS A3	1	12,000,000	11,870,364
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,993,416	12/27/2012	12/27/2042	Interest Rate Swap			83609R-AE-1	SOUND POINT CLO LTD-SNDPT 2017-1A C	1	4,000,000	3,993,416
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,800,000	22,745,280	12/27/2012	12/27/2042	Interest Rate Swap			14315J-YY-9	Carlyle US CLO 2017-3 Ri Term Loan	1	22,800,000	22,745,280
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,200,000	3,144,781	12/27/2012	12/27/2042	Interest Rate Swap			03330A-AC-6	Anchorage Capital CLO 3-ANCHC 2014-3RA B	1	3,200,000	3,144,781
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		33,000,000	32,869,650	12/27/2012	12/27/2042	Interest Rate Swap			87271L-AJ-1	TIAA CLO I Ltd-TIA 2016-1A AR	1	33,000,000	32,869,650

S105

STATEMENT AS OF SEPTEMBER 30, 2019 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 Corp Bonds	1		8,800,000	8,641,926	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	8,641,926
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,901,102	16,209,167	12/27/2012	12/27/2042	Interest Rate Swap			24820R-AA-6	Statoil ASA-SENIOR UNSECURED NOTE CIFC Funding 2017-IV Ltd-SERIES 17-4A CLASS B	1	13,901,102	16,209,167
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,961,904	4,875,790	12/27/2012	12/27/2042	Interest Rate Swap			12551J-AG-1	WACHOVIA STUDENT LOAN TR-WSLT 2005-1 B	1	4,961,904	4,875,790
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	13,448,815	33,471,437	12/27/2012	12/27/2042	Interest Rate Swap		20,202,041	92977H-AG-3	ATRIUM CDO CORP-SERIES 9A CLASS BR	1	13,448,815	13,269,396
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,990,000	18,978,910	12/27/2012	12/27/2042	Interest Rate Swap			04964K-AN-1	VOYA CLO LTD-VOYA 2014-2A A2AR Denali Capital CLO X LLC-DEN10	1	18,990,000	18,978,910
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,810,000	18,674,135	12/27/2012	12/27/2042	Interest Rate Swap			92912V-AQ-8	Denali Capital CLO X LLC-DEN10	1	18,810,000	18,674,135
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,370,701	5,374,098	12/27/2012	12/27/2042	Interest Rate Swap			24823B-AK-6	Babson CLO Ltd/Cayman Is-BABSN 2018-3A A2	1	5,370,701	5,374,098
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,000,000	22,678,322	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	22,678,322
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,500,000	9,398,550	12/27/2012	12/27/2042	Interest Rate Swap			55821A-AE-8	Shackleton 2015-VII-R CL-SERIES 2015-7RA CLASS B	1	9,500,000	9,398,550
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,949,320	12/27/2012	12/27/2042	Interest Rate Swap			81883A-AC-3	ARROWMARK COLORADO HOLDI-SERIES 17-7A CLASS B	1	8,000,000	7,949,320
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,954,620	12/27/2012	12/27/2042	Interest Rate Swap			28622J-AB-3	Goldentree Loan Managem-GLM 2018-3A B1	1	4,000,000	3,954,620
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	6,000,000	26,540,368	12/28/2012	12/28/2042	Interest Rate Swap		20,607,538	38138B-AG-5	Marble Point CLO XIV Ltd-HP14 2018-2A A	1	6,000,000	5,932,830
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		29,942,965	29,968,050	12/28/2012	12/28/2042	Interest Rate Swap			56608K-AA-1	TICP CLO VI 2016-2 Ltd-SERIES 2016-6A CLASS BR	1	29,942,965	29,968,050
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,990,650	12/28/2012	12/28/2042	Interest Rate Swap			87246M-AJ-1	MADISON PARK FUNDING LTD-SERIES 2015-16A CLASS BR	1	10,000,000	9,990,650
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	6,999,930	12/28/2012	12/28/2042	Interest Rate Swap			55818X-BA-0	WIND RIVER CLO LTD-WINDR 2017-1A B	1	7,000,000	6,999,930
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,050,000	11,022,939	12/28/2012	12/28/2042	Interest Rate Swap			88432M-AC-8	Crestline Denali CLO XIV-SERIES16-1A CLASS A1R	1	11,050,000	11,022,939
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,000,000	22,987,994	12/28/2012	12/28/2042	Interest Rate Swap			22615M-AL-6	Tryon Park CLO Ltd-TPCLO 2013-1A	1	23,000,000	22,987,994
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,900,136	12/28/2012	12/28/2042	Interest Rate Swap			89852T-AN-8	TICP CLO VI 2016-5 LTD-TICP 2016-5A A2R	1	8,000,000	7,900,136
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,000,000	2,962,932	12/28/2012	12/28/2042	Interest Rate Swap			87248K-AS-3	Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	3,000,000	2,962,932
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	990,080	12/28/2012	12/28/2042	Interest Rate Swap			94950J-AA-9	HPS LOAN MANAGEMENT 13-2-HLM 13A-18 A2	1	1,000,000	990,080
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,954,788	12/28/2012	12/28/2042	Interest Rate Swap			40437L-AE-2	Voya CLO Ltd-SERIES 18-1A CLASS B	1	4,000,000	3,954,788
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,060,000	4,786,102	12/28/2012	12/28/2042	Interest Rate Swap			92917A-AE-6	Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	5,060,000	4,786,102
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	59,000,000	79,022,258	12/28/2012	12/28/2042	Interest Rate Swap		20,607,538	94950J-AA-9	BABSON CLO LTD 2015-II-SERIES 15-2A CLASS AR	1	59,000,000	58,414,720
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,200,000	14,199,972	12/28/2012	12/28/2042	Interest Rate Swap			06759F-AB-2	Ares XXXIR CLO Ltd-SERIES 14-31RA CLASS B	1	14,200,000	14,199,972
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,745,140	12/28/2012	12/28/2042	Interest Rate Swap			04017T-AE-9	MADISON PARK FUNDING LTD-SERIES 15-17A CLASS B1R	1	20,000,000	19,745,140
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,700,000	12,664,021	12/28/2012	12/28/2042	Interest Rate Swap			55818Y-BE-0	CIFC Funding 2018-I Ltd-SERIES 18-1A CLASS C	1	12,700,000	12,664,021
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,200,000	3,987,703	12/28/2012	12/28/2042	Interest Rate Swap			12551R-AE-8	Benefit Street Partners -BSP 2018-15A A2A	1	4,200,000	3,987,703
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,100,000	1,088,186	12/28/2012	12/28/2042	Interest Rate Swap			08179M-AC-3	BlueMountain CLO 2015-4 -SERIES 15-4A CLASS A2R	1	1,100,000	1,088,186
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	20,000,000	40,267,278	12/28/2012	12/28/2042	Interest Rate Swap		20,607,538	09628N-AQ-5	Nelnet Student Loan Trus-SERIES 19-3A CLASS B	1	20,000,000	19,659,740
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,050,000	12,007,803	12/28/2012	12/28/2042	Interest Rate Swap			64031D-AB-6	Navient Student Loan Tru-SERIES 15-1 CLASS B	1	12,050,000	12,007,803
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,254,090	12,180,990	12/28/2012	12/28/2042	Interest Rate Swap			63939F-AC-4		1	12,254,090	12,180,990

S105.1

STATEMENT AS OF SEPTEMBER 30, 2019 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*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,913,000	8,829,744	12/28/2012	12/28/2042	Interest Rate Swap			78447Y-AD-4	SLM STUDENT LOAN TRUST-SLMA 2013-3	1	8,913,000	8,829,744
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,935,705	12/28/2012	12/28/2042	Interest Rate Swap			12550G-AE-3	CIFC Funding Ltd-CIFC 2018-5A B	1	5,000,000	4,935,705
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,900,000	8,874,991	12/28/2012	12/28/2042	Interest Rate Swap			55820T-AC-2	MADISON PARK FUNDING LTD-SERIES 2017-23A CLASS B	1	8,900,000	8,874,991
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,650,000	8,548,466	12/28/2012	12/28/2042	Interest Rate Swap			33882G-AC-2	FLATIRON CLO LTD-FLAT 2017-1A C	1	8,650,000	8,548,466
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	992,400	12/28/2012	12/28/2042	Interest Rate Swap			48250R-BN-5	KKR CLO 12 Ltd-KKR 12 BR2	1	1,000,000	992,400
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,250,000	4,252,002	12/28/2012	12/28/2042	Interest Rate Swap			09626U-AQ-1	BLUEMOUNTAIN CLO LTD-BLUEM 2013-1A BR	1	4,250,000	4,252,002
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,798,949	15,624,834	12/28/2012	12/28/2042	Interest Rate Swap			78447M-AD-0	SLM STUDENT LOAN TRUST-SERIES 2013-1 CLASS B	1	15,798,949	15,624,834
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,250,000	4,244,348	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	4,244,348
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	9,550,000	19,807,890	12/28/2012	12/28/2042	Interest Rate Swap		10,303,768	04965F-AG-6	Atrium XV-SERIES 15A CLASS B	1	9,550,000	9,504,122
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,000,090	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	10,000,090
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,556,665	9,782,121	12/28/2012	12/28/2042	Interest Rate Swap			63940A-AD-0	NAVIENT STUDENT LOAN TRU-SERIES 17-4A CLASS B	1	9,556,665	9,782,121
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,200,000	9,188,620	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	9,188,620
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,700,000	1,741,820	12/28/2012	12/28/2042	Interest Rate Swap			72403*-MP-4	PIONEERS GATE LLC 2017-9 DT Warehouse Class B	1	1,700,000	1,741,820
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,100,000	1,088,186	12/28/2012	12/28/2042	Interest Rate Swap			08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,088,186
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,500,000	2,489,873	12/28/2012	12/28/2042	Interest Rate Swap			13876J-AE-2	Canyon Capital CLO Ltd-CANVC 2012-1RA B	1	2,500,000	2,489,873
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,400,000	6,373,043	12/28/2012	12/28/2042	Interest Rate Swap			77342K-AC-4	Rockford Tower CLO 2018-2 Ltd	1	6,400,000	6,373,043
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	10,000,000	20,233,618	12/28/2012	12/28/2042	Interest Rate Swap		10,303,768	24380L-AE-3	DEER CREEK CLO LTD 2017-SERIES 17-1A CLASS B	1	10,000,000	9,929,850
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		30,000,000	29,953,560	12/28/2012	12/28/2042	Interest Rate Swap			04624H-AC-1	ASSURANT CLO III LTD-SERIES 2018-2A CLASS A	1	30,000,000	29,953,560
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,570,000	13,457,708	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	13,457,708
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,850,000	4,829,911	12/28/2012	12/28/2042	Interest Rate Swap			08179H-AB-6	BENEFIT STREET PARTNERS -SERIES 2017-12A CLASS A2	1	4,850,000	4,829,911
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	10,000,000	20,303,508	12/28/2012	12/28/2042	Interest Rate Swap		10,303,768	87232A-AE-4	TFLAT 2018-1A B	1	10,000,000	9,999,740
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,766,241	6,331,111	12/28/2012	12/28/2042	Interest Rate Swap			784170-ZZ-8	SFR FTTH SAS Term Loan	2	6,766,241	6,331,111
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,920,000	8,920,241	12/28/2012	12/28/2042	Interest Rate Swap			10302V-BC-8	BOWMAN PARK CLO LTD-BOWPK 2014-1A B1R	1	8,920,000	8,920,241
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,850,000	6,854,172	12/28/2012	12/28/2042	Interest Rate Swap			674000-AQ-7	OAKTREE CLO LTD-SERIES 14-1A CLASS A2R	1	6,850,000	6,854,172
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,840,000	6,821,580	12/28/2012	12/28/2042	Interest Rate Swap			88433R-AE-2	WIND RIVER CLO LTD-SERIES 17-2A CLASS B	1	6,840,000	6,821,580
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,980,150	12/28/2012	12/28/2042	Interest Rate Swap			50188Y-AB-0	LCM LTD PARTNERSHIP-LCM 24A B	1	5,000,000	4,980,150
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,100,000	1,088,186	12/28/2012	12/28/2042	Interest Rate Swap			08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,088,186
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,600,000	4,433,296	12/28/2012	12/28/2042	Interest Rate Swap			05875H-AE-3	Ballyrock CLO 2018-1 Ltd-SERIES 2018-1A CLASS B	1	4,600,000	4,433,296
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	5,400,000	15,688,108	12/28/2012	12/28/2042	Interest Rate Swap		10,303,768	12548J-AE-2	CIFC FUNDING LTD-SERIES 17-3A CLASS A2	1	5,400,000	5,384,340
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,900,000	11,651,445	12/28/2012	12/28/2042	Interest Rate Swap			74988L-AC-8	ALM XIV Ltd-SERIES 14-14A CLASS A2R2	1	11,900,000	11,651,445
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,650,000	4,653,218	12/28/2012	12/28/2042	Interest Rate Swap			29001L-AG-6	Elmwood CLO II Ltd-ELMW2 2019-2A C	1	4,650,000	4,653,218

S105.2

STATEMENT AS OF SEPTEMBER 30, 2019 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 Corp Bonds	1		4,500,000	4,463,631	12/28/2012	12/28/2042	Interest Rate Swap			50184K-AW-8	LGM LTD PARTNERSHIP-SERIES 13A CLASS CR	1	4,500,000	4,463,631
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,400,000	4,550,285	12/28/2012	12/28/2042	Interest Rate Swap			57542Z-AO-7	MASMUTUAL ASSET FIN LLC SR SECD REV NT	4	4,400,000	4,550,285
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,200,000	11,103,714	12/28/2012	12/28/2042	Interest Rate Swap			08181B-AS-8	Benefit Street Partners -SERIES 16-9A CLASS BR	1	11,200,000	11,103,714
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,872,904	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	7,872,904
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	20,000,000	29,647,076	12/31/2012	12/31/2042	Interest Rate Swap		9,746,876	36248M-AJ-6	GT Loan Financing I Ltd -SERIES 2013-1A CLASS AR	1	20,000,000	19,900,200
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,882,568	20,744,743	12/31/2012	12/31/2042	Interest Rate Swap			14315J-MM-8	Carlyle US CLO 2013-2 Re Term Loan	1	20,882,568	20,744,743
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,550,000	7,460,366	12/31/2012	12/31/2042	Interest Rate Swap			74982L-AS-9	RACE POINT CLO LTD-SERIES 13-8A CLASS CR	1	7,550,000	7,460,366
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,850,000	5,765,754	12/31/2012	12/31/2042	Interest Rate Swap			64131Q-AC-4	NEUBERGER BERMAN LOAN AD-SERIES 2017-26A CLASS B	1	5,850,000	5,765,754
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	9,900,000	19,525,255	12/31/2012	12/31/2042	Interest Rate Swap		9,746,876	67707C-AE-8	Oak Hill Credit Partners-OAKC 2014-10RA A2A	1	9,900,000	9,778,379
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,000,000	24,663,200	12/31/2012	12/31/2042	Interest Rate Swap			67104L-AF-4	CHA Loan Funding 2013-2 -OHALF 2013-2A BR	1	25,000,000	24,663,200
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,850,000	13,718,134	12/31/2012	12/31/2042	Interest Rate Swap			38137P-AU-4	Goldentree Loan Opportun-SERIES 2015-10A CLASS BR	1	13,850,000	13,718,134
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,000,000	2,000,000	12/31/2012	12/31/2042	Interest Rate Swap			94184B-DB-9	Waters Corporation Gtd Senior Note Series H	2	2,000,000	2,000,000
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,800,000	3,632,036	12/31/2012	12/31/2042	Interest Rate Swap			74988L-AJ-3	ALM XIV Ltd-SERIES 14-14A CLASS BR2	1	3,800,000	3,632,036
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	14,300,000	24,049,522	12/31/2012	12/31/2042	Interest Rate Swap		9,746,876	55820J-AC-4	MADISON PARK FUNDING LTD-SERIES 2016-21A CLASS A2	1	14,300,000	14,302,646
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,903,940	12/31/2012	12/31/2042	Interest Rate Swap			48250W-AJ-4	KKR CLO 14 Ltd-KKR 14 BR	1	15,000,000	14,903,940
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,938,220	12/31/2012	12/31/2042	Interest Rate Swap			87248K-AS-3	TICOP CLO VI 2016-5 LTD-TICOP 2016-5A A2R	1	5,000,000	4,938,220
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,350,000	4,353,023	12/31/2012	12/31/2042	Interest Rate Swap			020053-AS-3	ALM LOAN FUNDING-SERIES 13-8A CLASS A1R	1	4,350,000	4,353,023
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,021,174	1,015,083	12/31/2012	12/31/2042	Interest Rate Swap			63939F-AC-4	Navient Student Loan Tru-SERIES 15-1 CLASS B	1	1,021,174	1,015,083
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,800,000	7,799,103	12/31/2012	12/31/2042	Interest Rate Swap			05875J-AB-5	Ballyrock CLO 2019-1 Ltd-BALLY 2019-1A A2	1	7,800,000	7,799,103
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,954,620	12/31/2012	12/31/2042	Interest Rate Swap			28622J-AB-3	ARROWMARK COLORADO HOLDI-SERIES 17-7A CLASS B	1	4,000,000	3,954,620
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	8,800,000	18,439,930	12/31/2012	12/31/2042	Interest Rate Swap		9,746,876	38137P-AS-9	Goldentree Loan Opportun-SERIES 2015-10A CLASS AJR	1	8,800,000	8,693,054
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,400,000	7,258,897	12/31/2012	12/31/2042	Interest Rate Swap			92916M-AC-5	VOYA CLO LTD-VOYA 2017-1A B	1	7,400,000	7,258,897
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,450,000	5,449,787	12/31/2012	12/31/2042	Interest Rate Swap			55819M-AE-6	Madison Park Funding Ltd-MDPK 2019-35A B	1	5,450,000	5,449,787
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,233,188	12/31/2012	12/31/2042	Interest Rate Swap			55819T-AU-5	Madison Park Funding XX -SERIES 2016-20A CLASS CR	1	7,500,000	7,233,188
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,900,000	13,591,809	12/31/2012	12/31/2042	Interest Rate Swap			03328Y-AE-4	Anchorage Capital CLO Lt-ANCHC 2018-1RA B	1	13,900,000	13,591,809
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,456,380	7,450,054	12/31/2012	12/31/2042	Interest Rate Swap			64034C-AB-5	Wlnet Student Loan Trus-NSLT 2019-1A B	1	7,456,380	7,450,054
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	9,975,787	19,651,450	12/31/2012	12/31/2042	Interest Rate Swap		9,746,876	46616K-AE-4	JFIN CLO 2013 LTD SR SECD DEF NT CL B	1	9,975,787	9,904,574
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,806,128	12/31/2012	12/31/2042	Interest Rate Swap			83608G-AQ-9	Sound Point CLO II Ltd-SNDPT 2013-1A A2R	1	8,000,000	7,806,128
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,706,090	12/31/2012	12/31/2042	Interest Rate Swap			05682V-AC-9	Bain Capital Credit CLO -SERIES 18-2A CLASS A2	1	15,000,000	14,706,090
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,999,770	12/31/2012	12/31/2042	Interest Rate Swap			50188Q-AE-1	LGM XIX LTD PARTNERSHIP DEF MEZZ NT CL C	1	10,000,000	9,999,770
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,300,000	8,260,426	12/31/2012	12/31/2042	Interest Rate Swap			00900P-AE-5	AIMCO CLO Series 2018-B-SERIES 18-BA CLASS B	1	8,300,000	8,260,426

S105.3

STATEMENT AS OF SEPTEMBER 30, 2019 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*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,100,000	1,088,186	12/31/2012	12/31/2042	Interest Rate Swap			08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,088,186
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	10,000,000	19,659,166	12/31/2012	12/31/2042	Interest Rate Swap	9,746,876		87248W-AC-2	TIOP CLO VIII LTD-SERIES 2017-8A CLASS A2	1	10,000,000	9,912,290
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,430,000	3,398,835	12/31/2012	12/31/2042	Interest Rate Swap			674000-AS-3	OAKTREE CLO LTD-SERIES 14-1A CLASS BR	1	3,430,000	3,398,835
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,900,000	5,870,535	12/31/2012	12/31/2042	Interest Rate Swap			48251F-AB-7	KKR FINANCIAL CLO LTD-SERIES 17 CLASS B	1	5,900,000	5,870,535
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,000,000	11,794,908	12/31/2012	12/31/2042	Interest Rate Swap			92917J-AE-7	VOYA CLO 2018-2 Ltd-VOYA 2018-2A B1	1	12,000,000	11,794,908
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,650,000	22,529,955	12/31/2012	12/31/2042	Interest Rate Swap			14315C-ZZ-0	Carlyle US CLO 2017-4 Ri Term Loan	1	22,650,000	22,529,955
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	7,400,000	18,886,732	04/09/2013	04/09/2043	Interest Rate Swap	11,486,947		55954H-AE-2	Magnetite CLO Ltd-SERIES 19-22A CLASS B	1	7,400,000	7,399,785
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,600,000	5,524,641	04/09/2013	04/09/2043	Interest Rate Swap			12550Y-AG-9	CIFC FUNDING LTD-CIFC 2017-2A C	1	5,600,000	5,524,641
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,280,000	4,255,185	04/09/2013	04/09/2043	Interest Rate Swap			09629C-AE-5	BLUEMOUNTAIN CLO LTD-SERIES 17-1A CLASS B	1	4,280,000	4,255,185
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,250,000	4,250,179	04/09/2013	04/09/2043	Interest Rate Swap			00163K-AS-7	ALM LOAN FUNDING-ALM 2013-TRA A2R Shackleton 2015-VII-R CL-SERIES	1	4,250,000	4,250,179
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,000,000	5,961,990	04/09/2013	04/09/2043	Interest Rate Swap			81883A-AC-3	2015-7RA CLASS B	1	6,000,000	5,961,990
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,462,905	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	7,462,905
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,100,000	6,036,889	04/09/2013	04/09/2043	Interest Rate Swap			94951M-AC-7	WELLFLEET CLO 2017-2 LTD-SERIES 17-2A CLASS A2	1	6,100,000	6,036,889
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,330,000	4,284,518	04/09/2013	04/09/2043	Interest Rate Swap			64130H-AE-1	NEUBERGER BERMAN CLO LTD-NEUB 2017-24A C	1	4,330,000	4,284,518
57629*AI1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,560,000	13,559,878	04/09/2013	04/09/2043	Interest Rate Swap			64129J-AQ-3	NEUBERGER BERMAN CLO LTD-NEUB 2013-14A A1R	1	13,560,000	13,559,878
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	60,000,000	26,963,976	37,761,166	04/09/2013	04/09/2043	Interest Rate Swap	12,531,215		784170-ZZ-8	SFR FTTH SAS Term Loan	2	26,963,976	25,229,951
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,500,000	18,091,446	04/09/2013	04/09/2043	Interest Rate Swap			50188G-AX-1	LCM XVIII LP-LQM 18A A2R	1	18,500,000	18,091,446
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,800,000	12,793,715	04/09/2013	04/09/2043	Interest Rate Swap			67102Q-AK-4	QHA CREDIT PARTNERS LTD-SERIES 2012-7A CLASS B1R	1	12,800,000	12,793,715
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,000,000	1,969,590	04/09/2013	04/09/2043	Interest Rate Swap			62848F-AC-6	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	2,000,000	1,969,590
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	26,000,000	37,454,801	04/09/2013	04/09/2043	Interest Rate Swap	11,617,197		83609Y-AC-0	Sounds Point CLO IV-R LT-SERIES 13-3RA CLASS A	1	26,000,000	25,837,604
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,226,753	5,118,765	04/09/2013	04/09/2043	Interest Rate Swap			78442G-QA-7	SLM STUDENT LOAN TRUST-SERIES 2005-6 CLASS B	1	5,226,753	5,118,765
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,775,000	10,694,220	04/09/2013	04/09/2043	Interest Rate Swap			74982L-AQ-3	RACE POINT CLO LTD-SERIES 13-8A CLASS BR	1	10,775,000	10,694,220
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,350,000	15,161,195	04/09/2013	04/09/2043	Interest Rate Swap			14315J-RR-2	Carlyle US CLO 2013-4 Re Term Loan	1	15,350,000	15,161,195
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	4,450,000	16,046,407	04/09/2013	04/09/2043	Interest Rate Swap	11,617,197		55820R-AG-7	MADISON PARK FUNDING LTD-SERIES 17-25A CLASS C	2	4,450,000	4,429,210
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,950,000	1,945,240	04/09/2013	04/09/2043	Interest Rate Swap			55954K-AE-5	MAGNETITE CLO LTD-SERIES 2017-19A CLASS C	1	1,950,000	1,945,240
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,850,000	22,820,981	04/09/2013	04/09/2043	Interest Rate Swap			14311C-RR-1	Carlyle US CLO 2017-1 Ri Term Loan	1	22,850,000	22,820,981
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,883,660	04/09/2013	04/09/2043	Interest Rate Swap			03329Z-AS-2	ANCHORAGE CAPITAL CLO 20-SERIES 13-1A CLASS A2R	1	10,000,000	9,883,660
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,400,000	6,371,219	04/09/2013	04/09/2043	Interest Rate Swap			67112R-AG-9	QHA Credit Funding 3 LTD-OAKC 2019-3A B1	1	6,400,000	6,371,219
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,800,000	4,799,376	04/09/2013	04/09/2043	Interest Rate Swap			09627F-AE-0	BlueMountain CLO Ltd-SERIES 2019-25A CLASS B	1	4,800,000	4,799,376
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,300,000	3,292,463	04/09/2013	04/09/2043	Interest Rate Swap			06761C-AC-3	Babson CLO Ltd 2016-11-BABSON 2016-2A BR	1	3,300,000	3,292,463
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	987,517	04/09/2013	04/09/2043	Interest Rate Swap			89852T-AN-8	Tryon Park CLO Ltd-TPCLO 2013-1A A1JR	1	1,000,000	987,517

S105.4

STATEMENT AS OF SEPTEMBER 30, 2019 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 Corp Bonds	1		1,000,000	995,949	04/09/2013	04/09/2043	Interest Rate Swap			13876J-AE-2	Canyon Capital CLO Ltd-CANYC 2012-1RA B	1	1,000,000	995,949
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	28,800,000	40,340,310	04/09/2013	04/09/2043	Interest Rate Swap		11,534,780	67110H-AA-6	OZLM XIV LTD SR SEC2 NT CL A-1A BENEFIT STREET PARTNERS -BSP 2017-11A A2A	1	28,800,000	28,805,530
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,926,620	04/09/2013	04/09/2043	Interest Rate Swap			08179C-AE-1	BALLYROCK CLO 2018-1 LTD-SERIES 2018-1A CLASS A2	1	15,000,000	14,926,620
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,900,000	13,708,722	04/09/2013	04/09/2043	Interest Rate Swap			05875H-AC-7	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	13,900,000	13,708,722
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	984,795	04/09/2013	04/09/2043	Interest Rate Swap			62848F-AC-6	Marble Point CLO XI Ltd-MP11 2017-2A A	1	1,000,000	984,795
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	60,000,000	21,900,000	34,375,188	04/09/2013	04/09/2043	Interest Rate Swap		12,583,396	56607F-AA-3	NORTHSTAR EDUCATION FINA-SERIES 04-2 CLASS B	1	21,900,000	21,791,792
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,276,529	17,530,093	04/09/2013	04/09/2043	Interest Rate Swap			66704J-BD-9	NORTHSTAR EDUCATION FINA-SERIES 05-1 CLASS B	1	19,276,529	17,530,093
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,740,378	16,135,028	04/09/2013	04/09/2043	Interest Rate Swap			66704J-BK-3	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	16,740,378	16,135,028
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,500,000	3,445,033	04/09/2013	04/09/2043	Interest Rate Swap			94950J-AC-5	Crestline Denali CLO Ltd-SERIES 2018-1A CLASS C	1	3,500,000	3,445,033
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,200,000	3,018,691	04/09/2013	04/09/2043	Interest Rate Swap			22615E-AE-0	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	3,200,000	3,018,691
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	984,795	04/09/2013	04/09/2043	Interest Rate Swap			62848F-AC-6	Alllegro CLO VII Ltd-ALLEG 2018-1A A	1	1,000,000	984,795
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	34,500,000	44,789,845	04/09/2013	04/09/2043	Interest Rate Swap		10,495,120	01750C-AA-1	KKR CLO 14 Ltd-KKR 14 AR	1	34,500,000	34,294,725
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	6,961,563	04/09/2013	04/09/2043	Interest Rate Swap			48250W-AG-0	Waters Corporation Gtd Senior Note Series H	2	7,000,000	6,961,563
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,100,000	7,100,000	04/09/2013	04/09/2043	Interest Rate Swap			941848-D8-9	Carlyle Global Market St-CGMS 2014-2RA A2	1	7,100,000	7,100,000
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,901,530	04/09/2013	04/09/2043	Interest Rate Swap			14314L-AE-5	CVP CASCADE CLO LTD-CVPC 2013-CLO1 A1R	1	5,000,000	4,901,530
57629*AZ4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	12,281,032	22,779,542	04/09/2013	04/09/2043	Interest Rate Swap		10,495,120	126612-AJ-9	DRYDEN 64 CLO LTD-DRSLF 2018-64A A	1	12,281,032	12,284,422
57629*AZ4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,850,000	22,575,023	04/09/2013	04/09/2043	Interest Rate Swap			26251L-AC-8	Babson CLO Ltd 2016-II-BABSN 2016-2A BR	1	22,850,000	22,575,023
57629*AZ4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,400,000	3,392,234	04/09/2013	04/09/2043	Interest Rate Swap			06761C-AC-3	Neuberger Berman CLO Ltd-NEUB 2019-32A B	1	3,400,000	3,392,234
57629*AZ4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,499,843	04/09/2013	04/09/2043	Interest Rate Swap			64132D-AC-2	MASSMUTUAL ASSET FIN LLC SR SEC2 REV NT	4	7,500,000	7,499,843
57629*AZ4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	4,136,623	04/09/2013	04/09/2043	Interest Rate Swap			57542Z-AA-7	VOYA CLO LTD-SERIES 2017-3A CLASS A1B	1	4,000,000	4,136,623
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	6,800,000	29,693,026	03/05/2014	03/05/2034	Interest Rate Swap		23,000,548	92915Q-AE-3	THL CREDIT WIND RIVER 20-SERIES 2017-3A CLASS B	1	6,800,000	6,692,478
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,780,000	6,760,426	03/05/2014	03/05/2034	Interest Rate Swap			88434G-AC-9	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS BR	1	6,780,000	6,760,426
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,920,000	4,877,201	03/05/2014	03/05/2034	Interest Rate Swap			48249V-AS-0	MADISON PARK FUNDING LTD-SERIES 15-17A CLASS AR	1	4,920,000	4,877,201
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,100,000	21,101,920	03/05/2014	03/05/2034	Interest Rate Swap			55818Y-BA-8	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS A1R	1	21,100,000	21,101,920
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,015,000	21,006,615	03/05/2014	03/05/2034	Interest Rate Swap			48249V-AN-1	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS A	1	21,015,000	21,006,615
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,800,000	20,800,541	03/05/2014	03/05/2034	Interest Rate Swap			22616C-AA-1	KKR CLO 14 Ltd-KKR 14 AR	1	20,800,000	20,800,541
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	6,961,563	03/05/2014	03/05/2034	Interest Rate Swap			48250W-AG-0	MADISON PARK FUNDING LTD-MDPK 2014-12A CR	1	7,000,000	6,961,563
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,200,000	12,204,575	03/05/2014	03/05/2034	Interest Rate Swap			55818P-AS-9	FORT BENNING FAIM-UNSECURED	1	12,200,000	12,204,575
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	20,406,714	44,914,994	03/05/2014	03/05/2034	Interest Rate Swap		23,026,684	346845-AC-4	Bain Capital Credit CLO -BCC 2019-2A B	1	20,406,714	21,888,310
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,999,595	03/05/2014	03/05/2034	Interest Rate Swap			05682L-AC-1	Goldentree Loan Managem-GLM 2019-4A B	1	15,000,000	14,999,595
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,958,135	03/05/2014	03/05/2034	Interest Rate Swap			38137Y-AG-6		1	15,000,000	14,958,135

S105.5

STATEMENT AS OF SEPTEMBER 30, 2019 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	Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,200,000	4,203,990	03/05/2014	03/05/2034	Interest Rate Swap			05682L-AE-7	Bain Capital Credit CLO -BCC 2019-2A C	1	4,200,000	4,203,990
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,850,000	10,763,536	03/05/2014	03/05/2034	Interest Rate Swap			883310-AC-8	THAYER PARK CLO LTD.-THAYR 2017-1A A2	1	10,850,000	10,763,536
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,999,670	03/05/2014	03/05/2034	Interest Rate Swap			87250C-AA-5	TICP CLO Ltd	1	15,000,000	14,999,670
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,999,520	03/05/2014	03/05/2034	Interest Rate Swap			44932V-AA-0	ICG US CLO Ltd-SERIES 19-1A CLASS A1A	1	20,000,000	19,999,520
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		150,000,000	2,800,000	05/19/2014	05/19/2044	Interest Rate Swap		48,717,903	48661Y-AA-2	Kayne CLO 4 Ltd-SERIES 19-4A CLASS B1	1	2,800,000	2,799,810
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		45,000,000	44,906,265	05/19/2014	05/19/2044	Interest Rate Swap			13876J-AC-6	Canyon Capital CLO Ltd-CANYC 2012-18A A	1	45,000,000	44,906,265
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,100,000	9,024,734	05/19/2014	05/19/2044	Interest Rate Swap			40436V-AC-5	HIGHBRIDGE LOAN MANAGEME-HLM 11A-17 C	1	9,100,000	9,024,734
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,950,000	8,820,341	05/19/2014	05/19/2044	Interest Rate Swap			50184N-AP-7	LDM LTD PARTNERSHIP-SERIES 15A CLASS CR	1	8,950,000	8,820,341
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,000,000	5,964,966	05/19/2014	05/19/2044	Interest Rate Swap			06761K-AG-6	Babson CLO Ltd/Cayman Is-SERIES 19-3A CLASS C	1	6,000,000	5,964,966
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,100,000	12,848,153	05/19/2014	05/19/2044	Interest Rate Swap			75884B-AC-2	Regatta X Funding Ltd-SERIES 2017-3A CLASS B	1	13,100,000	12,848,153
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		44,941,274	44,761,905	05/19/2014	05/19/2044	Interest Rate Swap			42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	44,941,274	44,761,905
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,900,000	22,865,650	05/19/2014	05/19/2044	Interest Rate Swap			14315J-ZZ-5	Carlyle US CLO 2017-2 Ri Term Loan	1	22,900,000	22,865,650
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	20,000,000	45,184,237	05/19/2014	05/19/2034	Interest Rate Swap		25,181,537	67105V-AW-4	OHA CREDIT PARTNERS LTD-OAKC 2013-9A B1R	1	20,000,000	20,002,700
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	49,784,050	05/19/2014	05/19/2034	Interest Rate Swap			77342J-AA-1	Rockford Tower CLO 2018--SERIES 18-1A CLASS A	1	50,000,000	49,784,050
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	6,913,095	05/19/2014	05/19/2034	Interest Rate Swap			64130P-AE-3	Neuberger Berman CLO Ltd-NEUB 2018-28A B	1	7,000,000	6,913,095
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,988,340	05/19/2014	05/19/2034	Interest Rate Swap			13080B-AB-7	SYMPHONY CLO LTD-SERIES 13-12A CLASS B1R	1	20,000,000	19,988,340
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,900,000	19,802,152	05/19/2014	05/19/2034	Interest Rate Swap			39808P-AL-0	Greywolf CLO V Ltd-GWOLF 2015-1A A1R	1	19,900,000	19,802,152
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,000,000	8,910,270	05/19/2014	05/19/2034	Interest Rate Swap			04017Q-AE-5	ARES CLO Ltd-SERIES 18-28RA CLASS B	1	9,000,000	8,910,270
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	28,862,285	77,767,522	05/19/2014	05/19/2044	Interest Rate Swap		49,020,432	42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	28,862,285	28,747,090
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,066,121	17,274,723	05/19/2014	05/19/2044	Interest Rate Swap			83715R-AG-7	SOUTH CAROLINA STUDENT L-SERIES 2014-1 CLASS B	1	17,066,121	17,274,723
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,977,596	05/19/2014	05/19/2044	Interest Rate Swap			17181T-AA-9	CIFC Funding 2018-IV Ltd-SERIES 18-4A CLASS A1	1	4,000,000	3,977,596
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,992,215	5,843,416	05/19/2014	05/19/2044	Interest Rate Swap			38021B-AG-5	GOAL CAPITAL FUNDING TRU-SERIES 2006-1 CLASS B	1	5,992,215	5,843,416
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,179,883	4,540,877	05/19/2014	05/19/2044	Interest Rate Swap			42982T-AS-7	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS B2	1	4,179,883	4,540,877
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,785,650	05/19/2014	05/19/2044	Interest Rate Swap			69703P-AC-3	Palmer Square CLO 2018-1-PLMRS 2018-1A A2	1	10,000,000	9,785,650
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,050,000	8,837,388	05/19/2014	05/19/2044	Interest Rate Swap			06760E-AE-6	Babson CLO Ltd 2013-I-SERIES 2013-1A CLASS CR	1	9,050,000	8,837,388
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,500,000	9,450,881	05/19/2014	05/19/2044	Interest Rate Swap			63940D-AD-4	Navient Student Loan Tru-SERIES 18-1A CLASS B	1	9,500,000	9,450,881
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,750,000	7,609,105	05/19/2014	05/19/2044	Interest Rate Swap			64131T-AG-9	Neuberger Berman CLO XVI-SERIES 17-16SA CLASS C	1	7,750,000	7,609,105
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,243,170	05/19/2014	05/19/2044	Interest Rate Swap			03330A-AE-2	Anchorage Capital CLO 3--ANCHC 2014-3RA C	1	7,500,000	7,243,170
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,847,216	05/19/2014	05/19/2044	Interest Rate Swap			38137H-BW-7	Goldentree Loan Opportun-SERIES 2015-11A CLASS BR2	1	8,000,000	7,847,216
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,918,728	05/19/2014	05/19/2044	Interest Rate Swap			39808P-AN-6	Greywolf CLO V Ltd-GWOLF 2015-1A A2R	1	8,000,000	7,918,728
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,050,000	7,647,444	05/19/2014	05/19/2044	Interest Rate Swap			06760G-AC-5	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS B	1	8,050,000	7,647,444

S105.6

STATEMENT AS OF SEPTEMBER 30, 2019 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*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,800,000	5,525,904	05/19/2014	05/19/2044	Interest Rate Swap			01749B-AC-3	Alllegro CLO VI Ltd-ALLEG 2017-2A C	1	5,800,000	5,525,904
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,000,000	15,803,216	05/19/2014	05/19/2044	Interest Rate Swap			06760X-AC-8	BARINGS CLO LTD 2018-IV-SERIES 18-4A CLASS A2	1	16,000,000	15,803,216
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,700,000	3,703,286	05/19/2014	05/19/2044	Interest Rate Swap			05875J-AC-3	Ballyrock CLO 2019-1 Ltd	1	3,700,000	3,703,286
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	8,650,000	57,573,626	05/19/2014	05/19/2044	Interest Rate Swap		48,966,132	55818R-BC-9	Madison Park Funding XIV-MDPK 2014-14A CR	1	8,650,000	8,607,494
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,301,538	2,197,261	05/19/2014	05/19/2044	Interest Rate Swap			784424-AE-3	SLC STUDENT LOAN TRUST 2-SERIES 07-1 CLASS B	1	2,301,538	2,197,261
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,400,000	10,414,560	05/19/2014	05/19/2044	Interest Rate Swap			64132J-AG-0	NEUB 2019-31A B	1	10,400,000	10,414,560
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,000,000	3,003,006	05/19/2014	05/19/2044	Interest Rate Swap			27830X-AG-1	EATON 2019-1A C	1	3,000,000	3,003,006
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,400,000	12,399,368	05/19/2014	05/19/2044	Interest Rate Swap			38138D-AG-1	Goldentree Loan Managem-GLM 2019-5A B	1	12,400,000	12,399,368
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,000,000	15,943,504	05/19/2014	05/19/2044	Interest Rate Swap			69688A-AA-9	Palmer Square CLO 2013-2-SERIES 13-2A CLASS AARR	1	16,000,000	15,943,504
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,850,000	13,851,080	05/19/2014	05/19/2044	Interest Rate Swap			11014P-AB-1	BRISTOL PARK CLO LTD-SERIES 2016-1A CLASS B	1	13,850,000	13,851,080
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	8,000,000	05/19/2014	05/19/2044	Interest Rate Swap			13887W-AC-4	CANYC 2019-2A B	1	8,000,000	8,000,000
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,286,507	2,309,772	05/19/2014	05/19/2044	Interest Rate Swap			23340L-AA-2	DRB PRIME STUDENT LOAN T-SERIES 2015-B CLASS A1	1	2,286,507	2,309,772
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		67,094,223	68,167,731	05/19/2014	05/19/2044	Interest Rate Swap			22101F-AA-6	CORVIAS CAMPUS LIVING - HU, LLC - Sr Secd Note	2	67,094,223	68,167,731
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,500,000	6,500,000	05/19/2014	05/19/2044	Interest Rate Swap			13887W-AE-0	CANYC 2019-2A C	1	6,500,000	6,500,000
57629*BJJ	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	133,500,000	180,869,728	05/19/2014	05/19/2044	Interest Rate Swap		48,593,789	858102-AX-4	Steele Creek CLO 2016-1 -SERIES 2016-1A CLASS AR	1	133,500,000	132,275,939
57629*BJJ	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,946,220	05/19/2014	05/19/2044	Interest Rate Swap			04625A-AC-8	ASSURANT CLO I LTD-SERIES 17-1A CLASS B	1	10,000,000	9,946,220
57629*BJJ	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	6,961,563	05/19/2014	05/19/2044	Interest Rate Swap			48250W-AG-0	KKR CLO 14 Ltd-KKR 14 AR	1	7,000,000	6,961,563
57629*BK6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	130,000,000	177,619,699	05/19/2014	05/19/2044	Interest Rate Swap		48,593,789	85816W-AC-8	Steele Creek CLO 2014-1 -SERIES 14-1RA CLASS A	1	130,000,000	129,025,910
57629*BK6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,999,745	05/19/2014	05/19/2044	Interest Rate Swap			88322U-AM-1	THACHER PARK CLO-THRPK 2014-1A BR Harbor Park CLO, Ltd-HAR-HARB 2018-1A B1	1	15,000,000	14,999,745
57629*BK6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,200,000	5,168,228	05/19/2014	05/19/2044	Interest Rate Swap			41154X-AG-0	CIFC Funding 2018-IV Ltd-SERIES 18-4A CLASS A1	1	5,200,000	5,168,228
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	5,000,000	53,627,841	05/19/2014	05/19/2044	Interest Rate Swap		48,655,846	17181T-AA-9	ATLAS SENIOR LOAN FUND L-SERIES 2017-8A CLASS B	1	5,000,000	4,971,995
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,300,000	25,281,101	05/19/2014	05/19/2044	Interest Rate Swap			04943A-AC-3	SYMPHONY CLO LTD-SYMP 2014-14A BIR	1	25,300,000	25,281,101
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,800,000	12,805,978	05/19/2014	05/19/2044	Interest Rate Swap			87159Q-BG-2	Harbour Aircraft Investm Series 2017-1 C	1	12,800,000	12,805,978
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,011,195	21,592,664	05/19/2014	05/19/2044	Interest Rate Swap			64301U-AH-7	OHA Loan Funding 2013-2 -OHALF	1	21,011,195	21,592,664
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		79,100,000	78,695,324	05/19/2014	05/19/2044	Interest Rate Swap			67104L-AE-7	2013-2A AR	1	79,100,000	78,695,324
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,921,316	05/19/2014	05/19/2044	Interest Rate Swap			94949R-AW-7	Wellfleet CLO 2016-1 Ltd-WELF 2016-1A CR	1	4,000,000	3,921,316
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,200,000	3,195,347	05/19/2014	05/19/2044	Interest Rate Swap			50200Y-AG-3	LOM 30A B	1	3,200,000	3,195,347
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	44,941,274	93,433,265	05/19/2014	05/19/2044	Interest Rate Swap		48,671,360	42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	44,941,274	44,761,905
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,100,000	11,084,105	05/19/2014	05/19/2044	Interest Rate Swap			27830X-AE-6	EATON 2019-1A B	1	11,100,000	11,084,105
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,700,000	2,699,903	05/19/2014	05/19/2044	Interest Rate Swap			01750F-AC-0	Alllegro CLO Ltd-ALLEG 2019-1A B	1	2,700,000	2,699,903
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,042,195	5,109,905	05/19/2014	05/19/2044	Interest Rate Swap			00764M-GG-6	AEGIS ASSET BACKED SECUR-SERIES 2005-4 CLASS M1	1	5,042,195	5,109,905

S105.7

STATEMENT AS OF SEPTEMBER 30, 2019 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*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,724,821	3,576,990	05/19/2014	05/19/2044	Interest Rate Swap			247358-CC-6	EAIV Delta MSN 15181	1	3,724,821	3,576,990
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	15,000,000	14,950,125	14,950,125	05/19/2014	05/19/2044	Interest Rate Swap			67707C-AJ-7	Oak Hill Credit Partners-OAKC 2014-10RA B	1	15,000,000	14,950,125
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,560,000	13,554,590	05/19/2014	05/19/2044	Interest Rate Swap			64130H-AA-9	NEUBERGER BERMAN CLO LTD-NEUB 2017-24A A	1	13,560,000	13,554,590
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,600,000	13,488,725	05/19/2014	05/19/2044	Interest Rate Swap			64130H-AC-5	NEUBERGER BERMAN CLO LTD-NEUB 2017-24A B1	1	13,600,000	13,488,725
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,999,775	05/19/2014	05/19/2044	Interest Rate Swap			817176-AN-0	SENECA PARK CLO LTD-SPARK 2014-1A B1R	1	15,000,000	14,999,775
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,800,000	15,958,000	05/19/2014	05/19/2044	Interest Rate Swap			50512F-AE-2	LA Stadium Finance Co Sr Secured Series C	2	15,800,000	15,958,000
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,916,069	4,972,364	05/19/2014	05/19/2044	Interest Rate Swap			64033L-AD-2	NELNET STUDENT LOAN TRUS-SERIES 2014-2A CLASS B	1	4,916,069	4,972,364
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,400,000	5,399,833	05/19/2014	05/19/2044	Interest Rate Swap			48252U-AC-1	KKR CLO 25 Ltd	1	5,400,000	5,399,833
57629*BNO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	135,000,000	72,500,000	116,790,143	05/19/2014	05/19/2044	Interest Rate Swap		44,237,073	29001L-AA-9	ELMWOOD CLO II LTD NT CL A	1	72,500,000	72,553,070
57629*BNO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,800,000	23,798,144	05/19/2014	05/19/2044	Interest Rate Swap			42086V-AC-4	Hayfin Kingsland X Ltd-SERIES 2019-1A CLASS B1	1	23,800,000	23,798,144
57629*BNO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,600,000	7,598,951	05/19/2014	05/19/2044	Interest Rate Swap			00901A-AC-1	Aimco CDO	1	7,600,000	7,598,951
57629*BNO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,600,000	5,568,634	05/19/2014	05/19/2044	Interest Rate Swap			17181T-AA-9	CIFC Funding 2018-IV Ltd-SERIES 18-4A CLASS A1	1	5,600,000	5,568,634
57629*BNO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		27,700,000	26,857,144	05/19/2014	05/19/2044	Interest Rate Swap			38176D-AJ-8	Golub Capital Partners C-GOCAP 2015-26A A2R	1	27,700,000	26,857,144
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	85,000,000	19,165,082	35,174,303	05/09/2014	05/09/2034	Interest Rate Swap		18,321,999	77277L-B8-9	ROCKALL CLO BV Variable Funding Note - GBP	1	19,165,082	16,852,304
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,837,355	05/09/2014	05/09/2034	Interest Rate Swap			03765W-BC-1	Apollo Credit Funding IV-SERIES 4A CLASS A1BR	1	15,000,000	14,837,355
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,570,000	13,531,733	05/09/2014	05/09/2034	Interest Rate Swap			04016P-AC-2	ARES CLO LTD-SERIES 17-43A CLASS B	1	13,570,000	13,531,733
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,570,000	13,428,017	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	13,428,017
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,570,000	13,543,145	05/09/2014	05/09/2034	Interest Rate Swap			77342K-AA-8	ROCKFORD TOWER CLO 2018-ROCKT 2018-2A A	1	13,570,000	13,543,145
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,900,000	3,688,608	05/09/2014	05/09/2034	Interest Rate Swap			05683L-AG-1	Bain Capital Credit CLO -SERIES 1A CLASS C	1	3,900,000	3,688,608
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,291,594	5,886,989	05/09/2014	05/09/2034	Interest Rate Swap			784170-ZZ-8	SFR FTTH SAS Term Loan	2	6,291,594	5,886,989
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	13,100,000	52,971,290	07/22/2014	07/22/2044	Interest Rate Swap		40,112,893	67707B-AB-6	OHA Credit Partners XV L-SERIES 17-15A CLASS B	1	13,100,000	12,858,397
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,300,000	13,223,658	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	13,223,658
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,921,576	07/22/2014	07/22/2044	Interest Rate Swap			67115W-AG-5	OHA Credit Funding I LTD-SERIES 18-1A CLASS B	1	8,000,000	7,921,576
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,814,450	07/22/2014	07/22/2044	Interest Rate Swap			17180W-AC-9	CIFC Funding 2018-II Ltd-CIFC 2018-2A A2	1	15,000,000	14,814,450
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,347,612	07/22/2014	07/22/2044	Interest Rate Swap			03329A-AE-5	Anchorage Capital CLO Lt-SERIES 2014-SRA CLASS B	1	13,500,000	13,347,612
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,700,000	6,928,844	07/22/2014	07/22/2044	Interest Rate Swap			57542Z-AO-7	MASSMUTUAL ASSET FIN LLC SR SECD REV NT	4	6,700,000	6,928,844
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		35,000,000	34,932,870	07/22/2014	07/22/2044	Interest Rate Swap			14315J-AL-3	CARLYLE GLOBAL MARKET ST-SERIES 17-2A CLASS A1B	1	35,000,000	34,932,870
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,900,000	5,790,207	07/22/2014	07/22/2044	Interest Rate Swap			40436X-AG-2	HIGHBRIDGE LOAN MANAGEME-SERIES 2014 CLASS BR	1	5,900,000	5,790,207
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,500,000	14,487,226	07/22/2014	07/22/2044	Interest Rate Swap			553205-AC-9	MP CLO III LTD-MIP3 2013-1A AR	1	14,500,000	14,487,226
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	20,000,000	60,026,097	07/22/2014	07/22/2044	Interest Rate Swap		40,125,897	36248M-AJ-6	GT Loan Financing I Ltd -SERIES 2013-1A CLASS AR	1	20,000,000	19,900,200
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,853,615	07/22/2014	07/22/2044	Interest Rate Swap			48251M-AS-5	KKR CLO 15 Ltd-KKR 15 A2R	1	15,000,000	14,853,615

S105.8

STATEMENT AS OF SEPTEMBER 30, 2019 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*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,590,000	19,575,092	07/22/2014	07/22/2044	Interest Rate Swap			88433R-AC-6	WIND RIVER CLO LTD-SERIES 17-2A CLASS A	1	19,590,000	19,575,092
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,500,000	19,492,220	07/22/2014	07/22/2044	Interest Rate Swap			04016P-AA-6	ARES CLO LTD-ARES 2017-43A A CEDAR FUNDING LTD-SERIES 13-1A CLASS BR	1	19,500,000	19,492,220
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,500,000	8,488,823	07/22/2014	07/22/2044	Interest Rate Swap			15032T-AW-6	CIFC FUNDING LTD-SERIES 17-4A CLASS A2	1	8,500,000	8,488,823
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,976,168	07/22/2014	07/22/2044	Interest Rate Swap			12551J-AE-6	BABSON CLO LTD-SERIES 17-1A CLASS C	1	8,000,000	7,976,168
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,100,000	5,099,934	07/22/2014	07/22/2044	Interest Rate Swap			06760B-AJ-1	MARBLE POINT CLO X LTD-SERIES 2017-1A CLASS B	1	5,100,000	5,099,934
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,100,000	5,079,192	07/22/2014	07/22/2044	Interest Rate Swap			566061-AE-7	MADISON PARK FUNDING LTD-SERIES 15-17A CLASS CR	1	5,100,000	5,079,192
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,400,000	3,397,868	04/09/2013	04/09/2043	Interest Rate Swap			55818Y-BG-5	OH CREDIT PARTNERS LTD-SERIES 2012-7A CLASS CR	1	3,400,000	3,397,868
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,975,000	2,968,991	04/09/2013	04/09/2043	Interest Rate Swap			67102Q-AP-3	Alllegro CLO Ltd-ALLEG 2019-1A B WELFLEET CLO LTD-WELF 2017-1A A1	1	2,975,000	2,968,991
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,600,000	5,599,798	04/09/2013	04/09/2043	Interest Rate Swap			01750F-AC-0	Harbor Park CLO, Ltd-HARB 2018-1A C	1	5,600,000	5,599,798
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,250,000	9,250,352	04/09/2013	04/09/2043	Interest Rate Swap			94950G-AA-5		1	9,250,000	9,250,352
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,939,536	04/09/2013	04/09/2043	Interest Rate Swap			41154X-AL-9		1	4,000,000	3,939,536
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	17,000,000	57,126,033	07/22/2014	07/22/2044	Interest Rate Swap		40,125,897	04014W-AL-9	ARES CLO LTD-ARES 2014-1A A2R Steele Creek Clo 2018-2 -SERIES 2018-2A CLASS A	1	17,000,000	17,000,136
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,984,161	15,983,872	07/22/2014	07/22/2044	Interest Rate Swap			85816L-AA-6	Carlyle US CLO 2013-1 Re Term Loan	1	15,984,161	15,983,872
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,550,000	22,495,880	07/22/2014	07/22/2044	Interest Rate Swap			14315J-SS-9	MADISON PARK FUNDING LTD-MDPK 2014-12A BTR	1	22,550,000	22,495,880
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,000,000	17,001,190	07/22/2014	07/22/2044	Interest Rate Swap			55818P-AN-0	MASSMUTUAL ASSET FIN LLC SR SEC0 REV NT	1	17,000,000	17,001,190
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,900,000	8,169,831	07/22/2014	07/22/2044	Interest Rate Swap			57542Z-AO-7	Goldentree Loan Managem-GLM 2017-1A C	4	7,900,000	8,169,831
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,900,000	6,855,937	07/22/2014	07/22/2044	Interest Rate Swap			38136F-AL-7	LON LTD PARTNERSHIP-SERIES 15A CLASS BR	1	6,900,000	6,855,937
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,650,000	5,618,134	07/22/2014	07/22/2044	Interest Rate Swap			50184N-AN-2	MOSAIC CO/THE-SENIOR UNSECURED NOTE	1	5,650,000	5,618,134
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,038,245	9,126,656	07/22/2014	07/22/2044	Interest Rate Swap			61945C-AA-1	RRPF Engine Leasing Ltd Senior Secured	2	9,038,245	9,126,656
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,000,000	22,540,115	07/22/2014	07/22/2044	Interest Rate Swap			67332F-AG-8	ARES CLO LTD-SERIES 18-28RA CLASS B	1	23,000,000	22,540,115
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	7,000,000	47,004,093	07/22/2014	07/22/2044	Interest Rate Swap		40,073,883	04017Q-AE-5	REGATTA VIII FUNDING LTD-SERIES 2017-1A CLASS B	1	7,000,000	6,930,210
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,600,000	7,555,251	07/22/2014	07/22/2044	Interest Rate Swap			75888K-AC-8	AIMCO-AIMCO 2017-AA A Ares XXXIR CLO Ltd-SERIES 14-31RA CLASS A2	1	7,600,000	7,555,251
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,460,000	7,461,119	07/22/2014	07/22/2044	Interest Rate Swap			00900C-AA-2	DRYDEN SENIOR LOAN FUND-SERIES 17-49A CLASS B	1	7,460,000	7,461,119
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		28,400,000	27,890,106	07/22/2014	07/22/2044	Interest Rate Swap			04017T-AC-3	Kingsland Ltd-SERIES 18-8A CLASS A	1	28,400,000	27,890,106
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,802,075	11,732,622	07/22/2014	07/22/2044	Interest Rate Swap			26244Q-AB-9	BAIN CAPITAL CREDIT CLO -SERIES 2017-2A CLASS AR	1	11,802,075	11,732,622
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		41,945,189	41,777,778	07/22/2014	07/22/2044	Interest Rate Swap			42086P-AC-7	Wind River CLO Ltd-SERIES 18-3A CLASS B	1	41,945,189	41,777,778
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,500,000	12,476,400	07/22/2014	07/22/2044	Interest Rate Swap			05683H-AC-9	EAIV Delta MSN 15166 STATE BOARD OF REGENTS 0-SERIES USBR 2017-1 CLASS B	1	12,500,000	12,476,400
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,500,000	9,452,529	07/22/2014	07/22/2044	Interest Rate Swap			88432U-AE-6	SLM STUDENT LOAN TRUST 2-SERIES 06-9 CLASS B	1	9,500,000	9,452,529
57629*BIW0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	3,655,383	43,600,334	07/22/2014	07/22/2044	Interest Rate Swap		40,086,886	247358-YT-6		1	3,655,383	3,513,448
57629*BIW0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,988,251	6,890,785	07/22/2014	07/22/2044	Interest Rate Swap			91754R-ZG-5		2	6,988,251	6,890,785
57629*BIW0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,046,142	4,868,259	07/22/2014	07/22/2044	Interest Rate Swap			78443K-AK-2		1	5,046,142	4,868,259

S105.9

STATEMENT AS OF SEPTEMBER 30, 2019 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*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,200,000	15,082,869	07/22/2014	07/22/2044	Interest Rate Swap				87248K-AL-8	TICP CLO VI 2016-5 Ltd-TICP 2016-5A BR	1	15,200,000	15,082,869
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,312,558	4,075,323	07/22/2014	07/22/2044	Interest Rate Swap				57643L-FG-6	MASTR ASSET BACKED SECUR-SERIES 2004-OPT2 CLASS A1	1	4,312,558	4,075,323
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,295,000	5,247,197	07/22/2014	07/22/2044	Interest Rate Swap				03766G-AG-7	APIDOS CLO-SERIES 17-26A CLASS B	1	5,295,000	5,247,197
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,978,102	12,000,156	07/22/2014	07/22/2044	Interest Rate Swap				55819X-AC-6	Madison Park Funding XXI-MDPK 2016-22A B	1	11,978,102	12,000,156
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,300,000	16,293,855	07/22/2014	07/22/2044	Interest Rate Swap				33882G-AA-6	FLATIRON CLO LTD-FLAT 2017-1A A	1	16,300,000	16,293,855
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,280,000	16,158,291	07/22/2014	07/22/2044	Interest Rate Swap				150323-AG-6	CEDAR FUNDING LTD-SERIES 14-4A CLASS BR	1	16,280,000	16,158,291
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,410,000	9,384,725	07/22/2014	07/22/2044	Interest Rate Swap				04943A-AE-9	ATLAS SENIOR LOAN FUND L-SERIES 17-8A CLASS C	1	9,410,000	9,384,725
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,900,000	11,736,339	07/22/2014	07/22/2044	Interest Rate Swap				44330G-AE-3	Highridge Loan Managem-SERIES 4A-2014 CLASS A2R	1	11,900,000	11,736,339
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	8,000,688	07/22/2014	07/22/2044	Interest Rate Swap				87250A-AC-5	TICP CLO XIII Ltd-TICP 2019-13A B	1	8,000,000	8,000,688
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,148,128	5,134,076	07/22/2014	07/22/2044	Interest Rate Swap				69340J-AB-8	PHEAA Student Loan Trust 2014	1	5,148,128	5,134,076
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	984,795	07/22/2014	07/22/2044	Interest Rate Swap				62848F-AC-6	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	1,000,000	984,795
57629*B1W0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,949,510	07/22/2014	07/22/2044	Interest Rate Swap				00900P-AG-0	AIMCO CLO Series 2018-B-SERIES 18-8A CLASS C	1	5,000,000	4,949,510
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	10,895,211	25,713,207	08/27/2014	08/27/2044	Interest Rate Swap		15,072,870		78443G-AJ-4	SLM STUDENT LOAN TRUST 2-SERIES 06-7 CLASS B	1	10,895,211	10,640,337
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,900,000	7,729,984	08/27/2014	08/27/2044	Interest Rate Swap				92916Q-AC-6	VOYA CLO 2017-4 LTD-SERIES 17-4A CLASS B	1	7,900,000	7,729,984
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,859,930	08/27/2014	08/27/2044	Interest Rate Swap				14314B-AC-1	CARLYLE GLOBAL MARKET ST-CGMS 2017-1A A2	1	15,000,000	14,859,930
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,560,000	8,518,099	08/27/2014	08/27/2044	Interest Rate Swap				85816B-CQ-1	STEELE CREEK CLO LTD-SERIES 15-1A CLASS BR	1	8,560,000	8,518,099
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,050,000	9,051,683	08/27/2014	08/27/2044	Interest Rate Swap				92912V-AN-5	VOYA CLO LTD-VOYA 2014-2A A1R	1	9,050,000	9,051,683
57629*CA7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	60,500,000	75,610,446	08/27/2014	08/27/2044	Interest Rate Swap		15,093,748		126612-AJ-9	CVP CASCADE CLO LTD-CVPC 2013-CLO1 A1R	1	60,500,000	60,516,698
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	17,400,000	32,465,914	08/27/2014	08/27/2044	Interest Rate Swap		15,041,554		06761K-AE-1	Babson CLO Ltd/Cayman Is-SERIES 19-3A CLASS B	1	17,400,000	17,424,360
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,999,640	08/27/2014	08/27/2044	Interest Rate Swap				69689A-AW-0	Palmer Square CLO 2015-1-PLMRS 2015-1A A2R2	1	15,000,000	14,999,640
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,250,000	13,980,960	08/27/2014	08/27/2044	Interest Rate Swap				67112K-AB-5	OPC CLO LTD-SERIES 18-15A CLASS A2	1	14,250,000	13,980,960
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,300,000	3,292,463	08/27/2014	08/27/2044	Interest Rate Swap				06761C-AC-3	Babson CLO Ltd 2016-II-BABSN 2016-2A BR	1	3,300,000	3,292,463
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,651,949	2,652,000	08/27/2014	08/27/2044	Interest Rate Swap				045487-AA-3	ASSOC BANC-CORP-SR UNSECURED Wellfleet CLO 2018-2 Ltd-WELF 2018-2A A1	2	2,651,949	2,652,000
57629*CC3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	22,471,574	37,343,670	08/27/2014	08/27/2044	Interest Rate Swap		15,005,017		94949J-AA-3	ALM XIV Ltd-SERIES 14-14A CLASS A1R2	1	22,471,574	22,338,653
57629*CC3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,900,000	15,814,569	08/27/2014	08/27/2044	Interest Rate Swap				74988L-AA-2	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS A1	1	15,900,000	15,814,569
57629*CC3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,475,000	16,273,000	08/27/2014	08/27/2044	Interest Rate Swap				06760G-AA-9	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS A1	1	16,475,000	16,273,000
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	100,000,000	144,548,791	09/08/2014	09/08/2044	Interest Rate Swap		45,116,791		42086G-AA-9	Kingsland VI Ltd-KING 2013-6A AR	1	100,000,000	99,432,000
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,465,000	26,223,750	09/08/2014	09/08/2044	Interest Rate Swap				ZZ2066-36-8	AUST & NZ BANKING GROUP-SUBORDINATED NOTE	1	21,465,000	26,223,750
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,400,000	8,374,800	09/08/2014	09/08/2044	Interest Rate Swap				48252Y-AE-9	KKR CLO 23 Ltd-KKR 23 B	1	8,400,000	8,374,800
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,750,000	2,647,695	09/08/2014	09/08/2044	Interest Rate Swap				04015U-AK-4	Ares XXXVIII CLO Ltd-SERIES 2015-38A CLASS CR	1	2,750,000	2,647,695
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,590,000	2,575,245	09/08/2014	09/08/2044	Interest Rate Swap				88433R-AG-7	WIND RIVER CLO LTD-SERIES 17-2A CLASS C1	1	2,590,000	2,575,245

S105.10

STATEMENT AS OF SEPTEMBER 30, 2019 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	Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,500,000	2,444,670	09/08/2014	09/08/2044	Interest Rate Swap			00900L-AJ-3	AIMCO CLO Series 2015-A-SERIES 15-AA CLASS CR	1	2,500,000	2,444,670
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,500,000	10,306,034	09/08/2014	09/08/2044	Interest Rate Swap			14315L-AC-8	Carlyle Global Market St-SERIES 14-3RA CLASS A1B	1	10,500,000	10,306,034
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,770,000	4,806,136	09/08/2014	09/08/2044	Interest Rate Swap			48275P-AG-6	KREF 2018-FL1 Ltd-KREF 2018-FL1 C	1	4,770,000	4,806,136
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	9,835,102	20,068,938	10/06/2014	10/06/2034	Interest Rate Swap		10,157,018	55819B-AN-0	Madison Park Funding XVI-MDPK 2015-18A BR	1	9,835,102	9,911,920
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,100,000	19,595,952	10/06/2014	10/06/2034	Interest Rate Swap			06760G-AB-7	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS A2	1	20,100,000	19,595,952
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,100,000	20,050,031	10/06/2014	10/06/2034	Interest Rate Swap			77341D-AA-5	Rockford Tower CLO 2017--ROCKT 2017-3A A	1	20,100,000	20,050,031
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,005,155	10/06/2014	10/06/2034	Interest Rate Swap			817176-AS-9	SENECA PARK CLO LTD-SPARK 2014-1A CR	1	5,000,000	5,005,155
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	36,955,568	66,329,323	10/06/2014	10/06/2044	Interest Rate Swap		29,521,318	28108R-AA-0	EdLinc Student Loan Fund-ESLFT 2017-A A	1	36,955,568	36,808,005
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,600,000	3,578,040	10/06/2014	10/06/2044	Interest Rate Swap			87289B-AA-2	TCF DLF VIII 2018 CLO, LLC - Class A	1	3,600,000	3,578,040
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,900,000	4,887,084	10/06/2014	10/06/2044	Interest Rate Swap			12481K-AC-2	CBAM 2017-2 LTD-SERIES 17-2A CLASS B1	1	4,900,000	4,887,084
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,950,000	2,949,997	10/06/2014	10/06/2044	Interest Rate Swap			13080B-AD-3	SYMPHONY CLO LTD-SERIES 13-12A CLASS CR	1	2,950,000	2,949,997
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,901,620	10/06/2014	10/06/2044	Interest Rate Swap			94950G-AC-1	WELFLEET CLO LTD-WELF 2017-1A A2	1	20,000,000	19,901,620
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,874,150	10/06/2014	10/06/2044	Interest Rate Swap			55952Y-AR-8	Magnetite VIII Ltd-MAGNE 2014-8A BR2	1	15,000,000	14,874,150
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,400,000	4,350,192	10/06/2014	10/06/2044	Interest Rate Swap			88434H-AE-3	THL Credit Wind River 20-SERIES 18-2A CLASS A2	1	4,400,000	4,350,192
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,600,000	3,502,861	10/06/2014	10/06/2044	Interest Rate Swap			87249C-AE-1	TICP CLO X LTD-SERIES 18-10A CLASS C	1	3,600,000	3,502,861
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,700,000	3,694,620	10/06/2014	10/06/2044	Interest Rate Swap			04009G-AE-7	ARES L CLO Ltd-SERIES 19-53A CLASS B	1	3,700,000	3,694,620
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,999,915	10/06/2014	10/06/2044	Interest Rate Swap			03328W-AL-2	Anchorage Capital CLO 9 -SERIES 16-9A CLASS BR	1	5,000,000	4,999,915
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2	175,000,000	60,000,000	109,478,164	10/10/2014	10/10/2044	Interest Rate Swap		48,893,104	67332F-AD-5	PRPF Engine Leasing Ltd Senior Secured	1	60,000,000	60,585,060
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		27,633,649	28,414,461	10/10/2014	10/10/2044	Interest Rate Swap			629394-AA-5	NTC CAPITAL I-UNSECURED BOND	2	27,633,649	28,414,461
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		21,083,943	20,609,742	10/10/2014	10/10/2044	Interest Rate Swap			230000-AB-7	CULLEN/FROST CAP TR II-SUBORDINATED NOTE	2	21,083,943	20,609,742
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		20,500,000	20,500,533	10/10/2014	10/10/2044	Interest Rate Swap			09627X-AW-1	BELLESMOUNTAIN CLO LTD-SERIES 2015-1A CLASS A2R	1	20,500,000	20,500,533
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		16,200,000	15,865,519	10/10/2014	10/10/2044	Interest Rate Swap			16409T-AC-3	CHEVANGO PARK CLO LTD-SERIES 18-1A CLASS A1B	1	16,200,000	15,865,519
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		16,100,000	16,100,805	10/10/2014	10/10/2044	Interest Rate Swap			873549-AC-3	Taconic Park CLO Ltd 201-SERIES 2016-1A CLASS A2	1	16,100,000	16,100,805
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		7,000,000	6,962,032	10/10/2014	10/10/2044	Interest Rate Swap			38862E-AB-0	GRIPPEN PARK CLO LTD-SERIES 17-1A CLASS B	1	7,000,000	6,962,032
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		3,553,216	3,529,840	10/10/2014	10/10/2044	Interest Rate Swap			26251B-AN-6	Dryden XXVIII Senior Loa-DRSLF 2013-28A A2LR	1	3,553,216	3,529,840
57629*CIJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		5,553,087	6,045,050	10/10/2014	10/10/2044	Interest Rate Swap			78442G-RC-2	SLMA 2005-9 STUDENT LN-BKD NT CL B	1	5,553,087	6,045,050
57629*CK5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	80,000,000	114,630,453	11/04/2014	11/04/2044	Interest Rate Swap		34,946,453	87271L-AJ-1	TIAA CLO I Ltd-TIA 2016-1A AR	1	80,000,000	79,684,000
57629*CK5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,811,980	11/04/2014	11/04/2044	Interest Rate Swap			55819D-AE-6	Madison Park Funding XXX-MDPK 2018-31A A2A	1	20,000,000	19,811,980
57629*CK5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		35,000,000	34,911,380	11/04/2014	11/04/2044	Interest Rate Swap			22616T-AA-4	Crestline Denali CLO XVI-DEN17 2018-1A A	1	35,000,000	34,911,380
57629*CL3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	110,000,000	134,612,067	11/04/2014	11/04/2044	Interest Rate Swap		34,972,703	06761N-AE-5	Barings Middle Market CL-BMM 2018-11 COM	2	110,000,000	99,639,364
57629*CL3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,445,000	22,289,815	11/04/2014	11/04/2044	Interest Rate Swap			08181J-AA-0	Benefit Street Partners -SERIES 18-5BA CLASS A1A	1	22,445,000	22,289,815

S105.11

STATEMENT AS OF SEPTEMBER 30, 2019 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	Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*CL3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	992,400	11/04/2014	11/04/2044	Interest Rate Swap			48250R-BN-5	KKR CLO 12 Ltd-KKR 12 BR2	1	1,000,000	992,400
57629*CM1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	34,517,155	70,055,088	11/04/2014	11/04/2044	Interest Rate Swap		35,182,698	50188G-AT-0	LOM XVIII LP-LQM 18A A1R Kingsland Ltd-SERIES 18-8A CLASS A	1	34,517,155	34,872,390
57629*CM1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		45,939,969	45,756,614	11/04/2014	11/04/2044	Interest Rate Swap			42086P-AC-7	GOLUB CAPITAL PARTNERS C-SERIES 13-16A CLASS A1R	1	45,939,969	45,756,614
57629*CM1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		30,000,000	30,001,470	11/04/2014	11/04/2044	Interest Rate Swap			38172X-AG-4		1	30,000,000	30,001,470
57629*CM1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,200,000	1,190,880	11/04/2014	11/04/2044	Interest Rate Swap			48250R-BN-5	KKR CLO 12 Ltd-KKR 12 BR2	1	1,200,000	1,190,880
57629*CM1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,202,010	15,400,081	11/04/2014	11/04/2044	Interest Rate Swap			03328Y-AA-2	ANCHORAGE CAPITAL CLO 1-ANCHC 2018-1RA A1	1	15,202,010	15,400,081
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	14,049,162	49,149,376	11/04/2014	11/04/2044	Interest Rate Swap		35,208,948	G6776M-ZZ-9	ORANGE GROVE ENERGY, L.P DELAYED DRAW TE	2	14,049,162	13,940,428
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,319,467	3,205,022	11/04/2014	11/04/2044	Interest Rate Swap			247358-BB-9	EAIV Delta MSN 15153	1	3,319,467	3,205,022
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,219,530	3,105,733	11/04/2014	11/04/2044	Interest Rate Swap			247358-DD-3	EAIV Delta MSN 15161	1	3,219,530	3,105,733
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,328,507	3,214,812	11/04/2014	11/04/2044	Interest Rate Swap			247358-PP-3	Delta Air Lines Inc. - MSN 15147	1	3,328,507	3,214,812
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,328,639	3,181,680	11/04/2014	11/04/2044	Interest Rate Swap			247358-RR-7	EAIV 2017 Delta MSN 15146	1	3,328,639	3,181,680
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,219,530	3,105,733	11/04/2014	11/04/2044	Interest Rate Swap			247358-RII-6	EAIV Delta MSN 15162	1	3,219,530	3,105,733
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,500,000	20,534,051	11/04/2014	11/04/2044	Interest Rate Swap			01750F-AA-4	Allegro CLO Ltd-ALLEG 2019-1A A	1	20,500,000	20,534,051
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,400,000	17,428,745	11/04/2014	11/04/2044	Interest Rate Swap			12482N-AA-9	CBAM Ltd-CBAM 2019-10A A1A Symphony CLO XXI Ltd-SYMP 2019-21A	1	17,400,000	17,428,745
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,500,000	8,498,708	11/04/2014	11/04/2044	Interest Rate Swap			87168R-AE-7		1	8,500,000	8,498,708
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		26,281,226	26,281,094	11/04/2014	11/04/2044	Interest Rate Swap			29108Q-AY-8	EMERSON PARK CLO LTD-SERIES 13-1A	1	26,281,226	26,281,094
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,500,000	23,490,000	11/04/2014	11/04/2044	Interest Rate Swap			G1093*-AA-7	BIF II SAFE HARBOR HOLDINGS LLC	2	22,500,000	23,490,000
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	10,000,000	45,287,016	11/04/2014	11/04/2044	Interest Rate Swap		35,287,696	48253H-AE-5	KKR CLO 26 LLC-SERIES 26 CLASS B1 BAIN CAPITAL CREDIT CLO -SERIES 18-2A CLASS A1	1	10,000,000	9,999,320
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		28,500,000	28,407,518	11/04/2014	11/04/2044	Interest Rate Swap			05682V-AA-3		1	28,500,000	28,407,518
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		55,362,304	55,670,517	11/04/2014	11/04/2044	Interest Rate Swap			13345*-AA-5	CAMERON LNG CONSTRUCTION FA Goldentree Loan Managem-GLM 2019-5A C	1	55,362,304	55,670,517
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,300,000	11,299,119	11/04/2014	11/04/2044	Interest Rate Swap			38138D-AJ-5		1	11,300,000	11,299,119
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,999,490	11/04/2014	11/04/2044	Interest Rate Swap			03330N-AC-8	Anchorage Capital Clo 11-ANCHC 2019-11A B	1	10,000,000	9,999,490
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,000,000	11/04/2014	11/04/2044	Interest Rate Swap			69700G-AC-6	Palmer Square CLO 2019-1-SERIES 19-1A CLASS A2	1	10,000,000	10,000,000
57629*C02	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	49,545,077	85,000,625	11/04/2014	11/04/2044	Interest Rate Swap		35,445,193	46617N-AQ-0	JFIN CLO LTD-SERIES 14-2A CLASS A1AR	1	49,545,077	49,555,432
57629*C02	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,700,000	4,703,765	11/04/2014	11/04/2044	Interest Rate Swap			03330N-AE-4	Anchorage Capital Clo 11-ANCHC 2019-11A C	1	4,700,000	4,703,765
57629*C02	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,490,000	10,408,503	11/04/2014	11/04/2044	Interest Rate Swap			40437L-AG-7	HPS Loan Management 13-2-HLM 13A-18 B	1	10,490,000	10,408,503
57629*C02	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,850,290	11/04/2014	11/04/2044	Interest Rate Swap			40436Q-AL-6	HPS Loan Management 9-20-HLM 9A-2016 A1BR	1	10,000,000	9,850,290
57629*C02	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,375,000	6,356,921	11/04/2014	11/04/2044	Interest Rate Swap			04622A-AC-1	Assurant CLO IV LTD	1	6,375,000	6,356,921
57629*C02	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,500,000	3,507,700	11/04/2014	11/04/2044	Interest Rate Swap			12482N-AG-6	CBAM 2019-10 Ltd	1	3,500,000	3,507,700
57629*C02	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,999,680	11/04/2014	11/04/2044	Interest Rate Swap			44932V-AE-2	ICG US CLO 2019-1 LTD	1	10,000,000	9,999,680
57629*C02	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,999,990	11/04/2014	11/04/2044	Interest Rate Swap			92918F-AB-0	Voya CLO 2019-3 Ltd	1	10,000,000	9,999,990

S105.12

STATEMENT AS OF SEPTEMBER 30, 2019 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	Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*CO2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,000,000	11/04/2014	11/04/2044	Interest Rate Swap			67098D-AG-8	OHA Credit Funding 4 Ltd	1	15,000,000	15,000,000
57629*CO2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,000,000	6,000,000	11/04/2014	11/04/2044	Interest Rate Swap			67098D-AJ-2	OHA Credit Funding 4 Ltd	1	6,000,000	6,000,000
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	16,600,000	51,639,717	11/04/2014	11/04/2044	Interest Rate Swap		35,418,944	92915P-AK-1	ABR2 Vova CLO 2014-1 Ltd-INGIN 2014-1A	1	16,600,000	16,220,773
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,660,000	13,663,237	11/04/2014	11/04/2044	Interest Rate Swap			05363U-AW-3	ABRY POINT IV CLO LTD-SERIES 14-1A CLASS CR	1	13,660,000	13,663,237
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,660,000	13,591,522	11/04/2014	11/04/2044	Interest Rate Swap			04964K-AS-0	ATRIUM CDO CORP-SERIES 9A CLASS CR	1	13,660,000	13,591,522
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,000,000	12,598,131	11/04/2014	11/04/2044	Interest Rate Swap			G7332F-AH-6	RRPF Engine Leasing Ltd Senior Secured	1	13,000,000	12,598,131
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,904,740	11/04/2014	11/04/2044	Interest Rate Swap			04941Y-AJ-8	Atlas Senior Loan Fund X-ATCLO 2018-11A B	1	10,000,000	9,904,740
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,000,000	17,035,734	11/04/2014	11/04/2044	Interest Rate Swap			03328W-AJ-7	Anchorage Capital CLO 9 -SERIES 16-9A CLASS AR	1	17,000,000	17,035,734
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,500,000	12,481,550	11/04/2014	11/04/2044	Interest Rate Swap			26252N-AE-9	Dryden Senior Loan Fund-DRSLF 2019-72A B	1	12,500,000	12,481,550
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,999,940	11/04/2014	11/04/2044	Interest Rate Swap			12550Y-AC-8	CIFC FUNDING LTD-CIFC 2017-2A A	1	20,000,000	19,999,940
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,439,325	11/04/2014	11/04/2044	Interest Rate Swap			94951D-AJ-2	Wellfleet CLO 2018-3 Ltd-SERIES 18-3A CLASS A2	1	7,500,000	7,439,325
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,798,454	1,826,266	11/04/2014	11/04/2044	Interest Rate Swap			664397-AK-2	EVERSOURCE ENERGY-UNSECURED NOTE MADISON PARK FUNDING LTD-SERIES 2015-16A CLASS A2R	2	1,798,454	1,826,266
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	12,740,000	48,211,558	11/04/2014	11/04/2044	Interest Rate Swap		35,471,443	55818X-AY-9	Apidos CLO-APID 2019-31A B	1	12,740,000	12,740,115
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,100,000	7,097,636	11/04/2014	11/04/2044	Interest Rate Swap			03767V-AD-0	Octagon Investment Partn-SERIES 19-3A CLASS B1	1	7,100,000	7,097,636
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,400,000	4,403,199	11/04/2014	11/04/2044	Interest Rate Swap			67576P-AE-7	Apidos CLO-SERIES 17-26A CLASS A2 CATSKILL PARK CLO LTD.-SERIES 17-1A CLASS A2	1	4,400,000	4,403,199
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,240,000	12,211,065	11/04/2014	11/04/2044	Interest Rate Swap			037666-AE-2	THL Credit Wind River 20-SERIES 18-2A CLASS A2	1	12,240,000	12,211,065
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,980,000	11,946,875	11/04/2014	11/04/2044	Interest Rate Swap			149420-AE-1	KKR FINANCIAL CLO LTD-SERIES 9 CLASS AR	1	11,980,000	11,946,875
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,943,400	11/04/2014	11/04/2044	Interest Rate Swap			88434H-AE-3	Denali Capital Clo XII L-DEN12 2016-1A A1R	1	5,000,000	4,943,400
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,100,000	21,100,106	11/04/2014	11/04/2044	Interest Rate Swap			48250L-AL-3	Highbridge Loan Managem-SERIES 12A-18 CLASS A1B	1	21,100,000	21,100,106
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,100,000	22,873,874	11/04/2014	11/04/2044	Interest Rate Swap			24824T-AQ-3	HIGHBRIDGE LOAN MANAGEM-HLMI 11A-17 A	1	23,100,000	22,873,874
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,250,000	10,040,552	11/04/2014	11/04/2044	Interest Rate Swap			44330Q-AB-7	GRIDIRON FDG LLC Term Facility NORTHSTAR EDUCATION FINA-SERIES 07-1 CLASS B	1	10,250,000	10,040,552
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,100,000	18,100,579	11/04/2014	11/04/2044	Interest Rate Swap			40436V-AA-9	Magnetite XX Ltd-MAGNE 2018-20A A Anchorage Capital CLO Lt-ANCHC 2018-10A A1A	1	18,100,000	18,100,579
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	32,103,684	65,031,170	12/16/2014	12/16/2044	Interest Rate Swap		32,282,946	39808C-A8-4	Barings CLO Ltd 2018-II-SERIES 2018-2A CLAS A1B	1	32,103,684	32,748,224
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		27,241,161	24,722,944	12/16/2014	12/16/2044	Interest Rate Swap			66704J-CB-2	BABSON CLO LTD-SERIES 17-1A CLASS A2	1	27,241,161	24,722,944
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,322,689	17,417,682	12/16/2014	12/16/2044	Interest Rate Swap			55955A-AA-4	MADISON PARK FUNDING LTD-SERIES 17-25A CLASS B	1	17,322,689	17,417,682
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,929,900	12/16/2014	12/16/2044	Interest Rate Swap			03331J-AA-0	Benefit Street Partners -BSP 2017-12A B	1	20,000,000	19,929,900
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,200,000	15,899,620	12/16/2014	12/16/2044	Interest Rate Swap			06760J-AE-5	SALEM FIELDS CLO LTD SR SEC2 NT CL A-2-R	1	16,200,000	15,899,620
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,700,000	6,604,626	12/16/2014	12/16/2044	Interest Rate Swap			06760B-AC-6	GRIDIRON FDG LLC Term Facility NORTHSTAR EDUCATION FINA-SERIES 07-1 CLASS B	1	6,700,000	6,604,626
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,960,000	4,928,167	12/16/2014	12/16/2044	Interest Rate Swap			55820R-AE-2	Benefit Street Partners -BSP 2017-12A B	1	4,960,000	4,928,167
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,575,000	2,470,092	12/16/2014	12/16/2044	Interest Rate Swap			08179H-AC-4	SALEM FIELDS CLO LTD SR SEC2 NT CL A-2-R	1	2,575,000	2,470,092
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,977,650	12/16/2014	12/16/2044	Interest Rate Swap			79410U-AQ-4	SALEM FIELDS CLO LTD SR SEC2 NT CL A-2-R	1	10,000,000	9,977,650

SI05_13

STATEMENT AS OF SEPTEMBER 30, 2019 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*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,475,000	4,474,776	12/16/2014	12/16/2044	Interest Rate Swap			033291-AC-9	ANCHC 2019-13A B	1	4,475,000	4,474,776
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,425,000	6,256,112	12/16/2014	12/16/2044	Interest Rate Swap			08180X-AQ-5	Benefit Street Partners -BSP 2015-8A A1BR	1	6,425,000	6,256,112
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,000,000	5,978,424	12/16/2014	12/16/2044	Interest Rate Swap			08182B-AE-8	Benefit Street Partners CLO L	1	6,000,000	5,978,424
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	24,662,500	56,966,761	12/16/2014	12/16/2044	Interest Rate Swap		31,966,761	144577-TT-0	Carrix, Inc. Senior Term Loa	2	24,662,500	25,000,000
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,470,000	14,469,696	12/16/2014	12/16/2044	Interest Rate Swap			55820R-AC-6	MADISON PARK FUNDING LTD-SERIES 17-25A CLASS A2	1	14,470,000	14,469,696
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		34,935,628	34,761,825	12/16/2014	12/16/2044	Interest Rate Swap			04941Y-AC-3	Atlas Senior Loan Fund X-SERIES 18-11A CLASS A1L	1	34,935,628	34,761,825
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		65,000,000	64,899,380	12/16/2014	12/16/2044	Interest Rate Swap			04624H-AC-1	ASSURANT CLO III LTD-SERIES 2018-2A CLASS A	1	65,000,000	64,899,380
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,441,882	9,347,943	12/16/2014	12/16/2044	Interest Rate Swap			48252W-AC-7	KKR CLO LTD 22-SERIES 22A CLASS B	1	9,441,882	9,347,943
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	7,000,539	12/16/2014	12/16/2044	Interest Rate Swap			05618D-AN-4	BABSON CLO LTD-BABSN 2014-1A BR	1	7,000,000	7,000,539
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,045,000	2,005,824	12/16/2014	12/16/2044	Interest Rate Swap			056162-AQ-3	Babson CLO Ltd 2015-1-BABSN 2015-1A BR	1	2,045,000	2,005,824
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,900,000	3,705,394	12/16/2014	12/16/2044	Interest Rate Swap			69703P-AE-9	Palmer Square CLO 2018-1-PLMRS 2018-1A B	1	3,900,000	3,705,394
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	250,000,000	36,000,000	93,361,403	12/16/2014	12/16/2044	Interest Rate Swap		53,963,003	39808C-AA-3	Gridiron Fdg LLC Sr Secd Nt	2	36,000,000	39,398,400
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,900,000	25,382,622	12/16/2014	12/16/2044	Interest Rate Swap			14307P-AE-5	Carlyle Global Market St-SERIES C17A CLASS A1BR	1	25,900,000	25,382,622
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,500,000	23,499,601	12/16/2014	12/16/2044	Interest Rate Swap			05618D-AL-8	BABSON CLO LTD-BABSN 2014-1A A2R	1	23,500,000	23,499,601
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,100,000	23,099,607	12/16/2014	12/16/2044	Interest Rate Swap			83610K-AA-1	SOUND POINT CLO LTD-SERIES 2017-2A CLASS A	1	23,100,000	23,099,607
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,800,000	23,578,752	12/16/2014	12/16/2044	Interest Rate Swap			57542Z-AQ-7	MASSMUTUAL ASSET FIN LLC SR SEC0 REV NT	4	22,800,000	23,578,752
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,916,012	12,151,527	12/16/2014	12/16/2044	Interest Rate Swap			88576P-AE-3	321 HENDERSON RECEIVABLE-SERIES 05-1A CLASS A1	1	11,916,012	12,151,527
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,787,615	13,882,624	12/16/2014	12/16/2044	Interest Rate Swap			92917A-AA-4	VOYA 2018-1A A1	1	13,787,615	13,882,624
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,951,880	12/16/2014	12/16/2044	Interest Rate Swap			58806P-AC-2	MERCER FIELD CLO LP-MERCL 2017-1A A2	1	20,000,000	19,951,880
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,500,000	11,366,963	12/16/2014	12/16/2044	Interest Rate Swap			64034B-AB-7	Nelnet Student Loan Trus-NSLT 2018-5A B	1	11,500,000	11,366,963
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,471,574	22,338,653	12/16/2014	12/16/2044	Interest Rate Swap			94949J-AA-3	Wellfleet CLO 2018-2 Ltd-WELF 2018-2A A1	1	22,471,574	22,338,653
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,950,000	5,953,653	12/16/2014	12/16/2044	Interest Rate Swap			10302V-BG-9	BOWMAN PARK CLO LTD-BOWIPK 2014-1A CR	1	5,950,000	5,953,653
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,492,882	8,490,761	12/16/2014	12/16/2044	Interest Rate Swap			03328Q-AN-1	ANCHORAGE CAPITAL CLO LT-SERIES 2015-6A CLASS AR	1	8,492,882	8,490,761
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,467,330	12/16/2014	12/16/2044	Interest Rate Swap			38136F-AG-8	Goldentree Loan Managem-GLM 2017-1A B1	1	13,500,000	13,467,330
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,100,000	10,827,828	12/16/2014	12/16/2044	Interest Rate Swap			12481Q-AE-5	Cam 2018-5 Ltd-SERIES 18-5A CLASS B1	1	11,100,000	10,827,828
57629*CU3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	250,000,000	328,073,426	392,240,782	12/16/2014	12/16/2044	Interest Rate Swap		52,961,749	57542Z-AQ-7	MASSMUTUAL ASSET FIN LLC SR SEC0 REV NT	4	328,073,426	339,279,033
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	200,000,000	16,885,848	58,829,449	12/16/2014	12/16/2044	Interest Rate Swap		41,947,819	03328Q-AN-1	ANCHORAGE CAPITAL CLO LT-SERIES 2015-6A CLASS AR	1	16,885,848	16,881,630
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,921,475	12/16/2014	12/16/2044	Interest Rate Swap			94950J-AC-5	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	5,000,000	4,921,475
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,780,000	6,705,373	12/16/2014	12/16/2044	Interest Rate Swap			33882G-AB-4	FLATIRON CLO LTD-FLAT 2017-1A B	1	6,780,000	6,705,373
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,750,000	9,730,890	12/16/2014	12/16/2044	Interest Rate Swap			36361U-AC-4	GALLATIN CLO LTD-SERIES 17-1A CLASS B	1	9,750,000	9,730,890
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,400,000	10,273,172	12/16/2014	12/16/2044	Interest Rate Swap			67115W-AE-0	OHA Credit Funding 1 LTD-SERIES 18-1A CLASS A2	1	10,400,000	10,273,172

S105.14

STATEMENT AS OF SEPTEMBER 30, 2019 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*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,685,709	21,754,194	12/16/2014	12/16/2044	Interest Rate Swap			26245R-AA-8	Dryden 58 Clo Ltd-DRSLF 2018-58A A1	1	21,685,709	21,754,194
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,675,000	9,675,087	12/16/2014	12/16/2044	Interest Rate Swap			08179H-AA-8	BENEFIT STREET PARTNERS -SERIES 2017-12A CLASS A1	1	9,675,000	9,675,087
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,500,000	8,427,249	12/16/2014	12/16/2044	Interest Rate Swap			78109Q-AE-8	RR 2 LTD-SERIES 17-2A CLASS A2 OAKTREE CLO LTD-SERIES 14-1A CLASS ATR	1	8,500,000	8,427,249
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,120,000	17,123,629	12/16/2014	12/16/2044	Interest Rate Swap			674000-AN-4	Carlyle US CLO 2013-3 Re Term Loan	1	17,120,000	17,123,629
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,075,000	18,901,418	12/16/2014	12/16/2044	Interest Rate Swap			14315J-NN-5		1	19,075,000	18,901,418
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,373,900	21,367,955	12/16/2014	12/16/2044	Interest Rate Swap			74982L-AN-0	RACEP 2013-8A MASSMUTUAL ASSET FIN LLC SR SECD	1	21,373,900	21,367,955
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		56,000,000	57,912,724	12/16/2014	12/16/2044	Interest Rate Swap			57542Z-AO-7	REV NT	4	56,000,000	57,912,724
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,400,000	6,322,803	12/16/2014	12/16/2044	Interest Rate Swap			00900L-AH-7	AIMCO CLO Series 2015-A-SERIES 15-AA CLASS BR	1	6,400,000	6,322,803
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	4,961,904	19,955,192	02/05/2015	02/05/2045	Interest Rate Swap		15,079,402	12551J-AG-1	CIFC Funding 2017-IV Ltd-SERIES 17-4A CLASS B	1	4,961,904	4,875,790
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,020,000	9,879,269	02/05/2015	02/05/2045	Interest Rate Swap			92912V-AS-4	VOYA CLO LTD-VOYA 2014-2A BR MANUF & TRADERS TRUST CO-	1	10,020,000	9,879,269
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,510,344	10,504,967	02/05/2015	02/05/2045	Interest Rate Swap			564759-OB-7	SUBORDINATED NOTE	1	10,510,344	10,504,967
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,461,701	02/05/2015	02/05/2045	Interest Rate Swap			87806L-AE-6	TC1-CENT CLO 2016-1 LTD.-SERIES 17-1A CLASS A2	1	13,500,000	13,461,701
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,424,481	02/05/2015	02/05/2045	Interest Rate Swap			06760B-AE-2	BABSON CLO LTD-SERIES 17-1A CLASS B1	1	13,500,000	13,424,481
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,600,000	9,599,981	02/05/2015	02/05/2045	Interest Rate Swap			63941R-AC-4	NAVSL 2019-2A B	1	9,600,000	9,599,981
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,700,000	12,592,723	02/05/2015	02/05/2045	Interest Rate Swap			40436X-AE-7	HIGHBRIDGE LOAN MANAGEMEN-SERIES 2014 CLAS A2R	1	12,700,000	12,592,723
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,200,000	11,203,909	02/05/2015	02/05/2045	Interest Rate Swap			056820-AC-0	BAIN CAPITAL CREDIT CLO -SERIES 17-1A CLASS A1	1	11,200,000	11,203,909
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,900,000	13,709,431	02/05/2015	02/05/2045	Interest Rate Swap			09628J-AN-1	BlueMountain CLO 2015-3-BLUEM 2015-3A A2R	1	13,900,000	13,709,431
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,300,000	11,299,966	02/05/2015	02/05/2045	Interest Rate Swap			053633-AH-6	AVERY POINT CLO LTD-SERIES 13-3A CLASS B1R	1	11,300,000	11,299,966
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,382,696	5,036,541	02/05/2015	02/05/2045	Interest Rate Swap			784170-ZZ-8	SFR FTTH SAS Term Loan	2	5,382,696	5,036,541
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,400,000	7,268,576	02/05/2015	02/05/2045	Interest Rate Swap			55821T-AC-1	Madison Park Funding Ltd-SERIES 18-30A CLASS B	1	7,400,000	7,268,576
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,085,000	1,071,456	02/05/2015	02/05/2045	Interest Rate Swap			89852T-AN-8	Tryon Park CLO Ltd-TPCLO 2013-1A A1JR	1	1,085,000	1,071,456
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	5,280,000	20,146,270	02/05/2015	02/05/2045	Interest Rate Swap		14,866,312	00900C-AE-4	AIMCO-AIMCO 2017-AA C	1	5,280,000	5,279,958
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,180,328	3,160,928	02/05/2015	02/05/2045	Interest Rate Swap			87289B-AA-2	TOP DLF VIII 2018 CLO, LLC - Class A	1	3,180,328	3,160,928
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		32,100,000	32,101,605	02/05/2015	02/05/2045	Interest Rate Swap			05363U-AU-7	AVERY POINT IV CLO LTD-SERIES 14-1A CLASS BR	1	32,100,000	32,101,605
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		24,961,299	23,854,187	02/05/2015	02/05/2045	Interest Rate Swap			66704J-AY-4	NORTHSTAR EDUCATION FINA-SERIES 2004-1 CLASS B1	1	24,961,299	23,854,187
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		27,000,000	26,771,607	02/05/2015	02/05/2045	Interest Rate Swap			75887X-AA-5	Regatta Fundinnng Ltd.-REG11 2018-1A	1	27,000,000	26,771,607
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,900,000	11,809,155	02/05/2015	02/05/2045	Interest Rate Swap			449258-AA-0	1CG US CLO 2018-1 LTD-SERIES 2018-1A CLASS A1	1	11,900,000	11,809,155
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		0	0	02/05/2015	02/05/2045	Interest Rate Swap			00507U-AS-0	ACTAVIS FUNDING SCS-SENIOR UNSECURED NOTE	2		
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,967,990	02/05/2015	02/05/2045	Interest Rate Swap			64132M-AC-2	Neuberger Berman CLO Ltd-NEUB 2018-30A A2	1	10,000,000	9,967,990
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,200,000	11,126,573	02/05/2015	02/05/2045	Interest Rate Swap			17181T-AC-5	CIFC Funding 2018-IV Ltd-SERIES 18-4A CLASS A2	1	11,200,000	11,126,573
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	4,524,293	19,287,637	02/05/2015	02/05/2045	Interest Rate Swap		15,054,297	784170-ZZ-8	SFR FTTH SAS Term Loan	2	4,524,293	4,233,340

S105.15

STATEMENT AS OF SEPTEMBER 30, 2019 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*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,900,430	02/05/2015	02/05/2045	Interest Rate Swap			55818R-BA-3	Madison Park Funding XIV-MDPK 2014-14A BRR	1	15,000,000	14,900,430
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,600,000	11,379,264	02/05/2015	02/05/2045	Interest Rate Swap			04942J-AE-1	Atlas Senior Loan Fund X-ATCLO 2018-10A B	1	11,600,000	11,379,264
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,090,000	18,080,828	02/05/2015	02/05/2045	Interest Rate Swap			77340E-AC-0	ROCKFORD TOWER CLO LTD-ROCKT 2017-1A B	1	18,090,000	18,080,828
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,730,000	5,714,443	02/05/2015	02/05/2045	Interest Rate Swap			64129J-AU-4	NEUBERGER BERMAN CLO LTD-NEUB 2013-14A BTR	1	5,730,000	5,714,443
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,900,000	25,217,328	02/05/2015	02/05/2045	Interest Rate Swap			04016V-AC-9	ARES XLVII CLO Ltd-SERIES 18-47A CLASS A2	1	25,900,000	25,217,328
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,300,000	4,301,802	02/05/2015	02/05/2045	Interest Rate Swap			87248T-AE-5	TICP CLO LTD-SERIES 2017 CLASS 7A OCP CLO 2017-14 Ltd-SERIES 17-14A CLASS A2	1	4,300,000	4,301,802
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,400,000	11,151,127	02/05/2015	02/05/2045	Interest Rate Swap			67097Q-AE-5	Benefit Street Partners -SERIES 18-14A CLASS A2	1	11,400,000	11,151,127
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,400,000	13,003,842	02/05/2015	02/05/2045	Interest Rate Swap			08179L-AC-5	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	13,400,000	13,003,842
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,921,475	02/05/2015	02/05/2045	Interest Rate Swap			94950J-AC-5	Carlyle Global Market St-SERIES 18-4A CLASS A2	1	5,000,000	4,921,475
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	6,976,025	02/05/2015	02/05/2045	Interest Rate Swap			14315R-AE-1	ATLAS SENIOR LOAN FUND L-SERIES 17-8A CLASS C	1	7,000,000	6,976,025
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,100,000	3,076,679	02/05/2015	02/05/2045	Interest Rate Swap			04943A-AG-4	BAIN CAPITAL CREDIT CLO -SERIES 2017-2A CLASS AR	1	3,100,000	3,076,679
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	45,000,000	59,623,916	02/05/2015	02/05/2045	Interest Rate Swap		14,708,876	05683H-AC-9	MAGNETITE CLO LTD-SERIES 17-19A CLASS B	1	45,000,000	44,915,040
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,325,000	7,291,349	02/05/2015	02/05/2045	Interest Rate Swap			55954K-AC-9	VOYA CLO LTD-SERIES 2017-3A CLASS A2	1	7,325,000	7,291,349
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,200,000	7,167,247	02/05/2015	02/05/2045	Interest Rate Swap			92915Q-AG-8	HPS Loan Management 9-20-HLM 9A-2016 A2R	1	7,200,000	7,167,247
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,750,000	12,652,998	02/05/2015	02/05/2045	Interest Rate Swap			40436Q-AN-2	TICP CLO Ltd-TICP 2018-11A A Babson CLO Ltd 2013-I-SERIES 2013-1A CLASS AR	1	12,750,000	12,652,998
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,000,000	24,949,075	02/05/2015	02/05/2045	Interest Rate Swap			87249Q-AA-8	Statoil ASA-SENIOR UNSECURED NOTE SMB PRIVATE ED LN TR 201-SMB PRIVATE ED LN TR 2016-A NT	1	25,000,000	24,949,075
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,400,235	14,412,191	02/05/2015	02/05/2045	Interest Rate Swap			06760E-AA-4	NAVIENT STUDENT LOAN TRU-SERIES 16-2 CLASS A3	1	14,400,235	14,412,191
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,126,872	24,634,667	02/05/2015	02/05/2045	Interest Rate Swap			24820R-AA-6	ECMC GROUP STUDENT LOAN -SERIES 2016-1A CLASS A	1	21,126,872	24,634,667
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	18,311,222	43,733,738	12/05/2016	12/05/2046	Interest Rate Swap		25,064,702	78449F-AC-5	Atlas Senior Loan Fund V-SERIES 16-7A CLASS A1R	1	18,311,222	18,669,036
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,420,000	23,113,045	12/05/2016	12/05/2046	Interest Rate Swap			63940F-AC-1	Oak Hill Credit Partners-SERIES 15-12A CLASS A2R	1	22,420,000	23,113,045
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,113,699	10,188,639	12/05/2016	12/05/2046	Interest Rate Swap			26827X-AA-1	STEEL CREEK CLO LTD-SERIES 15-1A CLASS CR	1	10,113,699	10,188,639
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,500,000	23,487,522	12/05/2016	12/05/2046	Interest Rate Swap			04941T-AS-9	Benefit Street Partners -BSP 2015-8A BR	1	23,500,000	23,487,522
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,500,000	11,401,376	12/05/2016	12/05/2046	Interest Rate Swap			92916M-AB-7	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS C	1	11,500,000	11,401,376
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,822,030	12/05/2016	12/05/2046	Interest Rate Swap			67109Y-AN-4	ATRIUM XIV LLC-ATRM 14A A2A	1	10,000,000	9,822,030
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,330,000	4,266,306	12/05/2016	12/05/2046	Interest Rate Swap			85816B-CS-7	Anchorage Capital CLO 9 -SERIES 16-9A CLASS BR	1	4,330,000	4,266,306
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,200,000	3,971,856	12/05/2016	12/05/2046	Interest Rate Swap			08180X-AU-6	Parliament Funding I LLC-Variable Funding Notes	2	4,200,000	3,971,856
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,380,000	6,236,424	12/05/2016	12/05/2046	Interest Rate Swap			22616C-AE-3	NSLT 2019-2A B	1	6,380,000	6,236,424
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,882,970	12/05/2016	12/05/2046	Interest Rate Swap			04965L-AE-8		1	10,000,000	9,882,970
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,999,915	12/05/2016	12/05/2046	Interest Rate Swap			03328W-AL-2		1	5,000,000	4,999,915
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	2,250,000	27,342,703	12/05/2016	12/05/2046	Interest Rate Swap		25,092,703	70163H-AA-0		2	2,250,000	2,250,000
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,600,000	5,575,665	12/05/2016	12/05/2046	Interest Rate Swap			64034N-AB-1		1	5,600,000	5,575,665

S105.16

STATEMENT AS OF SEPTEMBER 30, 2019 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*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,395,389	8,289,271	12/05/2016	12/05/2046	Interest Rate Swap			640310-BR-1	NELNET STUDENT LOAN TRUS-SERIES 2005-1 CLASS A5	1	8,395,389	8,289,271
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,929,925	11,977,151	12/05/2016	12/05/2046	Interest Rate Swap			784480-AD-0	SMB PRIVATE EDUCATION LO-SMB 2015-B A3	1	11,929,925	11,977,151
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,774,810	9,972,386	12/05/2016	12/05/2046	Interest Rate Swap			784426-RX-6	SLM STUDENT LN TR 2006-2 LN BKD NT CL A-6	1	9,774,810	9,972,386
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,503,029	1,549,567	12/05/2016	12/05/2046	Interest Rate Swap			784426-EX-0	SLM STUDENT LOAN TRUST-SERIES 2002-7CLASS A11	1	1,503,029	1,549,567
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,781,784	9,800,478	12/05/2016	12/05/2046	Interest Rate Swap			10620N-AX-6	BRAZOS HIGHER EDUCATION -SER 2006-2 STUDENT LN REV NT	1	9,781,784	9,800,478
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,959,592	6,981,229	12/05/2016	12/05/2046	Interest Rate Swap			640310-BX-8	NELNET STUDENT LOAN TRUS-SERIES 2005-2 CLASS A5	1	6,959,592	6,981,229
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,848,691	10,025,369	12/05/2016	12/05/2046	Interest Rate Swap			83715R-AF-9	SOUTH CAROLINA STUDENT L-SERIES 14-1 CLASS A2	1	9,848,691	10,025,369
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,244,239	1,243,433	12/05/2016	12/05/2046	Interest Rate Swap			00432C-AV-3	ACCESS GROUP INC-SERIES 2003-A CLASS A3	1	1,244,239	1,243,433
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,999,945	12/05/2016	12/05/2046	Interest Rate Swap			88322U-AN-9	THACHER PARK CLO-THRPK 2014-1A CR Regatta Fundinng Ltd.-REG11 2018-1A	1	5,000,000	4,999,945
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,000,000	12,847,458	12/05/2016	12/05/2046	Interest Rate Swap			75887X-AC-1	ROCKALL CLO BV Variable Funding Note- USD	1	13,000,000	12,847,458
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,626,289	4,626,289	12/05/2016	12/05/2046	Interest Rate Swap			77277L-A7-2	VIBRANT CLO LTD-SERIES 2016-5A CLASS A	1	4,626,289	4,626,289
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,300,000	4,299,927	12/05/2016	12/05/2046	Interest Rate Swap			92558A-AA-8	CIFC Funding 2018-1 Ltd-SERIES 18-1A CLASS B	1	4,300,000	4,299,927
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,350,000	7,185,816	12/05/2016	12/05/2046	Interest Rate Swap			12551R-AC-2	THL Credit Wind River 20-SERIES 18-2A CLASS A2	1	7,350,000	7,185,816
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,943,400	12/05/2016	12/05/2046	Interest Rate Swap			88434H-AE-3	TCP DLF VIII 2018 CLO Combo Note	2	5,000,000	4,943,400
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,333,333	20,569,600	12/05/2016	12/05/2046	Interest Rate Swap			87289B-AJ-3	AEROVIAS DE MEXICO SA USD TERM LN NAVIENT STUDENT LOAN TRU-SERIES	1	21,333,333	20,569,600
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	24,813,839	49,901,380	12/05/2016	12/05/2046	Interest Rate Swap		24,725,891	MXP001-TT-1	2016-6A CLASS A3	1	24,813,839	25,175,489
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		65,300,000	67,170,486	12/05/2016	12/05/2046	Interest Rate Swap			63940L-AC-8	MONTANA HIGHER EDUCATION-SERIES 12-1 CLASS A3	1	65,300,000	67,170,486
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,159,158	23,501,027	12/05/2016	12/05/2046	Interest Rate Swap			61205P-AL-3	ATRIUM XIV LLC-ATRM 14A A2A	1	23,159,158	23,501,027
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,882,970	12/05/2016	12/05/2046	Interest Rate Swap			04965L-AE-8	SLM STUDENT LOAN TRUST-SERIES 2002-7 CLASS A10	1	10,000,000	9,882,970
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		798,064	800,744	12/05/2016	12/05/2046	Interest Rate Swap			784426-EW-2	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A10	1	798,064	800,744
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,826,201	1,839,827	12/05/2016	12/05/2046	Interest Rate Swap			429827-AK-4	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A14	1	1,826,201	1,839,827
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,198,033	1,247,703	12/05/2016	12/05/2046	Interest Rate Swap			429827-AP-3	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A2	1	1,198,033	1,247,703
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,119,288	1,188,719	12/05/2016	12/05/2046	Interest Rate Swap			429827-AB-4	SOUTH CAROLINA STUDENT L-SR UNSECURED	1	1,119,288	1,188,719
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,866,104	1,888,323	12/05/2016	12/05/2046	Interest Rate Swap			83715A-AJ-8	SLC STUDENT LN TR 2006-1 ASSET BK NT CL A-6	1	1,866,104	1,888,323
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,674,654	1,739,382	12/05/2016	12/05/2046	Interest Rate Swap			784427-AF-3	NELNET STUDENT LOAN TRUS-SERIES 2015-2A CLASS B	1	1,674,654	1,739,382
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,712,311	1,811,400	12/05/2016	12/05/2046	Interest Rate Swap			640330-AC-3	PENNSYLVANIA ST HGR EDU -SERIES 2006 CL B	1	1,712,311	1,811,400
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,090,547	1,122,995	12/05/2016	12/05/2046	Interest Rate Swap			709163-GJ-2	CIT EDUCATION LOAN TRUST-SERIES 2007-1 CLASS B	1	1,090,547	1,122,995
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,046,901	1,081,961	12/05/2016	12/05/2046	Interest Rate Swap			17284L-AB-0	SLM STUDENT LOAN TRUST-SERIES 2013-6 CLASS B	1	1,046,901	1,081,961
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,345,754	1,386,860	12/05/2016	12/05/2046	Interest Rate Swap			78448C-AH-2	Babson CLO Ltd 2015-1-BABSN 2015-1A CR	1	1,345,754	1,386,860
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,180,000	3,033,707	12/05/2016	12/05/2046	Interest Rate Swap			056162-AS-9	AEROVIAS DE MEXICO SA USD TERM LN	1	3,180,000	3,033,707
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	13,652,863	38,580,537	12/05/2016	12/05/2046	Interest Rate Swap		24,728,691	MXP001-TT-1		1	13,652,863	13,851,846

S105.17

STATEMENT AS OF SEPTEMBER 30, 2019 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*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,290,588	6,494,660	12/05/2016	12/05/2046	Interest Rate Swap			78448R-AD-8	SMB PRIVATE ED LN TR 2015-C LN BCK NT CL A-3	1	6,290,588	6,494,660
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,520,570	5,695,901	12/05/2016	12/05/2046	Interest Rate Swap			78448P-AD-2	SMB PRIVATE ED LOAN TR 2015-A LN BACKED NT A-3	1	5,520,570	5,695,901
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,948,101	3,922,406	12/05/2016	12/05/2046	Interest Rate Swap			19458L-BH-2	COLLEGIATE FUNDING SERVI-SERIES 2005-B CLASS A4	1	3,948,101	3,922,406
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,064,271	2,071,679	12/05/2016	12/05/2046	Interest Rate Swap			78446D-AC-3	SLM STUDENT LOAN TRUST-SERIES 2011-A CLASS A3	1	2,064,271	2,071,679
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,838,560	3,917,163	12/05/2016	12/05/2046	Interest Rate Swap			63938E-AD-6	NAVIENT STUDENT LOAN TRU-SERIES 2014-1 CLASS A4	1	3,838,560	3,917,163
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,236,951	16,505,891	12/05/2016	12/05/2046	Interest Rate Swap			840555-DA-1	SOUTH TX HIGHER ED AUTH REV SER 1 CL A-3	1	16,236,951	16,505,891
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,367,454	7,450,520	12/05/2016	12/05/2046	Interest Rate Swap			00432C-CI-9	ACCESS GROUP INC-SERIES 2005-B CLASS A3	1	7,367,454	7,450,520
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,030,971	11,307,805	12/05/2016	12/05/2046	Interest Rate Swap			28148W-AC-7	EDUCATIONAL FUNDING OF T-SERIES 2011-1 CLASS B	1	10,030,971	11,307,805
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,363,669	9,789,150	12/05/2016	12/05/2046	Interest Rate Swap			78444C-AE-3	SLM STUDENT LOAN TRUST-SERIES 07-6 CLASS A5	1	9,363,669	9,789,150
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,885,289	8,261,119	12/05/2016	12/05/2046	Interest Rate Swap			78443F-AF-4	SLM STUDENT LOAN TRUST-SERIES 2007-5 CLASS A6	1	7,885,289	8,261,119
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,540,755	6,609,908	12/05/2016	12/05/2046	Interest Rate Swap			00400V-AB-3	ACADEMIC LOAN FUNDING TR-ALFT 2012-1A A2	1	6,540,755	6,609,908
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		681,448	712,534	12/05/2016	12/05/2046	Interest Rate Swap			462592-AD-8	101A STUDENT LOAN LIQUID-SERIES 2005-1 CLASS B	1	681,448	712,534
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,177,564	8,987,950	12/05/2016	12/05/2046	Interest Rate Swap			78442G-QA-7	SLM STUDENT LOAN TRUST-SERIES 2005-6 CLASS B	1	9,177,564	8,987,950
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,666,355	1,772,280	12/05/2016	12/05/2046	Interest Rate Swap			38021F-AB-7	GOAL CAPITAL FUNDING TRU-SERIES 2015-1 CLASS B	2	1,666,355	1,772,280
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,687,280	1,776,598	12/05/2016	12/05/2046	Interest Rate Swap			28138J-AB-0	EDUCATIONAL SERVICES OF -SERIES 15-2 CLASS B	1	1,687,280	1,776,598
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,229,864	2,165,351	12/05/2016	12/05/2046	Interest Rate Swap			78442G-GM-2	SLM STUDENT LOAN TRUST 2003-4 LN BKD CTF CL B	2	2,229,864	2,165,351
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,359,181	1,350,242	12/05/2016	12/05/2046	Interest Rate Swap			28090A-AB-5	EDUCATIONAL SERVICES OF -2014-4 SERIES B	1	1,359,181	1,350,242
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		270,160	270,647	12/05/2016	12/05/2046	Interest Rate Swap			83401L-AA-2	SOCIAL PROFESSIONAL LOAN-SERIES 2015-A CLASS A1	1	270,160	270,647
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,200,000	7,060,601	12/05/2016	12/05/2046	Interest Rate Swap			03767M-AE-8	Apidos CLO-SERIES 18-29A CLASS A1B	1	7,200,000	7,060,601
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,400,000	4,312,431	12/05/2016	12/05/2046	Interest Rate Swap			39729R-AC-2	Greenwood Park CLO Ltd-SERIES 18-1A CLASS B	1	4,400,000	4,312,431
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,979,745	12/05/2016	12/05/2046	Interest Rate Swap			13876J-AE-2	Canyon Capital CLO Ltd-CANVC 2012-1RA B	1	5,000,000	4,979,745
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	7,545,558	30,393,288	12/06/2016	12/06/2046	Interest Rate Swap		23,333,780	281397-AP-4	EDUCATION LOAN ASSET-BAC-SERIES 2003-2 CLASS 2A1	1	7,545,558	7,059,508
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,915,226	12,088,884	12/05/2016	12/05/2046	Interest Rate Swap			MXP001-TT-1	AEROVIAS DE MEXICO SA USD TERM LN NORTHSTAR EDUCATION FINA-NEF 2016-1	1	11,915,226	12,088,884
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,132,588	3,192,644	12/06/2016	12/06/2046	Interest Rate Swap			66705R-AA-7	A EDUCATION LOAN ASSET-BAC-SERIES 2003-1 CLASS A2	1	3,132,588	3,192,644
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,664,448	6,440,268	12/06/2016	12/06/2046	Interest Rate Swap			281397-AB-5	HELNENT STUDENT LOAN TRUS-SERIES 2005-4 CLASS A4R1	1	6,664,448	6,440,268
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,416,377	5,607,666	12/06/2016	12/06/2046	Interest Rate Swap			64031Q-CK-5	SLM STUDENT LOAN TRUST-SERIES 2006-7 CLASS A6B	2	5,416,377	5,607,666
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,498,972	4,700,000	12/06/2016	12/06/2046	Interest Rate Swap			78443G-AG-0	BRAZOS TX HGR EDU AUTH REVENUE BOND	1	4,498,972	4,700,000
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,401,795	5,016,778	12/06/2016	12/06/2046	Interest Rate Swap			106238-LJ-5	EDLINC STUDENT LOAN FUND-SERIES 2012-1 CLASS B	1	4,401,795	5,016,778
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,687,712	5,836,687	12/06/2016	12/06/2046	Interest Rate Swap			28108Q-AB-0	EDUCATION LOAN ASSET-BAC-SERIES 2003-2 CLASS 2A2	1	5,687,712	5,836,687
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		413,850	401,672	12/06/2016	12/06/2046	Interest Rate Swap			281397-AQ-2	GOAL CAPITAL FUNDING TR 2010-1 STUDENT LN BKD NT	1	413,850	401,672
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,289,445	2,321,538	12/06/2016	12/06/2046	Interest Rate Swap			38021E-AA-2		1	2,289,445	2,321,538

S105.18

STATEMENT AS OF SEPTEMBER 30, 2019 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*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,561,536	4,131,965	12/06/2016	12/06/2046	Interest Rate Swap			64031Q-CM-1	NELNET STUDENT LOAN TRUS-SERIES 2005-4 CLASS A4R2	2	3,561,536	4,131,965
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,752,049	3,782,998	12/06/2016	12/06/2046	Interest Rate Swap			658262-GD-6	NORTH CAROLINA STATE EDU-SERIES 2011-2 CLASS A3	1	3,752,049	3,782,998
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,904,061	1,976,641	12/06/2016	12/06/2046	Interest Rate Swap			78442G-KW-5	SLM STUDENT LOAN TRUST-SERIES 2004-1 CLASS A6	1	1,904,061	1,976,641
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,653,972	15,052,267	12/06/2016	12/06/2046	Interest Rate Swap			83149E-AG-2	SLM STUDENT LN TR 2006-5-NOTE CL B Dryden 64 CLO Ltd-DRSLF 2018-64A B	1	14,653,972	15,052,267
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,900,000	13,623,501	12/06/2016	12/06/2046	Interest Rate Swap			26251L-AE-4	DRB PRIME STUDENT LOAN T-SERIES 2015-D CLASS A1	1	13,900,000	13,623,501
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,146,987	2,179,796	12/06/2016	12/06/2046	Interest Rate Swap			23341K-AA-3	NELNET STUDENT LOAN TRUS-SERIES 2012-2A CLASS B	1	2,146,987	2,179,796
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,841,497	9,312,022	12/06/2016	12/06/2046	Interest Rate Swap			64031C-AB-8	SLM STUDENT LOAN TRUST-SERIES 2005-5 CLASS B	1	8,841,497	9,312,022
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,919,668	12,932,604	12/06/2016	12/06/2046	Interest Rate Swap			78442G-PS-9	PIONEERS GATE LLC 2017-9 DT Warehouse Class B	1	12,919,668	12,932,604
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	1,024,600	12/06/2016	12/06/2046	Interest Rate Swap			72403*-MP-4	ANCHORAGE CAPITAL CLO 7 -ANCHC 2015-7A B1R	1	1,000,000	1,024,600
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,939,888	12/06/2016	12/06/2046	Interest Rate Swap			03328T-AS-4	Tryon Park CLO Ltd-TPCLO 2013-1A A1JR	1	8,000,000	7,939,888
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,000,000	2,962,551	12/06/2016	12/06/2046	Interest Rate Swap		23,641,815	89852T-AN-8	AEROVIAS DE MEXICO SA USD TERM LN SOUTH CAROLINA STUDENT L-SERIES 2014-1 CLASS B	1	3,000,000	2,962,551
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	10,922,290	34,723,292	12/06/2016	12/06/2046	Interest Rate Swap			MXP001-TT-1	SLC STUDENT LOAN TRUST-SERIES 2005-1 CLASS B	1	10,922,290	11,081,477
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,645,415	9,763,312	12/05/2016	12/05/2046	Interest Rate Swap			83715R-AG-7	SLM STUDENT LOAN TRUST-SERIES 2005-8 CLASS B	1	9,645,415	9,763,312
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,125,674	6,454,303	12/06/2016	12/06/2046	Interest Rate Swap			784420-AE-1	SLM STUDENT LOAN TRUST-SERIES 2005-3 CLASS B	1	6,125,674	6,454,303
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,088,311	5,225,330	12/06/2016	12/06/2046	Interest Rate Swap			78442G-QT-6	KEYCORP STUDENT LOAN TRU-SERIES 1999-B CLASS CTFS	1	5,088,311	5,225,330
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,317,152	5,450,146	12/06/2016	12/06/2046	Interest Rate Swap			78442G-PD-2	SLM STUDENT LOAN TRUST-SERIES 2013-2 CLASS B	1	5,317,152	5,450,146
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,121,267	2,172,053	12/06/2016	12/06/2046	Interest Rate Swap			493268-AU-0	NAVIENT STUDENT LOAN TRU-SERIES 2014-1 CLASS B	1	2,121,267	2,172,053
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,675,465	6,917,956	12/06/2016	12/06/2046	Interest Rate Swap			78446C-AB-7	NELNET STUDENT LOAN TRUS-SERIES 2006-3 CLASS B	1	6,675,465	6,917,956
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,955,000	6,818,883	12/06/2016	12/06/2046	Interest Rate Swap			63938E-AE-4	NAVIENT STUDENT LOAN TRU-SERIES 2015-3 CLASS B	1	6,955,000	6,818,883
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,309,284	4,385,878	12/06/2016	12/06/2046	Interest Rate Swap			64031A-AJ-5	SLM STUDENT LOAN TRUST-SERIES 2004-1 CLASS B	1	4,309,284	4,385,878
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,218,688	6,834,318	12/06/2016	12/06/2046	Interest Rate Swap			63939L-AC-1	COLLEGE LOAN CORPORATION-SERIES 2005-2 CLASS B	1	6,218,688	6,834,318
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,515,650	6,443,844	12/06/2016	12/06/2046	Interest Rate Swap			78447M-AD-0	NELNET STUDENT LOAN TRUS-SERIES 2014-1A CLASS B	1	6,515,650	6,443,844
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,397,312	5,600,261	12/06/2016	12/06/2046	Interest Rate Swap			64033J-AB-1	NAVIENT STUDENT LOAN TRU-SERIES 2014-1A CLASS B	1	5,397,312	5,600,261
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,230,464	3,280,709	12/06/2016	12/06/2046	Interest Rate Swap			194266-AE-2	SLM STUDENT LOAN TRUST-SERIES 2004-3 CLASS B	1	3,230,464	3,280,709
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,496,593	4,725,215	12/06/2016	12/06/2046	Interest Rate Swap			64033N-AB-2	NELNET STUDENT LOAN TRUS-SERIES 2007-2A CLASS A4A2	1	4,496,593	4,725,215
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,524,622	2,593,679	12/06/2016	12/06/2046	Interest Rate Swap			78442G-LJ-3	NAVIENT STUDENT LOAN TRU-SERIES 2012-1A CLASS B	1	2,524,622	2,593,679
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,650,000	3,551,895	12/06/2016	12/06/2046	Interest Rate Swap			64032A-AB-1	NELNET STUDENT LOAN TRUS-SERIES 2012-1A CLASS B	1	3,650,000	3,551,895
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,147,321	3,379,680	12/06/2016	12/06/2046	Interest Rate Swap			64032F-AH-7	NELNET STUDENT LOAN TRUS-SERIES 2007-2A CLASS A4A2	1	3,147,321	3,379,680
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,293,766	3,331,484	12/06/2016	12/06/2046	Interest Rate Swap			64033L-AD-2	NELNET STUDENT LOAN TRUS-SERIES 2014-2A CLASS B	1	3,293,766	3,331,484
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,240,000	3,220,591	12/06/2016	12/06/2046	Interest Rate Swap			64033K-AB-8	NELNET STUDENT LOAN TRUS-SERIES 2014-3A CLASS B	1	3,240,000	3,220,591
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,750,000	14,513,410	12/06/2016	12/06/2046	Interest Rate Swap			03767M-AG-3	Apidos CLO-SERIES 18-29A CLASS A2	1	14,750,000	14,513,410

S105.19

STATEMENT AS OF SEPTEMBER 30, 2019 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*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,500,000	4,387,698	12/06/2016	12/06/2046	Interest Rate Swap			55952Y-AT-4	Magnetite VIII Ltd-MAGNE 2014-8A CR2	1	4,500,000	4,387,698
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,700,000	6,569,062	12/06/2016	12/06/2046	Interest Rate Swap			04015U-AJ-7	Ares XXXVIII CLO Ltd-SERIES 15-38A CLASS BR	1	6,700,000	6,569,062
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,000,000	2,977,200	12/06/2016	12/06/2046	Interest Rate Swap			48250R-BN-5	KKR CLO 12 Ltd-KKR 12 BR2	1	3,000,000	2,977,200
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	15,000,000	38,239,174	12/06/2016	12/06/2046	Interest Rate Swap		23,235,769	48251B-AL-4	KKR CLO 16 Ltd-SERIES 16 CLASS A1R	1	15,000,000	15,003,405
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,300,000	11,299,469	12/05/2016	12/05/2046	Interest Rate Swap			29001L-AC-5	Elmwood CLO II Ltd-ELMW2 2019-2A B	1	11,300,000	11,299,469
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		992,935	1,007,407	12/05/2016	12/05/2046	Interest Rate Swap			MXP001-TT-1	AEROVIAS DE MEXICO SA USD TERM LN	1	992,935	1,007,407
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,848,296	9,916,160	12/06/2016	12/06/2046	Interest Rate Swap			92917A-AA-4	VOYA 2018-1A A1	1	9,848,296	9,916,160
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,500,000	1,493,924	12/06/2016	12/06/2046	Interest Rate Swap			13876J-AE-2	Canyon Capital CLO Ltd-CANVC 2012-1RA B	1	1,500,000	1,493,924
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,050,000	10,943,909	12/06/2016	12/06/2046	Interest Rate Swap			03331J-AJ-1	Anchorage Capital CLO Lt-ANCHC 2018-10A B	1	11,050,000	10,943,909
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,575,000	12,455,688	12/06/2016	12/06/2046	Interest Rate Swap			056162-AN-0	Babson CLO Ltd 2015-1-BABSN 2015-1A AR	1	12,575,000	12,455,688
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,250,000	7,249,920	12/06/2016	12/06/2046	Interest Rate Swap			40439D-AE-8	Highbridge Loan Manageme-HLIM 15A-19 B	1	7,250,000	7,249,920
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,200,000	3,184,565	12/06/2016	12/06/2046	Interest Rate Swap			78448A-AD-5	SLM STUDENT LOAN TRUST-SERIES 2013-4 CLASS B	1	3,200,000	3,184,565
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,615,191	1,766,694	12/06/2016	12/06/2046	Interest Rate Swap			00432C-DE-8	ACCESS GROUP INC-SERIES 2006-1 CLASS B	1	1,615,191	1,766,694
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,400,000	5,399,838	12/06/2016	12/06/2046	Interest Rate Swap			87250C-AE-7	TICP CLO Ltd	1	5,400,000	5,399,838
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,571,276	1,533,464	12/06/2016	12/06/2046	Interest Rate Swap			493268-BI-5	KEYCORP STUDENT LOAN TRU-SERIES 2004-A CLASS 1B	1	1,571,276	1,533,464
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		606,747	654,399	12/06/2016	12/06/2046	Interest Rate Swap			429827-AR-9	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS B1	1	606,747	654,399
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,034,652	2,210,374	12/06/2016	12/06/2046	Interest Rate Swap			429827-AS-7	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS B2	1	2,034,652	2,210,374
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,958,891	2,138,535	12/06/2016	12/06/2046	Interest Rate Swap			64033T-AB-9	MELNET STUDENT LOAN TRUS-SERIES 2015-3A CLASS B	1	1,958,891	2,138,535
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,449,885	1,405,278	12/06/2016	12/06/2046	Interest Rate Swap			19458L-BD-1	COLLEGIATE FUNDING SERVI-SERIES 2005-A CLASS B	1	1,449,885	1,405,278
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,891,991	2,039,550	12/06/2016	12/06/2046	Interest Rate Swap			00435T-AB-7	ACCESS GROUP INC-SERIES 2015-1 CLASS B	1	1,891,991	2,039,550
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,727,982	2,737,318	12/06/2016	12/06/2046	Interest Rate Swap			78442G-RY-4	SLM STUDENT LOAN TRUST-SERIES 2006-2 CLASS B	1	2,727,982	2,737,318
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,210,104	3,442,401	12/06/2016	12/06/2046	Interest Rate Swap			194267-AM-2	COLLEGE LOAN CORPORATION-SERIES 2007-1 CLASS B2	1	3,210,104	3,442,401
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,204,785	2,094,853	12/06/2016	12/06/2046	Interest Rate Swap			92978J-AH-6	WACHOVIA STUDENT LOAN TR-SERIES 2006-1 CLASS B	1	2,204,785	2,094,853
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,729,648	1,784,874	12/06/2016	12/06/2046	Interest Rate Swap			83715R-AH-5	SOUTH CAROLINA STUDENT L-SERIES 15-A CLASS A	1	1,729,648	1,784,874
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,493,776	2,452,068	12/06/2016	12/06/2046	Interest Rate Swap			28137T-AB-9	EDUCATIONAL SERVICES OF-SERIES 2014-2 CLASS B	1	2,493,776	2,452,068
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,724,135	1,731,675	12/06/2016	12/06/2046	Interest Rate Swap			78443B-AK-2	SLM STUDENT LOAN TRUST-SERIES 2006-10 CLASS B	1	1,724,135	1,731,675
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,391,678	2,414,327	12/06/2016	12/06/2046	Interest Rate Swap			69340Q-AB-2	PENNSYLVANIA HIGHER EDUC-SERIES 2015-1A CLASS B	1	2,391,678	2,414,327
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,158,855	2,223,950	12/06/2016	12/06/2046	Interest Rate Swap			281378-AB-5	EDUCATIONAL SERVICES OF-SERIES 2015-1 CLASS B	1	2,158,855	2,223,950
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		743,894	784,846	12/06/2016	12/06/2046	Interest Rate Swap			00432C-AR-2	ACCESS GROUP-STUDENT LN REVENUE NT	1	743,894	784,846
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,083,121	7,075,521	12/06/2016	12/06/2046	Interest Rate Swap			63939D-AD-7	NAVIENT STUDENT LOAN TRUST 2014-8 CL B	1	7,083,121	7,075,521
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,900,000	9,712,039	12/06/2016	12/06/2046	Interest Rate Swap			69688X-AU-5	Palmer Square CLO 2014-1-SERIES 2014-1A CLASS A2RR	1	9,900,000	9,712,039

S105.20

STATEMENT AS OF SEPTEMBER 30, 2019 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	Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	23,500,000	46,458,876	12/06/2016	12/06/2046	Interest Rate Swap		23,241,369	92558V-AC-8	Vibrant CLO Ltd-SERIES 18-9A CLASS A2	1	23,500,000	23,217,507
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	10,800,000	10,800,000	10,673,726	12/06/2016	12/06/2046	Interest Rate Swap			94949J-AC-9	Wellfleet CLO 2018-2 Ltd-WELF 2018-2A A2	1	10,800,000	10,673,726
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,582,951	13,298,640	12/06/2016	12/06/2046	Interest Rate Swap			04017E-AE-2	APES XXXIIR CLO LTD-SERIES 14-32RA CLASS A1B	1	13,582,951	13,298,640
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,790,000	8,617,628	12/06/2016	12/06/2046	Interest Rate Swap			55951P-BC-0	Magnetite VII Ltd-MAGNE 2012-7A A2R2	1	8,790,000	8,617,628
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,560,000	13,432,197	12/06/2016	12/06/2046	Interest Rate Swap			40436V-AB-7	HIGHBRIDGE LOAN MANAGEME-HLM 11A-17 B	1	13,560,000	13,432,197
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,398,544	14,354,430	12/06/2016	12/06/2046	Interest Rate Swap			78442G-PL-4	SLM STUDENT LOAN TRUST-SERIES 2005-4 CLASS B	1	14,398,544	14,354,430
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,979,983	7,989,408	12/06/2016	12/06/2046	Interest Rate Swap			79410U-AN-1	SBF 2016-2A A1R	1	7,979,983	7,989,408
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,500,000	2,450,078	12/06/2016	12/06/2046	Interest Rate Swap			50189P-AN-2	LOM LTD PARTNERSHIP-SERIES 25A CLASS C2	1	2,500,000	2,450,078
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,539,017	16,522,776	12/06/2016	12/06/2046	Interest Rate Swap			24702F-ZZ-3	De11 Conduit Funding-B L.L.C. - Revolver	2	16,539,017	16,522,776
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,530,182	7,489,933	12/06/2016	12/06/2046	Interest Rate Swap			66704J-AJ-7	Norsthar Education Fina-REVENUE BONDS	1	7,530,182	7,489,933
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,750,000	6,609,499	12/06/2016	12/06/2046	Interest Rate Swap			77341D-AE-7	Rockford Tower CLO 2017--SERIES 17-3A CLASS B	1	6,750,000	6,609,499
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1	250,000,000	21,249,067	63,377,237	09/15/2017	09/15/2047	Interest Rate Swap		41,420,653	03073E-AM-7	AmeriSourceBergen Corp-SENIOR UNSECURED	2	21,249,067	21,956,584
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		28,576,155	34,389,082	09/15/2017	09/15/2047	Interest Rate Swap			055450-AM-3	BHP Billiton Finance USA-DEBENTURE	1	28,576,155	34,389,082
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		32,943,845	34,423,167	09/15/2017	09/15/2047	Interest Rate Swap			12572Q-AG-0	ONE GROUP INC-SR UNSECURED	1	32,943,845	34,423,167
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		19,645,712	20,838,648	09/15/2017	09/15/2047	Interest Rate Swap			29364N-AS-7	ENTERGY MISSISSIPPI INC-SECURED NOTE	1	19,645,712	20,838,648
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		25,681,005	32,677,861	09/15/2017	09/15/2047	Interest Rate Swap			313747-AF-4	FEDERAL REALTY INVESTMEN-NOTE REID	1	25,681,005	32,677,861
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		444,984	444,315	09/15/2017	09/15/2047	Interest Rate Swap			375558-AW-3	GILEAD SCIENCES INC-SENIOR UNSECURED NOTE	1	444,984	444,315
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		19,188,625	19,188,931	09/15/2017	09/15/2047	Interest Rate Swap			384780-AA-0	GRAIN SPECTRUM FUND II-SECURED NOTE	1	19,188,625	19,188,931
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		28,507,443	29,958,286	09/15/2017	09/15/2047	Interest Rate Swap			75972Y-AA-9	RENAISSANCE FINANCE-SR UNSECURED	1	28,507,443	29,958,286
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		24,984,124	26,493,989	09/15/2017	09/15/2047	Interest Rate Swap			884315-AG-7	THOMAS & BETTS CORP-NOTE	1	24,984,124	26,493,989
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		19,113,120	19,584,035	09/15/2017	09/15/2047	Interest Rate Swap			958587-BJ-5	WEST MASS ELECTRIC CO-SENIOR UNSECURED NOTE	1	19,113,120	19,584,035
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		3,200,000	3,018,691	09/15/2017	09/15/2047	Interest Rate Swap			22615E-AE-0	Crestline Denali CLO Ltd-SERIES 2018-1A CLASS C	1	3,200,000	3,018,691
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,000,000	7,833,112	09/15/2017	09/15/2047	Interest Rate Swap			67104L-AG-2	OH Loan Funding 2013-2 -OHALF 2013-2A CR	1	8,000,000	7,833,112
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,000,000	6,962,032	09/15/2017	09/15/2047	Interest Rate Swap			38862E-AB-0	GRIFFEN PARK CLO LTD-SERIES 17-1A CLASS B	1	7,000,000	6,962,032
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		6,680,494	6,865,986	09/15/2017	09/15/2047	Interest Rate Swap			05348E-AR-0	AvalonBay Communities Inc	1	6,680,494	6,865,986
57629*DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		6,655,971	6,797,049	09/15/2017	09/15/2047	Interest Rate Swap			907818-DG-0	Union Pacific Corp	1	6,655,971	6,797,049
57629*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	250,000,000	1,479,774	43,429,001	09/15/2017	09/15/2047	Interest Rate Swap		41,850,300	031162-CJ-7	AMGEN INC-SENIOR UNSECURED	2	1,479,774	1,578,701
57629*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		26,555,222	28,123,824	09/15/2017	09/15/2047	Interest Rate Swap			44107T-AT-3	HOST HOTELS & RESORTS LP-SENIOR UNSECURED NOTE	2	26,555,222	28,123,824
57629*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		33,297,464	34,958,718	09/15/2017	09/15/2047	Interest Rate Swap			445658-CD-7	JB HUNT TRANSPRT SVCS-SENIOR UNSECURED NOTE	2	33,297,464	34,958,718
57629*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		34,996,488	38,401,535	09/15/2017	09/15/2047	Interest Rate Swap			456866-AM-4	INGERSOLL-RAND CO-DEBENTURE	2	34,996,488	38,401,535
57629*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		42,898,116	43,561,508	09/15/2017	09/15/2047	Interest Rate Swap			664397-AK-2	EVERSOURCE ENERGY-UNSECURED NOTE	2	42,898,116	43,561,508

S105.21

STATEMENT AS OF SEPTEMBER 30, 2019 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*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		32,753,455	33,403,459	09/15/2017	09/15/2047	Interest Rate Swap			760759-AP-5	Republic Services Inc-SENIOR UNSECURED NOTE	2	32,753,455	33,403,459
57629*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		37,905,408	39,713,416	09/15/2017	09/15/2047	Interest Rate Swap			94106L-BA-6	Waste Management Inc-SR UNSECURED	2	37,905,408	39,713,416
57629*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		36,057,021	37,425,472	09/15/2017	09/15/2047	Interest Rate Swap			A05830-41-6	SPARC EM SPC PANAMA METR-SECURED	2	36,057,021	37,425,472
57629*DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		5,313,239	5,516,685	09/15/2017	09/15/2047	Interest Rate Swap			09247X-AJ-0	BlackRock Inc-SENIOR UNSECURED NOTE	1	5,313,239	5,516,685
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	250,000,000	6,744,207	49,002,763	09/15/2017	09/15/2047	Interest Rate Swap		42,079,445	00287Y-AL-3	AbbVie Inc-SENIOR UNSECURED NOTE	2	6,744,207	6,923,318
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		5,271,484	5,513,272	09/15/2017	09/15/2047	Interest Rate Swap			00507U-AS-0	ACTAVIS FUNDING SCS-SENIOR UNSECURED NOTE	2	5,271,484	5,513,272
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		12,667,718	13,443,278	09/15/2017	09/15/2047	Interest Rate Swap			195869-AP-7	COLONIAL PIPELINE CO-SR UNSECURED	1	12,667,718	13,443,278
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		53,666,131	58,000,615	09/15/2017	09/15/2047	Interest Rate Swap			254709-AM-0	DISCOVER FINANCIAL SVS-SENIOR UNSECURED	2	53,666,131	58,000,615
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		25,134,062	25,761,370	09/15/2017	09/15/2047	Interest Rate Swap			444859-BA-9	Humana Inc-SENIOR UNSECURED NOTE	2	25,134,062	25,761,370
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		23,447,849	23,677,211	09/15/2017	09/15/2047	Interest Rate Swap			61945C-AA-1	MOSAIC CO/THE-SENIOR UNSECURED NOTE	2	23,447,849	23,677,211
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		24,559,050	25,592,362	09/15/2017	09/15/2047	Interest Rate Swap			718549-AB-4	PHILLIPS 66 PARTNERS LP-SENIOR UNSECURED	2	24,559,050	25,592,362
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		26,504,759	27,299,913	09/15/2017	09/15/2047	Interest Rate Swap			756109-AN-4	REALTY INCOME CORP-SENIOR UNSECURED NOTE REID	1	26,504,759	27,299,913
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		17,894,589	18,579,779	09/15/2017	09/15/2047	Interest Rate Swap			09247X-AJ-0	BlackRock Inc-SENIOR UNSECURED NOTE	1	17,894,589	18,579,779
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		27,515,000	27,518,825	09/15/2017	09/15/2047	Interest Rate Swap			883203-BQ-3	Textron Inc-NOTE	2	27,515,000	27,518,825
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		19,525,571	19,913,063	09/15/2017	09/15/2047	Interest Rate Swap			760759-AP-5	Republic Services Inc-SENIOR UNSECURED NOTE	2	19,525,571	19,913,063
57629*DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		8,800,000	8,562,602	09/15/2017	09/15/2047	Interest Rate Swap			05683L-AC-0	Bain Capital Credit CLO -BCC 2018-1A A2	1	8,800,000	8,562,602
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	250,000,000	22,525,566	64,089,869	09/15/2017	09/15/2047	Interest Rate Swap		41,563,869	045487-AA-3	ASSOC BANC-CORP-SR UNSECURED	2	22,525,566	22,526,000
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,880,386	22,865,850	09/15/2017	09/15/2047	Interest Rate Swap			378272-AL-2	GLENORE FUNDING LLC-SR UNSECURED	2	21,880,386	22,865,850
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		22,883,981	23,645,441	09/15/2017	09/15/2047	Interest Rate Swap			45167R-AF-1	IDEX Corp-SENIOR UNSECURED NOTE	2	22,883,981	23,645,441
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		22,094,978	22,394,041	09/15/2017	09/15/2047	Interest Rate Swap			49245P-AA-4	KERRY GROUP FIN SERVICES-SENIOR UNSECURED NOTE	2	22,094,978	22,394,041
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,137,072	22,465,483	09/15/2017	09/15/2047	Interest Rate Swap			67103H-AF-4	O'REILLY AUTOMOTIVE INC-SENIOR UNSECURED	2	21,137,072	22,465,483
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		1,049,616	1,076,520	09/15/2017	09/15/2047	Interest Rate Swap			72925P-AD-7	PLUM CREEK TIMBERLANDS-SENIOR UNSECURED NOTE	2	1,049,616	1,076,520
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		24,866,994	24,892,523	09/15/2017	09/15/2047	Interest Rate Swap			759351-AG-4	Reinsurance Group of Ame-SENIOR UNSECURED NOTE	2	24,866,994	24,892,523
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		1,658,370	1,765,437	09/15/2017	09/15/2047	Interest Rate Swap			806851-AG-6	SCHLUMBERGER HLDGS CORP-SR UNSECURED	2	1,658,370	1,765,437
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		580,301	601,705	09/15/2017	09/15/2047	Interest Rate Swap			92936M-AB-3	WPP FINANCE 2010-SENIOR UNSECURED NOTE	2	580,301	601,705
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,830,592	21,830,483	09/15/2017	09/15/2047	Interest Rate Swap			98310W-AL-2	WINDHAM WORLDWIDE CORP-SENIOR UNSECURED NOTE	3	21,830,592	21,830,483
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		19,127,925	20,333,820	09/15/2017	09/15/2047	Interest Rate Swap			756250-AD-1	Reckitt Benckiser Treasu-SENIOR UNSECURED	1	19,127,925	20,333,820
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,206,765	23,047,500	09/15/2017	09/15/2047	Interest Rate Swap			EK5851-40-8	ISRAEL ELECTRIC CORP LTD-SECURED NOTE	2	21,206,765	23,047,500
57629*DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		50,000,000	50,285,000	09/15/2017	09/15/2047	Interest Rate Swap			72403Z-NK-6	PIONEERS GATE LLC 2019-5 KABB NOTE	1	50,000,000	50,285,000
Need to File with the NAIC	Sovereign Bond of Peru	1Z	5,000,000	10,933,105	11,909,290	09/03/2019	09/03/2049	5 Yr Credit Default Swap	114,317	110,852	912810-PP-5	US TREAS N/B-NOTE	1	10,818,788	11,798,438
Need to File with the NAIC	Sovereign Bond of Mexico	1Z	20,000,000	20,834,517	23,537,136	09/03/2019	09/03/2049	5 Yr Credit Default Swap	(108,110)	(146,459)	912833-LL-2	US TREASURY-STRIP COUPON RECEIPT	1	20,942,627	23,683,595

S105.22

STATEMENT AS OF SEPTEMBER 30, 2019 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	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	Sovereign Bond of Brazil	1Z	5,000,000	19,910,648	23,616,638	06/20/2019	12/20/2024	5 Yr Credit Default Swap	(77,699)	(89,612)	912810-RV-2	US TREASURY N/B-UNSECURED	1	19,988,347	23,706,250
Need to File with the NAIC	Sovereign Bond of Columbia	1Z	30,000,000	30,112,410	35,662,602	06/20/2019	12/20/2024	5 Yr Credit Default Swap	129,890	103,227	912810-RV-2	US TREASURY N/B-UNSECURED	1	29,982,520	35,559,375
Need to File with the NAIC	Sovereign Bond of India	1Z	40,000,000	31,277,043	36,925,305	06/20/2019	12/20/2024	5 Yr Credit Default Swap	295,106	180,617	912810-RV-2	US TREASURY N/B-UNSECURED	1	30,981,937	36,744,688
Need to File with the NAIC	Sovereign Bond of India	1Z		14,876,589	17,357,813	06/20/2019	12/20/2024	5 Yr Credit Default Swap			912810-RU-4	US TREASURY N/B-UNSECURED	1	14,876,589	17,357,813
Need to File with the NAIC	Sovereign Bond of Malaysia	1Z	10,000,000	15,124,773	17,596,171	06/20/2019	12/20/2024	5 Yr Credit Default Swap	248,184	238,358	912810-RU-4	US TREASURY N/B-UNSECURED	1	14,876,589	17,357,813
Need to File with the NAIC	Credit Default Indices (CDIG033/CDX.NA.IG.33)	2Z	483,000,000	273,054,871	279,218,121	06/20/2019	12/20/2024	5 Yr Credit Default Swap Index	9,527,392	9,602,040	912828-PX-2	US TREAS N/B-NOTE	1	263,527,479	269,616,081
Need to File with the NAIC	Credit Default Indices (CDIG033/CDX.NA.IG.33)	2Z		263,775,075	275,597,754	06/20/2019	12/20/2024	5 Yr Credit Default Swap Index			76116F-AG-2	RFSCP PRINCIPAL STRIP	1	263,775,075	275,597,754
Need to File with the NAIC	Credit Default Indices (CDIG033/CDX.NA.IG.33)	2Z	617,000,000	463,042,180	473,586,250	09/20/2019	12/20/2024	5 Yr Credit Default Swap Index	12,139,650	12,265,960	912828-PX-2	US TREAS N/B-NOTE	1	450,902,530	461,320,290
Need to File with the NAIC	Credit Default Indices (CDIG033/CDX.NA.IG.33)	2Z		82,312,789	86,002,136	09/20/2019	12/20/2024	5 Yr Credit Default Swap Index			76116F-AG-2	RFSCP PRINCIPAL STRIP	1	82,312,789	86,002,136
Need to File with the NAIC	Credit Default Indices (CDIG033/CDX.NA.IG.33)	2Z		87,530,020	125,578,125	09/20/2019	12/20/2024	5 Yr Credit Default Swap Index			912810-QK-7	US TREASURY N/B-BOND	1	87,530,020	125,578,125
57629*0Z1	Evergreen Basket of Floating Rate Corporate Bonds	1	130,000,000	33,226,676	(12,106,885)	11/07/2018	11/07/2048	Interest Rate Swap		(50,455,074)	873050-OM-1	TTX CO-SENIOR UNSECURED	1	33,226,676	38,348,189
57629*0Z1	Evergreen Basket of Floating Rate Corporate Bonds	1		31,916,588	37,336,030	11/07/2018	11/07/2048	Interest Rate Swap			341081-FR-3	Florida Power & Light Co-SECURED	1	31,916,588	37,336,030
57629*0Z1	Evergreen Basket of Floating Rate Corporate Bonds	1		26,258,628	31,821,945	11/07/2018	11/07/2048	Interest Rate Swap			45866F-AH-7	Intercontinental Exchange-SENIOR UNSECURED	1	26,258,628	31,821,945
57629*0Z1	Evergreen Basket of Floating Rate Corporate Bonds	1		26,135,032	30,817,080	11/07/2018	11/07/2048	Interest Rate Swap			010392-FS-2	Alabama Power Co-SENIOR UNSECURED	1	26,135,032	30,817,080
57629*0Z1	Evergreen Basket of Floating Rate Corporate Bonds	1		26,957,084	30,532,542	11/07/2018	11/07/2048	Interest Rate Swap			976843-BJ-0	WISCONSIN PUBLIC SERVICE-SECURED	1	26,957,084	30,532,542
57629*0Z1	Evergreen Basket of Floating Rate Corporate Bonds	1		10,598,729	11,811,285	11/07/2018	11/07/2048	Interest Rate Swap			235851-AR-3	DANAHER CORP-SR UNSECURED	1	10,598,729	11,811,285
57629*0Y4	Evergreen Basket of Floating Rate Corporate Bonds	1	170,000,000	42,300,000	(16,519,035)	11/07/2018	11/07/2048	Interest Rate Swap		(66,180,800)	45174X-AA-0	IHC Health Services Inc-SECURED	1	42,300,000	49,661,765
57629*0Y4	Evergreen Basket of Floating Rate Corporate Bonds	1		41,500,042	43,022,552	11/07/2018	11/07/2048	Interest Rate Swap			91412N-AK-6	UNIVERSITY OF CHICAGO-UNSECURED BOND	1	41,500,042	43,022,552
57629*0Y4	Evergreen Basket of Floating Rate Corporate Bonds	1		40,932,629	46,637,172	11/07/2018	11/07/2048	Interest Rate Swap			906548-ON-0	Union Electric Co-SECURED	1	40,932,629	46,637,172
57629*0Y4	Evergreen Basket of Floating Rate Corporate Bonds	1		41,023,406	53,161,417	11/07/2018	11/07/2048	Interest Rate Swap			575718-AB-7	MASS INSTITUTE OF TECH-UNSECURED BOND	1	41,023,406	53,161,417
57629*0Y4	Evergreen Basket of Floating Rate Corporate Bonds	1		29,493,081	34,626,450	11/07/2018	11/07/2048	Interest Rate Swap			39138Q-AC-9	GREAT-WEST LIFE CO FINANC-SENIOR UNSECURED	1	29,493,081	34,626,450
57629*0Y4	Evergreen Basket of Floating Rate Corporate Bonds	1		28,874,950	36,173,064	11/07/2018	11/07/2048	Interest Rate Swap			717081-CY-7	Pfizer Inc-SENIOR UNSECURED NOTE	1	28,874,950	36,173,064
57629*0X6	Evergreen Basket of Floating Rate Corporate Bonds	1	200,000,000	54,190,559	(13,694,837)	11/07/2018	11/07/2048	Interest Rate Swap		(77,717,821)	882508-BD-5	Texas Instruments Inc-SENIOR UNSECURED	1	54,190,559	64,022,984
57629*0X6	Evergreen Basket of Floating Rate Corporate Bonds	1		50,405,209	59,092,385	11/07/2018	11/07/2048	Interest Rate Swap			745332-CG-9	PUGET SOUND ENERGY INC-SECURED	1	50,405,209	59,092,385
57629*0X6	Evergreen Basket of Floating Rate Corporate Bonds	1		48,654,022	57,654,274	11/07/2018	11/07/2048	Interest Rate Swap			81373P-AA-1	Securian Financial Group-SENIOR UNSECURED	1	48,654,022	57,654,274
57629*0X6	Evergreen Basket of Floating Rate Corporate Bonds	1		51,917,234	60,234,197	11/07/2018	11/07/2048	Interest Rate Swap			92826C-AF-9	VISA INC-SR UNSECURED	1	51,917,234	60,234,197
57629*0X6	Evergreen Basket of Floating Rate Corporate Bonds	1		28,757,509	34,205,896	11/07/2018	11/07/2048	Interest Rate Swap			049560-AP-0	Atmos Energy Corp-SENIOR UNSECURED	1	28,757,509	34,205,896
57629*0X6	Evergreen Basket of Floating Rate Corporate Bonds	1		10,306,158	12,481,576	11/07/2018	11/07/2048	Interest Rate Swap			594918-BE-3	MICROSOFT CORP-SR UNSECURED	1	10,306,158	12,481,576
57629*0Y8	Evergreen Basket of Floating Rate Corporate Bonds	1	300,000,000	56,726,858	(47,738,217)	11/08/2018	11/08/2048	Interest Rate Swap		(115,589,066)	12572Q-AH-8	OME Group Inc-SENIOR UNSECURED	1	56,726,858	67,850,849
57629*0Y8	Evergreen Basket of Floating Rate Corporate Bonds	1		58,701,046	66,578,273	11/08/2018	11/08/2048	Interest Rate Swap			00440E-AW-7	ACE INA HOLDINGS-SR UNSECURED	1	58,701,046	66,578,273
57629*0Y8	Evergreen Basket of Floating Rate Corporate Bonds	1		53,312,703	62,210,228	11/08/2018	11/08/2048	Interest Rate Swap			30231G-AW-2	EXXON MOBIL CORPORATION-SR UNSECURED	1	53,312,703	62,210,228

S105.23

STATEMENT AS OF SEPTEMBER 30, 2019 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*DI8	Evergreen Basket of Floating Rate Corporate Bonds	1		55,832,876	64,333,686	11/08/2018	11/08/2048	Interest Rate Swap			037833-BX-7	APPLE INC-SENIOR UNSECURED	1	55,832,876	64,333,686
57629*DI8	Evergreen Basket of Floating Rate Corporate Bonds	1		58,381,883	61,508,502	11/08/2018	11/08/2048	Interest Rate Swap			91324P-CR-1	UNITEDHEALTH GROUP INC-SR UNSECURED	1	58,381,883	61,508,502
57629*DI8	Evergreen Basket of Floating Rate Corporate Bonds	1		58,644,561	66,137,959	11/08/2018	11/08/2048	Interest Rate Swap			023135-AQ-9	AMAZON.COM INC-SR UNSECURED	1	58,644,561	66,137,959
57629*DI8	Evergreen Basket of Floating Rate Corporate Bonds	1		15,955,100	18,706,946	11/08/2018	11/08/2048	Interest Rate Swap			438516-BS-4	Honeywell International -SENIOR UNSECURED	1	15,955,100	18,706,946
57629*DI8	Evergreen Basket of Floating Rate Corporate Bonds	1		20,663,489	23,744,764	11/08/2018	11/08/2048	Interest Rate Swap			20825C-AQ-7	ConocoPhillips-NOTE	1	20,663,489	23,744,764
12607*AD2	Evergreen Basket of Floating Rate Corporate Bonds	2	320,000,000	101,956,997	(6,087,226)	11/08/2018	11/08/2048	Interest Rate Swap		(123,597,818)	82620K-AT-0	SIEMENS FINANCIERINGSMAT-SENIOR UNSECURED	1	101,956,997	117,510,592
12607*AD2	Evergreen Basket of Floating Rate Corporate Bonds	2		73,233,627	83,142,888	11/08/2018	11/08/2048	Interest Rate Swap			585055-BU-9	MEDTRONIC INC-SR UNSECURED	1	73,233,627	83,142,888
12607*AD2	Evergreen Basket of Floating Rate Corporate Bonds	2		68,039,872	82,115,657	11/08/2018	11/08/2048	Interest Rate Swap			141781-BF-0	CARGILL INC-SR UNSECURED	1	68,039,872	82,115,657
12607*AD2	Evergreen Basket of Floating Rate Corporate Bonds	2		45,375,124	55,909,623	11/08/2018	11/08/2048	Interest Rate Swap			023135-BM-7	Amazon.com Inc-SENIOR UNSECURED	1	45,375,124	55,909,623
12607*AD2	Evergreen Basket of Floating Rate Corporate Bonds	2		48,361,596	59,627,261	11/08/2018	11/08/2048	Interest Rate Swap			899043-AA-1	TUFTS UNIVERSITY-UNSECURED BOND	1	48,361,596	59,627,261
12607*AD2	Evergreen Basket of Floating Rate Corporate Bonds	2		18,483,340	23,828,280	11/08/2018	11/08/2048	Interest Rate Swap			40728T-AA-1	HAMILTON COLLEGE-UNSECURED	1	18,483,340	23,828,280
12607*AD2	Evergreen Basket of Floating Rate Corporate Bonds	2		34,388,874	39,088,024	11/08/2018	11/08/2048	Interest Rate Swap			438516-BB-1	HONEYWELL INTERNATIONAL -SENIOR UNSECURED NOTE	1	34,388,874	39,088,024
57629*DQ1	Evergreen Basket of Floating Rate Corporate Bonds	1	160,000,000	40,352,305	(16,670,898)	11/08/2018	11/08/2048	Interest Rate Swap		(61,874,612)	575634-AT-7	MASSACHUSETTS ELECTRIC-SENIOR UNSECURED	1	40,352,305	45,203,714
57629*DQ1	Evergreen Basket of Floating Rate Corporate Bonds	1		30,116,631	32,260,516	11/08/2018	11/08/2048	Interest Rate Swap			45138L-BD-4	IDAHO POWER CORP-SECURED NOTE	1	30,116,631	32,260,516
57629*DQ1	Evergreen Basket of Floating Rate Corporate Bonds	1		28,875,320	34,127,635	11/08/2018	11/08/2048	Interest Rate Swap			29246Q-AB-1	Empresa de Transporte de-SENIOR UNSECURED	1	28,875,320	34,127,635
57629*DQ1	Evergreen Basket of Floating Rate Corporate Bonds	1		28,336,269	33,950,102	11/08/2018	11/08/2048	Interest Rate Swap			771196-BH-4	ROCHE HOLDING INC-SENIOR UNSECURED NOTE	1	28,336,269	33,950,102
57629*DQ1	Evergreen Basket of Floating Rate Corporate Bonds	1		29,318,907	33,705,720	11/08/2018	11/08/2048	Interest Rate Swap			437076-BH-4	Home Depot Inc/The-SENIOR UNSECURED	1	29,318,907	33,705,720
57629*DQ1	Evergreen Basket of Floating Rate Corporate Bonds	1		28,275,000	33,487,666	11/08/2018	11/08/2048	Interest Rate Swap			578454-AD-2	MAYO CLINIC-UNSECURED	1	28,275,000	33,487,666
57629*DQ1	Evergreen Basket of Floating Rate Corporate Bonds	1		15,404,289	17,890,863	11/08/2018	11/08/2048	Interest Rate Swap			571676-AH-8	Mars Inc-SENIOR UNSECURED	1	15,404,289	17,890,863
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1	320,000,000	60,045,421	(53,508,275)	11/08/2018	11/08/2048	Interest Rate Swap		(123,597,818)	009279-AC-4	AIRBUS SE-SENIOR UNSECURED	1	60,045,421	70,089,543
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		68,437,660	74,925,610	11/08/2018	11/08/2048	Interest Rate Swap			701094-AL-8	Parker-Hannifin Corp-SENIOR UNSECURED	1	68,437,660	74,925,610
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		61,769,471	69,229,893	11/08/2018	11/08/2048	Interest Rate Swap			23338V-AE-6	DTE Electric Co-SECURED	1	61,769,471	69,229,893
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		62,035,002	67,000,390	11/08/2018	11/08/2048	Interest Rate Swap			66989H-AH-1	NOVARTIS CAPITAL CORP-SR UNSECURED	1	62,035,002	67,000,390
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		41,603,984	53,599,440	11/08/2018	11/08/2048	Interest Rate Swap			594918-CB-8	MICROSOFT CORP-SENIOR UNSECURED	1	41,603,984	53,599,440
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		23,531,168	27,282,544	11/08/2018	11/08/2048	Interest Rate Swap			69351U-AV-5	PPL Electric Utilities C-SECURED	1	23,531,168	27,282,544
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		22,925,177	26,900,501	11/08/2018	11/08/2048	Interest Rate Swap			084664-CQ-2	Berkshire Hathaway Finan-SENIOR UNSECURED	1	22,925,177	26,900,501
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		21,452,883	23,798,920	11/08/2018	11/08/2048	Interest Rate Swap			110122-AX-6	Bristol-Myers Squibb Co-SR UNSECURED	1	21,452,883	23,798,920
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		14,290,215	16,686,645	11/08/2018	11/08/2048	Interest Rate Swap			594918-BT-0	MICROSOFT CORP-SENIOR UNSECURED	1	14,290,215	16,686,645
57629*DR9	Evergreen Basket of Floating Rate Corporate Bonds	1		30,489,544	42,947,079	11/08/2018	11/08/2048	Interest Rate Swap			693506-BC-0	PPG INDUSTRIES INC-SENIOR UNSECURED BOND	1	30,489,544	42,947,079
57629*DS7	Evergreen Basket of Floating Rate Corporate Bonds	1	140,000,000	36,289,799	(8,500,129)	12/03/2018	12/03/2048	Interest Rate Swap		(49,201,979)	039483-BM-3	ARCHER-DANIELS-MIDLAND C-SENIOR UNSECURED	1	36,289,799	40,701,850
57629*DS7	Evergreen Basket of Floating Rate Corporate Bonds	1		27,484,119	32,627,812	12/03/2018	12/03/2048	Interest Rate Swap			00401M-AB-2	ABU DHABI CRUDE OIL PIPE-SECURED	1	27,484,119	32,627,812

S105.24

STATEMENT AS OF SEPTEMBER 30, 2019 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*DS7	Evergreen Basket of Floating Rate Corporate Bonds	1		28,597,540	32,522,140	12/03/2018	12/03/2048	Interest Rate Swap			207597-EH-4	Connecticut Light & Powe-SECURED	1	28,597,540	32,522,140
57629*DS7	Evergreen Basket of Floating Rate Corporate Bonds	1		27,303,716	30,322,425	12/03/2018	12/03/2048	Interest Rate Swap			29736R-AG-5	ESTEE LAUDER CO INC-SENIOR UNSECURED	1	27,303,716	30,322,425
57629*DS7	Evergreen Basket of Floating Rate Corporate Bonds	1		25,097,740	33,440,000	12/03/2018	12/03/2048	Interest Rate Swap			04351L-AA-8	ASCENSION HEALTH-UNSECURED BOND AEP Transmission Co LLC-SENIOR UNSECURED	1	25,097,740	33,440,000
57629*DS7	Evergreen Basket of Floating Rate Corporate Bonds	1		9,998,152	11,659,180	12/03/2018	12/03/2048	Interest Rate Swap			00115A-AJ-8	UNIVERSITY OF PENNSYLVAN-SENIOR UNSECURED NOTE	1	9,998,152	11,659,180
57629*DS7	Evergreen Basket of Floating Rate Corporate Bonds	1		15,822,305	20,546,361	12/03/2018	12/03/2048	Interest Rate Swap			91481C-AA-8	UNIVERSITY OF PENNSYLVAN-SENIOR UNSECURED NOTE	1	15,822,305	20,546,361
57629*DT5	Evergreen Basket of Floating Rate Corporate Bonds	1	160,000,000	34,364,046	(17,940,939)	12/03/2018	12/03/2048	Interest Rate Swap		(55,965,394)	02361D-AR-1	Ameren Illinois Co-SECURED	1	34,364,046	38,024,455
57629*DT5	Evergreen Basket of Floating Rate Corporate Bonds	1		37,027,803	43,729,338	12/03/2018	12/03/2048	Interest Rate Swap			468223-AT-9	Jackson Laboratory/The-UNSECURED	1	37,027,803	43,729,338
57629*DT5	Evergreen Basket of Floating Rate Corporate Bonds	1		34,975,717	40,391,015	12/03/2018	12/03/2048	Interest Rate Swap			743315-AS-2	PROGRESSIVE CORP-SENIOR UNSECURED	1	34,975,717	40,391,015
57629*DT5	Evergreen Basket of Floating Rate Corporate Bonds	1		35,240,160	42,261,380	12/03/2018	12/03/2048	Interest Rate Swap			17858P-AB-7	City of Hope-SENIOR UNSECURED	1	35,240,160	42,261,380
57629*DT5	Evergreen Basket of Floating Rate Corporate Bonds	1		35,017,999	39,437,475	12/03/2018	12/03/2048	Interest Rate Swap			44107H-AE-2	NY Society for Relief of-SECURED	1	35,017,999	39,437,475
57629*DT5	Evergreen Basket of Floating Rate Corporate Bonds	1		10,042,687	11,567,540	12/03/2018	12/03/2048	Interest Rate Swap			458140-AV-2	INTEL CORP-SENIOR UNSECURED	1	10,042,687	11,567,540
57629*DT5	Evergreen Basket of Floating Rate Corporate Bonds	1		10,331,468	11,629,226	12/03/2018	12/03/2048	Interest Rate Swap			87612E-BG-0	Target Corp-SENIOR UNSECURED	1	10,331,468	11,629,226
57629*DU2	Evergreen Basket of Floating Rate Corporate Bonds	1	160,000,000	36,786,344	(6,929,568)	12/10/2018	12/10/2048	Interest Rate Swap		(49,622,647)	828807-CZ-8	SIMON PROPERTY GROUP LP-SENIOR UNSECURED	1	36,786,344	42,693,079
57629*DU2	Evergreen Basket of Floating Rate Corporate Bonds	1		34,633,361	40,362,315	12/10/2018	12/10/2048	Interest Rate Swap			12189L-BB-6	BURLINGTN NORTH SANTA FE-SENIOR UNSECURED	1	34,633,361	40,362,315
57629*DU2	Evergreen Basket of Floating Rate Corporate Bonds	1		29,547,067	33,574,320	12/10/2018	12/10/2048	Interest Rate Swap			391382-AB-4	GREAT-WEST LIFE CO FINANC-SENIOR UNSECURED	1	29,547,067	33,574,320
57629*DU2	Evergreen Basket of Floating Rate Corporate Bonds	1		14,629,281	17,584,914	12/10/2018	12/10/2048	Interest Rate Swap			038222-AM-7	APPLIED MATERIALS INC-SENIOR UNSECURED	1	14,629,281	17,584,914
57629*DU2	Evergreen Basket of Floating Rate Corporate Bonds	1		30,240,109	34,742,190	12/10/2018	12/10/2048	Interest Rate Swap			210518-DB-9	Consumers Energy Co-SECURED	1	30,240,109	34,742,190
57629*DU2	Evergreen Basket of Floating Rate Corporate Bonds	1		29,654,619	34,817,460	12/10/2018	12/10/2048	Interest Rate Swap			455434-BR-0	INDIANAPOLIS PIIR & LIGHT-SECURED BOND	1	29,654,619	34,817,460
57629*DU2	Evergreen Basket of Floating Rate Corporate Bonds	1		11,908,588	13,821,621	12/10/2018	12/10/2048	Interest Rate Swap			136375-CK-6	Canadian National Railwa-SENIOR UNSECURED	1	11,908,588	13,821,621
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z	200,000,000	103,206,702	90,495,932	01/07/2019	01/07/2049	Interest Rate Swap		(49,729,468)	931142-CS-0	WAL-MART STORES INC-SENIOR NOTE	1	103,206,702	140,225,400
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		71,761,621	87,025,560	01/07/2019	01/07/2049	Interest Rate Swap			755111-BU-4	Raytheon Co-SENIOR UNSECURED NOTE	1	71,761,621	87,025,560
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		44,190,941	58,832,067	01/07/2019	01/07/2049	Interest Rate Swap			873050-CB-5	TTX CO-UNSECURED NOTE	1	44,190,941	58,832,067
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z	250,000,000	75,456,521	27,188,779	01/07/2019	01/07/2049	Interest Rate Swap		(61,597,526)	458140-AK-6	INTEL CORP-SENIOR UNSECURED NOTE	1	75,456,521	88,786,305
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		91,637,984	112,934,500	01/07/2019	01/07/2049	Interest Rate Swap			437076-AS-1	Home Depot Inc/The-SENIOR UNSECURED NOTE	1	91,637,984	112,934,500
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		49,057,331	55,929,874	01/07/2019	01/07/2049	Interest Rate Swap			341081-FG-7	FLORIDA POWER & LIGHT CO-SECURED BOND	1	49,057,331	55,929,874
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		60,117,769	72,391,217	01/07/2019	01/07/2049	Interest Rate Swap			038222-AG-0	APPLIED MATERIALS INC-SENIOR UNSECURED NOTE	1	60,117,769	72,391,217
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z	175,000,000	79,007,158	40,246,071	01/31/2019	01/31/2049	Interest Rate Swap		(49,609,795)	055451-AV-0	BHP Billiton Finance USA-SR UNSECURED	1	79,007,158	89,855,866
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		65,923,762	76,407,091	01/31/2019	01/31/2049	Interest Rate Swap			478165-AG-8	JOHNSON (S.C.) & SON INC-SENIOR UNSECURED NOTE	1	65,923,762	76,407,091
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		54,632,276	74,123,658	01/31/2019	01/31/2049	Interest Rate Swap			78409V-AB-0	S&P GLOBAL INC-SENIOR UNSECURED NOTE	1	54,632,276	74,123,658
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z	150,000,000	47,221,836	12,468,605	02/04/2019	02/04/2049	Interest Rate Swap		(40,326,205)	057224-AZ-0	BAKER HUGHES INC-SENIOR NOTE	1	47,221,836	52,794,810
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		45,679,418	49,319,179	02/04/2019	02/04/2049	Interest Rate Swap			891160-MJ-9	Toronto-Dominion Bank/Th-SUBORDINATED	1	45,679,418	49,319,179

S105.25

STATEMENT AS OF SEPTEMBER 30, 2019 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

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

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		71,561,209	80,468,311	02/04/2019	02/04/2049	Interest Rate Swap			278865-AM-2	Ecolab Inc-SENIOR UNSECURED NOTE	1	71,561,209	80,468,311
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		18,818,287	21,497,928	02/04/2019	02/04/2049	Interest Rate Swap			532457-BR-8	ELI LILLY & CO-SENIOR UNSECURED	1	18,818,287	21,497,928
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z	165,000,000	59,508,790	26,449,489	02/04/2019	02/04/2049	Interest Rate Swap		(45,223,053)	68389X-AM-7	ORACLE CORP-SENIOR UNSECURED NOTE	1	59,508,790	71,672,542
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		65,625,429	74,800,540	02/04/2019	02/04/2049	Interest Rate Swap			149123-CB-5	Caterpillar Inc-SENIOR UNSECURED BOND	1	65,625,429	74,800,540
Awaiting PPN	Evergreen Basket of Floating Rate Corporate Bonds	1Z		66,264,285	80,025,302	02/04/2019	02/04/2049	Interest Rate Swap			377372-AE-7	GLAXOSMITHKLINE CAP INC-SR UNSECURED	1	66,264,285	80,025,302
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1	266,735,060	18,942,859	48,102,139	07/31/2019	07/31/2049	TRS Bond Index		26,943,021	254687-CN-4	Walt Disney Co/The-SENIOR UNSECURED	1	18,942,859	21,159,118
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		17,354,782	18,298,793	07/31/2019	07/31/2049	TRS Bond Index			133131-AV-4	CAMDEN PROPERTY TRUST-SENIOR UNSECURED NOTE REID	1	17,354,782	18,298,793
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		17,230,345	17,897,418	07/31/2019	07/31/2049	TRS Bond Index			023770-AA-8	AMER AIRLIN 15-1 A PTT-SECURED	1	17,230,345	17,897,418
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		17,220,535	17,621,417	07/31/2019	07/31/2049	TRS Bond Index			89153V-AB-5	Total Capital Internatio-SENIOR UNSECURED NOTE	1	17,220,535	17,621,417
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		16,779,582	17,457,127	07/31/2019	07/31/2049	TRS Bond Index			485134-BN-9	KANSAS CITY POWER & LT-SENIOR UNSECURED NOTE	1	16,779,582	17,457,127
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		16,703,849	18,332,196	07/31/2019	07/31/2049	TRS Bond Index			52107Q-AJ-4	Lazard Group LLC-SENIOR UNSECURED	1	16,703,849	18,332,196
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		16,820,000	17,052,214	07/31/2019	07/31/2049	TRS Bond Index			78403D-AL-4	SBA TOWER TRUST-FIRST LIEN	1	16,820,000	17,052,214
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		18,062,529	21,680,890	07/31/2019	07/31/2049	TRS Bond Index			767201-AD-8	RIO TINTO FIN USA LTD-SENIOR UNSECURED NOTE	1	18,062,529	21,680,890
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		16,017,136	16,770,249	07/31/2019	07/31/2049	TRS Bond Index			02376U-AA-3	AMER AIRLS INC 2016-1 CL AA CTF	1	16,017,136	16,770,249
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		16,235,286	16,376,746	07/31/2019	07/31/2049	TRS Bond Index			039483-BB-7	Archer-Daniels-Midland C-SENIOR UNSECURED NOTE	1	16,235,286	16,376,746
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		15,735,020	16,506,043	07/31/2019	07/31/2049	TRS Bond Index			278265-AD-5	Eaton Vance Corp-SENIOR UNSECURED NOTE	1	15,735,020	16,506,043
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		16,118,397	16,114,481	07/31/2019	07/31/2049	TRS Bond Index			03076C-AH-9	Ameriprise Financial Inc-SENIOR UNSECURED	1	16,118,397	16,114,481
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		15,310,707	16,648,496	07/31/2019	07/31/2049	TRS Bond Index			92928Q-AE-8	WEA Finance LLC-SENIOR UNSECURED	1	15,310,707	16,648,496
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		17,644,409	18,582,362	07/31/2019	07/31/2049	TRS Bond Index			373298-CF-3	GEORGIA-PACIFIC LLC-SENIOR UNSECURED NOTE	1	17,644,409	18,582,362
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		14,983,565	15,288,543	07/31/2019	07/31/2049	TRS Bond Index			696429-AC-3	PALL CORP-NOTE	1	14,983,565	15,288,543
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		15,005,196	15,904,600	07/31/2019	07/31/2049	TRS Bond Index			45866F-AA-2	INTERCONTINENTALEXCHANGE-SENIOR UNSECURED NOTE	1	15,005,196	15,904,600
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		14,886,879	14,928,870	07/31/2019	07/31/2049	TRS Bond Index			00724F-AB-7	Adobe Systems Inc-SENIOR UNSECURED NOTE	1	14,886,879	14,928,870
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		14,550,796	14,544,812	07/31/2019	07/31/2049	TRS Bond Index			125094-AD-4	CDP FINANCIAL-SENIOR UNSECURED NOTE	1	14,550,796	14,544,812
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1	266,875,000	22,361,815	48,969,906	07/31/2019	07/31/2049	TRS Bond Index		26,265,346	143658-BA-9	CARNIVAL CORP-SENIOR UNSECURED NOTE	1	22,361,815	22,704,560
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		21,581,398	23,069,930	07/31/2019	07/31/2049	TRS Bond Index			571748-AZ-5	Marsh & McLennan Cos Inc-SR UNSECURED	1	21,581,398	23,069,930
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		20,314,720	23,139,880	07/31/2019	07/31/2049	TRS Bond Index			524671-AA-2	LEGRAND FRANCE SA-SENIOR UNSECURED NOTE	1	20,314,720	23,139,880
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		20,060,131	21,371,225	07/31/2019	07/31/2049	TRS Bond Index			69353R-EQ-7	PNC Bank NA-SENIOR UNSECURED	1	20,060,131	21,371,225
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		19,977,338	20,696,756	07/31/2019	07/31/2049	TRS Bond Index			10373Q-AL-4	BP Capital Markets Ameri-SENIOR UNSECURED	1	19,977,338	20,696,756
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		19,758,949	20,630,468	07/31/2019	07/31/2049	TRS Bond Index			00440E-AV-9	ACE INA HOLDINGS-SR UNSECURED	1	19,758,949	20,630,468
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		19,345,708	20,461,357	07/31/2019	07/31/2049	TRS Bond Index			52107Q-AG-0	LAZARD GROUP LLC-SENIOR UNSECURED	1	19,345,708	20,461,357
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		19,275,007	20,480,537	07/31/2019	07/31/2049	TRS Bond Index			808513-AX-3	Charles Schwab Corp/The-SENIOR UNSECURED	1	19,275,007	20,480,537

S105.26

STATEMENT AS OF SEPTEMBER 30, 2019 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 Floating Rate Corporate Bonds	1		18,840,138	20,022,935	07/31/2019	07/31/2049	TRS Bond Index			780082-AD-5	Royal Bank of Canada-SUBORDINATED	1	18,840,138	20,022,935
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		18,499,561	19,570,000	07/31/2019	07/31/2049	TRS Bond Index			00830Y-AB-7	Africa Finance Corp-SENIOR UNSECURED	1	18,499,561	19,570,000
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		18,286,111	18,616,680	07/31/2019	07/31/2049	TRS Bond Index			65557F-AA-4	Nordea Bank AB-UNSECURED NOTE	1	18,286,111	18,616,680
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		18,132,274	20,187,889	07/31/2019	07/31/2049	TRS Bond Index			74340X-BH-3	Prologis LP-SENIOR UNSECURED	1	18,132,274	20,187,889
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		17,939,468	18,643,450	07/31/2019	07/31/2049	TRS Bond Index			845743-BP-7	SOUTHWESTERN PUBLIC SERV-SECURED	1	17,939,468	18,643,450
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		17,632,594	17,826,110	07/31/2019	07/31/2049	TRS Bond Index			693476-BL-6	PNC FUNDING CORP-SENIOR NOTE	1	17,632,594	17,826,110
Need to File with the NAIC	Evergreen Basket of Floating Rate Corporate Bonds	1		17,522,109	18,283,864	07/31/2019	07/31/2049	TRS Bond Index			084670-BS-6	BERKSHIRE HATHAWAY INC-SENIOR UNSECURED	1	17,522,109	18,283,864
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	250,000,000	126,269,875	156,348,309	07/31/2019	07/31/2049	Interest Rate Swap		30,078,434	90139P-AB-5	Twin Brook Capital Funding I WSPV, LLC	1	126,269,875	126,269,875
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		121,782,713	121,782,713	07/31/2019	07/31/2049	Interest Rate Swap			901390-AB-3	Twin Brook Capital Funding II WSPV, LLC	1	121,782,713	121,782,713
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	4,050,400	07/31/2019	07/31/2049	Interest Rate Swap			72403Z-NL-4	PIONEERS GATE LLC 2019-6 AXIS Note	1	4,000,000	4,050,400
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	250,000,000	107,600,000	138,277,252	07/31/2019	07/31/2049	Interest Rate Swap		30,591,172	72403*-BB-7	PIONEERS GATE LLC 2019-2 MPOF Note	1	107,600,000	107,686,080
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		63,420,000	64,314,222	07/31/2019	07/31/2049	Interest Rate Swap			72403*-MN-9	PIONEERS GATE LLC 2017-8 DT Warehouse Class A	1	63,420,000	64,314,222
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		47,228,044	47,270,549	07/31/2019	07/31/2049	Interest Rate Swap			72403Z-NG-5	PIONEERS GATE LLC 2018-5 OPTN (Elliington)	1	47,228,044	47,270,549
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		36,781,575	36,788,931	07/31/2019	07/31/2049	Interest Rate Swap			72403Z-NJ-9	PIONEERS GATE LLC 2019-3 BWCONA Note	1	36,781,575	36,788,931
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1	275,000,000	28,147,331	64,026,666	07/30/2019	07/30/2020	Interest Rate Swap		33,160,140	22822R-BH-2	Crown Castle Towers LLC-SECURED	1	28,147,331	30,866,526
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		27,587,730	31,721,275	07/30/2019	07/30/2020	Interest Rate Swap			448814-EJ-8	HYDRO-QUEBEC-NOTE	1	27,587,730	31,721,275
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		26,038,097	28,259,444	07/30/2019	07/30/2020	Interest Rate Swap			756250-AE-9	Reckitt Benckiser Treasu-SENIOR UNSECURED	1	26,038,097	28,259,444
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		24,961,426	32,831,775	07/30/2019	07/30/2020	Interest Rate Swap			244199-AH-5	Deere & Co-BOND	1	24,961,426	32,831,775
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		24,383,305	24,932,423	07/30/2019	07/30/2020	Interest Rate Swap			854502-AD-3	STANLEY BLACK & DECKER-SENIOR UNSECURED NOTE	1	24,383,305	24,932,423
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		24,109,801	24,325,721	07/30/2019	07/30/2020	Interest Rate Swap			808513-AD-7	CHARLES SCHWAB CORP-SENIOR NOTE	1	24,109,801	24,325,721
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		23,989,040	23,981,640	07/30/2019	07/30/2020	Interest Rate Swap			24422E-RY-7	John Deere Capital Corp-SENIOR UNSECURED NOTE	1	23,989,040	23,981,640
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		23,796,648	26,051,681	07/30/2019	07/30/2020	Interest Rate Swap			11271L-AC-6	Brookfield Finance Inc-SENIOR UNSECURED	1	23,796,648	26,051,681
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		23,720,920	24,285,234	07/30/2019	07/30/2020	Interest Rate Swap			80687P-AA-4	Schneider Electric SE-SENIOR UNSECURED NOTE	1	23,720,920	24,285,234
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		23,151,016	24,658,410	07/30/2019	07/30/2020	Interest Rate Swap			00830Y-AC-5	Africa Finance Corp-SENIOR UNSECURED	1	23,151,016	24,658,410
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		23,125,450	24,186,225	07/30/2019	07/30/2020	Interest Rate Swap			46625H-JD-3	JPMorgan Chase & Co-SENIOR UNSECURED NOTE	1	23,125,450	24,186,225
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		23,073,958	24,972,676	07/30/2019	07/30/2020	Interest Rate Swap			11271L-AA-0	BROOKFIELD FINANCE INC-SENIOR UNSECURED	1	23,073,958	24,972,676
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1	250,000,000	12,224,867	42,344,811	07/30/2019	06/08/2020	Interest Rate Swap		30,024,966	00038A-AB-9	ABB TREASURY CENTER USA-SENIOR UNSECURED NOTE	1	12,224,867	12,319,845
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,094,235	13,223,213	07/30/2019	06/08/2020	Interest Rate Swap			207597-EJ-0	Connecticut Light & Powe-SECURED	1	12,094,235	13,223,213
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,949,292	12,195,040	07/30/2019	06/08/2020	Interest Rate Swap			38141G-GS-7	Goldman Sachs Group Inc/-SENIOR UNSECURED NOTE	1	11,949,292	12,195,040
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,918,944	12,264,456	07/30/2019	06/08/2020	Interest Rate Swap			771196-BK-7	ROCHE HOLDING INC-SR UNSECURED	1	11,918,944	12,264,456
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,750,000	11,856,947	07/30/2019	06/08/2020	Interest Rate Swap			78403D-AK-6	SBA TOWER TRUST-FIRST LIEN	1	11,750,000	11,856,947

S105.27

STATEMENT AS OF SEPTEMBER 30, 2019 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 Inverse Floating Rate Corporate Bonds	1		11,733,421	12,029,734	07/30/2019	06/08/2020	Interest Rate Swap			313747-AS-6	FEDERAL REALTY INVESTMEN-SENIOR UNSECURED NOTE REID	1	11,733,421	12,029,734
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,602,248	11,604,435	07/30/2019	06/08/2020	Interest Rate Swap			291011-AY-0	Emerson Electric Co-NOTE	1	11,602,248	11,604,435
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,592,742	12,220,159	07/30/2019	06/08/2020	Interest Rate Swap			655855-FA-7	SOUTHERN RAILWAY CO-DEBENTURE	1	11,592,742	12,220,159
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,544,454	11,688,253	07/30/2019	06/08/2020	Interest Rate Swap			17252M-AK-6	CINTAS CORPORATION NO. 2-SENIOR UNSECURED NOTE	1	11,544,454	11,688,253
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,436,723	12,577,437	07/30/2019	06/08/2020	Interest Rate Swap			78409V-AD-6	S&P GLOBAL INC-SR UNSECURED	1	11,436,723	12,577,437
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,335,908	12,621,556	07/30/2019	06/08/2020	Interest Rate Swap			78409V-AM-6	S&P Global Inc-SENIOR UNSECURED	1	11,335,908	12,621,556
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,182,318	11,164,610	07/30/2019	06/08/2020	Interest Rate Swap			67080L-AA-3	Muveen LLC-SENIOR UNSECURED	1	11,182,318	11,164,610
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,119,508	11,106,316	07/30/2019	06/08/2020	Interest Rate Swap			09247X-AE-1	BlackRock Inc-SENIOR UNSECURED NOTE	1	11,119,508	11,106,316
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		11,058,105	11,163,680	07/30/2019	06/08/2020	Interest Rate Swap			125720-AJ-4	OME Group Inc-SENIOR UNSECURED	1	11,058,105	11,163,680
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,645,850	10,976,019	07/30/2019	06/08/2020	Interest Rate Swap			133131-AT-9	CAMDEN PROPERTY TRUST-SENIOR UNSECURED NOTE REID	1	10,645,850	10,976,019
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,513,908	10,579,220	07/30/2019	06/08/2020	Interest Rate Swap			828807-DE-4	Simon Property Group LP-SENIOR UNSECURED	1	10,513,908	10,579,220
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,220,823	10,251,270	07/30/2019	06/08/2020	Interest Rate Swap			250847-EG-1	DTE Electric Co-SECURED BOND	1	10,220,823	10,251,270
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,177,981	12,913,470	07/30/2019	06/08/2020	Interest Rate Swap			039483-AN-2	Archer-Daniels-Midland C-NOTE	1	10,177,981	12,913,470
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,134,367	10,249,240	07/30/2019	06/08/2020	Interest Rate Swap			70213H-AB-4	PARTNERS HEALTHCARE SYST-UNSECURED NOTE	1	10,134,367	10,249,240
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,069,031	10,786,255	07/30/2019	06/08/2020	Interest Rate Swap			369550-BG-2	General Dynamics Corp-SENIOR UNSECURED	1	10,069,031	10,786,255
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,043,695	10,028,000	07/30/2019	06/08/2020	Interest Rate Swap			05580M-80-1	B. Riley Financial Inc-SENIOR UNSECURED	1	10,043,695	10,028,000
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,021,451	11,431,870	07/30/2019	06/08/2020	Interest Rate Swap			448814-DX-8	HYDRO-QUEBEC-DEBENTURE	1	10,021,451	11,431,870
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		10,010,980	10,216,586	07/30/2019	06/08/2020	Interest Rate Swap			278865-AL-4	Ecolab Inc-SENIOR UNSECURED NOTE	1	10,010,980	10,216,586
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,896,070	10,239,950	07/30/2019	06/08/2020	Interest Rate Swap			46625H-KC-3	JPMorgan Chase & Co-SR UNSECURED	1	9,896,070	10,239,950
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,638,732	10,335,869	07/30/2019	06/08/2020	Interest Rate Swap			33829T-AA-4	FIVE CORNERS FUNDING TRS-UNSECURED NOTE	1	9,638,732	10,335,869
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,515,084	10,061,600	07/30/2019	06/08/2020	Interest Rate Swap			009363-AQ-5	AIRGAS INC-SENIOR UNSECURED NOTE	1	9,515,084	10,061,600
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	22,626,698	41,058,036	08/01/2019	08/01/2049	Interest Rate Swap		17,960,702	72403*-AK-8	PIONEERS GATE LLC 2017 2 GSCF 2011-2A-1	1	22,626,698	23,097,334
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		115,981,422	116,793,292	08/01/2019	08/01/2049	Interest Rate Swap			72403*-BA-9	PIONEERS GATE LLC 2019-1 ONDK Note	1	115,981,422	116,793,292
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,692,013	16,955,747	08/01/2019	08/01/2049	Interest Rate Swap			72403Z-MY-7	PIONEERS GATE LLC 2017-4 Alkali Term Loan	1	16,692,013	16,955,747
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1	250,000,000	9,488,856	40,253,550	08/01/2019	08/01/2049	Interest Rate Swap		30,024,966	74340X-AW-1	PROLOGIS LP-SENIOR UNSECURED NOTE REID	1	9,488,856	10,228,584
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,435,898	10,119,551	08/01/2019	08/01/2049	Interest Rate Swap			45866F-AD-6	INTERCONTINENTALEXCHANGE-SENIOR UNSECURED	1	9,435,898	10,119,551
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,400,000	9,421,186	08/01/2019	08/01/2049	Interest Rate Swap			78403D-AJ-9	SBA TOWER TRUST-SR UNSECURED	1	9,400,000	9,421,186
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,378,974	10,302,158	08/01/2019	08/01/2049	Interest Rate Swap			64952W-CX-9	New York Life Global Fun-SECURED	1	9,378,974	10,302,158
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,229,226	10,195,757	08/01/2019	08/01/2049	Interest Rate Swap			927804-FZ-2	Virginia Electric & Powe-SENIOR UNSECURED	1	9,229,226	10,195,757
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,216,434	9,794,927	08/01/2019	08/01/2049	Interest Rate Swap			907818-DV-7	UNION PACIFIC CORP-SENIOR UNSECURED NOTE	1	9,216,434	9,794,927
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		9,195,136	9,320,005	08/01/2019	08/01/2049	Interest Rate Swap			26884A-AY-9	ERP OPERATING LP-SENIOR UNSECURED NOTE REID	1	9,195,136	9,320,005

S105.28

STATEMENT AS OF SEPTEMBER 30, 2019 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	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 Inverse Floating Rate Corporate Bonds	1		9,186,789	9,885,093	08/01/2019	08/01/2049	Interest Rate Swap			559222-AR-5	Magna International Inc-SR UNSECURED	1	9,186,789	9,885,093
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,993,992	9,304,371	08/01/2019	08/01/2049	Interest Rate Swap			857477-AL-7	State Street Corp-SUBORDINATED NOTE	1	8,993,992	9,304,371
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,949,155	9,214,929	08/01/2019	08/01/2049	Interest Rate Swap			084664-BQ-3	BERKSHIRE HATHAWAY FIN-SENIOR NOTE	1	8,949,155	9,214,929
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,907,382	9,517,373	08/01/2019	08/01/2049	Interest Rate Swap			05348E-AU-3	AVALONBAY COMMUNITIES IN-SR UNSECURED	1	8,907,382	9,517,373
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,902,705	11,060,557	08/01/2019	08/01/2049	Interest Rate Swap			863871-AM-1	STUDENT LOAN MKTG ASSOC-ZERO CPN BND	1	8,902,705	11,060,557
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,766,411	9,562,778	08/01/2019	08/01/2049	Interest Rate Swap			91159H-HR-4	US Bancorp-SENIOR UNSECURED	1	8,766,411	9,562,778
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,700,000	8,952,143	08/01/2019	08/01/2049	Interest Rate Swap			680033-AC-1	Old National Bancorp/IN-SENIOR UNSECURED NOTE	1	8,700,000	8,952,143
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,583,719	9,416,681	08/01/2019	08/01/2049	Interest Rate Swap			22160K-AM-7	Costco Wholesale Corp-SENIOR UNSECURED	1	8,583,719	9,416,681
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,472,562	8,469,719	08/01/2019	08/01/2049	Interest Rate Swap			209111-EZ-2	Consolidated Edison Co o-SENIOR UNSECURED NOTE	1	8,472,562	8,469,719
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,447,330	8,887,237	08/01/2019	08/01/2049	Interest Rate Swap			126410-LK-3	CSX TRANSPORTATION INC-DEBENTURE	1	8,447,330	8,887,237
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,442,819	8,717,738	08/01/2019	08/01/2049	Interest Rate Swap			70109H-AK-1	Parker-Hannifin Corp-NOTE	1	8,442,819	8,717,738
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,421,604	8,966,889	08/01/2019	08/01/2049	Interest Rate Swap			0010EP-AN-8	AEP TEXAS CENTRAL CO-SR UNSECURED	1	8,421,604	8,966,889
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,397,803	8,589,218	08/01/2019	08/01/2049	Interest Rate Swap			95709T-AD-2	WESTAR ENERGY INC-NOTE	1	8,397,803	8,589,218
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,362,070	8,411,974	08/01/2019	08/01/2049	Interest Rate Swap			24422E-RE-1	John Deere Capital Corp-SENIOR UNSECURED NOTE	1	8,362,070	8,411,974
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,284,730	8,977,362	08/01/2019	08/01/2049	Interest Rate Swap			448814-CS-0	HYDRO-QUEBEC-DEBENTURE	1	8,284,730	8,977,362
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,148,477	8,481,672	08/01/2019	08/01/2049	Interest Rate Swap			46625H-JC-5	JPMorgan Chase & Co-NOTE	1	8,148,477	8,481,672
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,837,343	8,604,408	08/01/2019	08/01/2049	Interest Rate Swap			69353R-FG-8	PNC Bank NA-SENIOR UNSECURED	1	7,837,343	8,604,408
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,807,688	8,197,925	08/01/2019	08/01/2049	Interest Rate Swap			92826C-AD-4	VISA INC-SR UNSECURED	1	7,807,688	8,197,925
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,792,432	8,640,860	08/01/2019	08/01/2049	Interest Rate Swap			45866F-AF-1	Intercontinental Exchange-SENIOR UNSECURED	1	7,792,432	8,640,860
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,583,889	7,698,961	08/01/2019	08/01/2049	Interest Rate Swap			144141-DA-3	DUKE ENERGY PROGRESS INC-SECURED	1	7,583,889	7,698,961
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,444,398	7,445,240	08/01/2019	08/01/2049	Interest Rate Swap			2027A0-DJ-5	Commonwealth Bank of Aus-SENIOR UNSECURED NOTE	1	7,444,398	7,445,240
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,427,941	7,444,895	08/01/2019	08/01/2049	Interest Rate Swap			26875P-AG-6	EOG Resources Inc-SENIOR UNSECURED NOTE	1	7,427,941	7,444,895
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,398,598	7,807,190	08/01/2019	08/01/2049	Interest Rate Swap			94974B-GH-7	Wells Fargo & Co-SR UNSECURED	1	7,398,598	7,807,190
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,304,217	8,088,619	08/01/2019	08/01/2049	Interest Rate Swap			74460D-AC-3	Public Storage-SENIOR UNSECURED	1	7,304,217	8,088,619
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,262,619	7,449,803	08/01/2019	08/01/2049	Interest Rate Swap			377373-AD-7	GLAXOSMITHKLINE CAP LTD-SR UNSECURED	1	7,262,619	7,449,803
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,076,771	7,276,400	08/01/2019	08/01/2049	Interest Rate Swap			478111-AB-3	JOHNS HOPKINS HEALTH SYS-SENIOR UNSECURED NOTE	1	7,076,771	7,276,400
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	150,000,000	29,132,377	25,940,428	08/01/2019	08/01/2049	Interest Rate Swap		(4,046,268)	443510-AF-9	Hubbell Inc-SENIOR UNSECURED NOTE	2	29,132,377	29,986,696
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		25,859,653	26,605,906	08/01/2019	08/01/2049	Interest Rate Swap			489170-AC-4	Kennametal Inc-SENIOR UNSECURED NOTE	2	25,859,653	26,605,906
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		25,375,000	26,326,563	08/01/2019	08/01/2049	Interest Rate Swap			03666H-AA-9	Antares Holdings LP-SENIOR UNSECURED	2	25,375,000	26,326,563
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		25,177,515	25,178,000	08/01/2019	08/01/2049	Interest Rate Swap			045487-AA-3	ASSOC BANC-CORP-SR UNSECURED	2	25,177,515	25,178,000
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		25,034,560	27,208,837	08/01/2019	08/01/2049	Interest Rate Swap			708696-BY-4	Pennsylvania Electric Co-SENIOR UNSECURED	2	25,034,560	27,208,837

S105.29

STATEMENT AS OF SEPTEMBER 30, 2019 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 Inverse Floating Rate Corporate Bonds	2		24,307,125	26,800,402	08/01/2019	08/01/2049	Interest Rate Swap			806851-AK-7	Schlumberger Holdings Co-SENIOR UNSECURED	2	24,307,125	26,800,402
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		24,051,400	25,558,580	08/01/2019	08/01/2049	Interest Rate Swap			10510K-AC-1	BRAMBLES USA INC-SR UNSECURED	2	24,051,400	25,558,580
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	200,000,000	31,066,111	27,421,185	08/01/2019	08/01/2049	Interest Rate Swap		(6,935,689)	883556-BX-9	Thermo Fisher Scientific-SENIOR UNSECURED	2	31,066,111	34,356,874
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		30,740,436	31,411,442	08/01/2019	08/01/2049	Interest Rate Swap			45167R-AE-4	IDEX Corp-SENIOR UNSECURED NOTE	2	30,740,436	31,411,442
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		30,518,108	33,660,156	08/01/2019	08/01/2049	Interest Rate Swap			579780-AN-7	MCCORMICK & CO INC/MID-SENIOR UNSECURED	2	30,518,108	33,660,156
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		30,245,662	30,160,668	08/01/2019	08/01/2049	Interest Rate Swap			90932K-AA-7	United Airlines 2019-2 C-FIRST LIEN	2	30,245,662	30,160,668
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		29,766,880	31,124,036	08/01/2019	08/01/2049	Interest Rate Swap			25389J-AL-0	DIGITAL REALTY TRUST LP-SR UNSECURED	2	29,766,880	31,124,036
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		29,742,335	32,122,821	08/01/2019	08/01/2049	Interest Rate Swap			22822V-AE-1	CROWN CASTLE INTL CORP-SENIOR UNSECURED	2	29,742,335	32,122,821
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		29,389,600	30,989,475	08/01/2019	08/01/2049	Interest Rate Swap			378272-AF-5	GLENORE FUNDING LLC-SENIOR UNSECURED NOTE	2	29,389,600	30,989,475
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		29,191,918	31,203,921	08/01/2019	08/01/2049	Interest Rate Swap			05369A-AA-9	Aviation Capital Group L-SENIOR UNSECURED	2	29,191,918	31,203,921
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	200,000,000	46,126,182	40,782,447	08/30/2019	08/30/2034	Interest Rate Swap		(9,475,122)	984851-AF-2	Yara International ASA-SENIOR UNSECURED	2	46,126,182	50,257,569
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		42,466,683	47,811,205	08/30/2019	08/30/2034	Interest Rate Swap			28176E-AD-0	Edwards Lifesciences Cor-SENIOR UNSECURED	2	42,466,683	47,811,205
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		37,048,501	40,737,158	08/30/2019	08/30/2034	Interest Rate Swap			36144B-BC-6	GATX Corp-SENIOR UNSECURED	2	37,048,501	40,737,158
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		35,523,679	36,732,925	08/30/2019	08/30/2034	Interest Rate Swap			120568-AX-8	BUNGE LTD FINANCE CORP-SENIOR UNSECURED	2	35,523,679	36,732,925
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		33,750,775	35,099,323	08/30/2019	08/30/2034	Interest Rate Swap			00908P-AC-1	Air Canada 2017-1 Class -SECURED	2	33,750,775	35,099,323
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		31,854,429	34,694,251	08/30/2019	08/30/2034	Interest Rate Swap			171340-AN-2	CHURCH & DWIGHT CO INC-SENIOR UNSECURED	2	31,854,429	34,694,251
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1	306,000,000	100,000,000	98,894,442	08/30/2019	08/30/2039	Interest Rate Swap		(11,567,058)	30290Y-AC-5	FS Global Credit Opportu-FS GLOBAL CREDIT	1	100,000,000	110,461,500
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		36,346,039	40,437,632	08/30/2019	08/30/2039	Interest Rate Swap			801060-AD-6	Sanofi-SENIOR UNSECURED	1	36,346,039	40,437,632
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,064,375	7,708,433	08/30/2019	08/30/2039	Interest Rate Swap			00108W-AH-3	AEP Texas Inc-SENIOR UNSECURED	1	7,064,375	7,708,433
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		35,000,000	38,783,570	08/30/2019	08/30/2039	Interest Rate Swap			892331-AD-1	Toyota Motor Corp-SENIOR UNSECURED	1	35,000,000	38,783,570
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		30,531,594	33,576,586	08/30/2019	08/30/2039	Interest Rate Swap			79466L-AF-1	salesforce.com Inc-SENIOR UNSECURED	1	30,531,594	33,576,586
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		30,060,282	32,955,714	08/30/2019	08/30/2039	Interest Rate Swap			369550-BC-1	General Dynamics Corp-SENIOR UNSECURED	1	30,060,282	32,955,714
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		28,910,745	31,549,432	08/30/2019	08/30/2039	Interest Rate Swap			892330-AC-5	Toyota Industries Corp-SENIOR UNSECURED	1	28,910,745	31,549,432
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		28,531,974	28,932,654	08/30/2019	08/30/2039	Interest Rate Swap			223030-AN-0	COVIDIEM INTL FINANCE SA-SENIOR UNSECURED NOTE	1	28,531,974	28,932,654
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,060,860	7,447,405	08/30/2019	08/30/2039	Interest Rate Swap			313747-AU-1	Federal Realty Investmen-SENIOR UNSECURED	1	7,060,860	7,447,405
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,012,019	7,174,604	08/30/2019	08/30/2039	Interest Rate Swap			219868-BS-4	CORP ANDINA DE FOMENTO-SENIOR UNSECURED NOTE	1	7,012,019	7,174,604
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		7,001,486	7,089,446	08/30/2019	08/30/2039	Interest Rate Swap			10075E-AB-4	BOSTON GAS COMPANY-MEDIUM TERM NOTE	1	7,001,486	7,089,446
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		6,761,670	6,954,587	08/30/2019	08/30/2039	Interest Rate Swap			023765-AA-8	AMER AIRLINE 16-2 AA PTT-FIRST LIEN	1	6,761,670	6,954,587
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1	255,000,000	14,427,692	6,165,731	08/30/2019	08/30/2049	Interest Rate Swap		(8,295,723)	857477-AG-8	State Street Corp-SENIOR UNSECURED NOTE	1	14,427,692	14,461,454
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		14,392,822	15,594,204	08/30/2019	08/30/2049	Interest Rate Swap			06406R-AF-4	Bank of New York Mellon -SENIOR UNSECURED	1	14,392,822	15,594,204
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,939,720	14,065,368	08/30/2019	08/30/2049	Interest Rate Swap			982526-AQ-8	WM WIRIGLEY JR CO-SENIOR UNSECURED NOTE	1	13,939,720	14,065,368

S105.30

STATEMENT AS OF SEPTEMBER 30, 2019 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 Inverse Floating Rate Corporate Bonds	1		13,849,352	14,249,793	08/30/2019	08/30/2049	Interest Rate Swap			90932P-AA-6	UNITED AIR 2014-1 A PTT-SECURED NOTE	1	13,849,352	14,249,793
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,806,286	15,251,928	08/30/2019	08/30/2049	Interest Rate Swap			606822-AV-6	Mitsubishi UFJ Financial-SENIOR UNSECURED	1	13,806,286	15,251,928
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,616,259	13,768,623	08/30/2019	08/30/2049	Interest Rate Swap			78486Q-AC-5	SVB FINANCIAL GROUP-SENIOR UNSECURED NOTE	1	13,616,259	13,768,623
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,566,489	13,964,738	08/30/2019	08/30/2049	Interest Rate Swap			808513-AG-0	CHARLES SCHIAB CORP-SENIOR UNSECURED NOTE	1	13,566,489	13,964,738
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,334,000	13,334,893	08/30/2019	08/30/2049	Interest Rate Swap			12189T-BC-7	BURLINGTN NORTH SANTA FE-SENIOR UNSECURED NOTE	1	13,334,000	13,334,893
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,204,702	13,210,544	08/30/2019	08/30/2049	Interest Rate Swap			010392-FC-7	ALABAMA POWER CO-SENIOR UNSECURED NOTE	1	13,204,702	13,210,544
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,065,043	13,107,822	08/30/2019	08/30/2049	Interest Rate Swap			45138L-AX-1	IDAHO POWER CORP-SECURED MORTGAGE NOTE	1	13,065,043	13,107,822
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,029,337	13,921,571	08/30/2019	08/30/2049	Interest Rate Swap			143658-AF-9	CARNIVAL CORP-SENIOR UNSECURED NOTE	1	13,029,337	13,921,571
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		13,002,211	13,756,730	08/30/2019	08/30/2049	Interest Rate Swap			857477-AN-3	State Street Corp-SR UNSECURED	1	13,002,211	13,756,730
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,800,000	14,014,899	08/30/2019	08/30/2049	Interest Rate Swap			631005-BH-7	Narragansett Electric Co-SENIOR UNSECURED	1	12,800,000	14,014,899
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,708,162	13,761,974	08/30/2019	08/30/2049	Interest Rate Swap			532457-AZ-1	Eli Lilly & Co-SENIOR UNSECURED	1	12,708,162	13,761,974
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,691,897	12,777,851	08/30/2019	08/30/2049	Interest Rate Swap			064159-HM-1	BANK NOVA SCOTIA B C SR NT OVERSEA-CHINESE BANKING-SUBORDINATED	1	12,691,897	12,777,851
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,664,625	13,282,150	08/30/2019	08/30/2049	Interest Rate Swap			69033C-AC-3	UNSECURED	1	12,664,625	13,282,150
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,539,999	12,692,058	08/30/2019	08/30/2049	Interest Rate Swap			06366R-JJ-5	BANK OF MONTREAL-SR UNSECURED	1	12,539,999	12,692,058
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,486,681	13,487,860	08/30/2019	08/30/2049	Interest Rate Swap			09062X-AF-0	BIOMER INC-SR UNSECURED	1	12,486,681	13,487,860
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,403,947	13,204,318	08/30/2019	08/30/2049	Interest Rate Swap			46625H-JY-7	JPMorgan Chase & Co-SUBORDINATED NOTE	1	12,403,947	13,204,318
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,383,056	12,712,926	08/30/2019	08/30/2049	Interest Rate Swap			059165-ED-8	BALTIMORE GAS & ELECTRIC-SENIOR UNSECURED NOTE	1	12,383,056	12,712,926
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,293,165	12,722,740	08/30/2019	08/30/2049	Interest Rate Swap			806854-AH-8	Schlumberger Investment -SR UNSECURED	1	12,293,165	12,722,740
Need to File with the NAIC	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		12,286,409	13,476,213	08/30/2019	08/30/2049	Interest Rate Swap			452308-AX-7	Illinois Tool Works Inc-SENIOR UNSECURED	1	12,286,409	13,476,213
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	89,000,000	95,000,000	91,700,712	09/03/2019	09/03/2049	Interest Rate Swap	(2,909,788)		72403Z-NF-7	PIONEERS GATE LLC 2018-4 CSWC Lev II	1	95,000,000	94,610,500
999999999 - Totals				17,885,664,523	20,120,881,931	XXX	XXX	XXX	22,268,730	1,322,664,021	XXX	XXX	XXX	17,863,395,793	18,798,217,910

SI05.31

STATEMENT AS OF SEPTEMBER 30, 2019 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	122	13,581,622,879	123	14,401,415,772	106	13,414,000,000			122	13,581,622,879
2. Add: Opened or Acquired Transactions.....	16	2,150,000,000			22	4,368,610,060			38	6,518,610,060
3. Add: Increases in Replication (Synthetic Asset) Transactions Statement Value.....	XXX		XXX		XXX		XXX		XXX	0
4. Less: Closed or Disposed of Transactions.....	15	1,330,207,107	17	987,415,772	11	1,210,000,000			43	3,527,622,879
5. Less: Positions Disposed of for Failing Effectiveness Criteria.....									0	0
6. Less: Decreases in Replication (Synthetic Asset) Transactions Statement Value.....	XXX		XXX		XXX		XXX		XXX	0
7. Ending Inventory	123	14,401,415,772	106	13,414,000,000	117	16,572,610,060	0	0	117	16,572,610,060

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.....	4,534,346,436
2.	Part B, Section 1, Column 15 plus Part B, Section 1 Footnote - Total Ending Cash Balance.....	0
3.	Total (Line 1 plus Line 2).....	4,534,346,436
4.	Part D, Section 1, Column 5.....	16,679,345,364
5.	Part D, Section 1, Column 6.....	(12,208,926,273)
6.	Total (Line 3 minus Line 4 minus Line 5).....	63,927,344
		Fair Value Check
7.	Part A, Section 1, Column 16.....	5,834,741,820
8.	Part B, Section 1, Column 13.....	(63,927,345)
9.	Total (Line 7 plus Line 8).....	5,770,814,476
10.	Part D, Section 1, Column 8.....	19,043,309,735
11.	Part D, Section 1, Column 9.....	(13,272,495,260)
12.	Total (Line 9 minus Line 10 minus Line 11).....	0
		Potential Exposure Check
13.	Part A, Section 1, Column 21.....	4,769,921,454
14.	Part B, Section 1, Column 20.....	143,912,150
15.	Part D, Section 1, Column 11.....	4,913,833,604
16.	Total (Line 13 plus Line 14 minus Line 15).....	0

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	3,695,132,944	2,852,941,262
2. Cost of cash equivalents acquired	66,376,861,560	79,209,684,010
3. Accrual of discount	40,743,256	55,788,749
4. Unrealized valuation increase (decrease)	31,246	36,646
5. Total gain (loss) on disposals	63,471	97,456
6. Deduct consideration received on disposals	66,422,041,534	78,423,415,179
7. Deduct amortization of premium		0
8. Total foreign exchange change in book/adjusted carrying value		0
9. Deduct current year's other than temporary impairment recognized		0
10. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9)	3,690,790,942	3,695,132,944
11. Deduct total nonadmitted amounts		0
12. Statement value at end of current period (Line 10 minus Line 11)	3,690,790,942	3,695,132,944