

**QUARTERLY STATEMENT**

**OF THE**

**Massachusetts Mutual Life Insurance Company**

**TO THE**

**Insurance Department**

**OF THE**

**STATE OF**

**FOR THE QUARTER ENDED  
JUNE 30, 2018**

**LIFE AND ACCIDENT AND HEALTH**

**2018**



LIFE AND ACCIDENT AND HEALTH COMPANIES - ASSOCIATION EDITION

# QUARTERLY STATEMENT

AS OF JUNE 30, 2018

OF THE CONDITION AND AFFAIRS OF THE

## Massachusetts Mutual Life Insurance Company

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

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

Country of Domicile United States of America

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

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

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

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

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

Internet Website Address www.massmutual.com

Statutory Statement Contact Sean G. McCallen, 413-744-3193  
(Name) (Area Code) (Telephone Number)  
smccallen@massmutual.com, 413-226-4086  
(E-mail Address) (FAX Number)

### OFFICERS

President and Chief Executive Officer Roger William Crandall Treasurer Todd Garrett Picken  
Secretary Pia Denise Flanagan Appointed Actuary Douglas Wright Taylor

### OTHER

Elizabeth Ward Chicares, Executive Vice President, Chief Financial Officer and Chief Actuary Michael Robert Fanning, Executive Vice President Melvin Timothy Corbett, Executive Vice President and Chief Investment Officer  
Mark Douglas Roellig, Executive Vice President and Chief Technology and Administrative Officer Adnan Omar Ahmed, Executive Vice President Geoffrey James Craddock, Chief Risk Officer

### DIRECTORS OR TRUSTEES

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

State of Massachusetts SS:  
County of Hampden

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

Roger William Crandall  
President and Chief Executive Officer

Pia Denise Flanagan  
Secretary

Todd Garrett Picken  
Treasurer

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_

a. Is this an original filing? ..... Yes [ X ] No [ ]

b. If no,

1. State the amendment number.....

2. Date filed .....

3. Number of pages attached.....

STATEMENT AS OF JUNE 30, 2018 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 .....	93,035,374,603		93,035,374,603	90,434,764,618
2. Stocks:				
2.1 Preferred stocks .....	742,605,325		742,605,325	767,807,089
2.2 Common stocks .....	13,496,311,695		13,496,311,695	15,635,265,539
3. Mortgage loans on real estate:				
3.1 First liens .....	23,113,892,451		23,113,892,451	22,579,846,619
3.2 Other than first liens.....				
4. Real estate:				
4.1 Properties occupied by the company (less \$ encumbrances) .....	138,278,789		138,278,789	143,857,098
4.2 Properties held for the production of income (less \$ .....613,423,269 encumbrances) .....	562,529,019		562,529,019	608,115,213
4.3 Properties held for sale (less \$ encumbrances) .....	1,354,677		1,354,677	105,028,985
5. Cash (\$ .....43,625,619 ), cash equivalents (\$ .....3,958,627,108 ) and short-term investments (\$ .....622,514,131 ) .....	4,624,766,858		4,624,766,858	3,579,565,622
6. Contract loans (including \$ ..... premium notes) .....	13,656,321,831	1,306,229	13,655,015,602	13,326,988,405
7. Derivatives .....	8,823,797,563		8,823,797,563	8,857,280,579
8. Other invested assets .....	7,675,378,896	47,380,372	7,627,998,524	7,677,785,202
9. Receivables for securities .....	523,228,517		523,228,517	204,853,007
10. Securities lending reinvested collateral assets .....				
11. Aggregate write-ins for invested assets .....				
12. Subtotals, cash and invested assets (Lines 1 to 11) .....	166,393,840,224	48,686,601	166,345,153,623	163,921,157,976
13. Title plants less \$ ..... charged off (for Title insurers only) .....				
14. Investment income due and accrued .....	2,986,668,182	27,080,703	2,959,587,479	2,198,552,050
15. Premiums and considerations:				
15.1 Uncollected premiums and agents' balances in the course of collection .....	347,181,925	2,299,252	344,882,673	164,069,363
15.2 Deferred premiums, agents' balances and installments booked but deferred and not yet due (including \$ ..... earned but unbilled premiums) .....	705,731,360		705,731,360	696,945,925
15.3 Accrued retrospective premiums (\$ ..... ) and contracts subject to redetermination (\$ ..... ) .....				
16. Reinsurance:				
16.1 Amounts recoverable from reinsurers .....	42,540,736	2,020,781	40,519,955	30,663,446
16.2 Funds held by or deposited with reinsured companies .....				
16.3 Other amounts receivable under reinsurance contracts .....	12,755,901		12,755,901	28,337,150
17. Amounts receivable relating to uninsured plans .....				
18.1 Current federal and foreign income tax recoverable and interest thereon .....	278,469,132		278,469,132	544,063,897
18.2 Net deferred tax asset .....	924,483,882		924,483,882	761,056,248
19. Guaranty funds receivable or on deposit .....	27,153,858		27,153,858	27,196,340
20. Electronic data processing equipment and software .....	206,752,385	195,374,548	11,377,837	11,505,754
21. Furniture and equipment, including health care delivery assets (\$ ..... ) .....	44,436,470	44,436,470		
22. Net adjustment in assets and liabilities due to foreign exchange rates .....				
23. Receivables from parent, subsidiaries and affiliates .....	75,599,153		75,599,153	59,367,747
24. Health care (\$ ..... ) and other amounts receivable .....				
25. Aggregate write-ins for other than invested assets .....	3,813,488,230	1,542,062,646	2,271,425,584	2,458,024,667
26. Total assets excluding Separate Accounts, Segregated Accounts and Protected Cell Accounts (Lines 12 to 25) .....	175,859,101,438	1,861,961,001	173,997,140,437	170,900,940,563
27. From Separate Accounts, Segregated Accounts and Protected Cell Accounts .....	69,583,460,968		69,583,460,968	69,162,281,558
28. Total (Lines 26 and 27) .....	245,442,562,406	1,861,961,001	243,580,601,405	240,063,222,121
<b>DETAILS OF WRITE-INS</b>				
1101. ....				
1102. ....				
1103. ....				
1198. Summary of remaining write-ins for Line 11 from overflow page .....				
1199. Totals (Lines 1101 through 1103 plus 1198)(Line 11 above) .....				
2501. Corporate owned life insurance .....	2,121,271,618		2,121,271,618	2,104,402,544
2502. Fully refundable deposits, prepayments and miscellaneous assets .....	232,850,327	153,022,522	79,827,805	282,561,096
2503. Employee insurance plan advances .....	40,759,415	32,787	40,726,628	39,459,017
2598. Summary of remaining write-ins for Line 25 from overflow page .....	1,418,606,870	1,389,007,337	29,599,533	31,602,010
2599. Totals (Lines 2501 through 2503 plus 2598)(Line 25 above) .....	3,813,488,230	1,542,062,646	2,271,425,584	2,458,024,667

## STATEMENT AS OF JUNE 30, 2018 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 \$ 114,547,056,328 less \$ (including \$ 133,037,681 Modco Reserve) included in Line 6.3	114,547,056,328	112,904,106,756
2. Aggregate reserve for accident and health contracts (including \$ Modco Reserve)	2,921,635,738	2,859,824,790
3. Liability for deposit-type contracts (including \$ Modco Reserve)	15,053,489,772	13,014,264,844
4. Contract claims:		
4.1 Life	423,555,920	450,718,022
4.2 Accident and health	24,625,201	24,903,999
5. Policyholders' dividends \$ 7,968,778 and coupons \$ due and unpaid	7,968,778	10,007,757
6. Provision for policyholders' dividends and coupons payable in following calendar year - estimated amounts:		
6.1 Dividends apportioned for payment (including \$ Modco)	1,607,866,164	1,591,383,608
6.2 Dividends 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 \$ 10,939,515 accident and health premiums	40,609,623	30,097,576
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	10,633,933	7,673,131
9.3 Other amounts payable on reinsurance, including \$ 3,183,112 assumed and \$ 11,161,236 ceded	14,344,348	19,151,509
9.4 Interest Maintenance Reserve		
10. Commissions to agents due or accrued-life and annuity contracts \$ 38,244,965 , accident and health \$ 272,780 and deposit-type contract funds \$ 11,325,347	49,843,092	25,768,037
11. Commissions and expense allowances payable on reinsurance assumed	5,006,652	4,937,613
12. General expenses due or accrued	1,031,003,742	1,074,342,178
13. Transfers to Separate Accounts due or accrued (net) (including \$ (146,125,646) accrued for expense allowances recognized in reserves, net of reinsured allowances)	(175,381,250)	(228,875,358)
14. Taxes, licenses and fees due or accrued, excluding federal income taxes	37,304,536	67,425,911
15.1 Current federal and foreign income taxes, including \$ on realized capital gains (losses)	3,655	
15.2 Net deferred tax liability		
16. Unearned investment income	335,162,122	162,598,176
17. Amounts withheld or retained by company as agent or trustee	36,717,844	34,781,798
18. Amounts held for agents' account, including \$ agents' credit balances	340,506,032	335,418,514
19. Remittances and items not allocated	822,649,141	368,913,864
20. Net adjustment in assets and liabilities due to foreign exchange rates		
21. Liability for benefits for employees and agents if not included above	186,967,511	187,472,254
22. Borrowed money \$ 289,822,750 and interest thereon \$	289,822,750	249,867,743
23. Dividends to stockholders declared and unpaid		
24. Miscellaneous liabilities:		
24.01 Asset valuation reserve	2,414,561,692	3,207,069,587
24.02 Reinsurance in unauthorized and certified (\$ ) companies	180,308	204,479
24.03 Funds held under reinsurance treaties with unauthorized and certified (\$ ) reinsurers		
24.04 Payable to parent, subsidiaries and affiliates	3,889,194	(7,053,829)
24.05 Drafts outstanding		
24.06 Liability for amounts held under uninsured plans		
24.07 Funds held under coinsurance	4,051,726,849	4,001,137,453
24.08 Derivatives	5,216,254,341	5,979,259,357
24.09 Payable for securities	825,036,255	78,913,791
24.10 Payable for securities lending		
24.11 Capital notes \$ and interest thereon \$		
25. Aggregate write-ins for liabilities	8,846,058,965	8,741,413,480
26. Total liabilities excluding Separate Accounts business (Lines 1 to 25)	158,969,099,236	155,195,727,040
27. From Separate Accounts Statement	69,583,460,968	69,162,278,428
28. Total liabilities (Lines 26 and 27)	228,552,560,204	224,358,005,468
29. Common capital stock		
30. Preferred capital stock		
31. Aggregate write-ins for other than special surplus funds		
32. Surplus notes	2,267,861,749	2,267,627,287
33. Gross paid in and contributed surplus		
34. Aggregate write-ins for special surplus funds	3,250,000	3,250,000
35. Unassigned funds (surplus)	12,756,929,452	13,434,339,366
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)	15,028,041,201	15,705,216,653
38. Totals of Lines 29, 30 and 37	15,028,041,201	15,705,216,653
39. Totals of Lines 28 and 38 (Page 2, Line 28, Col. 3)	243,580,601,405	240,063,222,121
<b>DETAILS OF WRITE-INS</b>		
2501. Repurchase agreements	4,121,836,675	4,212,561,002
2502. Derivative collateral	2,811,651,107	2,660,944,773
2503. Derivative accrued interest	1,823,209,168	1,781,371,416
2598. Summary of remaining write-ins for Line 25 from overflow page	89,362,015	86,536,289
2599. Totals (Lines 2501 through 2503 plus 2598)(Line 25 above)	8,846,058,965	8,741,413,480
3101.		
3102.		
3103.		
3198. Summary of remaining write-ins for Line 31 from overflow page		
3199. Totals (Lines 3101 through 3103 plus 3198)(Line 31 above)		
3401. Designated surplus for group annuities	2,500,000	2,500,000
3402. Designated surplus for separate account business	750,000	750,000
3403.		
3498. Summary of remaining write-ins for Line 34 from overflow page		
3499. Totals (Lines 3401 through 3403 plus 3498)(Line 34 above)	3,250,000	3,250,000

**SUMMARY OF OPERATIONS**

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
1. Premiums and annuity considerations for life and accident and health contracts	10,905,150,689	9,652,377,715	17,461,646,567
2. Considerations for supplementary contracts with life contingencies	12,734,431	10,076,768	24,676,699
3. Net investment income	3,631,744,112	3,400,187,792	6,427,963,678
4. Amortization of Interest Maintenance Reserve (IMR)	39,511,926	58,183,765	112,616,566
5. Separate Accounts net gain from operations excluding unrealized gains or losses	(3,132)	1,003,286	1,003,477
6. Commissions and expense allowances on reinsurance ceded	66,048,233	57,797,932	129,971,697
7. Reserve adjustments on reinsurance ceded	(107,456,470)	11,230,105	3,722,987
8. Miscellaneous Income:			
8.1 Income from fees associated with investment management, administration and contract guarantees from Separate Accounts	195,274,116	183,278,455	374,855,328
8.2 Charges and fees for deposit-type contracts			
8.3 Aggregate write-ins for miscellaneous income	289,461,677	305,988,356	916,084,043
9. Totals (Lines 1 to 8.3)	15,032,465,582	13,680,124,174	25,452,541,042
10. Death benefits	959,241,750	894,204,494	1,851,615,205
11. Matured endowments (excluding guaranteed annual pure endowments)	9,172,456	8,592,927	22,525,034
12. Annuity benefits	1,019,753,296	979,256,722	2,000,522,288
13. Disability benefits and benefits under accident and health contracts	181,126,917	188,116,817	369,700,752
14. Coupons, guaranteed annual pure endowments and similar benefits			
15. Surrender benefits and withdrawals for life contracts	8,074,963,149	7,854,597,146	15,411,684,915
16. Group conversions			
17. Interest and adjustments on contract or deposit-type contract funds	213,995,565	156,044,115	334,690,683
18. Payments on supplementary contracts with life contingencies	7,099,002	6,095,322	12,620,137
19. Increase in aggregate reserves for life and accident and health contracts	3,121,442,799	2,326,957,309	3,620,913,739
20. Totals (Lines 10 to 19)	13,586,794,934	12,413,864,852	23,624,272,753
21. Commissions on premiums, annuity considerations, and deposit-type contract funds (direct business only)	470,768,090	446,459,656	918,614,536
22. Commissions and expense allowances on reinsurance assumed	45,949,382	50,399,584	90,237,538
23. General insurance expenses	1,171,624,650	1,389,923,415	2,598,943,259
24. Insurance taxes, licenses and fees, excluding federal income taxes	133,166,551	121,218,131	244,513,863
25. Increase in loading on deferred and uncollected premiums	(27,881,837)	(11,922,752)	(2,756,358)
26. Net transfers to or (from) Separate Accounts net of reinsurance	(611,551,345)	(1,190,576,173)	(2,880,987,974)
27. Aggregate write-ins for deductions	(596,870,760)	(392,486,981)	(863,948,960)
28. Totals (Lines 20 to 27)	14,171,999,665	12,826,879,732	23,728,888,657
29. Net gain from operations before dividends to policyholders and federal income taxes (Line 9 minus Line 28)	860,465,917	853,244,442	1,723,652,385
30. Dividends to policyholders	750,792,123	760,534,077	1,569,130,529
31. Net gain from operations after dividends to policyholders and before federal income taxes (Line 29 minus Line 30)	109,673,794	92,710,365	154,521,856
32. Federal and foreign income taxes incurred (excluding tax on capital gains)	22,974,460	(127,469,714)	(319,605,799)
33. Net gain from operations after dividends to policyholders and federal income taxes and before realized capital gains or (losses) (Line 31 minus Line 32)	86,699,334	220,180,079	474,127,655
34. Net realized capital gains (losses) (excluding gains (losses) transferred to the IMR) less capital gains tax of \$ 29,780,549 (excluding taxes of \$ (10,156,738) transferred to the IMR)	(1,424,404,772)	(315,362,475)	(422,051,259)
35. Net income (Line 33 plus Line 34)	(1,337,705,438)	(95,182,396)	52,076,396
<b>CAPITAL AND SURPLUS ACCOUNT</b>			
36. Capital and surplus, December 31, prior year	15,705,216,653	15,423,489,956	15,423,489,956
37. Net income (Line 35)	(1,337,705,438)	(95,182,396)	52,076,396
38. Change in net unrealized capital gains (losses) less capital gains tax of \$ 204,088,787	287,088,460	(197,708,438)	367,766,370
39. Change in net unrealized foreign exchange capital gain (loss)	(308,625,513)	410,926,113	720,964,144
40. Change in net deferred income tax	299,426,563	2,439,356	(1,084,216,547)
41. Change in nonadmitted assets	(355,473,131)	(23,928,599)	124,348,002
42. Change in liability for reinsurance in unauthorized and certified companies	24,171		(204,479)
43. Change in reserve on account of change in valuation basis, (increase) or decrease			
44. Change in asset valuation reserve	792,507,895	(136,275,254)	(29,061,218)
45. Change in treasury stock			
46. Surplus (contributed to) withdrawn from Separate Accounts during period	3,153	10,136,548	10,139,720
47. Other changes in surplus in Separate Accounts Statement		(11,136,701)	(10,139,720)
48. Change in surplus notes	234,462	35,453,985	35,696,688
49. Cumulative effect of changes in accounting principles			
50. Capital changes:			
50.1 Paid in			
50.2 Transferred from surplus (Stock Dividend)			
50.3 Transferred to surplus			
51. Surplus adjustment:			
51.1 Paid in			
51.2 Transferred to capital (Stock Dividend)			
51.3 Transferred from capital			
51.4 Change in surplus as a result of reinsurance			
52. Dividends to stockholders			
53. Aggregate write-ins for gains and losses in surplus	(54,656,074)	(18,572,547)	94,357,341
54. Net change in capital and surplus for the year (Lines 37 through 53)	(677,175,452)	(23,847,933)	281,726,697
55. Capital and surplus, as of statement date (Lines 36 + 54)	15,028,041,201	15,399,642,023	15,705,216,653
<b>DETAILS OF WRITE-INS</b>			
08.301. Management and administrative fees	143,762,025	153,105,726	620,758,034
08.302. Revenue sharing	63,651,994	72,390,699	140,801,634
08.303. Experience refunds on reinsurance contracts	60,057,337		1,123,013
08.398. Summary of remaining write-ins for Line 8.3 from overflow page	21,990,321	80,491,931	153,401,362
08.399. Totals (Lines 08.301 through 08.303 plus 08.398) (Line 8.3 above)	289,461,677	305,988,356	916,084,043
2701. Change in reserves due to reinsurance agreement	(709,328,382)	(393,600,425)	(886,570,313)
2702. Reinsurance ceded adjustment	(7,272,747)	(10,007,151)	(17,890,200)
2703. Market value adjustment transfer	(3,687,265)	(7,969,300)	(15,508,211)
2798. Summary of remaining write-ins for Line 27 from overflow page	123,417,634	19,089,895	56,019,764
2799. Totals (Lines 2701 through 2703 plus 2798)(Line 27 above)	(596,870,760)	(392,486,981)	(863,948,960)
5301. Other changes in surplus	(47,383,327)	(8,565,396)	51,702,967
5302. Reinsurance ceded adjustment	(7,272,747)	(10,007,151)	(17,890,200)
5303. Change in minimum pension liability			60,544,574
5398. Summary of remaining write-ins for Line 53 from overflow page			
5399. Totals (Lines 5301 through 5303 plus 5398)(Line 53 above)	(54,656,074)	(18,572,547)	94,357,341

## STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

**CASH FLOW**

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
<b>Cash from Operations</b>			
1. Premiums collected net of reinsurance .....	10,990,431,836	9,529,247,824	20,924,687,105
2. Net investment income .....	2,856,438,992	3,084,148,883	6,542,348,803
3. Miscellaneous income .....	405,497,296	456,631,218	1,269,034,050
4. Total (Lines 1 to 3) .....	14,252,368,124	13,070,027,925	28,736,069,958
5. Benefit and loss related payments .....	10,444,347,363	10,071,884,956	19,718,437,173
6. Net transfers to Separate Accounts, Segregated Accounts and Protected Cell Accounts .....	(692,445,453)	(1,861,783,831)	(3,510,470,791)
7. Commissions, expenses paid and aggregate write-ins for deductions .....	1,215,162,472	1,587,448,148	2,636,613,112
8. Dividends paid to policyholders .....	740,648,546	724,618,689	1,576,933,507
9. Federal and foreign income taxes paid (recovered) net of \$ ..... (31,738,763) tax on capital gains (losses) .....	(233,059,480)	107,180,367	2,936,449
10. Total (Lines 5 through 9) .....	11,474,653,448	10,629,348,329	20,424,449,450
11. Net cash from operations (Line 4 minus Line 10) .....	2,777,714,676	2,440,679,596	8,311,620,508
<b>Cash from Investments</b>			
12. Proceeds from investments sold, matured or repaid:			
12.1 Bonds .....	9,894,634,888	11,554,365,885	19,836,499,683
12.2 Stocks .....	1,208,723,986	427,096,162	861,618,650
12.3 Mortgage loans .....	1,199,370,456	1,067,467,235	3,063,570,079
12.4 Real estate .....	273,427,314	109,344,565	225,545,341
12.5 Other invested assets .....	1,251,721,813	586,622,467	1,971,529,593
12.6 Net gains or (losses) on cash, cash equivalents and short-term investments .....	1,746,932	6,392,181	34,823,446
12.7 Miscellaneous proceeds .....	(511,052,593)	(333,587,901)	(253,407,031)
12.8 Total investment proceeds (Lines 12.1 to 12.7) .....	13,318,572,796	13,417,700,594	25,740,179,761
13. Cost of investments acquired (long-term only):			
13.1 Bonds .....	12,835,073,522	14,723,611,602	24,909,025,693
13.2 Stocks .....	498,604,297	469,372,249	1,114,586,074
13.3 Mortgage loans .....	1,854,099,971	2,089,081,299	4,543,378,623
13.4 Real estate .....	(9,886,664)	97,457,462	267,252,878
13.5 Other invested assets .....	798,147,338	641,783,806	1,850,706,935
13.6 Miscellaneous applications .....	(445,257,667)	(57,793,192)	687,627,366
13.7 Total investments acquired (Lines 13.1 to 13.6) .....	15,530,780,797	17,963,513,226	33,372,577,569
14. Net increase (or decrease) in contract loans and premium notes .....	328,364,756	291,407,486	867,421,224
15. Net cash from investments (Line 12.8 minus Line 13.7 and Line 14) .....	(2,540,572,757)	(4,837,220,118)	(8,499,819,032)
<b>Cash from Financing and Miscellaneous Sources</b>			
16. Cash provided (applied):			
16.1 Surplus notes, capital notes .....		35,453,985	35,696,688
16.2 Capital and paid in surplus, less treasury stock .....			
16.3 Borrowed funds .....	39,912,708	(71,563)	(188,056)
16.4 Net deposits on deposit-type contracts and other insurance liabilities .....	606,661,567	668,332,727	1,359,595,314
16.5 Dividends to stockholders .....			
16.6 Other cash provided (applied) .....	161,485,042	(378,594,224)	(1,353,276,080)
17. Net cash from financing and miscellaneous sources (Line 16.1 through Line 16.4 minus Line 16.5 plus Line 16.6) .....	808,059,317	325,120,925	41,827,866
<b>RECONCILIATION OF CASH, CASH EQUIVALENTS AND SHORT-TERM INVESTMENTS</b>			
18. Net change in cash, cash equivalents and short-term investments (Line 11, plus Lines 15 and 17) .....	1,045,201,236	(2,071,419,597)	(146,370,658)
19. Cash, cash equivalents and short-term investments:			
19.1 Beginning of year .....	3,579,565,622	3,725,936,280	3,725,936,280
19.2 End of period (Line 18 plus Line 19.1) .....	4,624,766,858	1,654,516,683	3,579,565,622

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

20.0001. Bond conversions and refinancing .....	195,838,277	398,684,983	795,770,615
20.0002. Transfer of mortgage loan to other than invested assets .....	81,265,450		19,836,861
20.0003. Transfer of bonds to EM Opportunities LLC .....	72,854,677		
20.0004. Bank loan rollovers .....	56,885,606		
20.0005. Dividend declared from Insurance Road LLC .....	52,000,000		
20.0006. Stock conversions .....	29,809,048	2,774,147	330,787,631
20.0007. Change in market value of COLI .....	17,104,969	74,755,442	139,443,155
20.0008. Dividend reinvestment .....	4,909,373	286,843	8,689,847
20.0009. Net investment income payment in-kind bonds .....	2,292,627		3,011,624
20.0010. Net investment income payment in-kind stocks .....	460,873		

STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

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

20.0011. Return of capital .....	105,953		
20.0012. Bonds received as consideration for a group annuity contract .....		270,503,724	489,864,212
20.0013. Transfer of affiliated common stock .....		102,800,714	102,800,714
20.0014. Bond distributions from other invested assets .....		94,448,349	94,448,349
20.0015. Other invested assets to stock .....		179,934	
20.0016. Premium ceded under new reinsurance agreement .....			4,001,682,588
20.0017. Funds held under coinsurance .....			4,001,571,695
20.0018. Partnerships and LLCs contributed to Insurance Road LLC .....			743,411,455
20.0019. Premium recognized for a group annuity contract .....			489,864,212
20.0020. Partnerships and LLCs contributed to MassMutual Asset Finance LLC .....			350,249,750
20.0021. Transfer of real estate to other invested asstes .....			138,468,488
20.0022. Stock to bond .....			73,953,110
20.0023. Stock distributions from other invested assets .....			2,405,798

**EXHIBIT 1**

**DIRECT PREMIUMS AND DEPOSIT-TYPE CONTRACTS**

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
1. Industrial life .....			
2. Ordinary life insurance .....	3,350,560,040	3,109,529,564	6,913,917,419
3. Ordinary individual annuities .....	997,403,708	1,070,502,913	2,227,086,638
4. Credit life (group and individual) .....			
5. Group life insurance .....	393,849,766	592,107,433	1,442,551,013
6. Group annuities .....	5,509,749,095	4,251,815,706	9,760,022,176
7. A & H - group .....	153,434	39,293	228,844
8. A & H - credit (group and individual) .....			
9. A & H - other .....	372,021,750	360,526,846	729,532,195
10. Aggregate of all other lines of business .....			
11. Subtotal .....	10,623,737,793	9,384,521,755	21,073,338,285
12. Deposit-type contracts .....	2,166,371,340	2,850,763,509	5,073,709,810
13. Total	12,790,109,133	12,235,285,264	26,147,048,095
DETAILS OF WRITE-INS			
1001. ....			
1002. ....			
1003. ....			
1098. Summary of remaining write-ins for Line 10 from overflow page .....			
1099. Totals (Lines 1001 through 1003 plus 1098)(Line 10 above)			

## NOTES TO FINANCIAL STATEMENTS

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## NOTES TO FINANCIAL STATEMENTS

### Note 1 – Summary of Significant Accounting Policies and Going Concern

a. Accounting practices:

The accompanying financial statements of Massachusetts Mutual Life Insurance Company (the Company) have been prepared in conformity with the Statutory Accounting Practices (SAP) of the National Association of Insurance Commissioners (NAIC) and the accounting practices prescribed or permitted by the Commonwealth of Massachusetts Division of Insurance (the Division).

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

	SSAP #	F/S Page	F/S Line #	2018	2017
<b>NET INCOME</b>					
(1) State basis (Page 4, Line 35, Columns 1 & 3)	XXX	XXX	XXX	\$ (1,337,705,438)	\$ 52,076,396
(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>(1,337,705,438)</u>	\$ <u>52,076,396</u>
<b>SURPLUS</b>					
(5) State basis (Page 3, Line 38, Columns 1 & 2)	XXX	XXX	XXX	\$ 15,028,041,201	\$ 15,705,216,653
(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>15,028,041,201</u>	\$ <u>15,705,216,653</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 - No change

### Note 2 – Accounting Changes and Corrections of Errors

a. For the six months ended June 30, 2018, 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
Partnerships and limited liability companies	\$ -	\$ (58,641,016)	\$ (58,641,016)
Deferred income taxes	-	(36,021,141)	(36,021,141)
Policyholders' reserves	(40,521,324)	(40,521,324)	40,521,324
Policyholders' dividends	(3,397,000)	(3,397,000)	3,397,000
Total	<u>\$ (43,918,324)</u>	<u>\$ (138,580,481)</u>	

Of the \$138,580,481 decrease to surplus for prior years' errors, \$43,918,324 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 Statutory Statements of Changes in Surplus.

## NOTES TO FINANCIAL STATEMENTS

For the six months ended June 30, 2017, 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
Partnerships and limited liability companies	\$ -	\$ (1,477,867)	\$ (1,477,867)
Cash, cash equivalents and short-term investments	(8,909,401)	(8,909,401)	(8,909,401)
Other than invested assets	(958,378)	(958,378)	(958,378)
Policyholders' reserves	5,280,979	5,280,979	(5,280,979)
Total	<u>\$ (4,586,800)</u>	<u>\$ (6,064,667)</u>	

Of the \$6,064,667 decrease to surplus for prior years' errors, \$4,586,800 was recorded as prior period adjustments with an offset of \$1,477,867 that was recorded as a change in nonadmitted assets, net of tax in the Statutory Statements of Changes in Surplus.

b. Adoption of new accounting standards

In June 2016, the NAIC adopted substantive revisions to Statements of Statutory Accounting Principles (SSAP) No. 51R, Life Contracts, to incorporate references to the Valuation Manual (VM) 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 Company is currently assessing the impact of these modifications on the Company's financial statements.

In January 2017, the NAIC adopted modifications to SSAP No. 86, Derivatives, which were effective January 1, 2018. The modifications maintain gross reporting of derivative variation margin as a separate unit of account, rather than characterizing as a legal settlement with mark-to-market changes recorded in surplus. Regarding exchange traded futures, these modifications further clarified that variation margin and mark-to-market changes should be recorded in the same manner as all other derivative instruments. Starting in 2018, the Company records mark-to-market gains and losses from exchange traded futures as unrealized gains or losses instead of realized gains or losses and grosses up the derivatives and collateral line items on its financial statements. These modifications did not impact total surplus and did not have a material impact on the Company's financial statements.

In April 2017, the NAIC adopted modifications to SSAP No. 69, Statement of Cash Flows, to adopt ASU No. 2016-15, Classification of Certain Cash Receipts and Cash Payments, in its entirety, effective January 1, 2018 on a retrospective basis. In June 2017, the NAIC adopted additional modifications to SSAP No. 69 to incorporate portions of ASU No. 2016-18, Restricted Cash, effective December 31, 2019 with early adoption permitted. The initial modifications address the classification and disclosure of certain items within the statements of cash flows. Upon adoption, proceeds from the settlement of the Company's corporate owned life insurance policies were classified as investing activities instead of operating activities. Additionally, the Company elected to apply the nature of distribution approach to subsidiary, controlled or affiliated equity method investments and the cumulative earnings approach to all other equity method investments in determining whether distributions received from equity method investees are returns on investment, recorded as operating activities, or returns of investment, recorded as investing activities. Effective January 1, 2018, the Company early adopted on a retrospective basis, the second modification by adding restricted cash, cash equivalents and short-term investments to the existing statutory disclosure requirements in SSAP No.1, Accounting Policies, Risks & Uncertainties and Other Disclosures. Although the adoption of these modifications required reclassification between investing and operating cash flows, they did not have a material impact on the Company's financial statements.

In October 2017, the NAIC adopted revisions to SSAP No. 68, Business Combinations and Goodwill, to include information about impairment triggering events that previously existed in SSAP No. 90, Impairment or Disposal of Real Estate Investments, to ensure that the impairment process is discussed in its entirety within SSAP No. 68. Specifically the NAIC modified paragraph 8 of SSAP No. 68 to include information about impairment triggering events affecting long-lived assets which include; a) a significant decrease in its fair value, b) a significant adverse change in the extent or manner in which the asset is being utilized, c) a significant adverse change in legal factors or in the business climate that could potentially affect its value, d) an accumulation of costs that significantly exceed the amount originally anticipated for acquisition or construction, e) a current period operating or cash flow loss combined with a history of operating or cash flow losses, or a projection or forecast demonstrating continuous loss associated with its use, and f) a current expectation that, more likely than not, the asset will be sold or disposed of before the end of its estimated useful life. The Company's financial statements will not be impacted by the incorporation of information relating to impairment triggering events of long-lived assets. The Company continues to assess goodwill impairment in accordance with the revisions to SSAP No. 68.

In November 2017, the NAIC adopted modifications to SSAP No. 100R, Fair Value, allowing NAV per share as a practical expedient to fair value, either when specifically named in a SSAP or when the investee qualifies as an investment company, which were effective January 1, 2018. These modifications adopted, with modification, applicable U.S. GAAP, allowing greater consistency with Financial Accounting Standards Board's allowable use of NAV. These modifications also included the U.S. GAAP requirement to report instruments measured at NAV as a practical expedient outside of the fair value hierarchy disclosure as a separate item, along with a description of the terms and conditions of redemption features, amounts of unfunded commitments, restrictions to sell, and various other items. As a result of these modifications, the NAIC issued SSAP No. 100R, Fair Value. The adoption of these modifications did not have an impact on the Company's financial statements.

In February 2018, the NAIC adopted modifications to SSAP No. 9, Subsequent Events, and SSAP No. 101, Income Taxes, to temporarily allow any revised tax calculations resulting from the Tax Cuts and Job Act that occurred after statutory filing, to be classified as changes in estimate, thus avoiding classification as Type 1 subsequent events. Under SSAP No. 9, reporting entities are generally required to amend their filed statutory financial statements in their domestic state to ensure that the statutory financial statements and the audited financial statements are consistent if a Type 1 event is identified after the statutory financial statements are filed, but before the audited financial statements are issued. The adoption of this modification did not impact the Company's financial statements.

In February 2018, the NAIC adopted modifications to SSAP No. 92, Pensions, and SSAP No. 102, Postretirement Benefits Other Than Pension, to eliminate the reconciliation of level 3 pension plan assets from the Company's financial statement disclosures, which were effective March 24, 2018. This guidance further clarifies that detailed information regarding the reconciliation of the level 3 fair value categories of these assets is no longer required for statutory reporting purposes as the plan assets are not reported in the balance sheet of insurance entities. The Company has adopted these modifications.

**Note 3 – Business Combinations and Goodwill** - No change

## **NOTES TO FINANCIAL STATEMENTS**

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**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

## NOTES TO FINANCIAL STATEMENTS

## 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 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		645,690	-	157,509	488,181	
c. Total first quarter	<u>\$</u>	<u>645,690</u>	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>488,181</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		634,235	-	355,014	279,221	
f. Total second quarter	<u>\$</u>	<u>634,235</u>	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>279,221</u>

## OTTI recognized in the third quarter

g. Intent to sell	\$	-	\$	-	\$	-
h. Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis		-	-	-	-	
i. Total third quarter	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>-</u>

## OTTI recognized in the fourth quarter

j. Intent to sell	\$	-	\$	-	\$	-
k. Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis		-	-	-	-	
l. Total fourth quarter	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>-</u>

## m. Annual aggregate total

<u>\$</u>	<u>-</u>	<u>\$</u>	<u>512,523</u>
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All impairments were taken due to present value of cash flows expected to be collected being less than the amortized cost basis.

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

CUSIP	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value at Time of OTTI	Date of Financial Instrument Where Reported
07386HEN7	\$ 43,711	\$ 2,334	\$ (41,377)	\$ 2,334	\$ 1,609	March 31, 2018
79548KXQ6	520,764	476,293	(44,471)	476,293	365,994	March 31, 2018
45660NZY4	81,215	9,554	(71,661)	9,554	80,891	March 31, 2018
59020UW43	337,732	271,686	(66,046)	271,686	354,508	June 30, 2018
76110H4M8	6,848	1,969	(4,879)	1,969	1,713	June 30, 2018
863579DV7	289,655	5,567	(284,089)	5,567	30,531	June 30, 2018
Totals	<u>\$ 1,279,925</u>	<u>\$ 767,403</u>	<u>\$ (512,523)</u>	<u>\$ 767,403</u>	<u>\$ 835,246</u>	

(4) As of June 30, 2018, 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	\$	(67,206,731)
2. 12 months or longer	\$	(38,891,579)
b. The aggregate related fair value of securities with unrealized losses:		
1. Less than 12 months	\$	4,920,622,661
2. 12 months or longer	\$	909,462,949

(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.

## NOTES TO FINANCIAL STATEMENTS

f. Repurchase Agreements Transactions Accounted for as Secured Borrowing:

- (1) The Company has entered into repurchase agreements whereby the Company sells securities and simultaneously agrees to repurchase the same or substantially the same securities. These repurchase agreements are accounted for as collateralized borrowings with the proceeds from the sale of the securities recorded as a liability and the underlying securities continue to be recorded as an investment by the Company. Earnings on these investments are recorded as investment income and the difference between the proceeds and the amount at which the securities will be subsequently reacquired is amortized as interest expense. Repurchase agreements are used as a tool for overall portfolio management to help ensure the Company maintains adequate assets in order to provide yield, spread and duration to support liabilities and other corporate needs.

The Company provides collateral, as dictated by the repurchase agreements, to the counterparty in exchange for a loan. If the fair value of the securities sold becomes less than the loan, the counterparty may require additional collateral.

The carrying value, which is at cost, reported in the Company's assets for repurchase agreements approximates the fair value.

(2) Type of Repo Trades Used

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

(3) Original (Flow) & Residual Maturity

	FIRST QUARTER				SECOND QUARTER			
	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	\$ -	\$ 1,121,882,350	\$ 320,537,814	\$ -	\$ -	\$ -	\$ -	\$ -
e. > 1 Month to 3 Months	\$ 94,828,125	\$ 2,105,640,126	\$ 964,706,241	\$ 1,496,137,626	\$ 1,007,169,375	\$ 2,119,566,600	\$ 1,563,633,781	\$ 1,007,169,375
f. > 3 Months to 1 Year	\$ 1,741,826,405	\$ 4,108,773,155	\$ 2,864,718,629	\$ 2,604,256,939	\$ 1,971,923,013	\$ 3,087,912,301	\$ 2,536,512,794	\$ 3,087,912,301
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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
e. > 1 Month to 3 Months	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
f. > 3 Months to 1 Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
g. > 1 Year	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

(4) The company did not have any repurchase agreements where securities sold and/or acquired resulted in default as of March 31, 2018.

(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	\$ 4,100,394,564	XXX	XXX	XXX	\$ 4,095,081,676
b. Nonadmitted - Subset of BACV	XXX	XXX	XXX	\$ -	XXX	XXX	XXX	\$ -
c. Fair Value	\$ 4,100,394,564	\$ 4,203,824,405	\$ 4,149,962,685	\$ 4,100,394,564	\$ 4,090,299,176	\$ 4,113,037,064	\$ 4,100,146,575	\$ 4,095,081,676

	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	\$ -	XXX	XXX	XXX	\$ -
b. Nonadmitted - Subset of BACV	XXX	XXX	XXX	\$ -	XXX	XXX	XXX	\$ -
c. Fair Value	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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

## NOTES TO FINANCIAL STATEMENTS

## ENDING BALANCE

	1	2	3	4	5	6	7	8
	NONE	NAIC 1	NAIC 2	NAIC 3	NAIC 4	NAIC 5	NAIC 6	NON-ADMITTED
a. Bonds - BACV	\$ -	\$ 4,095,081,676	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
b. Bonds - FV	-	4,095,081,676	-	-	-	-	-	-
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	\$ -	\$ 4,095,081,676	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
q. Total Assets - FV	\$ -	\$ 4,095,081,676	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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	2	3	4	5	6	7	8
	MINIMUM	MAXIMUM	AVERAGE DAILY BALANCE	ENDING BALANCE	MINIMUM	MAXIMUM	AVERAGE DAILY BALANCE	ENDING BALANCE
a. Cash	\$ 624,582	\$ 10,857,033	\$ 6,430,230	\$ 10,295,552	\$ 388,552	\$ 2,390,171	\$ 1,255,946	\$ 503,580
b. Securities (FV)	\$ 3,778,390,472	\$ 4,206,605,166	\$ 4,126,411,115	\$ 4,108,428,154	\$ 4,096,770,136	\$ 4,125,503,202	\$ 4,109,336,506	\$ 4,103,040,109

	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	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
b. Securities (FV)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

## (8) Cash &amp; 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	\$ 503,580	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
b. Bonds - FV	-	4,103,040,109	-	-	-	-	-	-
c. LB & SS - FV	-	-	-	-	-	-	-	-
d. Preferred Stock - FV	-	-	-	-	-	-	-	-
e. Common Stock	-	-	-	-	-	-	-	-
f. Mortgage Loans - FV	-	-	-	-	-	-	-	-
g. Real Estate - FV	-	-	-	-	-	-	-	-
h. Derivatives - FV	-	-	-	-	-	-	-	-
i. Other Invested Assets - FV	-	-	-	-	-	-	-	-
j. Total Collateral Assets - FV (Sum of a through i)	\$ 503,580	\$ 4,103,040,109	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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

	FAIR VALUE
a. Overnight and Continuous	\$ -
b. 30 Days or Less	\$ 1,287,116,450
c. 31 to 90 Days	\$ 2,807,965,226
d. > 90 Days	\$ -

## (10) The company did not have any repurchase agreements where cash collateral received was reinvested as of March 31, 2018.

## (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)	\$ 624,582	\$ 10,857,033	\$ 6,430,230	\$ 10,295,552	\$ 388,552	\$ 2,390,171	\$ 1,255,946	\$ 503,580
b. Securities Collateral (FV)	\$ 3,778,390,472	\$ 4,206,605,166	\$ 4,126,411,115	\$ 4,108,428,154	\$ 4,096,770,136	\$ 4,125,503,202	\$ 4,109,336,506	\$ 4,103,040,109

	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)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
b. Securities Collateral (FV)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

## g. Reverse Repurchase Agreements Transactions Accounted for as Secured Borrowing: The Company did not have any reverse

## NOTES TO FINANCIAL STATEMENTS

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" (SSAP No. 26). Structured notes are different than the asset backed structured securities, which are accounted for under SSAP No. 43R, "Revised - Loan-Backed and Structured Securities" (SSAP No. 43R), 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 structured note is a mortgage-referenced security. The following sets forth the actual cost, fair value and carrying value of structured notes as of June 30, 2018:

CUSIP Identification	Actual Cost	Fair Value	Book / Adjusted Carrying Value	Mortgage-Referenced Security (YES/NO)
391164AF7	8,467,560	7,990,811	8,303,562	NO
P7794GAH5	1,262,834	1,266,988	1,271,637	NO
912810FR4	4,944,283	6,219,402	4,857,956	NO
912810PS1	1,874,118	2,684,944	1,887,363	NO
912810RF7	67,974,258	84,001,422	68,214,487	NO
059514AC3	9,327,385	9,695,985	9,354,659	NO
M8S175AA6	937,950	1,107,000	996,708	NO
<b>Total</b>	<b>\$ 94,788,388</b>	<b>\$ 112,966,552</b>	<b>\$ 94,886,372</b>	<b>XXX</b>

- p. 5\* Securities

Investment	Number of 5* Securities		Aggregate BACV		Aggregate Fair Value	
	Current Year	Prior Year	Current Year	Prior Year	Current Year	Prior Year
(1) Bonds - AC	41	26	\$367,593,204	\$231,812,447	\$366,815,723	\$231,193,912
(2) LB&SS - AC	-	-	-	-	-	-
(3) Preferred Stock - AC	3	3	14,600,150	14,600,149	18,272,525	17,316,290
(4) Preferred Stock - FV	-	-	-	-	-	-
(5) Total (1+2+3+4)	44	29	\$382,193,354	\$246,412,596	\$385,088,248	\$248,510,202

AC - Amortized Cost FV - Fair Value

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

- r. Prepayment Penalty and Acceleration Fees

	Six Months Ended June 30, 2018		
	General Account	Separate Account	
1. Number of CUSIPS	59	12	
2. Aggregate Amount of Investment Income	\$ 23,150,823	\$ 1,731,615	

**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**

## NOTES TO FINANCIAL STATEMENTS

a-c. MMHLLC declared \$XXX million in dividends six months ended June 30, 2018 and \$XXX million six months ended June 30, 2017.

In August 2017, MMI entered into an agreement to sell MassMutual Asia Limited (MM Asia) to Yunfeng Financial Group (Yunfeng FG). The sale is expected to close in 2018, subject to regulatory approval and customary closing conditions. Under the terms of the agreement, MMI will receive cash of \$XXX billion and Yunfeng FG shares valued at approximately \$XXX million as of June 30, 2018. On the transaction date, the agreement also requires MM Asia in order to meet this capital level.

In March, 2018, MMLIC and MMI entered into an agreement to sell 85.1% of MassMutual Life Insurance Company in Japan (MM Japan), a wholly-owned life insurance and wealth management subsidiary of MMI, to Nippon Life. MMI estimated the fair value of the retained portion of MM Japan based upon the agreed selling price of the sold portion of MM Japan with the buyer. The sale of MM Japan closed in May 2018. MMI received \$XXX million in cash proceeds from the sale.

The amount of the proceeds from the sale of MM Japan and anticipated proceeds from the sale of MM Asia is expected to be less than MMI's book value. As such, MMI's book value was reduced to an estimated fair value of \$XXX billion and an impairment of \$XXX billion was recorded in net realized capital gains (losses). The impairment reduced MassMutual's asset valuation reserve by \$XXX million, resulting in approximately a \$XXX million net decrease to surplus, net of a tax benefit of \$XXX million. Any additional gain or loss on disposal will be realized when the MM Asia sales is finalized.

MassMutual contributed additional capital of \$XXX million to MMHLLC during the six months ended June 30, 2018 and \$XXX million during the six months ended June 30, 2017.

The Company contributed additional capital of \$194 million to MMI through the six months ended June 30, 2018 and made no contributions through the six months ended June 30, 2017. During the six months ended June 30, 2018, the Company contributed additional capital of \$60,000,000 to MMI.

In June 2018, MassMutual received \$XXX million as a return of capital from MMI.

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 should 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

(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 \$946,458,121 as of June 30, 2018.

(2) FHLB Boston capital stock

a. Aggregate totals:

		June 30, 2018		
		1 Total 2+3	2 General Account	3 Separate Account
1.	Current Year:			
	(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	<u>\$ 73,700,000</u>	<u>\$ 73,700,000</u>	<u>\$ -</u>
	(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	<u>\$ 73,700,000</u>	<u>\$ 73,700,000</u>	<u>\$ -</u>
	(f) Actual or Estimated Borrowing Capacity as determined by the Insurer	\$ 2,000,000,000	\$ 2,000,000,000	\$ -

## NOTES TO FINANCIAL STATEMENTS

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

Membership Stock	Six Months Ended June 30, 2018					
	1 Current Year Total	2 Not Eligible for Redemption	Eligible for Redemption			
			3 Less Than 6 Months	4 6 Months to Less Than 1 Year	5 1 to Less Than 3 Years	6 3 to 5 Years
1. Class A	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2. Class B	25,000,000	25,000,000	-	-	-	-

## (3) Collateral pledged to FHLB:

## a. Amount pledged as of June 30, 2018:

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

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 1,540,574,577	\$ 1,166,492,927	\$ 1,053,541,879

## 2. Current year general account:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 1,540,574,577	\$ 1,166,492,927	\$ 1,053,541,879

## 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	\$ 1,550,269,200	\$ 1,166,181,238	\$ 1,053,569,379

## b. Maximum amount pledged for the six months ended June 30, 2018:

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

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 1,582,909,750	\$ 1,184,930,400	\$ 1,057,180,425

## 2. Current year general account:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 1,582,909,750	\$ 1,184,930,400	\$ 1,057,180,425

## 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	\$ 1,680,502,867	\$ 1,260,781,053	\$ 1,107,520,273

## NOTES TO FINANCIAL STATEMENTS

## (4) Borrowing from FHLB:

## a. Amount:

## 1. Current year:

	June 30, 2018			
	1 Total 2+3	2 General Account	3 Separate Account	4 Funding Agreements Reserves Established
(a) Debt	\$ -	\$ -	\$ -	\$ -
(b) Funding agreements	1,053,541,879	1,053,541,879	-	1,053,541,879
(c) Other	-	-	-	-
(d) Aggregate total	<u>\$ 1,053,541,879</u>	<u>\$ 1,053,541,879</u>	<u>\$ -</u>	<u>\$ 1,053,541,879</u>

## 2. Prior Year-end:

	December 31, 2017			
	1 Total 2+3	2 General Account	3 Separate Account	4 Funding Agreements Reserves Established
(a) Debt	\$ -	\$ -	\$ -	\$ -
(b) Funding agreements	1,053,569,379	1,053,569,379	-	1,053,569,379
(c) Other	-	-	-	-
(d) Aggregate total	<u>\$ 1,053,569,379</u>	<u>\$ 1,053,569,379</u>	<u>\$ -</u>	<u>\$ 1,053,569,379</u>

## b. Maximum Amount:

	Six Months Ended June 30, 2018		
	1 Total 2+3	2 General Account	3 Separate Account
1. Debt	\$ -	\$ -	\$ -
2. Funding	1,057,180,425	1,057,180,425	-
3. Other	-	-	-
4. Aggregate	<u>\$ 1,057,180,425</u>	<u>\$ 1,057,180,425</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 of unconsolidated subsidiaries, agents, general agents and retirees who meet plan eligibility requirements.

(2-3) No change

	Six Months Ended June 30,					
	2018	2017	2018		2017	
	Pension Benefits		Postretirement Benefits		Special or Contractual Benefits per SSAP No 11	
(4) Components of net periodic benefit cost						
a. Service cost	\$ 56,383,950	\$ 62,974,535	\$ 6,350,000	\$ 6,100,000	\$ -	\$ -
b. Interest cost	53,806,753	56,158,831	5,850,000	6,350,000	-	-
c. Expected return on plan assets	(85,754,200)	(73,714,751)	(50,000)	(50,000)	-	-
d. Transition asset or obligation	-	-	-	-	-	-
e. Gains and losses	27,398,535	32,599,023	1,150,000	900,000	-	-
f. Prior service cost or (credit)	1,561,342	1,561,342	(2,750,000)	(2,750,000)	-	-
g. Gain or loss recognized due to a settlement or curtailment	-	-	-	-	-	-
h. Total net periodic benefit cost	<u>\$ 53,396,380</u>	<u>\$ 79,578,980</u>	<u>\$ 10,550,000</u>	<u>\$ 10,550,000</u>	<u>\$ -</u>	<u>\$ -</u>

## NOTES TO FINANCIAL STATEMENTS

(5-21) No change

b-i No change

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

(1-3) No change

(4) The Company recorded dividends, recorded in net investment income, from MMHLLC of \$250,000,000 through the six months ended June 30, 2018 and \$403,220,611 through the six months ended June 30, 2017.

(5-13) No change

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

a. Contingent commitments - No change

b. Assessments - No change

c. Gain contingencies - No change

d. Claims related to extra contractual obligations - No change

e. Joint and several liabilities - No change

f. All other contingencies:

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

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

### **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 2018 or 2017.

(3) No change

(4) The Company did not have interests that continue to be held by a transferor in securitized financial assets in 2018 or 2017.

(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 through the six months ended June 30, 2018 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:

	June 30, 2018			Net Asset Value	
	Level 1	Level 2	Level 3	(NAV)	Total
<b>Financial assets:</b>					
<b>Bonds:</b>					
Industrial and miscellaneous	-	60,738,611	43,026,352	-	103,764,963
Parent, subsidiaries and affiliates	-	43,475,005	58,874,633	-	102,349,638
Preferred stocks	-	-	1,381,219	-	1,381,219
Common stock - subsidiaries and affiliates	348,452,212	-	112,665,213	-	461,117,425
Common stock - unaffiliated	750,682,081	732,403	305,745,608	-	1,057,160,092
<b>Derivatives:</b>					
Interest rate swaps	-	7,113,589,853	-	-	7,113,589,853
Options	-	819,084,493	-	-	819,084,493
Currency swaps	-	499,391,872	-	-	499,391,872
Forward contracts	-	194,351,420	-	-	194,351,420
Credit default swaps	-	8,393	-	-	8,393
Interest rate caps and floors	-	7,761,690	-	-	7,761,690
Financial futures	-	146,768,761	-	-	146,768,761
Separate account assets	45,792,476,754	23,227,113,604	563,870,610	-	69,583,460,968
Total financial assets carried at fair value/NAV	\$ 46,891,611,048	\$ 32,113,016,105	\$ 1,085,563,635	\$ -	\$ 80,090,190,788
Interest rate swaps	\$ -	\$ 4,736,544,399	\$ -	\$ -	\$ 4,736,544,399
Options	-	3,254,501	-	-	3,254,501
Currency swaps	-	455,081,281	-	-	455,081,281
Forward contracts	-	15,718,283	-	-	15,718,283
Credit default swaps	-	159,748	-	-	159,748
Financial futures	-	5,230,146	-	-	5,230,146
Total financial liabilities carried at fair value	\$ -	\$ 5,215,988,358	\$ -	\$ -	\$ 5,215,988,358

The Company reviews the fair value hierarchy classifications each reporting period. Changes in the observability of the valuation attributes and the level of market activity may result in a reclassification of certain financial assets or liabilities between fair value hierarchy classifications. Such reclassifications are reported as transfers between levels at the beginning fair value for the reporting period in which the changes occur. For the period ended June 30, 2018, there were no significant

## NOTES TO FINANCIAL STATEMENTS

transfers between Level 1 and Level 2 and the Company does not have any financial instruments that were carried at NAV as a practical expedient.

	December 31, 2017				
	Level 1	Level 2	Level 3	Net Asset Value (NAV)	Total
<b>Financial assets:</b>					
<b>Bonds:</b>					
Special revenue	\$ -	\$ 5,949,787	\$ -	\$ -	\$ 5,949,787
Industrial and miscellaneous	-	10,743,493	55,266,237	-	66,009,730
Parent, subsidiaries and affiliates	-	17,535,946	60,662,659	-	78,198,605
Preferred stocks	2,635,664	-	1,510,480	-	4,146,144
Common stock - subsidiaries and affiliates	344,139,041	-	109,665,674	-	453,804,715
Common stock - unaffiliated	901,122,199	-	310,576,050	-	1,211,698,249
<b>Derivatives:</b>					
Interest rate swaps	-	7,684,332,071	-	-	7,684,332,071
Options	-	744,440,948	-	-	744,440,948
Currency swaps	-	385,416,622	1,255,252	-	386,671,874
Forward contracts	-	13,178,525	-	-	13,178,525
Credit default swaps	-	481,454	-	-	481,454
Separate account assets	46,005,788,808	22,446,976,398	709,516,352	-	69,162,281,558
Total financial assets carried at fair value/NAV	\$ 47,253,685,712	\$ 31,309,055,244	\$ 1,248,452,704	\$ -	\$ 79,811,193,660
<b>Financial liabilities:</b>					
<b>Derivatives:</b>					
Interest rate swaps	\$ -	\$ 5,314,810,301	\$ 193,806	\$ -	\$ 5,315,004,107
Options	-	6,319,708	-	-	6,319,708
Currency swaps	-	560,167,926	8,432,028	-	568,599,954
Forward contracts	-	88,671,592	-	-	88,671,592
Credit default swaps	-	251,192	-	-	251,192
Total financial liabilities carried at fair value	\$ -	\$ 5,970,220,719	\$ 8,625,834	\$ -	\$ 5,978,846,553

For the year ended December 31, 2017, \$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:

## NOTES TO FINANCIAL STATEMENTS

	Balance	Transfers <sup>(1)</sup>		Gains	Gains	Purchases	Issuances	Sales	Settlements	Balance
	as of 01/01/2018	In	Out	(Losses) in Net Income	(Losses) in Surplus					as of 6/30/2018
Financial assets:										
Bonds:										
Industrial and miscellaneous	\$ 55,266,237	\$ -	\$ (3,633,695)	\$ (1,483,876)	\$ (4,787,776)	\$ 2,135,244	\$ 1,309,086	\$ -	\$ (5,778,868)	\$ 43,026,352
Parent, subsidiaries										
and affiliates	60,662,659	-	-	-	(1,788,026)	-	-	-	-	58,874,633
Preferred stock	1,510,480	-	-	-	(129,261)	-	-	-	-	1,381,219
Common stock - subsidiaries										
and affiliates	109,665,674	-	-	-	1,078,028	1,921,511	-	-	-	112,665,213
Common stock - unaffiliated	310,576,050	1	(44,932)	1,244,290	2,287,413	16,213,880	-	(30,000)	(24,501,094)	305,745,608
Derivatives:										
Currency swaps	1,255,252	-	(1,255,252)	-	-	-	-	-	-	-
Separate account assets	709,516,352	-	-	21,123,968	-	22,404,023	-	(189,061,604)	(112,129)	563,870,610
Total financial assets	\$ 1,248,452,704	\$ 1	\$ (4,933,879)	\$ 20,884,382	\$ (3,339,622)	\$ 42,674,658	\$ 1,309,086	\$ (189,091,604)	\$ (30,392,091)	\$ 1,085,563,635
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)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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

	Balance	Transfers <sup>(1)</sup>		Gains	Gains	Purchases	Issuances	Sales	Settlements	Balance
	as of 01/01/2017	In	Out	(Losses) in Net Income	(Losses) in Surplus					as of 12/31/2017
Financial assets:										
Bonds:										
Industrial and miscellaneous	\$ 56,833,539	\$ 12,571,531	\$ (8,096,010)	\$ 684,574	\$ (2,546,245)	\$ 14,384	\$ 67,649	\$ -	\$ (4,263,185)	\$ 55,266,237
Parent, subsidiaries, and affiliates	51,963,109	-	-	-	8,699,550	-	-	-	-	60,662,659
Preferred Stock	2,734,341	-	(1,798,373)	-	(57,988)	632,500	-	-	-	1,510,480
Common stock - subsidiaries										
and affiliates	63,196,191	-	(956,129)	9,563	13,230,098	-	45,517,058	(318,912)	(11,012,195)	109,665,674
Common stock - unaffiliated	188,576,330	76,437,829	(5,838,443)	(5,959,511)	29,469,544	38,162,139	288,144	(7,700,000)	(2,859,982)	310,576,050
Derivatives:										
Currency swaps	-	6,109,957	-	(4,854,705)	-	-	-	-	-	1,255,252
Separate account assets	737,948,300	-	(5,069,821)	55,437,401	-	72,084,571	-	(149,919,175)	(964,924)	709,516,352
Total financial assets	\$ 1,101,251,810	\$ 95,119,317	\$ (21,758,776)	\$ 45,317,322	\$ 48,794,959	\$ 110,893,594	\$ 45,872,851	\$ (157,938,087)	\$ (19,100,286)	\$ 1,248,452,704
Financial liabilities:										
Derivatives:										
Interest rate swaps	\$ -	\$ -	\$ -	\$ -	\$ 193,806	\$ -	\$ -	\$ -	\$ -	\$ 193,806
Currency swaps	-	3,884,788	-	-	4,547,240	-	-	-	-	8,432,028
Total financial liabilities	\$ -	\$ 3,884,788	\$ -	\$ -	\$ 4,741,046	\$ -	\$ -	\$ -	\$ -	\$ 8,625,834

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

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

(4) *Valuation Techniques and Inputs*

The Company determines the fair value of its investments using primarily the market approach or the income approach. The use of quoted prices for identical assets and matrix pricing or other similar techniques are examples of market approaches, while the 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

## NOTES TO FINANCIAL STATEMENTS

derived from, or corroborated by, market observable data including market yield curve, duration, call provisions, observable prices and spreads for similar publicly traded or privately traded issuances that incorporate the credit quality and industry sector of the issuer. This level also includes securities priced by independent pricing services that use observable inputs. Valuations based on matrix pricing or other similar techniques that utilize significant unobservable inputs or inputs that cannot be derived principally from, or corroborated by, observable market data, including adjustments for illiquidity, delta spread adjustments or spreads to reflect industry trends or specific credit-related issues are classified as Level 3. In addition, inputs including quoted prices for identical or similar securities that are less liquid and based on lower levels of trading activity than securities classified in Level 2 are classified as Level 3.

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

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

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

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

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

## NOTES TO FINANCIAL STATEMENTS

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

	June 30, 2018					Net Asset Value (NAV)	Not Practicable (Carrying Value)
	Aggregate	Admitted					
	Fair Value	Assets	Level 1	Level 2	Level 3		
Financial assets:							
Bonds:							
U. S. government and agencies	\$ 6,674,663,233	\$ 6,326,109,260	-	\$ 6,674,041,437	\$ 621,796	-	-
All other governments	1,290,637,044	1,291,482,630	-	1,223,514,618	67,122,426	-	-
States, territories and possessions	644,293,414	604,712,894	-	644,293,414	-	-	-
Political subdivisions	558,992,944	532,205,029	-	558,992,944	-	-	-
Special revenue	6,412,387,778	5,911,440,038	-	6,402,689,838	9,697,940	-	-
Industrial and miscellaneous	72,387,565,740	72,031,479,419	-	40,984,227,837	31,403,337,903	-	-
Parent, subsidiaries and affiliates	6,328,150,833	6,337,945,333	-	963,067,562	5,365,083,271	-	-
Preferred stocks	737,635,880	742,605,325	12,154,451	-	725,481,429	-	-
Common stocks - subsidiaries and affiliates <sup>(1)</sup>	461,117,425	461,117,425	348,452,212	-	112,665,213	-	-
Common stocks - unaffiliated	1,057,160,092	1,057,160,092	750,682,081	732,403	305,745,608	-	-
Mortgage loans - commercial	21,662,298,704	21,469,127,694	-	-	21,662,298,704	-	-
Mortgage loans - residential	1,575,688,225	1,644,764,757	-	-	1,575,688,225	-	-
Cash, cash equivalents and short-term investments	4,624,766,858	4,624,766,858	43,625,619	4,581,141,239	-	-	-
Derivatives:							
Interest rate swaps	7,347,732,732	7,113,589,853	-	7,347,732,732	-	-	-
Options	819,084,493	819,084,493	-	819,084,493	-	-	-
Currency swaps	499,391,872	499,391,872	-	499,391,872	-	-	-
Forward contracts	194,351,420	194,351,420	-	194,351,420	-	-	-
Credit default swaps	38,226,450	42,849,480	-	38,226,450	-	-	-
Financial futures	146,768,761	146,768,761	-	146,768,761	-	-	-
Separate account assets	69,583,460,968	69,583,460,968	45,792,476,755	23,227,113,603	563,870,610	-	-
Financial liabilities:							
Repurchase agreements	4,095,081,676	4,095,081,676	-	4,095,081,676	-	-	-
Commercial paper	249,822,750	249,822,750	-	249,822,750	-	-	-
Guaranteed interest contracts	9,335,890,729	9,482,252,616	-	-	9,335,890,729	-	-
Group annuity contracts and other deposits	17,797,381,035	17,775,828,435	-	-	17,797,381,035	-	-
Individual annuity contracts	7,817,389,811	6,482,215,760	-	-	7,817,389,811	-	-
Supplementary contracts	1,165,732,918	1,164,556,847	-	-	1,165,732,918	-	-
Derivatives:							
Interest rate swaps	5,021,003,673	4,736,544,399	-	5,021,003,673	-	-	-
Options	3,254,501	3,254,501	-	3,254,501	-	-	-
Currency swaps	455,081,281	455,081,281	-	455,081,281	-	-	-
Forward contracts	41,986,189	15,718,283	-	41,986,189	-	-	-
Credit default swaps	372,166	425,731	-	372,166	-	-	-
Financial futures	5,230,146	5,230,146	-	5,230,146	-	-	-

<sup>(1)</sup>Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had a statutory carrying value of \$11,978,034,178.

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December 31, 2017

	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	\$ 7,697,358,100	\$ 7,148,646,302	\$ -	\$ 7,696,140,916	\$ 1,217,184	\$ -	\$ -
All other governments	1,269,456,629	1,180,636,469	-	1,199,532,954	69,923,675	-	-
States, territories and possessions	650,787,369	595,739,067	-	650,787,369	-	-	-
Political subdivisions	576,491,812	531,896,852	-	576,491,812	-	-	-
Special revenue	6,517,741,346	5,813,925,043	-	6,507,057,309	10,684,037	-	-
Industrial and miscellaneous	71,341,958,072	68,140,550,670	-	41,332,593,290	30,009,364,782	-	-
Parent, subsidiaries and affiliates	7,133,043,119	7,023,370,215	-	1,074,523,550	6,058,519,569	-	-
Preferred stocks	786,017,714	767,807,089	35,764,970	-	750,252,744	-	-
Common stock - subsidiaries and affiliates <sup>(1)</sup>	453,804,715	453,804,715	344,139,041	-	109,665,674	-	-
Common stock - unaffiliated	1,211,698,249	1,211,698,249	901,122,199	-	310,576,050	-	-
Mortgage loans - commercial	21,300,839,874	20,776,516,041	-	-	21,300,839,874	-	-
Mortgage loans - residential	1,760,314,846	1,803,330,578	-	-	1,760,314,846	-	-
Cash, cash equivalents and short-term investments	3,579,565,622	3,579,565,622	218,304,101	3,361,261,521	-	-	-
Derivatives:							
Interest rate swaps	8,269,196,318	7,684,332,071	-	8,269,196,318	-	-	-
Options	744,440,948	744,440,948	-	744,440,948	-	-	-
Currency swaps	386,671,874	386,671,874	-	385,416,622	1,255,252	-	-
Forward contracts	22,365,809	13,178,525	-	22,365,809	-	-	-
Credit default swaps	35,727,719	28,657,163	-	35,727,719	-	-	-
Separate account assets	69,162,281,558	69,162,281,558	46,005,788,808	22,446,976,398	709,516,352	-	-
Financial liabilities:							
Repurchase agreements	4,203,824,405	4,203,824,405	-	4,203,824,405	-	-	-
Commercial paper	249,867,743	249,867,743	-	249,867,743	-	-	-
Guaranteed investment contracts	8,549,379,509	8,834,233,416	-	-	8,549,379,509	-	-
Group annuity contracts and other deposits	18,505,272,005	18,132,442,262	-	-	18,505,272,005	-	-
Individual annuity contracts	8,009,431,860	6,570,314,507	-	-	8,009,431,860	-	-
Supplementary contracts	1,167,981,644	1,166,805,456	-	-	1,167,981,644	-	-
Derivatives:							
Interest rate swaps	5,373,255,255	5,315,004,107	-	5,373,061,449	193,806	-	-
Options	6,319,708	6,319,708	-	6,319,708	-	-	-
Currency swaps	568,599,954	568,599,954	-	560,167,926	8,432,028	-	-
Forward contracts	88,806,435	88,671,592	-	88,806,435	-	-	-
Credit default swaps	414,480	663,996	-	414,480	-	-	-

<sup>(1)</sup>Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of \$13,969,762,575.

- d. As of June 30, 2018 and December 31, 2017, the Company had no investments where it was not practicable to estimate fair value.

### Note 21 – Other Items

- a. Unusual or infrequent items - No change
- b. Troubled debt restructuring - No change
- c. Other disclosures and unusual items:

Common stocks of unconsolidated subsidiaries, primarily MMHLLC and MassMutual International LLC (MMI), are accounted for using the statutory equity method. The Company accounts for the value of MMHLLC and MMI at its underlying U.S. generally accepted accounting principles (GAAP) equity value adjusted to remove certain nonadmitted and intangible assets. MMHLLC's value is also adjusted by a portion of its noncontrolling interests (NCI) and appropriated retained earnings, after consideration of MMHLLC's fair value and the Company's capital levels. The Division has affirmed the statutory recognition of the Company's application of the NCI guidelines in MMHLLC's statutory carrying value. However, the Company has limited this recognition to \$2,598,529,412 as of June 30, 2018 and \$2,703,014,763 as of December 31, 2017. Operating results, less dividends declared, for MMHLLC are reflected as net unrealized capital gains (losses) in the Statutory Statements of Changes in Surplus. Dividend distributions declared from MMHLLC are recorded in net investment income when declared and are limited to MMHLLC's U.S. GAAP retained earnings. The cost basis of common stocks – subsidiaries and affiliates is adjusted for impairments deemed to be other than temporary.

The Company evaluated the accounting for payout annuities and determined that the contracts did not contain significant mortality risk, and therefore, should have been classified as a deposit-type contract rather than policyholder reserves. As a result, approximately \$1.5 billion of policyholders' reserves were classified as liabilities for deposit-type contracts as of June 30, 2018. Additionally, the related impacts within the Company's Statements of Operations and the Statements of Cash Flows reflect this classification. There were no corresponding differences in valuation, and as a result, there were no impacts to surplus or net income.

### 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 2015 Annual Statement.

## NOTES TO FINANCIAL STATEMENTS

### Insurance and underwriting risks

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

### Investment and interest rate risks

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

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

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

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

### Currency exchange risk

The Company has currency risk due to its non-U.S. dollar investments and medium-term notes along with its indirect international operations. The Company mitigates 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 quality, 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.

Significant volatility in the financial markets, and government actions taken in response, may exacerbate some of the risks the Company faces. The Company holds investments in energy and certain other commodity sectors, which have experienced similar overall market volatility and declines. With the continued weaker economic outlook in these sectors, there may be an increase in reported default rates or potential downgrades to the ratings of companies exposed to these sectors. In addition, concerns over the solvency of certain countries and sovereignties and the entities that have significant exposure to their debt have created market volatility. This volatility may continue to affect the performance of various asset classes until there is an ultimate resolution of the sovereign debt related concerns.

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, such as the ongoing volatility with respect to the European Union, may 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 us 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:	June 30, 2018			Six Months Ended June 30, 2018
	Actual Cost	Carrying Value	Fair Value	OTTI
a. Residential mortgage-backed securities	\$ 243,655,628	\$ 278,405,604	\$ 329,517,424	\$ 512,522
b. Commercial mortgage-backed securities	-	-	-	-
c. Collateralized debt obligations	-	-	-	-
d. Structured securities	-	-	-	-
e. Equity investments in SCAs *	18,098,188	20,279,182	23,589,435	65,694
f. Other assets	-	-	-	-
g. Total	<u>\$ 261,753,816</u>	<u>\$ 298,684,786</u>	<u>\$ 353,106,859</u>	<u>\$ 578,216</u>

Alt-A:	December 31, 2017			Year Ended December 31, 2017
	Actual Cost	Carrying Value	Fair Value	OTTI
a. Residential mortgage-backed securities	\$ 269,619,940	\$ 298,759,915	\$ 362,060,389	\$ 48,142
b. Commercial mortgage-backed securities	-	-	-	-
c. Collateralized debt obligations	-	-	-	-
d. Structured securities	-	-	-	-
e. Equity investments in SCAs *	19,891,348	21,721,100	25,686,913	14,692
f. Other assets	-	-	-	-
g. Total	<u>\$ 289,511,288</u>	<u>\$ 320,481,015</u>	<u>\$ 387,747,302</u>	<u>\$ 62,834</u>

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

g. Retained asset accounts - No change

**Note 22 – Events Subsequent**

Management of the Company has evaluated subsequent events through August 13, 2018, the date the financial statements were available to be issued.

In July 2018, MassMutual contributed \$185 million of capital to Barings LLC, an indirectly wholly owned subsidiary.

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 - No change****Note 26 – Intercompany Pooling Arrangements - No change****Note 27 – Structured Settlements - No change****Note 28 – Health Care Receivables - No change****Note 29 – Participating Policies - No change****Note 30 – Premium Deficiency Reserves - No change****Note 31 – Reserves for Life Contracts and Annuity Contracts - No change****Note 32 – Analysis of Annuity Actuarial Reserves and Deposit Type Liabilities by Withdrawal Characteristics - No change****Note 33 – 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 ]
- 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 .....	Boston, MA .....				YES
HarbourView Asset Management Corporation .....	New York, NY .....				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
OC Private Capital, LLC .....	New York, NY .....				YES
OFI Advisors, Inc. ....	New York, NY .....				YES
OFI Global Asset Management, Inc. ....	New York, NY .....				YES
OFI Global Institutional, Inc. ....	New York, NY .....				YES
OFI Private Investments, Inc. ....	New York, NY .....				YES
OFI SteelPath, Inc. ....	Dallas, TX .....				YES
OppenheimerFunds Distributor, Inc. ....	New York, NY .....				YES
OppenheimerFunds Inc. ....	New York, NY .....				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: ..... \$ .....1,668,672,739
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<br>Prior Year-End<br>Book/Adjusted<br>Carrying Value | 2<br>Current Quarter<br>Book/Adjusted<br>Carrying Value |
|---|--|---|
| 14.21 Bonds .....   | \$ 7,024,093,120                                       | \$ 6,337,945,333  |
| 14.22 Preferred Stock .....   | \$ .....   | \$ .....  |
| 14.23 Common Stock .....  | \$ 14,002,443,719                                      | \$ 12,431,178,074                                       |
| 14.24 Short-Term Investments .....  | \$ .....   | \$ .....  |
| 14.25 Mortgage Loans on Real Estate .....   | \$ .....   | \$ .....  |
| 14.26 All Other .....   | \$ 4,536,580,572                                       | \$ 4,531,024,255  |
| 14.27 Total Investment in Parent, Subsidiaries and Affiliates (Subtotal Lines 14.21 to 14.26) ..... | \$ 25,563,117,411                                      | \$ 23,300,147,662                                       |
| 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.

STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company  
**GENERAL INTERROGATORIES**

16. For the reporting entity's security lending program, state the amount of the following as of the current statement date:
- 16.1 Total fair value of reinvested collateral assets reported on Schedule DL, Parts 1 and 2 ..... \$ .....
- 16.2 Total book adjusted/carrying value of reinvested collateral assets reported on Schedule DL, Parts 1 and 2 ..... \$ .....
- 16.3 Total payable for securities lending reported on the liability page ..... \$ .....

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.....
OFI Institutional Asset Management, Inc. ....	A.....
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 .....	OFI Institutional Asset Management, Inc. ....		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 06/30/2018, 80 issues for 51 issuers did not meet the filing requirements of the Purposes and Procedures Manual. The majority of these issues currently lack one or more of the following: Valid cusip/PPN, audited financials and/or executed legal documentation. Exceptions totaled \$516,179,132 or 0.48% of all assets.

19. By self-designating 5\*GI securities, the reporting entity is certifying the following elements for each self-designated 5\*GI security:
- a. Documentation necessary to permit a full credit analysis of the security does not exist.
- 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 5\*GI securities? ..... Yes [ X ] No [ ]

**GENERAL INTERROGATORIES**

**PART 2 - LIFE & HEALTH**

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 .....	\$ 1,659,589
1.12 Residential Mortgages .....	\$ 1,644,764,756
1.13 Commercial Mortgages .....	\$ 21,467,468,106
1.14 Total Mortgages in Good Standing .....	<u>\$ 23,113,892,451</u>
1.2 Long-Term Mortgages In Good Standing with Restructured Terms	
1.21 Total Mortgages in Good Standing with Restructured Terms .....	<u>\$</u>
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 .....	<u>\$</u>
1.4 Long-Term Mortgage Loans in Process of Foreclosure	
1.41 Farm Mortgages .....	\$
1.42 Residential Mortgages .....	\$
1.43 Commercial Mortgages .....	\$
1.44 Total Mortgages in Process of Foreclosure .....	\$
1.5 Total Mortgage Loans (Lines 1.14 + 1.21 + 1.34 + 1.44) (Page 2, Column 3, Lines 3.1 + 3.2) .....	<u>\$ 23,113,892,451</u>
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 .....	<u>\$</u>
2. Operating Percentages:	
2.1 A&H loss percent .....	54.186 %
2.2 A&H cost containment percent .....	1.000 %
2.3 A&H expense percent excluding cost containment expenses .....	34.993 %
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 [ ]

STATEMENT AS OF JUNE 30, 2018 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
86258	13-2572994	07/01/2018	General Re Life Corp. (GRN9)	CT	YRT/I	Authorized		
88340	59-2859797	07/01/2018	Hannover Life Reassurance (HAN9)	FL	YRT/I	Authorized		
66346	58-0828824	07/01/2018	Munich American Reassurance (MUN9)	GA	YRT/I	Authorized		
66346	58-0828824	04/15/2017	Munich American Reassurance (MUJ2)	GA	CO/I	Authorized		
66346	58-0828824	04/15/2017	Munich American Reassurance (MUJ5)	GA	CO/I	Authorized		
66346	58-0828824	05/01/2018	Munich American Reassurance (MUJ1)	GA	CO/I	Authorized		
66346	58-0828824	05/01/2018	Munich American Reassurance (MUJ2)	GA	CO/I	Authorized		
66346	58-0828824	05/01/2018	Munich American Reassurance (MUJ3)	GA	CO/I	Authorized		
66346	58-0828824	05/01/2018	Munich American Reassurance (MUJ4)	GA	CO/I	Authorized		
93572	43-1235868	12/31/2017	RGA Reinsurance Co. (GA17)	MO	YRT/G	Authorized		
93572	43-1235868	07/01/2018	RGA Reinsurance Co. (GAN9)	MO	YRT/I	Authorized		
64688	75-6020048	07/01/2018	SCOR Global Life Americas Reins Co (SCN9)	DE	YRT/I	Authorized		
97071	13-3126819	07/01/2018	SCOR Global Life USA Reins Co (GIN9)	DE	YRT/I	Authorized		
97071	13-3126819	01/01/2018	SCOR Global Life USA Reins Co (SUE0)	DE	YRT/G	Authorized		
97071	13-3126819	01/01/2018	SCOR Global Life USA Reins Co (SUE8)	DE	YRT/G	Authorized		
97071	13-3126819	04/15/2017	SCOR Global Life USA Reins Co (SUU3)	DE	YRT/I	Authorized		
97071	13-3126819	05/01/2018	SCOR Global Life USA Reins Co (SUV1)	DE	CO/I	Authorized		
97071	13-3126819	05/01/2018	SCOR Global Life USA Reins Co (SUV2)	DE	CO/I	Authorized		
97071	13-3126819	05/01/2018	SCOR Global Life USA Reins Co (SUV3)	DE	CO/I	Authorized		
97071	13-3126819	05/01/2018	SCOR Global Life USA Reins Co (SUV4)	DE	CO/I	Authorized		
82627	06-0839705	01/01/2018	Swiss Re Life & Health America (SRE0)	MO	YRT/G	Authorized		
82627	06-0839705	01/01/2018	Swiss Re Life & Health America (SRE8)	MO	YRT/G	Authorized		
82627	06-0839705	04/15/2017	Swiss Re Life & Health America (SRU2)	MO	CO/I	Authorized		
82627	06-0839705	04/15/2017	Swiss Re Life & Health America (SRU5)	MO	CO/I	Authorized		
82627	06-0839705	05/01/2018	Swiss Re Life & Health America (SRV1)	MO	CO/I	Authorized		
82627	06-0839705	05/01/2018	Swiss Re Life & Health America (SRV2)	MO	CO/I	Authorized		
82627	06-0839705	05/01/2018	Swiss Re Life & Health America (SRV3)	MO	CO/I	Authorized		
82627	06-0839705	05/01/2018	Swiss Re Life & Health America (SRV4)	MO	CO/I	Authorized		

STATEMENT AS OF JUNE 30, 2018 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			7	
		2	3	4	5	6		
	Active Status (a)	Life Insurance Premiums	Annuity Considerations	Accident and Health Insurance Premiums, Including Policy, Membership and Other Fees	Other Considerations	Total Columns 2 Through 5	Deposit-Type Contracts	
1. Alabama	AL	L	21,709,556	12,699,395	3,337,315	11,852,901	49,599,167	34,037,767
2. Alaska	AK	L	965,310	1,003,074	148,183	2,723,049	4,839,616	251,326
3. Arizona	AZ	L	28,665,857	43,166,159	5,067,839	11,833,568	88,733,423	25,118,286
4. Arkansas	AR	L	27,188,377	6,152,793	1,176,720	955,053	35,472,943	3,562,325
5. California	CA	L	306,972,014	284,498,841	30,361,350	316,511,259	938,343,464	230,369,465
6. Colorado	CO	L	45,397,820	17,632,581	5,470,706	4,042,973	72,544,080	24,634,871
7. Connecticut	CT	L	83,672,228	51,686,515	9,761,821	99,167,530	244,288,094	22,517,860
8. Delaware	DE	L	83,061,565	19,902,356	860,599	81,756,324	185,580,844	510,059,605
9. District of Columbia	DC	L	9,694,272	1,411,729	1,950,716	18,128,937	31,185,654	3,788,985
10. Florida	FL	L	205,523,934	120,796,543	15,699,726	202,449,041	544,469,244	142,246,185
11. Georgia	GA	L	89,576,390	42,605,677	11,903,945	74,436,614	218,522,626	24,959,853
12. Hawaii	HI	L	11,062,431	9,921,874	1,502,558	4,317,925	26,804,788	3,857,335
13. Idaho	ID	L	12,502,625	4,888,928	689,853	6,651,956	24,733,362	6,970,578
14. Illinois	IL	L	111,751,860	90,483,056	12,796,611	234,532,310	449,563,837	31,629,429
15. Indiana	IN	L	47,925,968	17,423,022	4,852,436	26,127,795	96,329,221	21,633,149
16. Iowa	IA	L	24,496,876	4,919,280	1,917,221	13,727,847	45,061,224	16,045,389
17. Kansas	KS	L	20,348,949	5,121,511	2,610,469	32,383,012	60,463,941	6,652,198
18. Kentucky	KY	L	13,046,726	9,256,220	2,596,698	10,038,756	34,938,400	31,614,449
19. Louisiana	LA	L	73,000,991	14,178,389	3,039,663	15,126,017	105,345,060	22,105,594
20. Maine	ME	L	8,068,046	10,364,055	1,303,045	17,773,132	37,508,278	3,910,616
21. Maryland	MD	L	59,873,424	21,895,617	13,965,072	67,346,135	163,080,248	32,488,455
22. Massachusetts	MA	L	93,080,022	215,190,081	16,475,765	453,211,101	777,956,969	20,684,105
23. Michigan	MI	L	55,434,386	134,123,595	7,154,367	108,116,751	304,829,099	37,095,711
24. Minnesota	MN	L	30,590,250	30,142,351	4,687,839	182,368,054	247,788,494	102,908,828
25. Mississippi	MS	L	44,880,862	12,370,057	5,180,076	476,087	62,907,082	8,692,969
26. Missouri	MO	L	32,960,781	25,671,996	5,503,037	58,342,729	122,478,543	19,035,179
27. Montana	MT	L	6,334,515	3,104,805	683,021	336,765	10,459,106	5,723,030
28. Nebraska	NE	L	22,191,294	7,214,289	2,872,562	150,194,868	182,473,013	6,976,930
29. Nevada	NV	L	15,550,160	12,021,161	1,720,069	30,272,544	59,563,934	4,099,132
30. New Hampshire	NH	L	14,518,014	28,056,627	2,272,667	588,050,531	632,897,839	3,737,277
31. New Jersey	NJ	L	198,049,708	99,716,232	20,043,037	225,789,283	543,598,260	91,690,158
32. New Mexico	NM	L	10,422,919	5,015,776	1,153,051	722,191	17,313,937	6,903,087
33. New York	NY	L	557,852,059	368,207,349	43,020,937	328,845,884	1,297,926,229	217,351,166
34. North Carolina	NC	L	72,604,495	42,071,588	15,246,758	69,597,349	199,520,190	48,978,847
35. North Dakota	ND	L	6,366,616	3,607,582	308,415	11,976,141	22,258,754	14,304,257
36. Ohio	OH	L	57,040,572	59,729,807	8,195,100	101,377,905	226,343,384	31,978,784
37. Oklahoma	OK	L	60,159,431	8,330,042	3,835,149	47,208,998	119,533,620	14,670,066
38. Oregon	OR	L	14,372,709	16,331,309	2,373,626	23,741,649	56,819,293	16,833,390
39. Pennsylvania	PA	L	132,328,485	72,100,136	20,252,671	184,696,863	409,378,155	15,479,411
40. Rhode Island	RI	L	15,224,371	10,911,369	1,591,797	20,114,993	47,842,530	6,702,386
41. South Carolina	SC	L	35,065,313	16,568,479	7,330,457	16,450,046	75,414,295	47,160,896
42. South Dakota	SD	L	3,814,026	1,425,492	331,667	573,288	6,144,473	1,926,257
43. Tennessee	TN	L	45,300,378	19,031,358	9,057,073	93,270,283	166,659,092	15,695,775
44. Texas	TX	L	192,549,279	71,787,886	23,859,556	103,337,183	391,533,904	139,626,568
45. Utah	UT	L	21,516,617	11,713,342	2,005,385	1,693,903	36,929,247	27,350,156
46. Vermont	VT	L	6,422,988	4,813,698	758,886	5,207,693	17,203,265	1,120,211
47. Virginia	VA	L	95,275,276	50,601,667	15,193,666	165,848,118	326,918,727	33,877,925
48. Washington	WA	L	33,812,788	17,237,688	5,494,609	29,285,404	85,830,489	4,140,955
49. West Virginia	WV	L	8,733,211	4,789,842	719,821	5,579,274	19,822,148	16,216,403
50. Wisconsin	WI	L	24,921,912	21,825,808	3,177,122	32,546,608	82,471,450	4,713,733
51. Wyoming	WY	L	2,600,147	1,863,771	303,150	5,760	4,772,828	2,089,223
52. American Samoa	AS	N						
53. Guam	GU	N	750	625	4,725		6,100	31,857
54. Puerto Rico	PR	L	32,222,398	6,611,622	4,640,940	18,392,478	61,867,438	71,639
55. U.S. Virgin Islands	VI	N	5,158	212,792	6,578	65	224,593	24,380
56. Northern Mariana Islands	MP	N						
57. Canada	CAN	N	576,874	102,817	54,459		734,150	26,929
58. Aggregate Other Aliens	OT	XXX	8,484,740	1,471,345	278,308	21,780,000	32,014,393	
59. Subtotal	XXX		3,235,768,723	2,173,981,999	366,798,892	4,331,292,923	10,107,842,537	2,166,371,340
90. Reporting entity contributions for employee benefits plans	XXX							
91. Dividends or refunds applied to purchase paid-up additions and annuities	XXX		610,194,415	1,106,279			611,300,694	
92. Dividends or refunds applied to shorten endowment or premium paying period	XXX							
93. Premium or annuity considerations waived under disability or other contract provisions	XXX		12,635,857		5,903,713		18,539,570	
94. Aggregate or other amounts not allocable by State	XXX							
95. Totals (Direct Business)	XXX		3,858,598,995	2,175,088,278	372,702,605	4,331,292,923	10,737,682,801	2,166,371,340
96. Plus Reinsurance Assumed	XXX		27,285,993	10,217,369		644,829,228	682,332,590	831,477,784
97. Totals (All Business)	XXX		3,885,884,988	2,185,305,647	372,702,605	4,976,122,151	11,420,015,391	2,997,849,124
98. Less Reinsurance Ceded	XXX		479,255,283		(49,671,728)		429,583,555	
99. Totals (All Business) less Reinsurance Ceded	XXX		3,406,629,705	2,185,305,647	422,374,333	4,976,122,151	10,990,431,836	2,997,849,124
DETAILS OF WRITE-INS								
58001. HKG Hong Kong	XXX		159,136				159,136	
58002. ZZZ Other Alien	XXX		8,325,604	1,471,345	278,308	21,780,000	31,855,257	
58003.	XXX							
58998. Summary of remaining write-ins for Line 58 from overflow page	XXX							
58999. Totals (Lines 58001 through 58003 plus 58998)(Line 58 above)	XXX		8,484,740	1,471,345	278,308	21,780,000	32,014,393	
9401.	XXX							
9402.	XXX							
9403.	XXX							
9498. Summary of remaining write-ins for Line 94 from overflow page	XXX							
9499. Totals (Lines 9401 through 9403 plus 9498)(Line 94 above)	XXX							

(a) Active Status Counts:

L - Licensed or Chartered - Licensed Insurance carrier or domiciled RRG.....52  
E - Eligible - Reporting entities eligible or approved to write surplus lines in the state.....  
N - None of the above - Not allowed to write business in the state.....5

R - Registered - Non-domiciled RRGs.....  
Q - Qualified - Qualified or accredited reinsurer.....

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

### PART 1 – ORGANIZATIONAL CHART

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

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
<b>MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY</b>	04-1590850	65935	Massachusetts
<b>Direct &amp; Indirect Owned Subsidiaries:</b>			
C.M. Life Insurance Company	06-1041383	93432	Connecticut
MML Bay State Life Insurance Company	43-0581430	70416	Connecticut
CML Mezzanine Investor, LLC	06-1041383		Delaware
CML Mezzanine Investor L, LLC	06-1041383		Delaware
CML Mezzanine Investor III, LLC	06-1041383		Delaware
CML Special Situations Investor LLC	None		Delaware
MML Mezzanine Investor L, LLC	04-1590850		Delaware
Berkshire Way LLC	04-1590850		Delaware
MML Special Situations Investor LLC	None		Delaware
Timberland Forest Holding LLC	47-5322979		Delaware
Lyme Adirondack Forest Company, LLC	None		Delaware
Lyme Adirondack Timber Sales, Inc.	20-5305426		New York
Lyme Adirondack Timberlands I, LLC	None		Delaware
Lyme Adirondack Timberlands II, LLC	None		Delaware
WP-SC, LLC*	26-4441097		Delaware
MSP-SC, LLC	04-1590850		Delaware
Country Club Office Plaza LLC*	27-1435692		Delaware
Insurance Road LLC	04-1590850		Delaware
MassMutual Trad Private Equity LLC	04-1590850		Delaware
MassMutual Intellectual Property LLC	04-1590850		Delaware
EM Opportunities LLC	None		Delaware
Jefferies Finance LLC	27-0105644		Delaware
Apex Credit Partners LLC	None		Delaware
JFIN GP Adviser LLC	None		Delaware
JFIN Revolver Fund, L.P.	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

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

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
JFIN LC Fund LLC	None		Delaware
JFIN Revolver CLO Holdings LLC	None		Delaware
JFIN CLO 2007 Ltd.	None		Cayman Islands
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 2014 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
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 Mezzanine Investor, LLC	04-1590850		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 2009-A	27-1379258		Delaware
MMAF Equipment Finance LLC 2011-A	45-2589019		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
Fern Street LLC	37-1732913		Delaware
First Mercantile Trust Company	62-0951563		Tennessee
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
MassMutual Ventures Management LLC	None		Delaware

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

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
MassMutual Ventures Management LLC	None		Delaware
MassMutual Ventures SEA Management Private Limited	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
Baring SICE (Taiwan) Limited	98-0457707		Taiwan ROC
Barings Japan Limited	98-0236449		Japan
Baring Asset Management (Australia) Pty Limited	98-0457456		Australia
Barings Investment Advisors (Hong Kong) Limited	None		Hong Kong, Special Administrative Region of China
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
Barings Securities LLC	04-3238351		Delaware
Barings Guernsey Limited	98-0437588		Guernsey
Barings Europe Limited	None		United Kingdom
Barings Real Estate UK Holdings Limited	None		Delaware
BREAE AIFM LLP	None		United Kingdom
Barings Real Estate Advisers (Continental Europe) Limited	98-0654401		United Kingdom
Barings Real Estate Advisers Europe LLP	98-0654388		United Kingdom
Barings Real Estate Advisers Europe Finance LLP	98-0654412		United Kingdom
Barings Real Estate Advisers 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

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

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
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
MassMutual Baring Holding LLC	04-1590850		Delaware
MassMutual Holdings (Bermuda) Limited	None		Bermuda
Agspring Holdco, LLC	None		Delaware
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
Red Lake Ventures, LLC	46-5460309		Delaware
Remington L & W Holdings LLC*	81-4065378		Connecticut
Solar Acquisition Holding, LLC	None		Delaware
Tamiami Citrus, LLC	None		Delaware
Teaktree Acquisition, LLC	None		Delaware
U.S. Buyer Broadcasting, LLC	47-1855920		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
Baring Asset-Based Income Fund (US) GP, LLC	None		Delaware
Babson Capital Floating Rate Income Fund Management, LLC	04-1590850		Delaware
Babson Global Loan Feeder Management, LLC	None		Delaware
Baring North America LLC	98-0241935		Massachusetts
Barings ABIF SLP, LLC	None		Delaware
Barings CLO Investment Partners GP, LLC	None		Delaware

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

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
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 North American Private Loan Fund Management, LLC	None		Delaware
Barings TERO Management LLC	None		Delaware
Barings/LAZ Parking Fund GP LLC	None		Delaware
Benton Street Advisors, Inc.	98-0536233		Cayman Islands
BREBF I GP LLC	None		Delaware
BRECS VII GP LLC	None		Delaware
CCM Fund I REIT Manager LLC	None		Delaware
CCM Venture I GP LLC	None		Delaware
CCM Venture I REIT Manager LLC	None		Delaware
CEMF I GP LLC	None		Delaware
CHY Venture 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 LLC	90-0666326		Delaware
Mezzco Australia II LLC	None		Delaware
RECSA-NY GP LLC	None		Delaware
Somerset Special Opportunities Management LLC	04-1590850		Delaware
Oppenheimer Acquisition Corp.	84-1149206		Delaware
OppenheimerFunds, Inc.	13-2527171		Colorado
OppenheimerFunds Distributor, Inc.	13-2953455		New York
Oppenheimer Real Asset Management, Inc.	84-1106295		Delaware
OFI Global Institutional, Inc.	13-4160541		New York
HarbourView Asset Management Corporation	22-2697140		New York
OC Private Capital, LLC	None		Delaware
OFI Global Trust Company	13-3459790		New York
OFI International, Ltd.	None		United Kingdom
SNW Asset Management Corporation	None		Delaware
Seattle Northwest Asset Management LLC	None		Washington

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

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
Trinity Investment Management Corporation	25-1951632		Pennsylvania
OFI SteelPath, Inc.	84-1128397		Delaware
Shareholder Services, Inc.	84-1066811		Colorado
OFI Advisors, LLC	None		Delaware
Index Management Solutions, LLC	None		Pennsylvania
OFI Global Asset Management, Inc.	84-0765063		Delaware
OFI Private Investments Inc.	91-2036414		New York
Tremont Group Holdings, LLC	62-1210532		New York
Tremont Partners, LLC	06-1121864		Connecticut
Tremont GP, LLC	20-8215352		Delaware
Settlement Agent, LLC	90-0874510		Delaware
Tremont (Bermuda) Limited	None		Bermuda
MassMutual International LLC	04-3313782		Delaware
MassMutual Asia Limited	None		Hong Kong, Special Administrative Region of China
MassMutual Asia Investors Ltd.	None		Hong Kong, Special Administrative Region of China
MassMutual Guardian Limited	None		Hong Kong, Special Administrative Region of China
MassMutual Insurance Consultants Limited	None		Hong Kong, Special Administrative Region of China
MassMutual Services Limited	None		Hong Kong, Special Administrative Region of China
MassMutual Trustees Limited	None		Hong Kong, Special Administrative Region of China
Protective Capital (International) Limited	98-0610331		Hong Kong, Special Administrative Region of China
MassMutual Life Insurance Company	None		Japan
MassMutual Internacional (Chile) SpA	98-1033127		Chile
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
Cornerstone Global REIT Corporation	20-8730751		Delaware
<b>Other Affiliates &amp; Funds:</b>			
100 w. 3 <sup>rd</sup> Street LLC	04-1590850		Delaware
300 South Tryon Hotel LLC	82-2432216		Delaware
300 South Tryon LLC	04-1590850		Delaware
54 West Capital LLC	20-3887968		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
Barings Global Special Situations Credit Fund 1	None		Ireland
Babson Capital Global Special Situation Credit Fund 2*	98-1206017		Delaware

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

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
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. 2014-II	None		Cayman Islands
Babson CLO Ltd. 2014-III	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
Babson Euro CLO 2014-I BV	None		Netherlands
Babson Euro CLO 2014-II BV	None		Netherlands
Babson Euro CLO 2015-I BV	None		Netherlands
Babson Euro CLO 2016-I BV	None		Netherlands
Barings Euro Equity Income Fund	None		Hong Kong
Baring Focused EAFE Equity Fund	11-3789446		Delaware
Barings Global Energy Infrastructure Fund I LP	98-1332384		Cayman Islands
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 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
Cornerstone Core Mortgage Venture I LP	27-1701622		Delaware
Cornerstone Enhanced Mortgage Fund I LP	45-3751572		Delaware
Cornerstone Global Real Estate LP*	20-8730751		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
Duchess VII CLO B.V.	None		United Kingdom

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
E-Wise Land Venture LLC	20-3887968		Delaware
Gateway Mezzanine Partners I LP	80-0691253		Delaware
Gateway Mezzanine Partners II LP*	90-0991195		Delaware
Gillem GA Industrial LLC	04-1590850		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
Kazwell Realty Partners LLC	20-3887968		Delaware
KKR-MM Vector LP	82-1512591		Delaware
Marco Hotel LLC	46-4255307		Delaware
MM Debt Participations LLC	81-3000420		Delaware
Oakley Grove Development LLC	20-3887968		Delaware
Old Pasco Properties LLC	20-3887968		Delaware
RB Apartments LLC	82-4411267		Delaware
Reston Arboretum LLC	75-2901061		Delaware
Riva Portland LLC	30-0713071		Delaware
Rockall CLO B.V.	None		United Kingdom
Rockville Town Center LLC	54-2055778		Virginia
Somerset Special Opportunities Fund L.P.*	20-8856877		Delaware
South Pasco Properties LLC	20-3887968		Delaware
Tower Square Capital Partners II, L.P.*	30-0336246		Delaware
Tower Square Capital Partners II-A, L.P.	32-0160190		Delaware
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
West 46 <sup>th</sup> Street Hotel LLC	05-1590850		Delaware
<b>Barings Affiliates &amp; Funds:</b>			
Barings Emerging Markets Debt Blended Total Return Fund	None		Ireland
Barings Emerging Markets Debt Short Duration Fund	None		Ireland
Barings Emerging Markets Sovereign Debt Fund	None		Ireland
Barings Global Investment Grade Corporate Plus Fund	None		Ireland
Babson Capital Loan Strategies Master Fund LP	None		Cayman Islands
Barings Emerging Markets Debt Blended Total Return Fund	47-3758432		Massachusetts
Barings Emerging Markets Local Currency Debt Fund	47-3774453		Massachusetts
Barings Global High Yield Fund	47-3790192		Massachusetts
Barings Greater China Equity Fund	None		Hong Kong
Barings Total Return Bond Fund	47-3734770		Massachusetts
Barings U.S. High Yield Fund	47-3801860		Massachusetts
Great Lakes II LLC*	71-1018134		Delaware
Somerset Special Opportunities Master Fund LP	None		Cayman Islands
Wood Creek Venture Fund LLC	04-1590850		Delaware

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
<b>Barings Real Estate Affiliates &amp; Funds:</b>			
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
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
Johnston Groves LLC	20-4819358		Delaware
Landmark Manchester Holdings LLC	81-5360103		Delaware
PACO France Logistics LLC	04-1590850		Delaware
PACO France Logistics 3 LLC	04-1590850		Delaware
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
Ten Fan Pier Boulevard LLC*	None		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
Waterford Development Associates	20-2970495		Delaware
Waterloo London Holdings LLC	47-1993493		Delaware
WeHo Domain LLC*	46-3122029		Delaware
Willowood Lakeside Master LLC	81-1552222		Delaware
Ygnatio Valley Funding	20-5481477		Delaware
<b>MassMutual Premier Funds:</b>			
MassMutual Barings Dynamic Allocation Fund	45-3168892		Massachusetts
MassMutual Premier Focused International Fund	02-0754273		Massachusetts

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
MassMutual Premier Main Street Fund	51-0529328		Massachusetts
MassMutual Premier Strategic Emerging Markets Fund	26-3229251		Massachusetts
MassMutual Premier Value Fund	04-3277550		Massachusetts
<b>MassMutual Select Funds:</b>			
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
<b>MML Series Investment Funds:</b>			
MML Series International Equity Fund	46-4257056		Massachusetts
<b>MML Series Investment Funds II:</b>			
MML Series II Asset Momentum Fund	47-3517233		Massachusetts
MML Series II Dynamic Bond Fund	47-3529636		Massachusetts
MML Series II Equity Rotation Fund	47-3544629		Massachusetts
MML Series II Special Situations Fund	47-3559064		Massachusetts
<b>MassMutual RetireSMART Funds:</b>			
MassMutual RetireSMART 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 Moderate Fund	45-1618262		Massachusetts
MassMutual RetireSMART Moderate Growth Fund	45-1618046		Massachusetts
<b>Oppenheimer Funds:</b>			
OFI Pictet Global Environmental Solution Fund	81-5311583		Delaware
Oppenheimer Developing Markets Fund	93-6305075		Delaware

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

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

### PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
Oppenheimer Developing Markets Equity UCITS	None		Ireland
Oppenheimer Emerging Markets Innovators UCITS	None		Ireland
Oppenheimer Emerging Markets Local Debt UCITS	3440740DH		Ireland
Oppenheimer Emerging Markets Revenue ETF	46-2984739		Delaware
Oppenheimer ESG Revenue ETF	81-3492794		Delaware
Oppenheimer Global ESG Revenue ETF	81-3480754		Delaware
Oppenheimer Global Equity UCITS	None		Ireland
Oppenheimer Global Multi-Asset Growth Fund	47-3676235		Delaware
Oppenheimer Global Real Estate Fund	46-1604428		Delaware
Oppenheimer Global Revenue ETF	81-5010075		Delaware
Oppenheimer Global Value Equity UCITS	None		Ireland
Oppenheimer Global Unconstrained Bond Fund	82-2693880		Delaware
Oppenhemier International Growth & Income Fund	81-3136071		Delaware
Oppenheimer International Revenue ETF	81-4969331		Delaware
Oppenheimer Preferred Securities & Income Fund	82-3462739		Delaware
Oppenheimer Russell 2000 Dynamic Multifactor ETF	82-2794856		Delaware
Oppenheimer Russell 1000 Momentum Factor ETF	82-2716323		Delaware
Oppenheimer Russell 1000 Value Factor ETF	82-2759921		Delaware
Oppenheimer Russell 1000 Low Volatility Factor ETF	82-2701797		Delaware
Oppenheimer Russell 1000 Size Factor ETF	82-2740997		Delaware
Oppenheimer Russell 1000 Quality Factor ETF	82-2732571		Delaware
Oppenheimer Russell 1000 Yield Factor ETF	82-2768498		Delaware
Oppenheimer SteelPath MLP & Energy Infrastructure Fund	82-2222426		Delaware

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

STATEMENT AS OF JUNE 30, 2018 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	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			06-1041383				CML Mezzanine Investor, LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
.0000			06-1041383				CML Mezzanine Investor L, LLC	DE	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			06-1041383				CML Special Situations Investor LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MML Mezzanine Investor L, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MML Special Situations Investor LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	C.M. Life Insurance Company	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			26-4441097				WP-SC, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	81.400	MMLIC		
.0000			26-4441097				WP-SC, LLC	DE	DS	C.M. Life Insurance Company	Ownership	18.600	MMLIC		
.0000			04-1590850				MSP-SC, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			27-1435692				Country Club Office Plaza LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	88.100	MMLIC		
.0000			27-1435692				Country Club Office Plaza LLC	DE	DS	C.M. Life Insurance Company	Ownership	11.900	MMLIC		
.0000							EM Opportunities LLC	DE	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			27-0105644				Jefferies Finance LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	50.000	MMLIC		1
.0000							MassMutual Mortgage Lending LLC	DE	DS	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		

STATEMENT AS OF JUNE 30, 2018 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							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 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		
.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 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	70.000	MMLIC		
.0000							JFIN CLO 2014 Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	30.000	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							Apex Credit CLO 2015-II Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	33.000	MMLIC		
.0000							Apex Credit CLO 2015-III 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 2017-III 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	Massachusetts Mutual Life Insurance 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			04-1590850				MML Mezzanine Investor, 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	Massachusetts Mutual Life Insurance Company	Ownership	99.600	MMLIC		
.0000			26-0073611				MassMutual Asset Finance LLC	DE	DS	C.M. Life Insurance Company	Ownership	0.400	MMLIC		
.0000			27-1379258				MMAF Equipment Finance LLC 2009-A	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000			45-2589019				MMAF Equipment Finance LLC 2011-A	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	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MM Private Equity Intercontinental LLC	DE	NIA	MML Private Equity Fund Investor LLC	Ownership	100.000	MMLIC		
.0000			45-2738137				Pioneers Gate LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-2854319	2392316			MassMutual Holding LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		Y
.0000			06-1597528				MassMutual Assignment Company	NC	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		

STATEMENT AS OF JUNE 30, 2018 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			37-1732913				Fern Street LLC	DE	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			62-0951563	1160004			First Mercantile Trust Company	TN	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							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			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			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			98-0457456				Baring Asset Management (Australia) Pty Limited	AUS	DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000							Barings Investment Advisors (Hong Kong) Limited	HKG	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			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 Real Estate UK Holdings Limited	DE	DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							BREAE AIFM LLP	GBR	DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MMLIC		
.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							Barings Real Estate Advisers Europe Finance LLP	GBR	DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0654412				Barings Real Estate Advisers GmbH	DEU	DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-1194368				Baring Asset Management Limited	GBR	DS	MassMutual Holdings (Bermuda) Limited	Ownership	100.000	MMLIC		
.0000			98-0241935				Barings Global Advisors Limited	GBR	DS	Baring Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-1012393				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		

STATEMENT AS OF JUNE 30, 2018 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			98-0457587				Baring International Investment Management Holdings	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0457576				Baring Asset Management UK Holdings Limited	.GBR	.DS	Baring International Investment Management Holdings	Ownership	100.000	MLLIC		
.0000			98-0465031				Baring Asset Management GmbH	.DEU	.DS	Baring Asset Management UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0524272				Baring International Fund Managers (Ireland) Limited	.IRL	.DS	Baring Asset Management UK Holdings Limited	Ownership	100.000	MLLIC		
.0000							Baring Asset Management Switzerland Sarl	.CHE	.DS	Baring Asset Management UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0497550				Baring France SAS	.FRA	.DS	Baring Asset Management UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0457586				Baring Fund Managers Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0457574				Baring Pension Trustees Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0457578				Baring Investment Services Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Barings GPC GP S.à. r.l.	.LUX	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Barings Investment Fund (LUX) GP S.à. r.l.	.LUX	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Almack Mezzanine GP III Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Almack Holding Partnership GP Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Almack Mezzanine Fund Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Almack Mezzanine Fund II Limited	.GBR	.DS	Baring Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0432153				Barings (U.K.) Limited	.GBR	.DS	Barings Guernsey Limited	Ownership	100.000	MLLIC		
.0000							Barings Multifamily Capital Holdings LLC	.DE	.DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Multifamily Capital LLC	.MI	.DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Multifamily Capital Corporation	.DE	.DS	Barings LLC	Ownership	100.000	MLLIC		
.0000			04-3238351	3456895			Barings Real Estate Advisers Inc.	.CA	.DS	Barings Real Estate Advisers LLC	Ownership	100.000	MLLIC		
.0000			04-1590850				MassMutual Baring Holding LLC	.DE	.DS	MassMutual Asset Management Holding LLC	Ownership	100.000	MLLIC		
.0000							MassMutual Holdings (Bermuda) Limited	.BMU	.DS	MassMutual Baring Holding LLC	Ownership	100.000	MLLIC		
.0000							Agspring Holdco, LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership	15.400	MLLIC		
.0000			81-2244465				Chassis Acquisition Holding LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	30.000	MLLIC		
.0000			81-2244465				Chassis Acquisition Holding LLC	.DE	.NIA	Barings LLC	Influence		MLLIC		
.0000			81-4258759				CRA Aircraft Holding LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	40.000	MLLIC		
.0000			81-4258759				CRA Aircraft Holding LLC	.DE	.NIA	Barings LLC	Influence		MLLIC		
.0000			83-0560183				Aland Royalty Holdings LP	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership	26.700	MLLIC		
.0000			83-0560183				Aland Royalty Holdings LP	.DE	.NIA	Barings LLC	Management		MLLIC		
.0000			46-2344300				Intermodal Holdings II LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership	18.000	MLLIC		
.0000			47-3055009				Milestone Acquisition Holding, LLC.	.DE	.NIA	MassMutual Holding LLC	Ownership/Influence	18.200	MLLIC		
.0000			47-3055009				Milestone Acquisition Holding, LLC.	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MLLIC		
.0000			47-3055009				Milestone Acquisition Holding, LLC.	.DE	.NIA	Barings LLC	Influence		MLLIC		
.0000			46-5460309				Red Lake Ventures, LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	31.500	MLLIC		
.0000			46-5460309				Red Lake Ventures, LLC	.DE	.NIA	Barings LLC	Influence		MLLIC		
.0000			81-4065378				Remington L & W Holdings LLC	.CT	.NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	66.700	MLLIC		
.0000			81-4065378				Remington L & W Holdings LLC	.CT	.NIA	Barings LLC	Influence		MLLIC		
.0000							Tamiami Citurus, LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership	15.700	MLLIC		
.0000							Teaktree Acquisition, LLC	.DE	.NIA	MassMutual Holding LLC	Ownership/Influence	14.700	MLLIC		

STATEMENT AS OF JUNE 30, 2018 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							Teaktree Acquisition, LLC	DE	NIA	Barings LLC	Influence		MMLIC		
.0000							U.S. Buyer Broadcasting, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	12.700	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	42.900	MMLIC		
.0000			20-2970495				US Pharmaceutical Holdings II, LLC	DE	NIA	Barings LLC	Influence		MMLIC		
.0000							Solar Acquisition Holding, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	32.800	MMLIC		
.0000							Solar Acquisition Holding, LLC	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Validus Pharmaceuticals LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000							VGS Acquisition Holding, LLC	DE	NIA	MassMutual Holding LLC	Ownership/Influence	33.200	MMLIC		
.0000							VGS Acquisition Holding, LLC	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Baring Asset-Based Income Fund (US) GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				Babson Capital Floating Rate Income Fund Management, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			98-0241935				Babson Global Loan Feeder Management, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Baring North America LLC	MA	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 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 TERO Management 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							BREBF I GP LLC	DE	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							CCM Venture I GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							CCM Venture 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							CREX X GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							CREX 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		
.0000			80-0920285				Mezzco IV LLC	DE	DS	Barings LLC	Ownership	99.300	MMLIC		
.0000			90-0666326				Mezzco Australia LLC	DE	DS	Barings LLC	Ownership	72.000	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							Somerset Special Opportunities Management LLC								
.0000			04-1590850					DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			84-1149206	2897101			Oppenheimer Acquisition Corp.	DE	DS	MassMutual Asset Management Holding LLC	Ownership	96.900	MMLIC		

STATEMENT AS OF JUNE 30, 2018 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			13-2527171	2679183			OppenheimerFunds, Inc.	CO	DS	Oppenheimer Acquisition Corp.	Ownership	100.000	MMLIC		
.0000			13-2953455				OppenheimerFunds Distributor, Inc.	NY	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000			84-1106295				Oppenheimer Real Asset Management, Inc.	DE	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000			13-4160541	3458125			OFI Global Institutional, Inc.	NY	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000			22-2697140				HarbourView Asset Management Corporation	NY	DS	OFI Institutional Asset Management, Inc.	Ownership	100.000	MMLIC		
.0000							OC Private Capital, LLC	DE	DS	OFI Institutional Asset Management, Inc.	Ownership	51.000	MMLIC		
.0000			13-3459790	2914875			OFI Global Trust Company	NY	DS	OFI Institutional Asset Management, Inc.	Ownership	100.000	MMLIC		
.0000							OFI International, Ltd.	GBR	DS	OFI Institutional Asset Management, Inc.	Ownership	100.000	MMLIC		
.0000							SNW Asset Management Corporation	DE	DS	OFI Institutional Asset Management, Inc.	Ownership	100.000	MMLIC		
.0000			60-2233720				Seattle Northwest Asset Management LLC	WA	DS	OFI Institutional Asset Management, Inc.	Ownership	100.000	MMLIC		
.0000			25-1951632				Trinity Investment Management Corporation	PA	DS	OFI Institutional Asset Management, Inc.	Ownership	100.000	MMLIC		
.0000			84-1128397				OFI SteelPath, Inc.	CO	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000			84-1066811				Shareholder Services, Inc.	CO	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000							OFI Advisors, LLC	DE	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000							Index Management Solutions, LLC	PA	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000			84-0765063				OFI Global Asset Management, Inc.	DE	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000			91-2036414				OFI Private Investments Inc.	NY	DS	OppenheimerFunds, Inc.	Ownership	100.000	MMLIC		
.0000			62-1210532				Tremont Group Holdings, LLC	NY	DS	Oppenheimer Acquisition Corp.	Ownership	100.000	MMLIC		
.0000			06-1121864				Tremont Partners, LLC	CT	DS	Tremont Group Holdings, Inc.	Ownership	100.000	MMLIC		
.0000			20-8215352				Tremont GP, LLC	DE	DS	Tremont Group Holdings, Inc.	Ownership	100.000	MMLIC		
.0000			90-0874510				Settlement Agent, LLC	DE	DS	Tremont GP	Ownership	100.000	MMLIC		
.0000							Tremont (Bermuda) Limited	BMU	DS	Tremont Group Holdings, Inc.	Ownership	100.000	MMLIC		
.0000			04-3313782				MassMutual International LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC	Y	
.0000							MassMutual Asia Limited	HKG	DS	MassMutual International LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Asia Investors Ltd.	HKG	DS	MassMutual Asia Limited	Ownership	100.000	MMLIC		
.0000							MassMutual Guardian Limited	HKG	DS	MassMutual Asia Limited	Ownership	100.000	MMLIC		
.0000							MassMutual Insurance Consultants Limited	HKG	DS	MassMutual Asia Limited	Ownership	100.000	MMLIC		
.0000							MassMutual Services Limited	HKG	DS	MassMutual Asia Limited	Ownership	100.000	MMLIC		
.0000							MassMutual Trustees Limited	HKG	DS	MassMutual Asia Limited	Ownership	80.000	MMLIC		
.0000			98-0610331				Protective Capital (International) Limited	HKG	DS	MassMutual Asia Limited	Ownership	100.000	MMLIC		
.0000			98-1033127				MassMutual Internacional (Chile) SpA	CHL	DS	MassMutual International LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Life Insurance Company	JPN	DS	MassMutual International LLC	Ownership	100.000	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			04-1590850				MML Mezzanine Investor II, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MML Mezzanine Investor III, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			27-3576835				MassMutual External Benefits Group LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			20-8730751				Cornerstone Global REIT Corporation	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				100 w. 3rd Street LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			82-2432216				300 South Tryon Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				300 South Tryon LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			20-3887968				54 West Capital LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		

STATEMENT AS OF JUNE 30, 2018 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							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	38.000	MMLIC		
.0000							Almack Mezzanine Fund III LP	.GBR	NIA	C.M. Life Insurance Company	Ownership	0.000	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	Massachusetts Mutual Life Insurance Company	Ownership/Influence	0.000	MMLIC		
.0000			36-4868350				Barings Asset-Based Income Fund (US) LP	.DE	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Emerging Markets Corporate Bond Fund	.IRL	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	98.300	MMLIC		
.0000							Barings Emerging Markets Corporate Bond Fund	.IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Global Special Situations Credit Fund 1	.IRL	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	81.100	MMLIC		
.0000							Barings Global Special Situations Credit Fund 1	.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	25.400	MMLIC		
.0000			98-1206017				Babson Capital Global Special Situation Credit Fund 2	.DE	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000			98-1206017				Babson Capital Global Special Situation Credit Fund 2	.DE	NIA	Barings LLC	Management		MMLIC		
.0000			37-1506417				Babson Capital Loan Strategies Fund, L.P.	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	0.000	MMLIC		
.0000			37-1506417				Babson Capital Loan Strategies Fund, L.P.	.DE	NIA	C.M. Life Insurance Company	Ownership	0.000	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	56.100	MMLIC		
.0000							Barings US High Yield Bond Fund	.IRL	NIA	C.M. Life Insurance Company	Ownership	43.200	MMLIC		
.0000							Barings US High Yield Bond Fund	.IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Babson CLO Ltd. 2013-I	.CYM	NIA	Barings LLC	Influence		MMLIC		3
.0000							Babson CLO Ltd. 2014-I	.CYM	NIA	Barings LLC	Influence		MMLIC		2
.0000							Babson CLO Ltd. 2014-II	.CYM	NIA	Barings LLC	Influence		MMLIC		4
.0000							Babson CLO Ltd. 2014-III	.CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Babson CLO Ltd. 2015-I	.CYM	NIA	Barings LLC	Influence		MMLIC		5
.0000							Babson CLO Ltd. 2015-II	.CYM	NIA	Barings LLC	Influence		MMLIC		6
.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							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							Barings Euro Equity Income Fund		NIA	Barings Asset Management Limited	Ownership/Influence	93.000	MMLIC		
.0000			81-0841854				Barings CLO Investment Partners LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	97.600	MMLIC		
.0000			81-0841854				Barings CLO Investment Partners LP	.DE	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Real Estate European Value Add I SCSp	.GBR	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		

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STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE Y**

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

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Y/N)	*
.0000							Barings Real Estate European Value Add I SCSp	.GBR	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000							Barings Real Estate European Value Add I SCSp	.GBR	NIA	Barings LLC	Management		MMLIC		
.0000			11-3789446				Baring Focused EAFE Equity Fund	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	49.600	MMLIC		
.0000			11-3789446				Baring Focused EAFE Equity Fund	.DE	NIA	Baring Asset Management Limited	Management		MMLIC		
.0000			98-1332384				Barings Global Energy Infrastructure Fund I LP	.CYM	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	95.500	MMLIC		
.0000			98-1332384				Barings Global Energy Infrastructure Fund I LP	.CYM	NIA	Baring Asset Management Limited	Management		MMLIC		
.0000							Barings Global Private Loan Fund	.LUX	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	15.500	MMLIC		
.0000							Barings Global Private Loan Fund	.LUX	NIA	Barings LLC	Management		MMLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	0.000	MMLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	.DE	NIA	C.M. Life Insurance Company	Ownership	0.000	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	22.200	MMLIC		
.0000							Barings Global Special Situations Credit Fund 3	.IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Middle Market QLO 2017-I Ltd & LLC	.CYM	NIA	Barings LLC	Influence		MMLIC		
.0000			38-4010344				Barings North American Private Loan Fund LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	49.700	MMLIC		
.0000			38-4010344				Barings North American Private Loan Fund LP	.DE	NIA	Baring Asset Management Limited	Management		MMLIC		
.0000			98-1332384				Barings RE Credit Strategies VII LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	35.400	MMLIC		
.0000			98-1332384				Barings RE Credit Strategies VII LP	.DE	NIA	Baring Asset Management Limited	Management		MMLIC		
.0000			26-4142796				Baring International Small Cap Equity Fund	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	57.900	MMLIC		
.0000			26-4142796				Baring International Small Cap Equity Fund	.DE	NIA	Baring Asset Management Limited	Management		MMLIC		
.0000							Braemar Energy Ventures I, L.P.	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	91.300	MMLIC		
.0000							Braemar Energy Ventures I, L.P.	.DE	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000							Braemar Energy Ventures I, L.P.	.DE	NIA	Barings LLC	Management		MMLIC		
.0000							Barings European Core Property Fund SCSp	.LUX	NIA	MassMutual Holding LLC	Ownership/Influence	19.000	MMLIC		
.0000							Barings European Core Property Fund SCSp	.LUX	NIA	C.M. Life Insurance Company	Ownership	1.200	MMLIC		
.0000							Barings European Core Property Fund SCSp	.LUX	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			38-4059932				Benchmark 2018-B2 Mortgage Trust	.NY	NIA	Barings LLC	Influence		MMLIC		
.0000			27-1701622				Cornerstone Core Mortgage Venture I LP	.DE	NIA	MassMutual Holding LLC	Ownership/Influence	50.000	MMLIC		
.0000			27-1701622				Cornerstone Core Mortgage Venture I LP	.DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			45-3751572				Cornerstone Enhanced Mortgage Fund I LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	14.400	MMLIC		
.0000			45-3751572				Cornerstone Enhanced Mortgage Fund I LP	.DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			20-8730751				Cornerstone Global Real Estate LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	99.900	MMLIC		
.0000			20-8730751				Cornerstone Global Real Estate LP	.DE	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000			20-8730751				Cornerstone Global Real Estate LP	.DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			36-4770946				Cornerstone High Yield Venture LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	49.800	MMLIC		
.0000			36-4770946				Cornerstone High Yield Venture LP	.DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			20-5578089				Barings Core Property Fund LP	.DE	NIA	MassMutual Holding LLC	Ownership/Influence	11.800	MMLIC		
.0000			20-5578089				Barings Core Property Fund LP	.DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		

STATEMENT AS OF JUNE 30, 2018 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			46-5432619				Cornerstone Real Estate Fund X LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			46-5432619				Cornerstone Real Estate Fund X LP	DE	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000			46-5432619				Cornerstone Real Estate Fund X LP	DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			35-2531693				Cornerstone Permanent Mortgage Fund III LLC	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			35-2531693				Cornerstone Permanent Mortgage Fund III LLC	MA	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			46-5437441				Barings/LAZ Parking Fund LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			46-5437441				Barings/LAZ Parking Fund LP	DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000				4007502			Duchess VII CLO B.V.	GBR	NIA	Barings LLC	Influence		MMLIC		
.0000			20-3887968				E-Wise Land Venture LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			80-0691253				Gateway Mezzanine Partners I, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	71.600	MMLIC		
.0000			90-0991195				Gateway Mezzanine Partners II LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	47.800	MMLIC		
.0000			90-0991195				Gateway Mezzanine Partners II LP	DE	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000			90-0991195				Gateway Mezzanine Partners II LP	DE	NIA	Barings LLC	Management		MMLIC		
.0000			37-1708623				Great Lakes III, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	35.700	MMLIC		
.0000			37-1708623				Great Lakes III, L.P.	DE	NIA	Barings LLC	Management		MMLIC		
.0000			04-1590850				Gillem GA Industrial LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			38-4041011				JPMCC Commercial Mortgage Securities Trust 2017-JP7	NY	NIA	Barings LLC	Management		MMLIC		
.0000			38-4032059				JPMDB Commercial Mortgage Securities Trust 2017-C5	NY	NIA	Barings LLC	Management		MMLIC		
.0000			20-3887968				Kazwell Realty Partners LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			82-1512591				KKR-MM Vector LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	0.000	MMLIC		
.0000			46-4255307				Marco Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			81-3000420				MM Debt Participations LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			81-3000420				MM Debt Participations LLC	DE	NIA	Barings LLC	Management		MMLIC		
.0000			20-3887968				Oakley Grove Development LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			20-3887968				Old Pasco Properties LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			82-4411267				RB Apartments LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			75-2901061				Reston Arboretum LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			30-0713071				Riva Portland LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Rockall CLO B.V.	GBR	NIA	Barings LLC	Influence		MMLIC		
.0000			54-2055778				Rockville Town Center LLC	VA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			20-8856877				Somerset Special Opportunities Fund L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	58.500	MMLIC		
.0000			20-8856877				Somerset Special Opportunities Fund L.P.	DE	NIA	C.M. Life Insurance Company	Ownership	2.900	MMLIC		

STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

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

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Y/N)	*
.0000			20-3887968				South Pasco Properties LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			30-0336246				Tower Square Capital Partners II, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	22.400	MMLIC		
.0000			30-0336246				Tower Square Capital Partners II, L.P.	DE	NIA	C.M. Life Insurance Company	Ownership	3.900	MMLIC		
.0000			32-0160190				Tower Square Capital Partners II-A, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	85.000	MMLIC		
.0000			41-2280127				Tower Square Capital Partners III, L.P.	DE	NIA	Barings LLC	Management		MMLIC		
.0000			41-2280127				Tower Square Capital Partners III, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	2.700	MMLIC		
.0000			41-2280127				Tower Square Capital Partners III, L.P.	DE	NIA	MassMutual Holding LLC	Ownership/Influence	34.600	MMLIC		
.0000			41-2280129				Tower Square Capital Partners IIIA, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	95.900	MMLIC		
.0000			41-2280129				Tower Square Capital Partners IIIA, L.P.	DE	NIA	Barings LLC	Management		MMLIC		
.0000			80-0920367				Tower Square Capital Partners IV-A, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	21.300	MMLIC		
.0000			04-1590850				West 46th Street Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Barings Emerging Markets Debt Blended Total Return Fund	IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Emerging Markets Debt Short Duration Fund	IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Emerging Markets Sovereign Debt Fund	IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Babson Capital Loan Strategies Master Fund LP	CYM	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Global Investment Grade Corporate Plus Fund	IRL	NIA	Barings LLC	Management		MMLIC		
.0000			47-3758432				Barings Emerging Markets Debt Blended Total Return Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000			47-3774453				Barings Emerging Markets Local Currency Debt Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000			47-3790192				Barings Global High Yield Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000							Baring Greater China Equity Fund	HKG	NIA	Baring Asset Management Limited	Management		MMLIC		
.0000			47-3734770				Barings Total Return Bond Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000			47-3801860				Barings U.S. High Yield Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000			71-1018134				Great Lakes II LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	11.200	MMLIC		
.0000			71-1018134				Great Lakes II LLC	DE	NIA	C.M. Life Insurance Company	Ownership	1.000	MMLIC		
.0000							Somerset Special Opportunities Master Fund LP	CYM	NIA	Barings LLC	Management		MMLIC		
.0000			04-1590850				Wood Creek Venture Fund LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	40.000	MMLIC		
.0000			36-4823011				50 Liberty LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	59.100	MMLIC		
.0000			36-4823011				50 Liberty LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.800	MMLIC		
.0000			80-0948028				One Harbor Shore LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	49.900	MMLIC		
.0000			80-0948028				One Harbor Shore LLC	DE	NIA	C.M. Life Insurance Company	Ownership	4.900	MMLIC		
.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		

STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE Y**

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

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.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	100.000	MMLIC		
.0000			45-2632610				Cornerstone Permanent Mortgage Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000			61-1750537				Cornerstone Permanent Mortgage Fund II	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			61-1750537				Cornerstone Permanent Mortgage Fund II	MA	NIA	Baring LLC	Management		MMLIC		
.0000			35-2531693				Cornerstone Permanent Mortgage Fund III	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	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	100.000	MMLIC		
.0000			82-1563809				CCB Montford Park LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	75.200	MMLIC		
.0000			82-1563809				CCB Montford Park LLC	DE	NIA	C.M. Life Insurance Company	Ownership	4.800	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	59.300	MMLIC		
.0000			20-3347091				Fan Pier Development LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.900	MMLIC		
.0000			46-3880526				Farrington London Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	94.500	MMLIC		
.0000			46-3880526				Farrington London Holdings LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.500	MMLIC		
.0000			20-4819358				Johnston Groves LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	57.200	MMLIC		
.0000			81-5360103				Landmark Manchester Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	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 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		
.0000			27-2977720				Sawgrass Village Shopping Center LLC	DE	NIA	C.M. Life Insurance Company	Ownership	15.800	MMLIC		
.0000							Ten Fan Pier Boulevard LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	3.700	MMLIC		
.0000							Ten Fan Pier Boulevard LLC	DE	NIA	C.M. Life Insurance Company	Ownership	0.400	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	59.200	MMLIC		
.0000			35-2484550				Twenty Two Liberty LLC	MA	NIA	C.M. Life Insurance Company	Ownership	5.900	MMLIC		

13.10

STATEMENT AS OF JUNE 30, 2018 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			45-4606547				UK LIW Manager LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	1.000	MMLIC		
.0000			45-4606547				UK LIW Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	99.000	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	92.000	MMLIC		
.0000			45-5401109				Washington Gateway Apartments Venture LLC	DE	NIA	C.M. Life Insurance Company	Ownership	4.800	MMLIC		
.0000			20-2970495				Waterford Development Associates	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	90.000	MMLIC		
.0000			47-1993493				Waterloo London Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			46-3122029				WeHo Domain LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	77.400	MMLIC		
.0000			46-3122029				WeHo Domain LLC	DE	NIA	C.M. Life Insurance Company	Ownership	12.600	MMLIC		
.0000			81-1552222				Willowood Lakeside Master LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	50.000	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	00	MassMutual Premier Main Street Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	15.100	MMLIC		
.0000			26-3229251		0000927972	00	MassMutual Premier Strategic Emerging Markets Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	2.300	MMLIC		
.0000			04-3277550		0000927972	00	MassMutual Premier Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			14-1980900		0000916053	00	MassMutual Select Diversified International Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			01-0821120		0000916053	00	MassMutual Select Diversified Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	3.400	MMLIC		
.0000			04-3512593		0000916053	00	MassMutual Select Fundamental Growth Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			04-3513019		0000916053	00	MassMutual Select Large Cap Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			42-1710935		0000916053	00	MassMutual Select Mid-Cap Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	29.500	MMLIC		
.0000			02-0769954		0000916053	00	MassMutual Select Small Capital Value Equity Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			04-3584140		0000916053	00	MassMutual Select Small Company Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	14.500	MMLIC		
.0000			82-3347422		0000916053	00	MassMutual Select T. Rowe Price Retirement 2005 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3355639		0000916053	00	MassMutual Select T. Rowe Price Retirement 2010 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3382389		0000916053	00	MassMutual Select T. Rowe Price Retirement 2015 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3396442		0000916053	00	MassMutual Select T. Rowe Price Retirement 2020 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3417420		0000916053	00	MassMutual Select T. Rowe Price Retirement 2025 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		

STATEMENT AS OF JUNE 30, 2018 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			82-3430358		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2030 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3439837		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2035 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3451779		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2040 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3472295		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2045 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3481715		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2050 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3502011		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2055 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3525148		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2060 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	12.600	MMLIC		
.0000			82-3533944		0000916053	OQ	MassMutual Select T. Rowe Price Retirement Balanced Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			46-4257056				MML Series International Equity Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			47-3517233				MML Series II Asset Momentum Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			47-3529636				MML Series II Dynamic Bond Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			47-3544629				MML Series II Equity Rotation Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.400	MMLIC		
.0000			47-3559064				MML Series II Special Situations Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	85.500	MMLIC		
.0000			27-1933828		0000916053		MassMutual RetireSMART 2015 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	60.900	MMLIC		
.0000			27-1933389		0000916053		MassMutual RetireSMART 2035 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	59.000	MMLIC		
.0000			27-1932769		0000916053		MassMutual RetireSMART 2045 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	63.100	MMLIC		
.0000			46-3289207		0000916053	OQ	MassMutual RetireSMART 2055 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	18.500	MMLIC		
.0000			47-5326235		0000916053	OQ	MassMutual RetireSMART 2060 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	85.600	MMLIC		
.0000			45-1618155		0000916053	OQ	MassMutual RetireSMART Conservative Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			45-1618222		0000916053	OQ	MassMutual RetireSMART Growth Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			45-1618262		0000916053	OQ	MassMutual RetireSMART Moderate Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			45-1618046		0000916053	OQ	MassMutual RetireSMART Moderate Growth Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			81-5311583				OFI Pictet Global Environmental Solution Fund	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			93-6305075				Oppenheimer Developing Markets Fund	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000							Oppenheimer Developing Markets Equity UCITS	IRL	NIA	Massachusetts Mutual Life Insurance Company	Ownership	76.900	MMLIC		
.0000							Oppenheimer Developing Markets Equity UCITS	IRL	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000							Oppenheimer Emerging Markets Innovators UCITS	IRL	NIA	OppenheimerFunds, Inc.	Management		MMLIC		

STATEMENT AS OF JUNE 30, 2018 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			34-40740DH				Oppenheimer Emerging Markets Local Debt UCITS	IRL	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			46-2984739				Oppenheimer Emerging Markets Revenue ETF	IRL	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			81-3492794				Oppenheimer ESG Revenue ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000							Oppenheimer Global Equity UCITS	IRL	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			81-3480754				Oppenheimer Global ESG Revenue ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			46-1604428		0001562689	00	Oppenheimer Global Real Estate Fund	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	99.000	MMLIC		
.0000			47-3676235				Oppenheimer Global Multi-Asset Growth Fund	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			81-5010075				Oppenheimer Global Revenue ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000							Oppenheimer Global Value Equity UCITS	IRL	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2693880				Oppenheimer Global Unconstrained Bond Fund	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			81-4969331				Oppenheimer International Revenue ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-3462739				Oppenheimer Preferred Securities & Income Fund	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2794856				Oppenheimer Russell 2000 Dynamic Multifactor ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2716323				Oppenheimer Russell 1000 Momentum Factor ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2759921				Oppenheimer Russell 1000 Value Factor ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2701797				Oppenheimer Russell 1000 Low Volatility Factor ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2740997				Oppenheimer Russell 1000 Size Factor ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2732571				Oppenheimer Russell 1000 Quality Factor ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2768498				Oppenheimer Russell 1000 Yield Factor ETF	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		
.0000			82-2222426				Oppenheimer SteelPath MLP & Energy Infrastructure Fund	DE	NIA	OppenheimerFunds, Inc.	Management		MMLIC		

Asterisk	Explanation
1	Massachusetts Mutual Life Insurance Company owns .85% of the affiliated debt of Jefferies Finance LLC
2	Debt investors own 6.7% 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 7.7% and includes only Great Lakes III, L.P.
5	Debt investors own 5.9% and includes only Great Lakes III, L.P.
6	Debt investors own 7.5% 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

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]



STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

**OVERFLOW PAGE FOR WRITE-INS**

Additional Write-ins for Assets Line 25

	Current Statement Date			4 December 31 Prior Year Net Admitted Assets
	1 Assets	2 Nonadmitted Assets	3 Net Admitted Assets (Cols: 1 - 2)	
2504. Investment in trust .....	29,599,533		29,599,533	31,602,010
2505. Pension plan asset .....	568,956,426	568,956,426		
2506. Cash advances to agents .....	422,118,611	422,118,611		
2507. Disallowed interest maintenance reserve .....	237,705,857	237,705,857		
2508. Intangible assets .....	98,463,112	98,463,112		
2509. Commission and expenses on long-term lease .....	61,603,219	61,603,219		
2510. Bills receivable .....	160,112	160,112		
2597. Summary of remaining write-ins for Line 25 from overflow page	1,418,606,870	1,389,007,337	29,599,533	31,602,010

Additional Write-ins for Liabilities Line 25

	1 Current Statement Date	2 December 31 Prior Year
2504. Funds awaiting escheat and other miscellaneous .....	73,851,168	70,738,008
2505. Deferred income .....	15,510,847	15,798,281
2597. Summary of remaining write-ins for Line 25 from overflow page	89,362,015	86,536,289

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. Change in corporate owned life insurance .....	16,869,074	74,537,048	138,163,589
08.305. Miscellaneous .....	5,121,247	5,954,883	15,237,773
08.397. Summary of remaining write-ins for Line 8.3 from overflow page	21,990,321	80,491,931	153,401,362

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 .....	98,670,404		
2705. Miscellaneous charges to operations .....	13,963,750	5,807,727	9,219,616
2706. Change in liability for employee/agent benefit plans .....	10,783,480	13,282,168	46,800,148
2797. Summary of remaining write-ins for Line 27 from overflow page	123,417,634	19,089,895	56,019,764

STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE A - VERIFICATION**

Real Estate

	1 Year to Date	2 Prior Year Ended December 31
1. Book/adjusted carrying value, December 31 of prior year .....	857,001,296	976,679,957
2. Cost of acquired:		
2.1 Actual cost at time of acquisition .....	136,450	49,163,425
2.2 Additional investment made after acquisition .....	59,803,573	299,407,254
3. Current year change in encumbrances .....	(69,826,688)	(81,317,801)
4. Total gain (loss) on disposals .....	170,035,888	83,790,128
5. Deduct amounts received on disposals .....	273,427,314	353,509,405
6. Total foreign exchange change in book/adjusted carrying value .....		
7. Deduct current year's other than temporary impairment recognized .....	2,208,173	15,690,573
8. Deduct current year's depreciation .....	39,352,547	101,521,690
9. Book/adjusted carrying value at the end of current period (Lines 1+2+3+4-5+6-7-8) .....	702,162,485	857,001,296
10. Deduct total nonadmitted amounts .....		
11. Statement value at end of current period (Line 9 minus Line 10) .....	702,162,485	857,001,296

**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 .....	22,579,846,619	20,963,341,565
2. Cost of acquired:		
2.1 Actual cost at time of acquisition .....	1,627,154,835	4,380,407,680
2.2 Additional investment made after acquisition .....	226,941,559	162,970,943
3. Capitalized deferred interest and other .....	16,800,050	27,706,382
4. Accrual of discount .....	3,335,696	2,522,733
5. Unrealized valuation increase (decrease) .....		
6. Total gain (loss) on disposals .....	(1,995,605)	(26,570,127)
7. Deduct amounts received on disposals .....	1,280,635,906	3,082,428,844
8. Deduct amortization of premium and mortgage interest points and commitment fees .....	(900,469)	2,909,861
9. Total foreign exchange change in book value/recorded investment excluding accrued interest .....	(58,455,265)	154,806,148
10. Deduct current year's other than temporary impairment recognized .....		
11. Book value/recorded investment excluding accrued interest at end of current period (Lines 1+2+3+4+5+6-7-8+9-10) .....	23,113,892,451	22,579,846,619
12. Total valuation allowance .....		
13. Subtotal (Line 11 plus Line 12) .....	23,113,892,451	22,579,846,619
14. Deduct total nonadmitted amounts .....		
15. Statement value at end of current period (Line 13 minus Line 14) .....	23,113,892,451	22,579,846,619

**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 .....	7,722,717,021	7,233,113,042
2. Cost of acquired:		
2.1 Actual cost at time of acquisition .....	260,201,039	1,581,211,660
2.2 Additional investment made after acquisition .....	879,988,950	1,521,461,828
3. Capitalized deferred interest and other .....		
4. Accrual of discount .....		
5. Unrealized valuation increase (decrease) .....	626,158,190	1,089,199,341
6. Total gain (loss) on disposals .....	9,103,878	(24,302,393)
7. Deduct amounts received on disposals .....	1,768,286,287	3,766,712,098
8. Deduct amortization of premium and depreciation .....	241,211	449,633
9. Total foreign exchange change in book/adjusted carrying value .....	(31,912,344)	102,490,723
10. Deduct current year's other than temporary impairment recognized .....	22,350,339	13,295,448
11. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5+6-7-8+9-10) .....	7,675,378,897	7,722,717,021
12. Deduct total nonadmitted amounts .....	47,380,372	44,931,819
13. Statement value at end of current period (Line 11 minus Line 12) .....	7,627,998,525	7,677,785,202

**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 .....	106,837,837,246	99,649,127,776
2. Cost of bonds and stocks acquired .....	13,598,927,689	27,916,049,478
3. Accrual of discount .....	137,149,996	272,189,271
4. Unrealized valuation increase (decrease) .....	(269,888,143)	342,157,228
5. Total gain (loss) on disposals .....	61,426,924	41,513,425
6. Deduct consideration for bonds and stocks disposed of .....	11,458,250,677	22,005,237,281
7. Deduct amortization of premium .....	65,986,969	157,747,912
8. Total foreign exchange change in book/adjusted carrying value .....	(293,161,917)	911,278,992
9. Deduct current year's other than temporary impairment recognized .....	1,296,913,350	131,493,731
10. Total investment income recognized as a result of prepayment penalties and/or acceleration fees .....	23,150,823	
11. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9+10) .....	107,274,291,622	106,837,837,246
12. Deduct total nonadmitted amounts .....		
13. Statement value at end of current period (Line 11 minus Line 12) .....	107,274,291,622	106,837,837,246

STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE D - PART 1B**

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

NAIC Designation	1 Book/Adjusted Carrying Value Beginning of Current Quarter	2 Acquisitions During Current Quarter	3 Dispositions During Current Quarter	4 Non-Trading Activity During Current Quarter	5 Book/Adjusted Carrying Value End of First Quarter	6 Book/Adjusted Carrying Value End of Second Quarter	7 Book/Adjusted Carrying Value End of Third Quarter	8 Book/Adjusted Carrying Value December 31 Prior Year
<b>BONDS</b>								
1. NAIC 1 (a) .....	49,052,494,081	6,231,798,505	4,073,697,911	(93,343,028)	49,052,494,081	51,117,251,647		49,042,922,001
2. NAIC 2 (a) .....	37,114,505,125	23,765,533,901	21,430,684,876	(317,052,722)	37,114,505,125	39,132,301,428		35,672,949,532
3. NAIC 3 (a) .....	3,976,224,982	1,272,463,664	1,911,660,827	(9,377,231)	3,976,224,982	3,327,650,588		4,824,432,817
4. NAIC 4 (a) .....	2,688,238,461	334,316,819	330,085,166	(165,507,369)	2,688,238,461	2,526,962,745		2,805,056,844
5. NAIC 5 (a) .....	1,203,439,106	46,438,228	215,973,227	51,880,942	1,203,439,106	1,085,785,049		998,790,916
6. NAIC 6 (a) .....	341,590,419	7,347,213	41,141,341	45,692,435	341,590,419	353,488,726		386,586,979
7. Total Bonds	94,376,492,174	31,657,898,330	28,003,243,348	(487,706,973)	94,376,492,174	97,543,440,183		93,730,739,089
<b>PREFERRED STOCK</b>								
8. NAIC 1 .....	455,200,000				455,200,000	455,200,000		455,200,000
9. NAIC 2 .....	145,330,200		8,513,313	(7,242,400)	145,330,200	129,574,487		140,991,800
10. NAIC 3 .....	140,943,708				140,943,708	140,943,708		140,482,835
11. NAIC 4 .....	13,274,500			(12,651,799)	13,274,500	622,701		628,860
12. NAIC 5 .....	3,100,879			12,616,678	3,100,879	15,717,557		15,840,658
13. NAIC 6 .....	11,364,872		11,480,400	662,400	11,364,872	546,872		14,662,936
14. Total Preferred Stock	769,214,159		19,993,713	(6,615,121)	769,214,159	742,605,325		767,807,089
15. Total Bonds and Preferred Stock	95,145,706,333	31,657,898,330	28,023,237,061	(494,322,094)	95,145,706,333	98,286,045,508		94,498,546,178

(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 \$ 427,164,425 ; NAIC 2 \$ 4,080,901,155 ; NAIC 3 \$ ; NAIC 4 \$ ; NAIC 5 \$ ; NAIC 6 \$ .

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**SCHEDULE DA - PART 1**

## Short-Term Investments

	1	2	3	4	5
	Book/Adjusted Carrying Value	Par Value	Actual Cost	Interest Collected Year-to-Date	Paid for Accrued Interest Year-to-Date
9199999 Totals	622,514,131	xxx	621,502,831		

**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 .....	508,320,258	707,992,227
2. Cost of short-term investments acquired .....	1,437,126,802	2,635,782,710
3. Accrual of discount .....	4,749,738	5,773,955
4. Unrealized valuation increase (decrease) .....		
5. Total gain (loss) on disposals .....	(3,850)	24,350
6. Deduct consideration received on disposals .....	1,327,678,486	2,841,252,984
7. Deduct amortization of premium .....	331	
8. Total foreign exchange change in book/adjusted carrying value .....		
9. Deduct current year's other than temporary impairment recognized .....		
10. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9) .....	622,514,131	508,320,258
11. Deduct total nonadmitted amounts .....		
12. Statement value at end of current period (Line 10 minus Line 11)	622,514,131	508,320,258

**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)	2,878,021,222
2. Cost Paid/(Consideration Received) on additions	313,482,983
3. Unrealized Valuation increase/(decrease)	528,047,087
4. Total gain (loss) on termination recognized	(219,765,649)
5. Considerations received/(paid) on terminations	29,175,716
6. Amortization	(4,605,319)
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)	3,466,004,608
10. Deduct nonadmitted assets	
11. Statement value at end of current period (Line 9 minus Line 10)	3,466,004,608

**SCHEDULE DB - PART B - VERIFICATION**

Futures Contracts

1. Book/Adjusted carrying value, December 31 of prior year (Line 6, prior year)	
2. Cumulative cash change (Section 1, Broker Name/Net Cash Deposits Footnote - Cumulative Cash Change column)	
3.1 Add:	
Change in variation margin on open contracts - Highly Effective Hedges	
3.11 Section 1, Column 15, current year to date minus	
3.12 Section 1, Column 15, prior year	
Change in variation margin on open contracts - All Other	
3.13 Section 1, Column 18, current year to date minus	141,538,614
3.14 Section 1, Column 18, prior year	18,023,700
	123,514,914
	123,514,914
3.2 Add:	
Change in adjustment to basis of hedged item	
3.21 Section 1, Column 17, current year to date minus	
3.22 Section 1, Column 17, prior year	
Change in amount recognized	
3.23 Section 1, Column 19, current year to date minus	141,538,614
3.24 Section 1, Column 19, prior year	18,023,700
	123,514,914
	123,514,914
3.3 Subtotal (Line 3.1 minus Line 3.2)	
4.1 Cumulative variation margin on terminated contracts during the year	(309,891,429)
4.2 Less:	
4.21 Amount used to adjust basis of hedged item	
4.22 Amount recognized	(327,915,129)
	(327,915,129)
4.3 Subtotal (Line 4.1 minus Line 4.2)	18,023,701
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	(18,023,701)
6. Book/Adjusted carrying value at end of current period (Lines 1+2+3.3-4.3-5.1-5.2)	
7. Deduct total nonadmitted amounts	
8. Statement value at end of current period (Line 6 minus Line 7)	

STATEMENT AS OF JUNE 30, 2018 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*AA9	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	2	50,000,000	44,981,628	41,130,222	10/01/2012	10/01/2042	Interest Rate Swap	(3,667,143)		42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	44,981,628	44,797,365
57629*AA9	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	2		11,352,673	12,317,500	10/01/2012	10/01/2042	Interest Rate Swap			320808-AD-0	FIRST MARYLAND CAP I-LIMITED GUARANTEE NOTE	2	11,352,673	12,317,500
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3	50,000,000	5,600,000	1,888,180	10/01/2012	10/01/2042	Interest Rate Swap	(3,720,942)		87246M-AA-0	TICP CLO LTD-SERIES 2016-6A CLASS A	1	5,600,000	5,609,122
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		21,903,739	21,820,761	10/01/2012	10/01/2042	Interest Rate Swap			G7818N-ZZ-5	SASOL CHEMICALS (USA) LL TERM LOAN	2	21,903,739	21,820,761
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		5,478,698	5,478,698	10/01/2012	10/01/2042	Interest Rate Swap			77277L-A7-2	ROCKALL CLO BV Variable Funding Note- USD	1	5,478,698	5,478,698
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		5,481,228	5,680,338	10/01/2012	10/01/2042	Interest Rate Swap			83149E-AG-2	SLM STUDENT LN TR 2006-5-NOTE CL B	1	5,481,228	5,680,338
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		5,470,000	5,490,600	10/01/2012	10/01/2042	Interest Rate Swap			883310-AE-4	THAYER PARK CLO LTD--THAYR 2017-1A	1	5,470,000	5,490,600
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		6,965,047	6,875,275	10/01/2012	10/01/2042	Interest Rate Swap			67104C-AB-3	OAK HILL CREDIT PARTNERS-SERIES 2013 - 8A CLASS B	1	6,965,047	6,875,275
57629*AB7	Evergreen Basket of Long Fixed Rate Bank Loans B- or Above	3		4,000,000	3,953,316	10/01/2012	10/01/2042	Interest Rate Swap			09628F-AE-9	BlueMountain Fuji US CLO-SERIES 2017-3A CLASS B	1	4,000,000	3,953,316
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	264,000,000	19,165,000	(1,356,188)	11/29/2012	11/29/2042	Interest Rate Swap	(20,498,190)		14316R-ZZ-6	Carlyle US CLO 2017-5 Re Term Loan	1	19,165,000	19,142,002
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,445,799	7,268,421	11/29/2012	11/29/2042	Interest Rate Swap			83149F-AD-6	SLMA 2006 6 NT CL B	1	6,445,799	7,268,421
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	7,000,455	11/29/2012	11/29/2042	Interest Rate Swap			67106J-AS-9	OHA CREDIT PARTNERS LTD-OAKC 2014-10A CR	1	7,000,000	7,000,455
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,500,000	15,519,608	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	15,519,608
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,379,607	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	13,379,607
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,100,000	13,123,108	11/29/2012	11/29/2042	Interest Rate Swap			67097Q-AC-9	OCP CLO 2017-14 Ltd-SERIES 17-14A CLASS A1B	1	13,100,000	13,123,108
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		26,722,373	25,786,890	11/29/2012	11/29/2042	Interest Rate Swap			57542Z-AO-7	MASMUTUAL ASSET FIN LLC SR SECD REV NT	1	26,722,373	25,786,890
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		154,000,000	154,021,560	11/29/2012	11/29/2042	Interest Rate Swap			126611-AL-6	CVP CASCADE CLO LTD-CVPC 2014-2A A1R	1	154,000,000	154,021,560
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,200,000	6,214,812	11/29/2012	11/29/2042	Interest Rate Swap			94950G-AE-7	WELLFLEET CLO LTD-WELF 2017-1A B	1	6,200,000	6,214,812
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,525,000	5,528,437	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	5,528,437
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,000,000	11/29/2012	11/29/2042	Interest Rate Swap			38137M-AK-3	Goldentree Loan Opportun-GLD12 2016-12A AJR	1	15,000,000	15,000,000
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,500,000	4,499,892	11/29/2012	11/29/2042	Interest Rate Swap			03767M-AJ-7	Apidos CLO-APID 2018-29A B	1	4,500,000	4,499,892
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	12,000,000	7,558,204	12/27/2012	12/27/2042	Interest Rate Swap	(4,441,532)		67112K-AC-3	OCP CLO Ltd-SERIES 18-15A CLASS A3	1	12,000,000	11,999,736
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	4,016,064	12/27/2012	12/27/2042	Interest Rate Swap			83609R-AE-1	SOUND POINT CLO LTD-SNDPT 2017-1A C	1	4,000,000	4,016,064
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,800,000	22,825,080	12/27/2012	12/27/2042	Interest Rate Swap			14315J-YY-9	Carlyle US CLO 2017-3 Ri Term Loan	1	22,800,000	22,825,080
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,200,000	3,192,022	12/27/2012	12/27/2042	Interest Rate Swap			03330A-AC-6	Anchorage Capital CLO 3--ANCHC 2014-3RA B	1	3,200,000	3,192,022
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,400,000	17,400,539	12/27/2012	12/27/2042	Interest Rate Swap			81789G-AA-9	SEVEN STICKS CLO LTD-SR SECD NT CL A-1 144A	1	17,400,000	17,400,539
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,800,000	8,775,730	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	8,775,730
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,906,932	16,321,722	12/27/2012	12/27/2042	Interest Rate Swap			24820R-AA-6	Statoil ASA-SENIOR UNSECURED NOTE	1	13,906,932	16,321,722
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,500,000	10,504,788	12/27/2012	12/27/2042	Interest Rate Swap			94949L-AA-8	WELLFLEET CLO LTD-WELF 2016-2A A1	1	10,500,000	10,504,788
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,001,250	12/27/2012	12/27/2042	Interest Rate Swap			55953H-AL-7	MAGNETITE CLO LTD-SERIES 2015-12A CLASS BR	1	10,000,000	10,001,250
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	15,710,953	11,264,195	12/27/2012	12/27/2042	Interest Rate Swap	(4,441,532)		92977H-AG-3	WACHOVIA STUDENT LOAN TR-WSLT 2005-1 B	1	15,710,953	15,705,727

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**SCHEDULE DB - PART C - SECTION 1**

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

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,990,000	19,023,897	12/27/2012	12/27/2042	Interest Rate Swap			04964K-AN-1	TRIUM CDO CORP-SERIES 9A CLASS BR	1	18,990,000	19,023,897
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,810,000	18,817,167	12/27/2012	12/27/2042	Interest Rate Swap			92912V-AQ-8	VOYA CLO LTD-VOYA 2014-2A A2AR	1	18,810,000	18,817,167
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,800,000	6,812,995	12/27/2012	12/27/2042	Interest Rate Swap			48251B-AA-8	KKR FINANCIAL CLO LTD-KKR 16 A1 Babson CLO Ltd/Cayman Is-BABSN	1	6,800,000	6,812,995
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,000,000	22,877,525	12/27/2012	12/27/2042	Interest Rate Swap			06760P-AE-1	2018-3A A2 Madison Park Funding Ltd-SERIES 18-28A CLASS B	1	23,000,000	22,877,525
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,500,000	9,500,000	12/27/2012	12/27/2042	Interest Rate Swap			55821A-AE-8	OCTAGON INV PARTNERS XVI LTD-SR SECD NT CL C1	1	9,500,000	9,500,000
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,900,000	4,901,475	12/27/2012	12/27/2042	Interest Rate Swap			67590B-AE-0	CARLYLE GLOBAL MARKET ST-SERIES 15-1A CLASS BR	1	4,900,000	4,901,475
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,450,000	3,450,293	12/27/2012	12/27/2042	Interest Rate Swap			14311D-BC-9	ARROWMARK COLORADO HOLDI-SERIES 17-7A CLASS B	2	3,450,000	3,450,293
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,991,040	12/27/2012	12/27/2042	Interest Rate Swap			28622J-AB-3	Goldentree Loan Managem-GLM 2018-3A B1	1	4,000,000	3,991,040
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	6,000,000	2,397,158	12/28/2012	12/28/2042	Interest Rate Swap		(3,602,542)	38138B-AG-5	LMI LTD PARTNERSHIP-SERIES 16A CLASS CR	1	6,000,000	5,999,700
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,500,000	8,500,366	12/28/2012	12/28/2042	Interest Rate Swap			50181G-AU-4	SYMPHONY CLO V LTD-SR SECD NT CL A-2 144A	1	8,500,000	8,500,366
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,705,562	9,653,069	12/28/2012	12/28/2042	Interest Rate Swap			87155M-AC-5	MADISON PARK FUNDING LTD-SERIES 2015-16A CLASS BR	1	9,705,562	9,653,069
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	7,003,003	12/28/2012	12/28/2042	Interest Rate Swap			55818X-BA-0	WIND RIVER CLO LTD-WINDR 2017-1A B	1	7,000,000	7,003,003
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,050,000	11,050,044	12/28/2012	12/28/2042	Interest Rate Swap			88432M-AC-8	WELLFLEET CLO 2015-1 LTD-SR SECD NT CL A-1 144A	1	11,050,000	11,050,044
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	50,225,750	12/28/2012	12/28/2042	Interest Rate Swap			949496-AC-7	Tryon Park CLO Ltd-TPCLO 2013-1A A1JR	1	50,000,000	50,225,750
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,985,992	12/28/2012	12/28/2042	Interest Rate Swap			89852T-AN-8	TICOP CLO VI 2016-5 LTD-TICOP 2016-5A A2R	1	8,000,000	7,985,992
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,000,000	3,000,000	12/28/2012	12/28/2042	Interest Rate Swap			87248K-AS-3	Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	3,000,000	3,000,000
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,000,000	997,500	12/28/2012	12/28/2042	Interest Rate Swap			94950J-AA-9	Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	1,000,000	997,500
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	59,000,000	55,249,958	12/28/2012	12/28/2042	Interest Rate Swap		(3,602,542)	94950J-AA-9	BABSON CLO LTD 2015-11-SERIES 15-2A CLASS AR	1	59,000,000	58,852,500
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,200,000	14,247,613	12/28/2012	12/28/2042	Interest Rate Swap			06759F-AB-2	1828 CLO LTD-SR SECD NT CL A-1-S 144A	1	14,200,000	14,247,613
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,040,000	16,040,513	12/28/2012	12/28/2042	Interest Rate Swap			282523-AB-5	MADISON PARK FUNDING LTD-SERIES 15-17A CLASS B1R	1	16,040,000	16,040,513
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,700,000	12,732,474	12/28/2012	12/28/2042	Interest Rate Swap			55818Y-BE-0	CIFC Funding 2018-1 Ltd-SERIES 18-1A CLASS C	1	12,700,000	12,732,474
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,200,000	4,162,502	12/28/2012	12/28/2042	Interest Rate Swap			12551R-AE-8	BlueMountain CLO 2015-4 -SERIES 15-4A CLASS A2R	1	4,200,000	4,162,502
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	20,000,000	16,450,238	12/28/2012	12/28/2042	Interest Rate Swap		(3,602,542)	09628N-AQ-5	SOUND POINT CLO IX LTD-SERIES 2015-2A CLASS B1R	1	20,000,000	20,052,780
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,999,400	12/28/2012	12/28/2042	Interest Rate Swap			83609G-AN-5	GOLDMAN SACHS GROUP INC-SENIOR UNSECURED	1	8,000,000	7,999,400
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,828,253	3,882,934	12/28/2012	12/28/2042	Interest Rate Swap			38141G-VII-1	SYMPHONY CLO LTD-SERIES 14-15A CLASS B1R	1	3,828,253	3,882,934
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,400,000	9,400,085	12/28/2012	12/28/2042	Interest Rate Swap			87154E-AJ-9	SLM STUDENT LOAN TRUST-SLMA 2013-3 B	1	9,400,000	9,400,085
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,878,982	8,670,188	12/28/2012	12/28/2042	Interest Rate Swap			78447Y-AD-4	WELLFLEET CLO 2016-2 LTD-WELF 2016-2A A2	1	8,878,982	8,670,188
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,987,721	6,886,804	12/28/2012	12/28/2042	Interest Rate Swap			94949L-AC-4	MADISON PARK FUNDING LTD-SERIES 2017-23A CLASS B	1	6,987,721	6,886,804
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,900,000	8,918,209	12/28/2012	12/28/2042	Interest Rate Swap			55820T-AC-2	FLATIRON CLO LTD-FLAT 2017-1A C LMI LTD PARTNERSHIP-SERIES 22A CLASS A2	1	8,900,000	8,918,209
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,650,000	8,675,967	12/28/2012	12/28/2042	Interest Rate Swap			33882G-AC-2	FLATIRON CLO LTD-FLAT 2017-1A C LMI LTD PARTNERSHIP-SERIES 22A CLASS A2	1	8,650,000	8,675,967
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,825,000	6,830,262	12/28/2012	12/28/2042	Interest Rate Swap			50189G-AC-6		1	6,825,000	6,830,262

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STATEMENT AS OF JUNE 30, 2018 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		4,250,000	4,265,258	12/28/2012	12/28/2042	Interest Rate Swap			09626U-AQ-1	BLUEMOUNTAIN CLO LTD-BLUEM 2013-1A BR	1	4,250,000	4,265,258
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,350,000	6,384,563	12/28/2012	12/28/2042	Interest Rate Swap			26249K-AM-3	DRYDEN SENIOR LOAN FUND-SERIES 2014-36A CLASS CR	1	6,350,000	6,384,563
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,761,000	13,070,116	12/28/2012	12/28/2042	Interest Rate Swap			78447M-AD-0	SLM STUDENT LOAN TRUST-SERIES 2013-1 CLASS B	1	12,761,000	13,070,116
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	13,560,000	12/28/2012	12/28/2042	Interest Rate Swap		(1,801,271)	09627D-AQ-8	BLUEMOUNTAIN CLO LTD-BLUEM 2013-4A B1R	1	13,560,000	13,564,122
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,024,440	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	10,024,440
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,516,058	9,436,686	12/28/2012	12/28/2042	Interest Rate Swap			63940A-AD-0	NAVIENT STUDENT LOAN TRU-SERIES 17-4A CLASS B	1	9,516,058	9,436,686
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,600,000	9,622,608	12/28/2012	12/28/2042	Interest Rate Swap			00191Y-AM-6	ARES CLO LTD-SERIES 2015 1-A CLASS A2R	1	9,600,000	9,622,608
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,521,165	12/28/2012	12/28/2042	Interest Rate Swap			26245C-AE-3	DRYDEN SENIOR LOAN FUND-SERIES 2016-43A CLASS B	1	7,500,000	7,521,165
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,000,000	2,004,780	12/28/2012	12/28/2042	Interest Rate Swap			22616C-AE-3	CRESTLINE DENALI CLO XV-SERIES 17-1A CLASS C	1	2,000,000	2,004,780
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	10,000,000	12/28/2012	12/28/2042	Interest Rate Swap		(1,801,271)	24380L-AE-3	DEER CREEK CLO LTD 2017-SERIES 17-1A CLASS B	1	10,000,000	10,006,260
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,000,000	12,002,316	12/28/2012	12/28/2042	Interest Rate Swap			03765P-AC-7	APIDOS CLO XX1-SR SECURED NOTE CL A-2	1	12,000,000	12,002,316
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,725,000	11,727,157	12/28/2012	12/28/2042	Interest Rate Swap			38137P-AE-0	GOLDENTREE LOAN OPP X LTD-SR SEC NT CL B	1	11,725,000	11,727,157
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,570,000	13,578,413	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	13,578,413
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,850,000	4,854,860	12/28/2012	12/28/2042	Interest Rate Swap			08179H-AB-6	BENEFIT STREET PARTNERS-SERIES 2017-12A CLASS A2	1	4,850,000	4,854,860
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	13,500,000	12/28/2012	12/28/2042	Interest Rate Swap		(1,801,271)	47032@-AK-7	JAMES CAMPBELL CO LLC SR NT SER 2014-E	2	13,500,000	13,390,070
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,184,103	11,499,571	12/28/2012	12/28/2042	Interest Rate Swap			78442G-PL-4	SLM STUDENT LOAN TRUST-SERIES 2005-4 CLASS B	1	11,184,103	11,499,571
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,920,000	8,921,151	12/28/2012	12/28/2042	Interest Rate Swap			10302V-BC-8	BOWMAN PARK CLO LTD-BOWPK 2014-1A B1R	1	8,920,000	8,921,151
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,850,000	6,861,638	12/28/2012	12/28/2042	Interest Rate Swap			674000-AQ-7	OAKTREE CLO LTD-SERIES 14-1A CLASS A2R	1	6,850,000	6,861,638
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,840,000	6,850,643	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	6,850,643
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,004,350	12/28/2012	12/28/2042	Interest Rate Swap			50188Y-AB-0	LCM LTD PARTNERSHIP-LCM 24A B C1FC FUNDING LTD-SERIES 17-3A CLASS A2	1	5,000,000	5,004,350
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	5,400,000	12/28/2012	12/28/2042	Interest Rate Swap		(1,801,271)	12548J-AE-2	ALM XIV Ltd-SERIES 14-14A CLASS A2R2	1	5,400,000	5,416,907
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,900,000	11,860,016	12/28/2012	12/28/2042	Interest Rate Swap			74988L-AC-8	ARES CLO LTD-SERIES 2015 1-A CLASS B2R	1	11,900,000	11,860,016
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,050,000	3,068,526	12/28/2012	12/28/2042	Interest Rate Swap			00191Y-AP-9	LCM LTD PARTNERSHIP-SERIES 13A CLASS CR	1	3,050,000	3,068,526
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,500,000	4,522,788	12/28/2012	12/28/2042	Interest Rate Swap			50184K-AW-8	BENEFIT STREET PARTNERS-BSP 2016-10A A1	1	4,500,000	4,522,788
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,010,620	12/28/2012	12/28/2042	Interest Rate Swap			08181L-AA-5	HILDENE CLO IV LTD-SR SEC NT SER 2015-4A CL A-2	1	5,000,000	5,010,620
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,004,760	12/28/2012	12/28/2042	Interest Rate Swap			43132W-AC-4	BABSON CLO LTD-BABSN 2014-11A CR	1	10,000,000	10,004,760
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,750,000	8,751,706	12/28/2012	12/28/2042	Interest Rate Swap			05618L-AH-9	BALLYROCK LTD-SERIES 16-1A CLASS B1	1	8,750,000	8,751,706
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,900,000	3,904,567	12/28/2012	12/28/2042	Interest Rate Swap			05875F-AC-1	CARLYLE GLOBAL MARKET ST-SERIES 14-5A CLASS BR	1	3,900,000	3,904,567
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	6,500,000	12/31/2012	12/31/2042	Interest Rate Swap		(2,543,461)	14311A-AN-2	DRYDEN 38 SR LN FD SR SEC NT CL B	1	6,500,000	6,501,047
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,475,000	9,477,530	12/31/2012	12/31/2042	Interest Rate Swap			26249Q-AG-3	Carlyle US CLO 2013-2 Re Term Loan	1	9,475,000	9,477,530
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,132,568	21,115,662	12/31/2012	12/31/2042	Interest Rate Swap			14315J-AM-8		1	21,132,568	21,115,662

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STATEMENT AS OF JUNE 30, 2018 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*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,550,000	7,588,648	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	7,588,648
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,850,000	5,849,906	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	5,849,906
57629*AN1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,330,000	4,329,939	12/31/2012	12/31/2042	Interest Rate Swap			55954E-AJ-8	MAGNETITE XVII LTD-DEF MEZZ NT SER 16-17A CL C	1	4,330,000	4,329,939
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	13,560,000	11,023,183	12/31/2012	12/31/2042	Interest Rate Swap	(2,543,461)		09627R-AL-8	BLUEMOUNTAIN CLO LTD-BLUEM 2014-3A A2AR	1	13,560,000	13,566,644
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,000,000	25,000,000	12/31/2012	12/31/2042	Interest Rate Swap			67104L-AF-4	OHA Loan Funding 2013-2 -OHALF 2013-2A BR	1	25,000,000	25,000,000
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,800,000	12,801,178	12/31/2012	12/31/2042	Interest Rate Swap			36319G-AP-9	GALAXY CLO LTD-GALXY 2014-18A AR	1	12,800,000	12,801,178
57629*AP6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,000,000	1,993,438	12/31/2012	12/31/2042	Interest Rate Swap			94184B-D8-9	Waters Corporation Gtd Senior Note Series H	2	2,000,000	1,993,438
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	14,300,000	11,824,264	12/31/2012	12/31/2042	Interest Rate Swap	(2,543,461)		55820J-AC-4	MADISON PARK FUNDING LTD-SERIES 2016-21A CLASS A2	1	14,300,000	14,367,725
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,895,711	13,755,321	12/31/2012	12/31/2042	Interest Rate Swap			948214-AC-5	WEBSTER PK CLO SR SECD NT CL A-2	1	13,895,711	13,755,321
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,000,000	12/31/2012	12/31/2042	Interest Rate Swap			87248K-AS-3	TICP CLO VI 2016-5 LTD-TICP 2016-5A A2R	1	5,000,000	5,000,000
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,350,000	4,357,452	12/31/2012	12/31/2042	Interest Rate Swap			020053-AS-3	ALM LOAN FUNDING-SERIES 13-8A CLASS A1R	1	4,350,000	4,357,452
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,700,000	2,700,459	12/31/2012	12/31/2042	Interest Rate Swap			87154E-AN-0	SYMPHONY CLO LTD-SERIES 14-15A CLASS CR	1	2,700,000	2,700,459
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,700,000	8,704,367	12/31/2012	12/31/2042	Interest Rate Swap			58983H-AB-5	MILL CREEK CLO II LTD-SR SECD NT CL B-1 144A	1	8,700,000	8,704,367
57629*A04	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,991,040	12/31/2012	12/31/2042	Interest Rate Swap			28622J-AB-3	ARROWMARK COLORADO HOLDI-SERIES 17-7A CLASS B	1	4,000,000	3,991,040
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	2,600,000	57,254	12/31/2012	12/31/2042	Interest Rate Swap	(2,543,461)		88432D-AU-8	WIND RIVER CLO LTD-SERIES 14-3A CLASS C1R	1	2,600,000	2,600,715
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,400,000	7,415,089	12/31/2012	12/31/2042	Interest Rate Swap			92916M-AC-5	VOYA CLO LTD-VOYA 2017-1A B	1	7,400,000	7,415,089
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,350,000	5,361,695	12/31/2012	12/31/2042	Interest Rate Swap			69689A-AN-0	PALMER SQUARE CLO LTD-SERIES 15-1A CLASS A2R	1	5,350,000	5,361,695
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,500,000	4,504,608	12/31/2012	12/31/2042	Interest Rate Swap			26244M-AC-6	DRYDEN SENIOR LOAN FUND-DRSLF 2016-45A B	1	4,500,000	4,504,608
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,482,207	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	7,482,207
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,200,000	4,200,281	12/31/2012	12/31/2042	Interest Rate Swap			92914R-AU-6	VOYA CLO LTD-SERIES 14-4A CLASS CR	2	4,200,000	4,200,281
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,400,000	9,409,926	12/31/2012	12/31/2042	Interest Rate Swap			05618P-AJ-6	BABSON CLO LTD 2016-1 SECD DEF MEZZ CL C	1	9,400,000	9,409,926
57629*AR2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,740,000	12,764,983	12/31/2012	12/31/2042	Interest Rate Swap			09626U-AN-8	BLUEMOUNTAIN CLO LTD-BLUEM 2013-1A A2R	1	12,740,000	12,764,983
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	10,057,182	7,362,321	12/31/2012	12/31/2042	Interest Rate Swap	(2,543,461)		46616K-AE-4	JFIN CLO 2013 LTD SR SECD DEF NT CL B	1	10,057,182	9,905,782
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,993,664	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	7,993,664
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,000,000	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	15,000,000
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,004,130	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	10,004,130
57629*AS0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,675,000	10,677,946	12/31/2012	12/31/2042	Interest Rate Swap			38137Q-AC-2	GOLDENTREE LOAN OPPORTUN-GOLD9 2014-9A B1R	1	10,675,000	10,677,946
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	10,000,000	7,462,799	12/31/2012	12/31/2042	Interest Rate Swap	(2,543,461)		87248W-AC-2	TICP CLO VIII LTD-SERIES 2017-8A CLASS A2	1	10,000,000	10,006,260
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,430,000	3,451,750	12/31/2012	12/31/2042	Interest Rate Swap			67400Q-AS-3	OKTREE CLO LTD-SERIES 14-1A CLASS BR	1	3,430,000	3,451,750
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,900,000	5,900,035	12/31/2012	12/31/2042	Interest Rate Swap			48251F-AB-7	KKR FINANCIAL CLO LTD-SERIES 17 CLASS B	1	5,900,000	5,900,035
57629*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,000,000	11,977,363	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	11,977,363

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STATEMENT AS OF JUNE 30, 2018 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*AT8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,650,000	22,659,060	12/31/2012	12/31/2042	Interest Rate Swap			14315C-ZZ-0	Carlyle US CLO 2017-4 Ri Term Loan	1	22,650,000	22,659,060
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	6,830,000	5,142,000	04/09/2013	04/09/2043	Interest Rate Swap	(1,688,690)		55953E-AN-0	MAGNETITE CLO LTD-SERIES 14-11A CLASS BR	1	6,830,000	6,830,690
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,600,000	5,626,966	04/09/2013	04/09/2043	Interest Rate Swap			12550Y-AG-9	CIFC FUNDING LTD-CIFC 2017-2A C BLUEMOUNTAIN CLO LTD-SERIES 17-1A CLASS B	1	5,600,000	5,626,966
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,280,000	4,286,660	04/09/2013	04/09/2043	Interest Rate Swap			09629C-AE-5	Rockford Tower CLO 2018--SERIES 18-1A CLASS B	1	4,280,000	4,286,660
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,250,000	4,274,042	04/09/2013	04/09/2043	Interest Rate Swap			00163K-AS-7	ALM LOAN FUNDING-ALM 2013-TRA A2R GT LOAN FINANCING LTD-SERIES 2013-1A CLASS B	1	4,250,000	4,274,042
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,824,222	4,811,151	04/09/2013	04/09/2043	Interest Rate Swap			36248M-AB-3	Rockford Tower CLO 2018--SERIES 18-1A CLASS B	1	4,824,222	4,811,151
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,499,775	04/09/2013	04/09/2043	Interest Rate Swap			77342J-AC-7	WELLFLEET CLO 2017-2 LTD-SERIES 17-2A CLASS A2	1	7,500,000	7,499,775
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,100,000	6,107,741	04/09/2013	04/09/2043	Interest Rate Swap			94951M-AC-7	NEUBERGER BERMAN CLO LTD-NEUB 2017-24A C	1	6,100,000	6,107,741
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,330,000	4,347,879	04/09/2013	04/09/2043	Interest Rate Swap			64130H-AE-1	NEUBERGER BERMAN CLO LTD-NEUB 2013-14A A1R	1	4,330,000	4,347,879
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,560,000	13,594,619	04/09/2013	04/09/2043	Interest Rate Swap			64129J-AQ-3	RXR Realty, LLC Senior Secured	2	13,560,000	13,594,619
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	60,000,000	17,970,000	16,487,193	04/09/2013	04/09/2043	Interest Rate Swap	(1,842,207)		74992*-AD-7	LCM XVIII LP-LCM 18A A2R	1	17,970,000	18,329,400
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,500,000	18,462,242	04/09/2013	04/09/2043	Interest Rate Swap			50188G-AX-1	EATON VANCE CDO LTD-SERIES 2013-1A CLASS A2R	1	18,500,000	18,462,242
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,750,000	12,788,135	04/09/2013	04/09/2043	Interest Rate Swap			27830B-AQ-7	CHA CREDIT PARTNERS LTD-SERIES 2012-7A CLASS B1R	1	12,750,000	12,788,135
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,800,000	12,814,848	04/09/2013	04/09/2043	Interest Rate Swap			67102Q-AK-4	Sounds Point CLO IV-R LT-SERIES 13-3RA CLASS A	1	12,800,000	12,814,848
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	26,000,000	24,178,451	04/09/2013	04/09/2043	Interest Rate Swap	(1,824,305)		83609Y-AC-0	SLM STUDENT LOAN TRUST-SERIES 2005-6 CLASS B	1	26,000,000	26,002,756
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,292,910	7,404,436	04/09/2013	04/09/2043	Interest Rate Swap			78442G-QA-7	RACE POINT CLO LTD-SERIES 13-8A CLASS BR	1	7,292,910	7,404,436
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,775,000	10,785,139	04/09/2013	04/09/2043	Interest Rate Swap			74982L-AQ-3	DRYDEN 42 SR LN FD-SR SEC NT CL B	1	10,775,000	10,785,139
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,000,000	13,004,069	04/09/2013	04/09/2043	Interest Rate Swap			26244Y-AC-0	MADISON PARK FUNDING LTD-SERIES 17-25A CLASS C	2	13,000,000	13,004,069
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	4,450,000	2,647,122	04/09/2013	04/09/2043	Interest Rate Swap	(1,824,305)		55820R-AG-7	MAGNETITE CLO LTD-SERIES 2017-19A CLASS C	1	4,450,000	4,471,427
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,950,000	1,960,454	04/09/2013	04/09/2043	Interest Rate Swap			55954K-AE-5	Carlyle US CLO 2017-1 Ri Term Loan	1	1,950,000	1,960,454
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,850,000	22,874,450	04/09/2013	04/09/2043	Interest Rate Swap			14311C-RR-1	ANCHORAGE CAPITAL CLO 20-SERIES 13-1A CLASS A2R	1	22,850,000	22,874,450
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,012,590	04/09/2013	04/09/2043	Interest Rate Swap			033292-AS-2	AIMCO-SERIES 14-AA CLASS C1R	1	10,000,000	10,012,590
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,190,000	5,174,435	04/09/2013	04/09/2043	Interest Rate Swap			00900A-AN-8	LCM XIX LTD PARTNERSHIP SR NT CL B	1	5,190,000	5,174,435
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	7,002,695	04/09/2013	04/09/2043	Interest Rate Swap			50188Q-AC-5	TREMAN PK CLO LTD SR SEC NT CL B-1	1	7,000,000	7,002,695
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,825,000	4,826,727	04/09/2013	04/09/2043	Interest Rate Swap			89473L-AB-0	Tryon Park CLO Ltd-TPCLO 2013-1A A1JR	1	4,825,000	4,826,727
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,825,000	4,826,727	04/09/2013	04/09/2043	Interest Rate Swap			89852T-AN-8	OZLM XIV LTD SR SEC NT CL A-1A	1	4,825,000	4,826,727
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	28,800,000	26,727,640	04/09/2013	04/09/2043	Interest Rate Swap	(2,161,208)		67110H-AA-6	BENEFIT STREET PARTNERS -BSP 2017-11A A2A	1	28,800,000	28,888,848
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,011,580	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	15,011,580
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,900,000	13,898,666	04/09/2013	04/09/2043	Interest Rate Swap			05875H-AC-7	Marble Point CLO XI Ltd-MP11 2017-2A A	1	13,900,000	13,898,666
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	60,000,000	21,900,000	19,552,086	04/09/2013	04/09/2043	Interest Rate Swap	(2,357,681)		56607F-AA-3	NORTHSTAR EDUCATION FINA-SERIES 04-2 CLASS B	1	21,900,000	21,909,767
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,921,811	18,674,900	04/09/2013	04/09/2043	Interest Rate Swap			66704J-BD-9		1	18,921,811	18,674,900

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STATEMENT AS OF JUNE 30, 2018 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*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,400,959	16,060,515	04/09/2013	04/09/2043	Interest Rate Swap			66704J-BK-3	NORTHSTAR EDUCATION FINA-SERIES 05-1 CLASS B	1	16,400,959	16,060,515
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,500,000	3,465,000	04/09/2013	04/09/2043	Interest Rate Swap			94950J-AC-5	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	3,500,000	3,465,000
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,200,000	3,154,451	04/09/2013	04/09/2043	Interest Rate Swap			22615E-AE-0	Crestline Denali CLO Ltd-SERIES 2018-1A CLASS C	1	3,200,000	3,154,451
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	34,500,000	32,542,392	04/09/2013	04/09/2043	Interest Rate Swap	(1,956,539)		01750C-AA-1	Allegro CLO VII Ltd-ALLEG 2018-1A	1	34,500,000	34,498,931
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,100,000	5,100,938	04/09/2013	04/09/2043	Interest Rate Swap			38137P-AE-0	GOLDENTREE LOAN OPP X LTD-SR SEC NT CL B	1	5,100,000	5,100,938
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,100,000	7,076,705	04/09/2013	04/09/2043	Interest Rate Swap			941848-D8-9	Waters Corporation Gtd Senior Note Series H	2	7,100,000	7,076,705
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		5,000,000	5,006,770	04/09/2013	04/09/2043	Interest Rate Swap			14314L-AE-5	Carlyle Global Market St-CGMS 2014-2RA A2	1	5,000,000	5,006,770
57629*BB6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		500,000	500,151	04/09/2013	04/09/2043	Interest Rate Swap			67590B-AE-0	OCTAGON INV PARTNERS XVI LTD-SR SECD NT CL C1	1	500,000	500,151
57629*AZ4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	54,008,161	52,056,861	04/09/2013	04/09/2043	Interest Rate Swap		(1,956,539)	126612-AJ-9	CVP CASCADE CLO LTD-CVPC 2013-CLO1 A1R	1	54,008,161	54,013,400
92553PA*3	Viacom, Inc. Senior Note	1	20,000,000	23,583,230	24,360,837	12/20/2013	03/20/2019	5 Yr Credit Default Swap	83,230	126,062	03915F-AB-2	Fletcher Building Intern Gtd Senior Note	2	23,500,000	24,234,775
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	6,800,000	11,993,516	03/05/2014	03/05/2034	Interest Rate Swap		5,177,155	92915Q-AE-3	VOYA CLO LTD-SERIES 2017-3A CLASS A1B	1	6,800,000	6,816,361
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,780,000	6,788,516	03/05/2014	03/05/2034	Interest Rate Swap			88434G-AC-9	THL CREDIT WIND RIVER 20-SERIES 2017-3A CLASS B	1	6,780,000	6,788,516
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,920,000	4,944,866	03/05/2014	03/05/2034	Interest Rate Swap			48249V-AS-0	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS BR	1	4,920,000	4,944,866
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,100,000	21,159,755	03/05/2014	03/05/2034	Interest Rate Swap			55818Y-BA-8	MADISON PARK FUNDING LTD-SERIES 15-17A CLASS AR	1	21,100,000	21,159,755
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,015,000	21,071,110	03/05/2014	03/05/2034	Interest Rate Swap			48249V-AN-1	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS A1R	1	21,015,000	21,071,110
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,800,000	20,824,939	03/05/2014	03/05/2034	Interest Rate Swap			22616C-AA-1	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS A	1	20,800,000	20,824,939
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,060,000	8,067,947	03/05/2014	03/05/2034	Interest Rate Swap			74983D-AC-1	RACE POINT X CLO LTD SR SEC NT CL B-1	1	8,060,000	8,067,947
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,200,000	12,203,123	03/05/2014	03/05/2034	Interest Rate Swap			55818P-AS-9	MADISON PARK FUNDING LTD-MDPK 2014-12A CR	1	12,200,000	12,203,123
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	20,144,275	26,065,111	03/05/2014	03/05/2034	Interest Rate Swap		5,202,807	346845-AC-4	FORT BENNING FAM-UNSECURED	1	20,144,275	20,862,304
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,800,000	11,799,799	03/05/2014	03/05/2034	Interest Rate Swap			14311D-AY-2	CARLYLE GLOBAL MARKET ST-SERIES 15-1A CLASS BR	1	11,800,000	11,799,799
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,209,360	11,167,364	03/05/2014	03/05/2034	Interest Rate Swap			38021X-AB-8	GOAL STRUCTURED SOLUTION-SERIES 2016-A CLASS A2	1	11,209,360	11,167,364
57629*BC4	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		44,709,389	42,874,200	03/05/2014	03/05/2034	Interest Rate Swap			16892D-AC-2	CHINA SOUTHERN POWER GRI-SENIOR UNSECURED	1	44,709,389	42,874,200
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,015,553	4,092,114	03/05/2014	03/05/2034	Interest Rate Swap			29365T-AA-2	ENERGY TEXAS INC-NOTE	1	4,015,553	4,092,114
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,850,000	10,854,188	03/05/2014	03/05/2034	Interest Rate Swap			883310-AC-8	THAYER PARK CLO LTD.-THAYR 2017-1A A2	1	10,850,000	10,854,188
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	45,139,207	56,359,333	05/19/2014	05/19/2044	Interest Rate Swap		9,392,359	77277L-GO-1	HIGHBRIDGE LOAN MANAGEM-HLM 9A-2016 A2	1	45,139,207	47,966,974
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,100,000	12,107,841	05/19/2014	05/19/2044	Interest Rate Swap			40436Q-AC-6	VAR FDG NT	1	12,100,000	12,107,841
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,070,000	12,073,778	05/19/2014	05/19/2044	Interest Rate Swap			14312L-AC-1	HIGHBRIDGE LOAN MANAGEM-HLM 9A-2016 A2	1	12,070,000	12,073,778
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,100,000	9,102,548	05/19/2014	05/19/2044	Interest Rate Swap			09627R-AN-4	CARLYLE GLOBAL MKT CLO 2016-2 SR SEC NT CL A2A	1	9,100,000	9,102,548
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,100,000	9,130,403	05/19/2014	05/19/2044	Interest Rate Swap			40436V-AC-5	BLUEMOUNTAIN CLO LTD-BLUEM 2014-3A BR	1	9,100,000	9,130,403
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,950,000	9,018,861	05/19/2014	05/19/2044	Interest Rate Swap			50184N-AP-7	HIGHBRIDGE LOAN MANAGEM-HLM 11A-17 C	1	8,950,000	9,018,861
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,600,000	4,649,240	05/19/2014	05/19/2044	Interest Rate Swap			65341K-AJ-5	LGM LTD PARTNERSHIP-SERIES 15A CLASS CR	1	4,600,000	4,649,240
												NEXTGEAR FLOORPLAN MASTE-SERIES 2016-1A CLASS A1	1		

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STATEMENT AS OF JUNE 30, 2018 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							
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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*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,100,000	13,056,429	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	13,056,429
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,094,652	13,041,011	05/19/2014	05/19/2044	Interest Rate Swap			42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	13,094,652	13,041,011
57629*BE0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,078,571	23,107,650	05/19/2014	05/19/2044	Interest Rate Swap			14315J-ZZ-5	Carlyle US CLO 2017-2 Ri Term Loan	1	23,078,571	23,107,650
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	20,000,000	22,722,261	05/19/2014	05/19/2034	Interest Rate Swap		2,717,801	67105V-AW-4	OAK CREDIT PARTNERS LTD-OAKC 2013-9A B1R	1	20,000,000	20,004,460
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	49,858,150	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	49,858,150
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	6,999,769	05/19/2014	05/19/2034	Interest Rate Swap			64130P-AE-3	Neuberger Berman CLO Ltd-NEUB 2018-28A B	1	7,000,000	6,999,769
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,999,700	05/19/2014	05/19/2034	Interest Rate Swap			13080B-AB-7	SYMPHONY CLO LTD-SERIES 13-12A CLASS B1R	1	20,000,000	19,999,700
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,900,000	19,912,000	05/19/2014	05/19/2034	Interest Rate Swap			39808P-AL-0	Greywolf CLO V Ltd-GWOLF 2015-1A A1R	1	19,900,000	19,912,000
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,000,000	9,003,168	05/19/2014	05/19/2034	Interest Rate Swap			67104C-AC-1	OAK HILL CREDIT PARTNERS-SERIES 2013-8A CLASS C	1	9,000,000	9,003,168
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	28,888,201	37,437,182	05/19/2014	05/19/2044	Interest Rate Swap		8,667,319	42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	28,888,201	28,769,863
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		34,000,000	33,998,912	05/19/2014	05/19/2044	Interest Rate Swap			03765D-AN-0	APIDOS CLO-APID 2014-18A A2AR	1	34,000,000	33,998,912
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,350,000	11,350,102	05/19/2014	05/19/2044	Interest Rate Swap			09073V-AS-3	BIRCHWOOD PARK CLO LTD-BROHW 2014-1A B1R	1	11,350,000	11,350,102
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,857,535	6,847,212	05/19/2014	05/19/2044	Interest Rate Swap			38021B-AG-5	GOAL CAPITAL FUNDING TRU-SERIES 2006-1 CLASS B	1	6,857,535	6,847,212
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,151,404	4,411,403	05/19/2014	05/19/2044	Interest Rate Swap			429827-AS-7	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS B2	1	4,151,404	4,411,403
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,998,860	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	9,998,860
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,050,000	8,999,972	05/19/2014	05/19/2044	Interest Rate Swap			06760E-AE-6	Babson CLO Ltd 2013-1-SERIES 2013-1A CLASS CR	1	9,050,000	8,999,972
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,500,000	9,520,577	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	9,520,577
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,750,000	7,667,122	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	7,667,122
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,466,153	05/19/2014	05/19/2044	Interest Rate Swap			03330A-AE-2	Anchorage Capital CLO 3--ANOC 2014-3RA C	1	7,500,000	7,466,153
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,920,192	05/19/2014	05/19/2044	Interest Rate Swap			38137H-BW-7	Goldentree Loan Opportun-SERIES 2015-11A CLASS BR2	1	8,000,000	7,920,192
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,997,360	05/19/2014	05/19/2044	Interest Rate Swap			39808P-AN-6	Greywolf CLO V Ltd-GWOLF 2015-1A A2R	1	8,000,000	7,997,360
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,750,000	6,743,993	05/19/2014	05/19/2044	Interest Rate Swap			06760G-AC-5	Barings CLO Ltd 2018-1-SERIES 18-1A CLASS B	1	6,750,000	6,743,993
57629*BG5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,800,000	5,729,176	05/19/2014	05/19/2044	Interest Rate Swap			01749B-AC-3	Alligro CLO VI Ltd-ALLEG 2017-2A C	1	5,800,000	5,729,176
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	15,000,000	23,642,222	05/19/2014	05/19/2044	Interest Rate Swap		8,617,967	00164B-AS-6	ALM LOAN FUNDING-SERIES 2013-7R2A CLASS A2R	1	15,000,000	15,024,255
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,006,060	05/19/2014	05/19/2044	Interest Rate Swap			09627V-AS-4	BLUEMOUNTAIN CLO LTD-SERIES 2014-4A CLASS B1R	1	15,000,000	15,006,060
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,617,731	2,607,758	05/19/2014	05/19/2044	Interest Rate Swap			784424-AE-3	SLC STUDENT LOAN TRUST 2-SERIES 07-1 CLASS B	1	2,617,731	2,607,758
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,025,275	05/19/2014	05/19/2044	Interest Rate Swap			67091H-AK-7	OAK LOAN FUNDING LTD-OHALF 2012-1A B1R	1	15,000,000	15,025,275
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,600,000	14,792,136	05/19/2014	05/19/2044	Interest Rate Swap			09628W-AC-6	BLUEMOUNTAIN CLO LTD-SERIES 16-2A CLASS A2	1	14,600,000	14,792,136
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,850,000	13,874,293	05/19/2014	05/19/2044	Interest Rate Swap			09626R-AQ-8	BLUEMOUNTAIN CLO LTD-BLUEM 2012-2A BR	1	13,850,000	13,874,293
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,850,000	13,899,749	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	13,899,749
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,625,000	12,632,663	05/19/2014	05/19/2044	Interest Rate Swap			88433A-AC-3	THL CR WIND RIV 2016-1 CLO-SR SECD NT CL B 144A	1	12,625,000	12,632,663

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STATEMENT AS OF JUNE 30, 2018 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*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,150,000	12,169,732	05/19/2014	05/19/2044	Interest Rate Swap			056828-AC-0	BAIN CAPITAL CREDIT CLO -SERIES BCC 2016-2A CLASS B	1	12,150,000	12,169,732
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,767,532	4,897,228	05/19/2014	05/19/2044	Interest Rate Swap			23340L-AA-2	DRB PRIME STUDENT LOAN T-SERIES 2015-B CLASS A1	1	4,767,532	4,897,228
57629*BH3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		35,000,000	33,615,432	05/19/2014	05/19/2044	Interest Rate Swap			00F0Y9-RW-9	CORVIAS CAMPUS LIVING - HU, LLC - Sr Secd Note	2	35,000,000	33,615,432
57629*BJ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	133,500,000	141,778,086	05/19/2014	05/19/2044	Interest Rate Swap		8,279,554	858102-AX-4	Steele Creek CLO 2016-1 -SERIES 2016-1A CLASS AR	1	133,500,000	133,498,532
57629*BJ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,006,250	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	10,006,250
57629*BJ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,400,000	8,399,420	05/19/2014	05/19/2044	Interest Rate Swap			55320R-AB-3	MP CLO VII LTD-SERIES 2015-1A CLASS BR	1	8,400,000	8,399,420
57629*BK6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	130,000,000	138,276,954	05/19/2014	05/19/2044	Interest Rate Swap		8,279,554	85816W-AC-8	Steele Creek CLO 2014-1 -SERIES 14-1RA CLASS A	1	130,000,000	129,997,400
57629*BK6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,000,615	05/19/2014	05/19/2044	Interest Rate Swap			88322U-AM-1	THACHER PARK CLO-THRPK 2014-1A BR SALEM FIELDS CLO LTD-SERIES 16-2A CLASS A2	1	15,000,000	15,000,615
57629*BK6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,150,000	9,161,657	05/19/2014	05/19/2044	Interest Rate Swap			79410U-AC-5	GT LOAN FINANCING LTD-SERIES 2013-1A CLASS A	1	9,150,000	9,161,657
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	4,392,758	12,725,108	05/19/2014	05/19/2044	Interest Rate Swap		8,335,956	36248M-AA-5	ATLAS SENIOR LOAN FUND L-SERIES 2017-8A CLASS B	1	4,392,758	4,389,152
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,300,000	25,357,355	05/19/2014	05/19/2044	Interest Rate Swap			04943A-AC-3	SYMPHONY CLO LTD-SYMP 2014-14A B1R	1	25,300,000	25,357,355
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,800,000	12,801,600	05/19/2014	05/19/2044	Interest Rate Swap			871590-BG-2	Harbour Aircraft Investm Series 2017-1 C	1	12,800,000	12,801,600
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,198,253	25,227,817	05/19/2014	05/19/2044	Interest Rate Swap			G4301U-AH-7	OHA Loan Funding 2013-2 -OHALF 2013-2A AR	1	25,198,253	25,227,817
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		79,100,000	78,941,800	05/19/2014	05/19/2044	Interest Rate Swap			67104L-AE-7	Wellfleet CLO 2016-1 Ltd-WELF 2016-1A CR	1	79,100,000	78,941,800
57629*BL4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,999,424	05/19/2014	05/19/2044	Interest Rate Swap			94949R-AW-7	Kingsland Ltd-SERIES 18-8A CLASS A SASOL CHEMICALS (USA) LL TERM LOAN	1	4,000,000	3,999,424
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	44,981,628	53,147,422	05/19/2014	05/19/2044	Interest Rate Swap		8,350,057	42086P-AC-7	AEGIS ASSET BACKED SECUR-SERIES 2005-4 CLASS M1	1	44,981,628	44,797,365
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,678,049	17,611,079	05/19/2014	05/19/2044	Interest Rate Swap			G7818N-ZZ-5	EAIV Delta MSN 15181	2	17,678,049	17,611,079
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,673,272	7,021,406	05/19/2014	05/19/2044	Interest Rate Swap			00764M-GG-6	ATRIVM CDO CORP-ATRM 11A BR NEUBERGER BERMAN CLO LTD-NEUB 2017-24A A	1	6,673,272	7,021,406
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,557,852	4,051,447	05/19/2014	05/19/2044	Interest Rate Swap			247358-CC-6	NEUBERGER BERMAN CLO LTD-NEUB 2017-24A B1	1	4,557,852	4,051,447
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,550,000	21,548,427	05/19/2014	05/19/2044	Interest Rate Swap			04964W-AQ-8	SENECA PARK CLO LTD-SPARK 2014-1A B1R	1	21,550,000	21,548,427
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,560,000	13,581,059	05/19/2014	05/19/2044	Interest Rate Swap			64130H-AA-9	LA Stadium Finance Compa Senior Secured	2	13,560,000	13,581,059
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,600,000	13,611,098	05/19/2014	05/19/2044	Interest Rate Swap			64130H-AC-5	AVERY POINT CLO LTD-SERIES 14-1A CLASS AR	1	13,600,000	13,611,098
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,005,430	05/19/2014	05/19/2044	Interest Rate Swap			817176-AN-0	ROCKALL CLO BV Variable Funding Note - GBP	1	15,000,000	15,005,430
57629*BM2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,800,000	15,597,681	05/19/2014	05/19/2044	Interest Rate Swap			50512F-AE-2	Apollo Credit Funding IV-SERIES 4A CLASS A1BR	1	15,800,000	15,597,681
57629*BNO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	135,000,000	151,000,000	158,926,878	05/19/2014	05/19/2044	Interest Rate Swap		7,908,456	05363U-AS-2	APES CLO LTD-SERIES 17-43A CLASS B	1	151,000,000	151,018,422
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	85,000,000	45,244,556	43,448,578	05/09/2014	05/09/2034	Interest Rate Swap		3,044,054	77277L-B8-9	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS B	1	45,244,556	40,404,524
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,000,000	05/09/2014	05/09/2034	Interest Rate Swap			03765W-BC-1	HILDENE CLO LTD-HLDN 2014-3A AR	1	15,000,000	15,000,000
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,570,000	13,585,836	05/09/2014	05/09/2034	Interest Rate Swap			04016P-AC-2	EAIV Delta MSN 15187	1	13,570,000	13,585,836
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,570,000	13,575,224	05/09/2014	05/09/2034	Interest Rate Swap			22616C-AC-7		1	13,570,000	13,575,224
57629*BQ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	15,000,000	36,775,000	37,902,134	06/05/2014	06/05/2044	Interest Rate Swap		1,122,280	43132V-AN-2		1	36,775,000	36,779,854
57629*BQ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,034,885	4,456,301	06/05/2014	06/05/2044	Interest Rate Swap			247358-EE-0		1	5,034,885	4,456,301

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STATEMENT AS OF JUNE 30, 2018 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*BQ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,671,661	4,099,840	06/05/2014	06/05/2044	Interest Rate Swap			247358-FG-4	EAIV Delta MSN 15200	1	4,671,661	4,099,840
57629*BQ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,548,099	4,051,314	06/05/2014	06/05/2044	Interest Rate Swap			247358-LL-6	EAIV Delta MSN 15176	1	4,548,099	4,051,314
57629*BQ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,022,546	4,445,380	06/05/2014	06/05/2044	Interest Rate Swap			247358-MT-8	EAIV Delta MSN 15186	1	5,022,546	4,445,380
57629*BQ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,449,342	3,963,345	06/05/2014	06/05/2044	Interest Rate Swap			247358-VV-3	EAIV Delta MSN 15170	1	4,449,342	3,963,345
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	13,100,000	19,347,031	07/22/2014	07/22/2044	Interest Rate Swap		6,403,537	67707B-AB-6	0HA Credit Partners XV L-SERIES 17-15A CLASS B	1	13,100,000	12,943,494
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,150,000	15,155,712	07/22/2014	07/22/2044	Interest Rate Swap			38137M-AC-1	Goldentree Loan Opportun-SERIES 16-12A CLASS A2	1	15,150,000	15,155,712
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,999,400	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	14,999,400
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,428,423	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	13,428,423
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,163,136	13,224,025	07/22/2014	07/22/2044	Interest Rate Swap			247361-PP-9	DELTA AIR LINES INC AIRBUS A330-200 N856NW	1	13,163,136	13,224,025
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		35,000,000	35,036,330	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	35,036,330
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,900,000	5,927,382	07/22/2014	07/22/2044	Interest Rate Swap			40436X-AG-2	HIGHBRIDGE LOAN MANAGEMIE-SERIES 2014 CLASS BR	1	5,900,000	5,927,382
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,500,000	14,544,834	07/22/2014	07/22/2044	Interest Rate Swap			553205-AC-9	MP CLO III LTD-IMP3 2013-1A AR	1	14,500,000	14,544,834
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	20,000,000	26,412,003	07/22/2014	07/22/2044	Interest Rate Swap		6,415,343	00191L-AQ-5	ARES CLO LTD-SERIES 13-3A CLASS B1R	1	20,000,000	19,996,660
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,400,000	11,400,160	07/22/2014	07/22/2044	Interest Rate Swap			88432D-AS-3	WIND RIVER CLO LTD-SERIES 14-3A CLASS BR	1	11,400,000	11,400,160
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,590,000	19,612,391	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	19,612,391
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,500,000	19,515,171	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	1	19,500,000	19,515,171
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,500,000	8,507,829	07/22/2014	07/22/2044	Interest Rate Swap			15032T-AW-6	CLASS BR	1	8,500,000	8,507,829
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	8,010,200	07/22/2014	07/22/2044	Interest Rate Swap			12551J-AE-6	CIFC FUNDING LTD-SERIES 17-4A CLASS A2	1	8,000,000	8,010,200
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,100,000	5,122,078	07/22/2014	07/22/2044	Interest Rate Swap			06760B-AJ-1	BABSON CLO LTD-SERIES 17-1A CLASS C	1	5,100,000	5,122,078
57629*BT7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,100,000	5,104,355	07/22/2014	07/22/2044	Interest Rate Swap			566061-AE-7	MARBLE POINT CLO X LTD-SERIES 2017-1A CLASS B	1	5,100,000	5,104,355
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,400,000	3,423,956	04/09/2013	04/09/2043	Interest Rate Swap			55818Y-BG-5	MADISON PARK FUNDING LTD-SERIES 15-17A CLASS CR	1	3,400,000	3,423,956
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,975,000	2,985,475	04/09/2013	04/09/2043	Interest Rate Swap			67102Q-AP-3	0HA CREDIT PARTNERS LTD-SERIES 2012-7A CLASS CR	1	2,975,000	2,985,475
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,540,000	6,562,674	04/09/2013	04/09/2043	Interest Rate Swap			87231L-AC-5	TCI-CENT CLO 2016-1 LTD.-TCENT 2016-1A A2	1	6,540,000	6,562,674
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,250,000	9,261,091	04/09/2013	04/09/2043	Interest Rate Swap			94950G-AA-5	WELLFLEET CLO LTD-WELF 2017-1A A1	1	9,250,000	9,261,091
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,750,000	5,755,773	04/09/2013	04/09/2043	Interest Rate Swap			88433B-AC-1	WIND RIVER CLO LTD-SERIES 16-2A CLASS B	1	5,750,000	5,755,773
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	17,000,000	23,418,488	07/22/2014	07/22/2044	Interest Rate Swap		6,415,343	04014W-AL-9	ARES CLO LTD-ARES 2014-1A A2R	1	17,000,000	17,003,145
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,797,944	1,789,007	07/22/2014	07/22/2044	Interest Rate Swap			67590B-AA-8	OCTAGON INV PARTNERS XVI LTD-SR SECD NT CL A	1	1,797,944	1,789,007
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,000,000	13,003,627	07/22/2014	07/22/2044	Interest Rate Swap			48250W-AA-3	KKR CLO 14 LTD-SR SECD NT SER 14 CL A-1A	1	13,000,000	13,003,627
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,550,000	22,586,080	07/22/2014	07/22/2044	Interest Rate Swap			14315J-SS-9	Carlyle US CLO 2013-1 Re Term Loan	1	22,550,000	22,586,080
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,514,629	4,562,034	07/22/2014	07/22/2044	Interest Rate Swap			03765L-AG-7	APIDOS CLO XX-MEZZ DEF NT CL C	2	4,514,629	4,562,034
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,000,000	17,000,680	07/22/2014	07/22/2044	Interest Rate Swap			55818P-AN-0	MADISON PARK FUNDING LTD-MDPK 2014-12A B1R	1	17,000,000	17,000,680

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STATEMENT AS OF JUNE 30, 2018 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*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,312,887	8,230,329	07/22/2014	07/22/2044	Interest Rate Swap			75887N-AC-3	REGATTA VI FUNDING LTD-SER 2016-1A CL A	1	8,312,887	8,230,329
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,900,000	6,925,192	07/22/2014	07/22/2044	Interest Rate Swap			38136F-AL-7	GoldenTree Loan Managem-GLM 2017-1A C	1	6,900,000	6,925,192
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,650,000	5,660,820	07/22/2014	07/22/2044	Interest Rate Swap			50184N-AN-2	LCM LTD PARTNERSHIP-SERIES 15A CLASS BR	1	5,650,000	5,660,820
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,103,944	8,937,974	07/22/2014	07/22/2044	Interest Rate Swap			61945C-AA-1	MOSAIC CO/THE-SENIOR UNSECURED NOTE	2	9,103,944	8,937,974
57629*BU4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,000,000	21,187,876	07/22/2014	07/22/2044	Interest Rate Swap			G7332F-AG-8	FRPF Engine Leasing Ltd Senior Secured	2	23,000,000	21,187,876
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	7,902,162	14,168,428	07/22/2014	07/22/2044	Interest Rate Swap		6,368,116	67104C-AB-3	OAK HILL CREDIT PARTNERS-SERIES 2013 - 8A CLASS B	1	7,902,162	7,800,312
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,600,000	7,609,584	07/22/2014	07/22/2044	Interest Rate Swap			75888K-AC-8	REGATTA VIII FUNDING LTD-SERIES 2017-1A CLASS B	1	7,600,000	7,609,584
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,460,000	7,470,884	07/22/2014	07/22/2044	Interest Rate Swap			00900C-AA-2	AIMCO-AIMCO 2017-AA A	1	7,460,000	7,470,884
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		28,400,000	28,304,974	07/22/2014	07/22/2044	Interest Rate Swap			04017T-AC-3	Ares XXXIR CLO Ltd-SERIES 14-31RA CLASS A2	1	28,400,000	28,304,974
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,805,960	11,805,924	07/22/2014	07/22/2044	Interest Rate Swap			26244Q-AB-9	DRYDEN SENIOR LOAN FUND-SERIES 17-49A CLASS B	1	11,805,960	11,805,924
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		41,982,852	41,810,874	07/22/2014	07/22/2044	Interest Rate Swap			42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	41,982,852	41,810,874
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,000,825	07/22/2014	07/22/2044	Interest Rate Swap			46619T-AA-0	JFIN CLO 2016 LTD - Sr Seed Nt CIA-1	1	15,000,000	15,000,825
57629*BV2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,200,000	6,165,931	07/22/2014	07/22/2044	Interest Rate Swap			09625J-AW-4	BLUEMOUNTAIN CLO LTD-SERIES 2013-34 CLASS DR	2	6,200,000	6,165,931
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	4,478,376	10,369,130	07/22/2014	07/22/2044	Interest Rate Swap		6,379,923	247358-YT-6	EAI V Delta MSN 15166	1	4,478,376	3,989,207
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,926,690	6,952,634	07/22/2014	07/22/2044	Interest Rate Swap			91754R-ZG-5	STATE BOARD OF REGENTS 0-SERIES USBR 2017-1 CLASS B	1	6,926,690	6,952,634
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,413,069	5,394,839	07/22/2014	07/22/2044	Interest Rate Swap			78443K-AK-2	SLM STUDENT LOAN TRUST 2-SERIES 06-9 CLASS B	1	5,413,069	5,394,839
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,200,000	15,200,000	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	15,200,000
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,852,332	4,883,375	07/22/2014	07/22/2044	Interest Rate Swap			57643L-FG-6	MASTR ASSET BACKED SECUR-SERIES 2004-OPT2 CLASS A1	1	4,852,332	4,883,375
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,295,000	5,323,429	07/22/2014	07/22/2044	Interest Rate Swap			03766G-AG-7	APIDOS CLO-SERIES 17-26A CLASS B	1	5,295,000	5,323,429
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,212,054	13,182,100	07/22/2014	07/22/2044	Interest Rate Swap			38021G-AC-3	GOAL STRUCTURED SOLUTION-SERIES 2016-B CLASS A2	1	13,212,054	13,182,100
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,300,000	16,320,962	07/22/2014	07/22/2044	Interest Rate Swap			33882G-AA-6	FLATIRON CLO LTD-FLAT 2017-1A A	1	16,300,000	16,320,962
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,280,000	16,277,037	07/22/2014	07/22/2044	Interest Rate Swap			150323-AQ-6	CEDAR FUNDING LTD-SERIES 14-4A CLASS BR	1	16,280,000	16,277,037
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,510,000	12,557,150	07/22/2014	07/22/2044	Interest Rate Swap			04943A-AE-9	ATLAS SENIOR LOAN FUND L-SERIES 17-8A CLASS C	1	12,510,000	12,557,150
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,900,000	11,852,936	07/22/2014	07/22/2044	Interest Rate Swap			44330G-AE-3	Highbridge Loan Managem-SERIES 4A-2014 CLASS A2R	1	11,900,000	11,852,936
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,250,000	4,272,274	07/22/2014	07/22/2044	Interest Rate Swap			76761R-AE-9	Reserva Clo Ltd-SERIES 2016-3A CLASS C1	1	4,250,000	4,272,274
57629*BWO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,500,000	8,539,313	07/22/2014	07/22/2044	Interest Rate Swap			87231L-AA-9	TCl-CENT CLO 2016-1 LTD.-TCENT 2016-1A A1	1	8,500,000	8,539,313
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	10,559,939	12,153,964	08/27/2014	08/27/2044	Interest Rate Swap		1,639,043	67092R-AA-6	OP CLO 2016-12 Ltd-SERIES 16-12A CLASS A1	1	10,559,939	10,514,921
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,398,610	6,481,879	08/27/2014	08/27/2044	Interest Rate Swap			78443G-AJ-4	SLM STUDENT LOAN TRUST 2-SERIES 06-7 CLASS B	1	6,398,610	6,481,879
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,900,000	7,848,405	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	7,848,405
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	15,005,775	08/27/2014	08/27/2044	Interest Rate Swap			14314B-AC-1	CARLYLE GLOBAL MARKET ST-CGMS 2017-1A A2	1	15,000,000	15,005,775
57629*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,560,000	8,574,912	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	8,574,912

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STATEMENT AS OF JUNE 30, 2018 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*BZ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,050,000	9,057,086	08/27/2014	08/27/2044	Interest Rate Swap			92912V-AN-5	VOYA CLO LTD-VOYA 2014-2A A1R	1	9,050,000	9,057,086
57629*CA7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	60,500,000	62,163,856	08/27/2014	08/27/2044	Interest Rate Swap	1,657,988	1,657,988	126612-AJ-9	CVP CASCADE CLO LTD-CVPC 2013-CLO1 A1R	1	60,500,000	60,505,868
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	6,800,000	8,411,844	08/27/2014	08/27/2044	Interest Rate Swap		1,610,627	398080-AN-1	GREYWOLF CLO LTD-SERIES 2014-2A CLASS BR	1	6,800,000	6,801,217
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,800,000	6,799,558	08/27/2014	08/27/2044	Interest Rate Swap			00900A-AJ-7	AIMCO-SERIES 14-AA CLASS B1R	1	6,800,000	6,799,558
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,250,000	14,249,744	08/27/2014	08/27/2044	Interest Rate Swap			67112K-AB-5	OOP CLO Ltd-SERIES 18-15A CLASS A2	1	14,250,000	14,249,744
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,600,000	3,600,425	08/27/2014	08/27/2044	Interest Rate Swap			87154E-AQ-3	SYMPHONY CLO LTD-SYMP 2014-15A DR	2	3,600,000	3,600,425
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,100,000	14,122,983	08/27/2014	08/27/2044	Interest Rate Swap			06759Y-AA-3	BARINGS CLO LTD-BABSN 2016-3A A1	1	14,100,000	14,122,983
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,350,000	2,371,049	08/27/2014	08/27/2044	Interest Rate Swap			14954W-AQ-9	BAIN CAPITAL CREDIT CLO -SERIES 2017-2A CLASS CR	1	2,350,000	2,371,049
57629*CB5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,793,552	2,768,727	08/27/2014	08/27/2044	Interest Rate Swap			045487-AA-3	ASSOC BANC-CORP-SR UNSECURED BLUEMOUNTAIN CLO LTD-BLUEM 2014-1A B1R	2	2,793,552	2,768,727
57629*CC3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	50,000,000	21,300,000	22,882,501	08/27/2014	08/27/2044	Interest Rate Swap		1,577,474	09627L-AN-7	ALM XIV Ltd-SERIES 14-14A CLASS A1R2	1	21,300,000	21,305,027
57629*CC3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,900,000	15,936,077	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	15,936,077
57629*CC3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,175,000	13,152,682	08/27/2014	08/27/2044	Interest Rate Swap			06760G-AA-9		1	13,175,000	13,152,682
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	100,000,000	104,464,807	09/08/2014	09/08/2044	Interest Rate Swap		4,798,707	42086G-AA-9	Kingsland VI Ltd-KING 2013-6A AR	1	100,000,000	99,666,100
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,465,000	29,119,905	09/08/2014	09/08/2044	Interest Rate Swap			ZZ2066-36-8	AUST & NZ BANKING GROUP-SUBORDINATED NOTE	1	21,465,000	29,119,905
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,380,000	11,381,286	09/08/2014	09/08/2044	Interest Rate Swap			55818R-AT-3	MADISON PARK FUNDING LTD-SERIES 14-14A CLASS C1R	1	11,380,000	11,381,286
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,750,000	2,709,693	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	2,709,693
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,590,000	2,596,972	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	2,596,972
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,500,000	2,472,703	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	2,472,703
57629*CE9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,500,000	10,499,780	09/08/2014	09/08/2044	Interest Rate Swap			14315L-AC-8	Carlyle Global Market St-SERIES 14-38A CLASS A1B	1	10,500,000	10,499,780
57629*CF6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	30,000,000	14,000,000	15,974,559	09/17/2014	09/17/2044	Interest Rate Swap		1,969,169	39862E-AA-0	GRIPPEN PARK CLO LTD-SERIES 17-1A CLASS B	1	14,000,000	14,005,390
57629*CF6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,600,000	4,595,455	09/17/2014	09/17/2044	Interest Rate Swap			05875H-AE-3	Ballyrock CLO 2018-1 Ltd-SERIES 2018-1A CLASS B	1	4,600,000	4,595,455
57629*CF6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,750,000	11,654,332	09/17/2014	09/17/2044	Interest Rate Swap			50200F-AE-9	LGM 26 Ltd-SERIES 26A CLASS B	1	11,750,000	11,654,332
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	55,000,000	10,850,000	10,965,016	10/06/2014	10/06/2034	Interest Rate Swap		102,083	03763Y-AQ-9	APIDOS CLO-APID 2012-11A BR	1	10,850,000	10,862,933
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,100,000	20,082,111	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	20,082,111
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,100,000	20,111,819	10/06/2014	10/06/2034	Interest Rate Swap			77341D-AA-5	Rockford Tower CLO 2017--ROCKT 2017-3A A	1	20,100,000	20,111,819
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,001,105	10/06/2014	10/06/2034	Interest Rate Swap			817176-AS-9	SENECA PARK CLO LTD-SPARK 2014-1A CR	1	5,000,000	5,001,105
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	100,000,000	50,007,777	52,487,337	10/06/2014	10/06/2044	Interest Rate Swap		2,645,856	28108R-AA-0	EdLinc Student Loan Fund-ESLFT 2017-A A	1	50,007,777	49,841,481
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,729,496	7,695,357	10/06/2014	10/06/2044	Interest Rate Swap			61744C-NB-8	MORGAN STANLEY CAPITAL I-SERIES 2005-HE2 CLASS M1	1	7,729,496	7,695,357
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,900,000	4,915,582	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	4,915,582
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,950,000	2,952,133	10/06/2014	10/06/2044	Interest Rate Swap			13080B-AD-3	SYMPHONY CLO LTD-SERIES 13-12A CLASS CR	1	2,950,000	2,952,133
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	20,007,700	10/06/2014	10/06/2044	Interest Rate Swap			94950G-AC-1	WELLFLEET CLO LTD-WELF 2017-1A A2	1	20,000,000	20,007,700

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STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE DB - PART C - SECTION 1**

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

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		15,000,000	14,998,095	10/06/2014	10/06/2044	Interest Rate Swap			55852Y-AR-8	Magnetite VIII Ltd-MAGNE 2014-8A BR2	1	15,000,000	14,998,095
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2	175,000,000	60,000,000	60,591,347	10/10/2014	10/10/2044	Interest Rate Swap		2,102,027	G7332F-AD-5	RRPF Engine Leasing Ltd Senior Secured	2	60,000,000	58,489,320
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		27,252,925	28,179,000	10/10/2014	10/10/2044	Interest Rate Swap			629394-AA-5	NTC CAPITAL I-UNSECURED BOND CULLEN/FROST CAP TR II-SUBORDINATED	2	27,252,925	28,179,000
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		20,924,082	19,521,241	10/10/2014	10/10/2044	Interest Rate Swap			230000-AB-7	NOTE BLUEMOUNTAIN CLO LTD-SERIES 2015-1A CLASS A2R	2	20,924,082	19,521,241
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		20,500,000	20,502,891	10/10/2014	10/10/2044	Interest Rate Swap			09627X-AW-1	CHENANGO PARK CLO LTD-SERIES 18-1A CLASS A1B	1	20,500,000	20,502,891
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		16,200,000	16,197,052	10/10/2014	10/10/2044	Interest Rate Swap			16409T-AC-3	Taconic Park CLO Ltd 201-SERIES 2016-1A CLASS A2	1	16,200,000	16,197,052
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		16,100,000	16,124,279	10/10/2014	10/10/2044	Interest Rate Swap			873549-AC-3	BLUEMOUNTAIN CLO 2014-1 LTD SR SEC DEF NT CL D	2	16,100,000	16,124,279
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		1,864,408	1,875,396	10/10/2014	10/10/2044	Interest Rate Swap			09627L-AJ-6	BLUEMOUNTAIN CLO 2014-4 LTD-SR SEC DEF NT CL D	2	1,864,408	1,875,396
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		4,551,487	4,577,109	10/10/2014	10/10/2044	Interest Rate Swap			09627V-AG-0	Dryden XXVIII Senior Loa-DRSLF 2013-28A A2LR	2	4,551,487	4,577,109
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		3,555,178	3,551,757	10/10/2014	10/10/2044	Interest Rate Swap			26251B-AN-6	SLMA 2005-9 STUDENT LN-BKD NT CL B 5A CLASS A1R	1	3,555,178	3,551,757
57629*CJ8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	2		6,195,091	6,949,165	10/10/2014	10/10/2044	Interest Rate Swap			78442G-RC-2	CARLYLE GLOBAL MARKET ST-SERIES 14-5A CLASS A1R	1	6,195,091	6,949,165
57629*CK5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	75,000,000	76,465,221	11/04/2014	11/04/2044	Interest Rate Swap		1,464,696	14311A-AJ-1	ATRIUM CDO CORP-ATRM 11A A1R	1	75,000,000	75,000,525
57629*CK5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		50,000,000	50,007,600	11/04/2014	11/04/2044	Interest Rate Swap			04964W-AL-9	WELLFLEET CLO 2015-1 LTD-SR SEC0 NT CL A-1 144A	1	50,000,000	50,007,600
57629*CL3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	65,000,000	66,781,965	11/04/2014	11/04/2044	Interest Rate Swap		1,488,490	949496-AC-7	CHA CREDIT PARTNERS LTD-OAKC 2014-10A BR	1	65,000,000	65,293,475
57629*CL3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		38,750,000	38,750,465	11/04/2014	11/04/2044	Interest Rate Swap			67106J-AQ-3	Benefit Street Partners -SERIES 18-5BA CLASS A1A	1	38,750,000	38,750,465
57629*CL3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,445,000	22,382,087	11/04/2014	11/04/2044	Interest Rate Swap			08181J-AA-0	CHA CREDIT PARTNERS LTD-OAKC 2014-10A AR	1	22,445,000	22,382,087
57629*CM1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	50,000,000	51,685,149	11/04/2014	11/04/2044	Interest Rate Swap		1,678,849	67106J-AN-0	Kingsland Ltd-SERIES 18-8A CLASS A	1	50,000,000	50,006,300
57629*CM1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		45,981,219	45,792,862	11/04/2014	11/04/2044	Interest Rate Swap			42086P-AC-7	GOLLUB CAPITAL PARTNERS C-SERIES 13-16A CLASS A1R	1	45,981,219	45,792,862
57629*CM1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		30,000,000	30,078,750	11/04/2014	11/04/2044	Interest Rate Swap			38172X-AG-4	ORANGE GROVE ENERGY, L.P DELAYED DRAW TE	2	30,000,000	30,078,750
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	14,517,476	15,774,999	11/04/2014	11/04/2044	Interest Rate Swap		1,702,644	G6776M-ZZ-1	EAIV Delta MSN 15153	1	14,517,476	14,072,355
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,170,981	3,754,979	11/04/2014	11/04/2044	Interest Rate Swap			247358-BB-9	EAIV Delta MSN 15161	1	4,170,981	3,754,979
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,463,989	4,010,376	11/04/2014	11/04/2044	Interest Rate Swap			247358-DD-3	EAIV Delta MSN 15147	1	4,463,989	4,010,376
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,180,340	3,766,728	11/04/2014	11/04/2044	Interest Rate Swap			247358-PP-3	EAIV 2017 Delta MSN 15146	1	4,180,340	3,766,728
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,180,505	3,675,642	11/04/2014	11/04/2044	Interest Rate Swap			247358-RR-7	EAIV Delta MSN 15162	1	4,180,505	3,675,642
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,463,989	4,010,376	11/04/2014	11/04/2044	Interest Rate Swap			247358-RII-6	Arpad Solar Borrower LLC Term Loan	2	4,463,989	4,010,376
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		47,410,119	47,577,097	11/04/2014	11/04/2044	Interest Rate Swap			83416T-RR-3	EMERSON PARK CLO LTD-SERIES 13-1A	1	47,410,119	47,577,097
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		26,700,000	26,710,386	11/04/2014	11/04/2044	Interest Rate Swap			29108Q-AY-8	BIF II SAFE HARBOR HOLDINGS LLC	1	26,700,000	26,710,386
57629*CN9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,500,000	22,087,833	11/04/2014	11/04/2044	Interest Rate Swap			00FHY8-YD-6	ATRIUM CDO CORP-SERIES 9A CLASS AR	1	22,500,000	22,087,833
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	48,000,000	49,908,189	11/04/2014	11/04/2044	Interest Rate Swap		1,774,029	04964K-AL-5	BAIN CAPITAL CREDIT CLO -SERIES 18-2A CLASS A1	1	48,000,000	48,134,160
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		28,500,000	28,500,000	11/04/2014	11/04/2044	Interest Rate Swap			05682V-AA-3	CAMERON LNG CONSTRUCTION FA	1	28,500,000	28,500,000
57629*CP4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		49,411,710	49,733,384	11/04/2014	11/04/2044	Interest Rate Swap			13345*-AA-5		1	49,411,710	49,733,384

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STATEMENT AS OF JUNE 30, 2018 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	125,000,000	72,000,000	73,927,598	11/04/2014	11/04/2044	Interest Rate Swap		1,916,798	46617N-AQ-0	JFIN CLO LTD-SERIES 14-2A CLASS A1AR	1	72,000,000	72,010,800
57629*CO2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		37,400,000	37,774,000	11/04/2014	11/04/2044	Interest Rate Swap			74992*-AB-1	RXR Realty, LLC Senior Secured	2	37,400,000	37,774,000
57629*CO2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,707,245	16,501,040	11/04/2014	11/04/2044	Interest Rate Swap			03329K-AA-1	ANCHORAGE CAPITAL CLO LT-SERIES 2016-8A CLASS A1	1	16,707,245	16,501,040
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	13,760,000	15,653,127	11/04/2014	11/04/2044	Interest Rate Swap		1,893,003	14310U-AQ-2	CARLYLE GLOBAL MARKET ST-CGMS 2014-4A BR	1	13,760,000	13,760,124
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,660,000	13,667,732	11/04/2014	11/04/2044	Interest Rate Swap			05363U-AW-3	AVERY POINT IV CLO LTD-SERIES 14-1A CLASS CR	1	13,660,000	13,667,732
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,660,000	13,745,880	11/04/2014	11/04/2044	Interest Rate Swap			04964K-AS-0	TRIUM CDO CORP-SERIES 9A CLASS CR	1	13,660,000	13,745,880
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,000,000	11,577,449	11/04/2014	11/04/2044	Interest Rate Swap			67332F-AH-6	RRPF Engine Leasing Ltd Senior Secured	2	13,000,000	11,577,449
57629*CR0	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			04941Y-AJ-8	Atlas Senior Loan Fund X-ATOLO 2018-11A B	1	10,000,000	10,000,000
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		30,000,000	30,037,650	11/04/2014	11/04/2044	Interest Rate Swap			87806L-AC-0	TCI-CENT CLO 2016-1 LTD-SERIES 17-1A CLASS A1	1	30,000,000	30,037,650
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	20,024,000	11/04/2014	11/04/2044	Interest Rate Swap			12550Y-AC-8	CIFC FUNDING LTD-CIFC 2017-2A A	1	20,000,000	20,024,000
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,808,050	9,608,331	11/04/2014	11/04/2044	Interest Rate Swap			035242-AP-1	ANHEUSER-BUSCH INBEV FIN GTD NT	2	9,808,050	9,608,331
57629*CR0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,797,951	1,733,524	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	1,797,951	1,733,524
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	12,740,000	14,682,937	11/04/2014	11/04/2044	Interest Rate Swap		1,940,583	55818X-AY-9	MAGNETITE CLO LTD-SERIES 14-11A CLASS A1R	1	12,740,000	12,742,344
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,675,000	12,676,382	11/04/2014	11/04/2044	Interest Rate Swap			55953E-AJ-9		1	12,675,000	12,676,382
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,240,000	12,252,497	11/04/2014	11/04/2044	Interest Rate Swap			03766G-AE-2	APIDOS CLO-SERIES 17-26A CLASS A2	1	12,240,000	12,252,497
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,980,000	11,999,144	11/04/2014	11/04/2044	Interest Rate Swap			149420-AE-1	CATSKILL PARK CLO LTD-SERIES 17-1A CLASS A2	1	11,980,000	11,999,144
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,400,000	3,402,462	11/04/2014	11/04/2044	Interest Rate Swap			92914R-AS-1	VOYA CLO LTD-SERIES 14-4A CLASS BR	1	3,400,000	3,402,462
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,100,000	21,156,506	11/04/2014	11/04/2044	Interest Rate Swap			48250L-AL-3	KKR FINANCIAL CLO LTD-SERIES 9 CLASS AR	1	21,100,000	21,156,506
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,100,000	23,035,874	11/04/2014	11/04/2044	Interest Rate Swap			24824T-AQ-3	DenaII Capital Clo XII L-DEV12 2016-1A A1R	1	23,100,000	23,035,874
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,250,000	10,250,000	11/04/2014	11/04/2044	Interest Rate Swap			443300-AB-7	Highbridge Loan Managem-SERIES 12A-18 CLASS A1B	1	10,250,000	10,250,000
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,100,000	18,122,643	11/04/2014	11/04/2044	Interest Rate Swap			40436V-AA-9	HIGHBRIDGE LOAN MANAGEM-HLM 11A-17 A	1	18,100,000	18,122,643
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	42,407,968	36,135,640	12/16/2014	12/16/2044	Interest Rate Swap		(7,105,384)	39808C-A8-4	GRIDIRON FDG LLC Term Facility	2	42,407,968	43,241,024
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		26,741,829	26,137,216	12/16/2014	12/16/2044	Interest Rate Swap			66704J-CB-2	NORTHSTAR EDUCATION FINA-SERIES 07-1 CLASS B	1	26,741,829	26,137,216
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,469,241	11,209,274	12/16/2014	12/16/2044	Interest Rate Swap			05874P-AE-6	BALLYROCK LTD-SERIES 2013-1A CLASS C	1	11,469,241	11,209,274
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,950,000	10,945,620	12/16/2014	12/16/2044	Interest Rate Swap			67590B-AC-4	OCTAGON INV PARTNERS XVI LTD-SR SECNT CL B1	1	10,950,000	10,945,620
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,200,000	16,227,653	12/16/2014	12/16/2044	Interest Rate Swap			06760J-AE-5	Barings CLO Ltd 2018-II-SERIES 2018-2A CLAS A1B	1	16,200,000	16,227,653
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,700,000	6,720,663	12/16/2014	12/16/2044	Interest Rate Swap			06760B-AC-6	BABSON CLO LTD-SERIES 17-1A CLASS A2	1	6,700,000	6,720,663
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,960,000	4,982,905	12/16/2014	12/16/2044	Interest Rate Swap			55820R-AE-2	MADISON PARK FUNDING LTD-SERIES 17-25A CLASS B	1	4,960,000	4,982,905
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,550,000	3,550,028	12/16/2014	12/16/2044	Interest Rate Swap			00162L-CE-5	ALM LOAN FUNDING-SERIES 15-16A CLASS A2R	1	3,550,000	3,550,028
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,575,000	2,573,319	12/16/2014	12/16/2044	Interest Rate Swap			08179H-AC-4	Benefit Street Partners -BSP 2017-12A B	1	2,575,000	2,573,319
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,065,308	10,002,390	12/16/2014	12/16/2044	Interest Rate Swap			381370-AA-6	GOLDENTREE LOAN OPPORTUN-SERIES 14-9A CLASS AR	1	10,065,308	10,002,390

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STATEMENT AS OF JUNE 30, 2018 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*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,100,000	8,128,658	12/16/2014	12/16/2044	Interest Rate Swap			001626-AC-4	ALM XIX Ltd SR SEC'D NT CL A-2	1	8,100,000	8,128,658
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,425,000	6,366,160	12/16/2014	12/16/2044	Interest Rate Swap			08180X-AQ-5	Benefit Street Partners -BSP 2015-8A A1BR	1	6,425,000	6,366,160
57629*CX7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,260,022	8,208,602	12/16/2014	12/16/2044	Interest Rate Swap			67092R-AB-4	OPC CLO 2016-12 Ltd-SERIES 2016-12A CLASS A2	1	8,260,022	8,208,602
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	150,000,000	24,662,500	17,233,176	12/16/2014	12/16/2044	Interest Rate Swap		(7,391,824)	144577-TT-0	Carrix, Inc. Senior Term Loa	2	24,662,500	24,625,000
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,470,000	14,493,297	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	14,493,297
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		34,912,500	34,912,500	12/16/2014	12/16/2044	Interest Rate Swap			04941Y-AC-3	Atlas Senior Loan Fund X-SERIES 18-11A CLASS A1L	1	34,912,500	34,912,500
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,345,439	6,306,502	12/16/2014	12/16/2044	Interest Rate Swap			92557W-AE-3	VIBRANT CLO IV LTD-SR SEC'D NT CL B 144A	1	6,345,439	6,306,502
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		41,400,000	41,402,153	12/16/2014	12/16/2044	Interest Rate Swap			74983D-AA-5	RACE POINT X CLO LTD SR SEC'D NT CL A	1	41,400,000	41,402,153
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,434,612	9,428,750	12/16/2014	12/16/2044	Interest Rate Swap			48252W-AC-7	KKR CLO LTD 22-SERIES 22A CLASS B	1	9,434,612	9,428,750
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,000,000	7,002,422	12/16/2014	12/16/2044	Interest Rate Swap			05618D-AN-4	BABSON CLO LTD-BABSON 2014-1A BR	1	7,000,000	7,002,422
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,750,000	13,755,913	12/16/2014	12/16/2044	Interest Rate Swap			02014P-AC-8	ALM XVII LTD-SR SECURED NOTE CLASS A2L	1	13,750,000	13,755,913
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,045,000	2,040,280	12/16/2014	12/16/2044	Interest Rate Swap			056162-AQ-3	Babson CLO Ltd 2015-1-BABSON 2015-1A BR	1	2,045,000	2,040,280
57629*CT6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,900,000	3,856,527	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	3,856,527
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	250,000,000	36,000,000	24,037,275	12/16/2014	12/16/2044	Interest Rate Swap		(11,699,086)	39808C-AA-3	Gridiron Fdg LLC Sr Sec'd Nt	2	36,000,000	35,736,361
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,900,000	25,962,704	12/16/2014	12/16/2044	Interest Rate Swap			14307P-AE-5	Carlyle Global Market St-SERIES C17A CLASS A1BR	1	25,900,000	25,962,704
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,500,000	23,503,737	12/16/2014	12/16/2044	Interest Rate Swap			05618D-AL-8	BABSON CLO LTD-BABSON 2014-1A 2R SOUND POINT CLO LTD-SERIES 2017-2A CLASS A	1	23,500,000	23,503,737
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,100,000	23,131,439	12/16/2014	12/16/2044	Interest Rate Swap			83610K-AA-1	LON LTD PARTNERSHIP-SERIES 13A CLASS BR	1	23,100,000	23,131,439
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,750,000	12,789,500	12/16/2014	12/16/2044	Interest Rate Swap			50184K-AJ-2	321 HENDERSON RECEIVABLE-SERIES 05-1A CLASS A1	1	12,750,000	12,789,500
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,107,028	15,922,141	12/16/2014	12/16/2044	Interest Rate Swap			88576P-AE-3	BLUEMOUNTAIN CLO LTD-BLUEM 2014-3A A1R	1	16,107,028	15,922,141
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,600,000	22,602,305	12/16/2014	12/16/2044	Interest Rate Swap			09627R-AJ-3	MERCER FIELD CLO LP-MERCL 2017-1A A2	1	22,600,000	22,602,305
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		20,000,000	19,999,680	12/16/2014	12/16/2044	Interest Rate Swap			58806P-AC-2	APIDOS CLO-APID 2014-18A BR	1	20,000,000	19,999,680
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,500,000	10,501,712	12/16/2014	12/16/2044	Interest Rate Swap			03765D-AS-9	HILDENE CLO IV LTD-DEF MEZZ NT SER 2015-4A CL B	1	10,500,000	10,501,712
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,088,056	6,004,008	12/16/2014	12/16/2044	Interest Rate Swap			43132W-AE-0	BOWMAN PARK CLO LTD-BOWPK 2014-1A CR	1	6,088,056	6,004,008
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,950,000	5,955,974	12/16/2014	12/16/2044	Interest Rate Swap			10302V-BG-9	TCI-FLATIRON CLO 2016-1 LTD SR SEC'D NT CL A	1	5,950,000	5,955,974
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,119,438	13,032,188	12/16/2014	12/16/2044	Interest Rate Swap			87230A-AA-4	SENECA PARK CLO LTD-SPARK 2014-1A AR	1	13,119,438	13,032,188
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,690,000	14,691,440	12/16/2014	12/16/2044	Interest Rate Swap			817176-AL-4	Goldentree Loan Managem-GLM 2017-1A B1	1	14,690,000	14,691,440
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,505,211	12/16/2014	12/16/2044	Interest Rate Swap			38136F-AG-8	BLUEMOUNTAIN CLO 2015-2 LTD SR SEC'D NT CL A-1	1	13,500,000	13,505,211
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,250,000	8,250,305	12/16/2014	12/16/2044	Interest Rate Swap			09628B-AA-6	Cbam 2018-5 Ltd-SERIES 18-5A CLASS B1	1	8,250,000	8,250,305
57629*CIW9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,000,000	10,890,000	12/16/2014	12/16/2044	Interest Rate Swap			12481Q-AE-5	MASSMUTUAL ASSET FIN LLC SR SEC'D REV NT	1	11,000,000	10,890,000
57629*CU3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	250,000,000	328,073,426	303,982,253	12/16/2014	12/16/2044	Interest Rate Swap		(12,606,147)	57542Z-AO-7	ANCHORAGE CAPITAL CLO LT-SERIES 2015-6A CLASS AR	1	328,073,426	316,588,400
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	200,000,000	16,900,000	6,466,151	12/16/2014	12/16/2044	Interest Rate Swap		(10,466,838)	03328Q-AN-1		1	16,900,000	16,932,989

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STATEMENT AS OF JUNE 30, 2018 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		5,000,000	4,950,000	12/16/2014	12/16/2044	Interest Rate Swap			94950J-AC-5	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	5,000,000	4,950,000
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,780,000	6,782,773	12/16/2014	12/16/2044	Interest Rate Swap			33882G-AB-4	FLATIRON CLO LTD-FLAT 2017-1A B GALLATIN CLO LTD-SERIES 17-1A CLASS	1	6,780,000	6,782,773
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,750,000	9,754,875	12/16/2014	12/16/2044	Interest Rate Swap			36361U-AC-4	MADISON PARK FDG XX LTD-SECD DEF NT CL C-1 144A	1	9,750,000	9,754,875
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,850,000	5,849,906	12/16/2014	12/16/2044	Interest Rate Swap			55819T-AG-6	SOUND POINT CLO XI LTD-SR SECD NT CL A 144A	1	5,850,000	5,849,906
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,220,000	22,252,775	12/16/2014	12/16/2044	Interest Rate Swap			83609J-AA-7	BENEFIT STREET PARTNERS -SERIES 2017-12A CLASS A1	1	22,220,000	22,252,775
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,675,000	9,688,468	12/16/2014	12/16/2044	Interest Rate Swap			08179H-AA-8	RR 2 LTD-SERIES 17-2A CLASS A2 OAKTREE CLO LTD-SERIES 14-1A CLASS AIR	1	9,675,000	9,688,468
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,500,000	8,499,864	12/16/2014	12/16/2044	Interest Rate Swap			78109Q-AE-8	Carlyle US CLO 2013-3 Re Term Loan	1	8,500,000	8,499,864
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		17,120,000	17,161,191	12/16/2014	12/16/2044	Interest Rate Swap			67400Q-AN-4	BALLYROCK LTD-SERIES 2013-1A CLASS	1	17,120,000	17,161,191
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		19,075,000	19,054,018	12/16/2014	12/16/2044	Interest Rate Swap			14315J-NN-5	MASSMUTUAL ASSET FIN LLC SR SECD REV NT	1	19,075,000	19,054,018
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,600,000	16,600,780	12/16/2014	12/16/2044	Interest Rate Swap			05874P-AC-0	AIMCO CLO Series 2015-A-SERIES 15-AA CLASS BR	1	16,600,000	16,600,780
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		56,000,000	54,039,581	12/16/2014	12/16/2044	Interest Rate Swap			57542Z-AO-7	MADISON PARK FUNDING LTD-SERIES 14-14A CLASS BR	1	56,000,000	54,039,581
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,400,000	6,351,258	12/16/2014	12/16/2044	Interest Rate Swap			00900L-AH-7	LOM LTD PARTNERSHIP-SERIES 16A CLASS BR	1	6,400,000	6,351,258
57629*CV1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,570,000	13,572,945	12/16/2014	12/16/2044	Interest Rate Swap			55818R-AS-5	VOYA CLO LTD-VOYA 2014-2A BR MANUF & TRADERS TRUST CO-SUBORDINATED NOTE	1	13,570,000	13,572,945
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	10,100,000	(6,639,412)	02/05/2015	02/05/2045	Interest Rate Swap		(16,739,261)	50181G-AS-9	TCI-CENT CLO 2016-1 LTD-SERIES 17-1A CLASS A2	1	10,100,000	10,099,849
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,020,000	10,067,465	02/05/2015	02/05/2045	Interest Rate Swap			92912V-AS-4	BARSON CLO LTD-SERIES 17-1A CLASS	1	10,020,000	10,067,465
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,510,524	10,448,569	02/05/2015	02/05/2045	Interest Rate Swap			564759-QB-7	GREYWOLF CLO LTD-SERIES 2014-2A CLASS A2R	1	10,510,524	10,448,569
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,528,242	02/05/2015	02/05/2045	Interest Rate Swap			87806L-AE-6	HIGHBRIDGE LOAN MANAGEME-SERIES 2014 CLASS A2R	1	13,500,000	13,528,242
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,500,000	13,520,804	02/05/2015	02/05/2045	Interest Rate Swap			06760B-AE-2	BAIN CAPITAL CREDIT CLO -SERIES 17-2A CLASS BR	1	13,500,000	13,520,804
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,700,000	12,700,546	02/05/2015	02/05/2045	Interest Rate Swap			39808Q-AL-5	ALM LOAN FUNDING-SERIES 15-16A CLASS BR	1	12,700,000	12,700,546
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,700,000	12,712,967	02/05/2015	02/05/2045	Interest Rate Swap			40436X-AE-7	EVERY POINT CLO LTD-SERIES 13-3A CLASS B1R	1	12,700,000	12,712,967
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,400,000	11,466,211	02/05/2015	02/05/2045	Interest Rate Swap			14954W-AN-6	BAIN CAPITAL CREDIT CLO -SERIES 17-1A CLASS A1	1	11,400,000	11,466,211
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,200,000	11,215,154	02/05/2015	02/05/2045	Interest Rate Swap			05682Q-AC-0	ALM LOAN FUNDING-SERIES 15-16A CLASS BR	1	11,200,000	11,215,154
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,200,000	10,200,673	02/05/2015	02/05/2045	Interest Rate Swap			00162L-CG-0	EVERY POINT CLO LTD-SERIES 13-3A CLASS B1R	1	10,200,000	10,200,673
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,300,000	11,300,113	02/05/2015	02/05/2045	Interest Rate Swap			053633-AH-6	AbbVie Inc-SENIOR UNSECURED NOTE	2	11,300,000	11,300,113
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,730,600	6,598,518	02/05/2015	02/05/2045	Interest Rate Swap			00287Y-AL-3	Madison Park Funding Ltd-SERIES 18-30A CLASS B	1	6,730,600	6,598,518
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,400,000	7,288,963	02/05/2015	02/05/2045	Interest Rate Swap			55821T-AC-1	Tryon Park CLO Ltd-TPCLO 2013-1A AIR	1	7,400,000	7,288,963
57629*CV5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,085,000	1,083,100	02/05/2015	02/05/2045	Interest Rate Swap			89852T-AN-8	AIMCO-AIMCO 2017-AA C	1	1,085,000	1,083,100
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	5,280,000	(11,632,498)	02/05/2015	02/05/2045	Interest Rate Swap		(16,934,463)	00900C-AE-4	EVERY POINT CLO LTD-SERIES 13-3A CLASS AR	1	5,280,000	5,301,965
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		26,340,469	26,343,050	02/05/2015	02/05/2045	Interest Rate Swap			053633-AG-8	EVERY POINT IV CLO LTD-SERIES 14-1A CLASS BR	1	26,340,469	26,343,050
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		32,100,000	32,100,482	02/05/2015	02/05/2045	Interest Rate Swap			05363U-AU-7	NORTHSTAR EDUCATION FINA-SERIES 2004-1 CLASS B1	1	32,100,000	32,100,482
57629*C22	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		24,532,262	24,173,999	02/05/2015	02/05/2045	Interest Rate Swap			66704J-AY-4		1	24,532,262	24,173,999

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STATEMENT AS OF JUNE 30, 2018 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*CZ2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		27,000,000	26,963,785	02/05/2015	02/05/2045	Interest Rate Swap			75887X-AA-5	Regatta Funding Ltd.-REG11 2018-1A	1	27,000,000	26,963,785
57629*CZ2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,900,000	11,826,113	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	11,826,113
57629*CZ2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,265,686	5,122,262	02/05/2015	02/05/2045	Interest Rate Swap			00507U-AS-0	ACTAVIS FUNDING SCS-SENIOR UNSECURED NOTE	2	5,265,686	5,122,262
57629*CZ2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,510,468	10,452,719	02/05/2015	02/05/2045	Interest Rate Swap			64131B-AB-9	Neuberger Berman CLO XXI-SERIES 2016-22A CLASS B	1	10,510,468	10,452,719
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	24,425,000	7,665,331	02/05/2015	02/05/2045	Interest Rate Swap		(16,759,669)	14315J-TT-6	Carlyle US CLO 2015-1 Ri Term Loan	1	24,425,000	24,425,000
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		27,200,000	27,203,917	02/05/2015	02/05/2045	Interest Rate Swap			55818R-AQ-9	MADISON PARK FUNDING LTD-HDPK 2014-14A A1R	1	27,200,000	27,203,917
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,600,000	11,603,480	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	11,603,480
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		18,090,000	18,118,238	02/05/2015	02/05/2045	Interest Rate Swap			77340E-AC-0	ROCKFORD TOWER CLO LTD-ROCKT 2017-1A B	1	18,090,000	18,118,238
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,730,000	5,736,968	02/05/2015	02/05/2045	Interest Rate Swap			64129J-AU-4	NEUBERGER BERMAN CLO LTD-NEUB 2013-14A B1R	1	5,730,000	5,736,968
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,025,314	22,026,790	02/05/2015	02/05/2045	Interest Rate Swap			92916X-AA-5	VOYA CLO LTD-INGIM 2013-3A A1R	1	22,025,314	22,026,790
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,300,000	4,321,995	02/05/2015	02/05/2045	Interest Rate Swap			87248T-AE-5	TIOP CLO LTD-SERIES 2017 CLASS 7A	1	4,300,000	4,321,995
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,400,000	11,399,738	02/05/2015	02/05/2045	Interest Rate Swap			67097Q-AE-5	TOP CLO 2017-14 Ltd-SERIES 17-14A CLASS A2	1	11,400,000	11,399,738
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,400,000	13,222,423	02/05/2015	02/05/2045	Interest Rate Swap			08179L-AC-5	Benefit Street Partners -SERIES 18-14A CLASS A2	1	13,400,000	13,222,423
57629*DA6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	4,950,000	02/05/2015	02/05/2045	Interest Rate Swap			94950J-AC-5	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	5,000,000	4,950,000
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	45,000,000	27,972,280	02/05/2015	02/05/2045	Interest Rate Swap		(17,074,655)	05683H-AC-9	BAIN CAPITAL CREDIT CLO -SERIES 2017-2A CLASS AR	1	45,000,000	45,046,935
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,325,000	7,333,988	02/05/2015	02/05/2045	Interest Rate Swap			06760E-AA-4	MAGNETITE CLO LTD-SERIES 17-19A CLASS B	1	7,325,000	7,333,988
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,200,000	7,216,488	02/05/2015	02/05/2045	Interest Rate Swap			92915Q-AG-8	VOYA CLO LTD-SERIES 2017-3A CLASS A2	1	7,200,000	7,216,488
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,750,000	12,750,000	02/05/2015	02/05/2045	Interest Rate Swap			40436Q-AN-2	HPS Loan Management 9-20-HLM 9A-2016 A2R	1	12,750,000	12,750,000
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,999,480	02/05/2015	02/05/2045	Interest Rate Swap			00900A-AJ-7	AIMCO-SERIES 14-AA CLASS B1R	1	8,000,000	7,999,480
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,792,044	14,718,518	02/05/2015	02/05/2045	Interest Rate Swap			67590B-AA-8	OCTAGON INV PARTNERS XVI LTD-SR SECD NT CL A	1	14,792,044	14,718,518
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,425,000	14,388,692	02/05/2015	02/05/2045	Interest Rate Swap			06760E-AA-4	Babson CLO Ltd 2013-I-SERIES 2013-1A CLASS AR	1	14,425,000	14,388,692
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,489,862	7,469,569	02/05/2015	02/05/2045	Interest Rate Swap			36248M-AB-3	GT LOAN FINANCING LTD-SERIES 2013-1A CLASS B	1	7,489,862	7,469,569
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		21,135,734	24,805,728	02/05/2015	02/05/2045	Interest Rate Swap			24820R-AA-6	Statoil ASA-SENIOR UNSECURED NOTE BLUEMOUNTAIN CLO 2015-1 LTD-SR SEC DEF NT CL C	1	21,135,734	24,805,728
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,685,808	2,700,605	02/05/2015	02/05/2045	Interest Rate Swap			09627X-AG-6	Grupo Aeromexico S.A.B. Floating Rate S	2	2,685,808	2,700,605
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	16,327,444	7,230,753	12/05/2016	12/05/2046	Interest Rate Swap		(9,144,942)	MXP001-TT-1	SMB PRIVATE ED LN TR 201-SMB PRIVATE ED LN TR 2016-A NT	1	16,327,444	16,375,695
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		25,900,064	26,621,464	12/05/2016	12/05/2046	Interest Rate Swap			78449F-AC-5	NAVIENT STUDENT LOAN TRU-SERIES 16-2 CLASS A3	1	25,900,064	26,621,464
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		22,420,000	23,390,163	12/05/2016	12/05/2046	Interest Rate Swap			63940F-AC-1	ECMC GROUP STUDENT LOAN -SERIES 2016-1A CLASS A	1	22,420,000	23,390,163
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,818,329	12,011,441	12/05/2016	12/05/2046	Interest Rate Swap			26827X-AA-1	BABSON CLO LTD-BABSN 2014-11A BR	1	11,818,329	12,011,441
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,250,000	13,250,133	12/05/2016	12/05/2046	Interest Rate Swap			05618L-AG-1	VOYA CLO LTD-VOYA 2017-1A A2	1	13,250,000	13,250,133
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,500,000	11,504,382	12/05/2016	12/05/2046	Interest Rate Swap			92916M-AB-7	BABSON CLO LTD-BABSN 2014-11A AR	1	11,500,000	11,504,382
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,000,000	11,001,133	12/05/2016	12/05/2046	Interest Rate Swap			05618L-AF-3	VOYA CLO LTD-VOYA 2017-1A A2	1	11,000,000	11,001,133

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STATEMENT AS OF JUNE 30, 2018 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*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	9,999,970	12/05/2016	12/05/2046	Interest Rate Swap			67109Y-AN-4	Oak Hill Credit Partners-SERIES 15-12A CLASS AZR	1	10,000,000	9,999,970
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,330,000	4,350,485	12/05/2016	12/05/2046	Interest Rate Swap			85816B-CS-7	STEELE CREEK CLO LTD-SERIES 15-1A CLASS CR	1	4,330,000	4,350,485
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,200,000	4,154,707	12/05/2016	12/05/2046	Interest Rate Swap			08180X-AU-6	Benefit Street Partners -BSP 2015-8A BR	1	4,200,000	4,154,707
57629*DK4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,380,000	2,385,688	12/05/2016	12/05/2046	Interest Rate Swap			22616C-AE-3	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS C	1	2,380,000	2,385,688
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	10,926,351	1,838,795	12/05/2016	12/05/2046	Interest Rate Swap		(9,119,845)	MXP001-TT-1	Grupo Aeromexico S.A.B. Floating Rate S	1	10,926,351	10,958,640
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,417,191	14,694,223	12/05/2016	12/05/2046	Interest Rate Swap			78442G-PQ-3	SLM STUDENT LOAN TRUST-SERIES 2005-5 CLASS A4	1	14,417,191	14,694,223
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,019,595	4,041,624	12/05/2016	12/05/2046	Interest Rate Swap			49327H-AG-0	KEYCORP STUDENT LOAN TRU-SERIES 2006-A CLASS 244	1	4,019,595	4,041,624
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,716,053	9,888,076	12/05/2016	12/05/2046	Interest Rate Swap			64031Q-BR-1	MELNET STUDENT LOAN TRUS-SERIES 2005-1 CLASS A5	1	9,716,053	9,888,076
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,958,082	12,281,684	12/05/2016	12/05/2046	Interest Rate Swap			78448Q-AD-0	SMB PRIVATE EDUCATION LO-SMB 2015-B A3	1	11,958,082	12,281,684
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,751,732	11,263,478	12/05/2016	12/05/2046	Interest Rate Swap			78442G-RX-6	SLM STUDENT LN TR 2006-2 LN BKD NT CL A-6	1	10,751,732	11,263,478
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,440,697	5,500,344	12/05/2016	12/05/2046	Interest Rate Swap			78442G-EX-0	SLM STUDENT LOAN TRUST-SERIES 2002-7CLASS A11	1	5,440,697	5,500,344
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,851,646	11,008,446	12/05/2016	12/05/2046	Interest Rate Swap			10620N-AX-6	BRAZOS HIGHER EDUCATION -SER 2006-2 STUDENT LN REV NT	1	10,851,646	11,008,446
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,143,636	8,296,416	12/05/2016	12/05/2046	Interest Rate Swap			64031Q-BX-8	MELNET STUDENT LOAN TRUS-SERIES 2005-2 CLASS A5	1	8,143,636	8,296,416
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,791,066	10,154,869	12/05/2016	12/05/2046	Interest Rate Swap			83715R-AF-9	SOUTH CAROLINA STUDENT L-SERIES 14-1 CLASS A2	1	9,791,066	10,154,869
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,362,780	4,360,534	12/05/2016	12/05/2046	Interest Rate Swap			00432C-AV-3	ACCESS GROUP INC-SERIES 2003-A CLASS A3	1	4,362,780	4,360,534
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,001,730	12/05/2016	12/05/2046	Interest Rate Swap			88322U-AN-9	THACHER PARK CLO-THRPK 2014-1A CR Regatta Funding Ltd. -REG11 2018-1A	1	5,000,000	5,001,730
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,000,000	12,975,954	12/05/2016	12/05/2046	Interest Rate Swap			75887X-AC-1	B ROCKALL CLO BV Variable Funding	1	13,000,000	12,975,954
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	Note- USD VIBRANT CLO LTD-SERIES 2016-5A	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	4,318,030	12/05/2016	12/05/2046	Interest Rate Swap			92558A-AA-8	CLASS A CIFC Funding 2018-1 Ltd-SERIES 18-1A CLASS B	1	4,300,000	4,318,030
57629*DJ7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,350,000	7,254,384	12/05/2016	12/05/2046	Interest Rate Swap			12551R-AC-2	Grupo Aeromexico S.A.B. Floating Rate S	1	7,350,000	7,254,384
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	16,265,363	6,864,818	12/05/2016	12/05/2046	Interest Rate Swap		(9,448,612)	MXP001-TT-1	NAVIENT STUDENT LOAN TRU-SERIES 2016-6A CLASS A3	1	16,265,363	16,313,430
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		65,300,000	67,715,989	12/05/2016	12/05/2046	Interest Rate Swap			63940L-AC-8	MONTANA HIGHER EDUCATION-SERIES 12-1 CLASS A3	1	65,300,000	67,715,989
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		23,039,320	23,616,480	12/05/2016	12/05/2046	Interest Rate Swap			61205P-AL-3	SLC STUDENT LOAN TRUST-SERIES 2006-A CLASS B	1	23,039,320	23,616,480
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,191,332	14,490,798	12/05/2016	12/05/2046	Interest Rate Swap			784419-AF-0	SLM STUDENT LOAN TRUST-SERIES 2002-7 CLASS A10	1	14,191,332	14,490,798
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		894,941	901,247	12/05/2016	12/05/2046	Interest Rate Swap			78442G-EW-2	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A10	1	894,941	901,247
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,811,175	1,778,997	12/05/2016	12/05/2046	Interest Rate Swap			429827-AK-4	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A14	1	1,811,175	1,778,997
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,177,397	1,176,982	12/05/2016	12/05/2046	Interest Rate Swap			429827-AP-3	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A2	1	1,177,397	1,176,982
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,087,570	1,110,678	12/05/2016	12/05/2046	Interest Rate Swap			429827-AB-4	SOUTH CAROLINA STUDENT L-SR UNSECURED	1	1,087,570	1,110,678
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,860,394	1,905,338	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	1,860,394	1,905,338
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,651,423	1,775,971	12/05/2016	12/05/2046	Interest Rate Swap			784427-AF-3	MELNET STUDENT LOAN TRUS-SERIES 2015-2A CLASS B	1	1,651,423	1,775,971
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,687,653	1,631,584	12/05/2016	12/05/2046	Interest Rate Swap			64033Q-AC-3		1	1,687,653	1,631,584

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STATEMENT AS OF JUNE 30, 2018 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*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,860,493	1,945,116	12/05/2016	12/05/2046	Interest Rate Swap			462590-JT-8	IOWA STUDENT LOAN LIQUID-SERIES 2012-1 CLASS B	1	1,860,493	1,945,116
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,434,908	1,421,218	12/05/2016	12/05/2046	Interest Rate Swap			709163-GJ-2	PENNSYLVANIA ST HGR EDU -SERIES 2006 CL B	1	1,434,908	1,421,218
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,177,593	1,236,126	12/05/2016	12/05/2046	Interest Rate Swap			17284L-AB-0	CIT EDUCATION LOAN TRUST-SERIES 2007-1 CLASS B	1	1,177,593	1,236,126
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,337,077	1,346,665	12/05/2016	12/05/2046	Interest Rate Swap			78448C-AH-2	SLM STUDENT LOAN TRUST-SERIES 2013-6 CLASS B	1	1,337,077	1,346,665
57629*DH1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	3,977,160	12/05/2016	12/05/2046	Interest Rate Swap			056162-AS-9	Babson CLO Ltd 2015-1-BABSN 2015-1A CR	1	4,000,000	3,977,160
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	13,657,938	4,252,197	12/05/2016	12/05/2046	Interest Rate Swap		(9,446,103)	MXP001-TT-1	Grupo Aeromexico S.A.B. Floating Rate S	1	13,657,938	13,698,300
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,270,923	6,604,326	12/05/2016	12/05/2046	Interest Rate Swap			78448R-AD-8	SNB PRIVATE ED LN TR 2015-C LN BCK NT CL A-3	1	6,270,923	6,604,326
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,482,559	5,727,425	12/05/2016	12/05/2046	Interest Rate Swap			78448P-AD-2	SNB PRIVATE ED LOAN TR 2015-A LN BACKED NT A-3	1	5,482,559	5,727,425
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,295,182	3,289,846	12/05/2016	12/05/2046	Interest Rate Swap			69847R-AB-8	PANHANDLE-PLAINS TX STUD-SERIES 2001-1 CLASS A2	1	3,295,182	3,289,846
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,465,294	4,501,934	12/05/2016	12/05/2046	Interest Rate Swap			19458L-BH-2	COLLEGIATE FUNDING SERVI-SERIES 2005-B CLASS A4	1	4,465,294	4,501,934
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,681,328	4,744,008	12/05/2016	12/05/2046	Interest Rate Swap			78446D-AC-3	SLM STUDENT LOAN TRUST-SERIES 2011-A CLASS A3	1	4,681,328	4,744,008
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,809,492	3,915,109	12/05/2016	12/05/2046	Interest Rate Swap			63938E-AD-6	NAVIENT STUDENT LOAN TRU-SERIES 2014-1 CLASS A4	1	3,809,492	3,915,109
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		465,937	465,838	12/05/2016	12/05/2046	Interest Rate Swap			00432C-CF-6	ACCESS GROUP INC DEL 2005-1 ASSET BND CTF CL A-3	1	465,937	465,838
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		16,204,048	16,502,453	12/05/2016	12/05/2046	Interest Rate Swap			840555-DA-1	SOUTH TX HIGHER ED AUTH REV SER 1 CL A-3	1	16,204,048	16,502,453
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,169,055	10,456,158	12/05/2016	12/05/2046	Interest Rate Swap			00432C-CI-9	ACCESS GROUP INC-SERIES 2005-B CLASS A3	1	10,169,055	10,456,158
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,852,253	10,499,089	12/05/2016	12/05/2046	Interest Rate Swap			28148W-AC-7	EDUCATIONAL FUNDING OF T-SERIES 2011-1 CLASS B	1	9,852,253	10,499,089
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,250,293	9,888,858	12/05/2016	12/05/2046	Interest Rate Swap			78444C-AE-3	SLM STUDENT LOAN TRUST-SERIES 07-6 CLASS A5	1	9,250,293	9,888,858
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,660,325	9,191,831	12/05/2016	12/05/2046	Interest Rate Swap			78443F-AF-4	SLM STUDENT LOAN TRUST-SERIES 2007-5 CLASS A6	1	8,660,325	9,191,831
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,748,722	7,930,361	12/05/2016	12/05/2046	Interest Rate Swap			00400V-AB-3	ACADEMIC LOAN FUNDING TR-ALFT 2012-1A A2	1	7,748,722	7,930,361
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		815,155	899,821	12/05/2016	12/05/2046	Interest Rate Swap			462592-AD-8	IOWA STUDENT LOAN LIQUID-SERIES 2005-1 CLASS B	1	815,155	899,821
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,062,627	9,201,216	12/05/2016	12/05/2046	Interest Rate Swap			78442G-QA-7	SLM STUDENT LOAN TRUST-SERIES 2005-6 CLASS B	1	9,062,627	9,201,216
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,650,105	1,752,425	12/05/2016	12/05/2046	Interest Rate Swap			38021F-AB-7	GOAL CAPITAL FUNDING TRU-SERIES 2015-1 CLASS B	1	1,650,105	1,752,425
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,668,051	1,705,259	12/05/2016	12/05/2046	Interest Rate Swap			28138J-AB-0	EDUCATIONAL SERVICES OF -SERIES 15-2 CLASS B	1	1,668,051	1,705,259
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,299,715	1,325,476	12/05/2016	12/05/2046	Interest Rate Swap			78442G-GM-2	SLM STUDENT LOAN TRUST 2003-4 LN BND CTF CL B	1	1,299,715	1,325,476
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,350,197	1,367,605	12/05/2016	12/05/2046	Interest Rate Swap			28090A-AB-5	EDUCATIONAL SERVICES OF -2014-4 SERIES B	1	1,350,197	1,367,605
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		574,990	580,774	12/05/2016	12/05/2046	Interest Rate Swap			83401L-AA-2	SOCIAL PROFESSIONAL LOAN-SERIES 2015-A CLASS A1	1	574,990	580,774
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,200,000	7,199,870	12/05/2016	12/05/2046	Interest Rate Swap			03767M-AE-8	Apidos CLO-SERIES 18-29A CLASS A1B	1	7,200,000	7,199,870
57629*DG3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,400,000	4,353,791	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	4,353,791
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	7,511,997	(3,413,067)	12/06/2016	12/06/2046	Interest Rate Swap		(10,699,692)	281397-AP-4	EDUCATION LOAN ASSET-BAC-SERIES 2003-2 CLASS 2A1	1	7,511,997	7,286,625
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		11,919,655	11,954,880	12/05/2016	12/05/2046	Interest Rate Swap			MXP001-TT-1	Grupo Aeromexico S.A.B. Floating Rate S	1	11,919,655	11,954,880
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,931,587	5,002,218	12/06/2016	12/06/2046	Interest Rate Swap			66705R-AA-7	NORTHSTAR EDUCATION FINA-NEF 2016-1A	1	4,931,587	5,002,218

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STATEMENT AS OF JUNE 30, 2018 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		6,649,096	6,797,725	12/06/2016	12/06/2046	Interest Rate Swap			281397-AB-5	EDUCATION LOAN ASSET-BAC-SERIES 2003-1 CLASS A2	1	6,649,096	6,797,725
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,128,807	5,591,565	12/06/2016	12/06/2046	Interest Rate Swap			640310-CK-5	NELNET STUDENT LOAN TRUS-SERIES 2005-4 CLASS A4R1	1	5,128,807	5,591,565
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,775,931	5,004,821	12/06/2016	12/06/2046	Interest Rate Swap			78443G-AG-0	SLM STUDENT LOAN TRUST-SERIES 2006-7 CLASS A6B	1	4,775,931	5,004,821
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,195,423	4,699,328	12/06/2016	12/06/2046	Interest Rate Swap			106238-LJ-5	BRAZOS TX HGR EDU AUTH REVENUE BOND	1	4,195,423	4,699,328
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,501,183	5,879,285	12/06/2016	12/06/2046	Interest Rate Swap			281080-AB-0	EDLINC STUDENT LOAN FUND-SERIES 2012-1 CLASS B	1	5,501,183	5,879,285
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,450,000	4,252,768	12/06/2016	12/06/2046	Interest Rate Swap			281397-AQ-2	EDUCATION LOAN ASSET-BAC-SERIES 2003-2 CLASS 2A2	1	4,450,000	4,252,768
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,987,522	3,066,060	12/06/2016	12/06/2046	Interest Rate Swap			38021E-AA-2	GOAL CAPITAL FUNDING TR 2010-1 STUDENT LN BKO NT	1	2,987,522	3,066,060
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,617,286	4,121,896	12/06/2016	12/06/2046	Interest Rate Swap			640310-CM-1	NELNET STUDENT LOAN TRUS-SERIES 2005-4 CLASS A4R2	1	3,617,286	4,121,896
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,734,372	3,818,012	12/06/2016	12/06/2046	Interest Rate Swap			658262-GD-6	NORTH CAROLINA STATE EDU-SERIES 2011-2 CLASS A3	1	3,734,372	3,818,012
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,890,469	1,989,492	12/06/2016	12/06/2046	Interest Rate Swap			78442G-KW-5	SLM STUDENT LOAN TRUST-SERIES 2004-1 CLASS A6	1	1,890,469	1,989,492
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,593,281	15,123,393	12/06/2016	12/06/2046	Interest Rate Swap			83149E-AG-2	SLM STUDENT LN TR 2006-5-NOTE CL B	1	14,593,281	15,123,393
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,897,023	10,099,345	12/06/2016	12/06/2046	Interest Rate Swap			784419-AG-8	SLC STUDENT LOAN TRUST-SERIES 2006-A CLASS C	1	9,897,023	10,099,345
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,921,098	5,086,319	12/06/2016	12/06/2046	Interest Rate Swap			23341K-AA-3	DRB PRIME STUDENT LOAN T-SERIES 2015-D CLASS A1	1	4,921,098	5,086,319
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,741,677	8,714,232	12/06/2016	12/06/2046	Interest Rate Swap			640310-AB-8	NELNET STUDENT LOAN TRUS-SERIES 2012-2A CLASS B	1	8,741,677	8,714,232
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,515,490	13,789,539	12/06/2016	12/06/2046	Interest Rate Swap			78442G-PS-9	SLM STUDENT LOAN TRUST-SERIES 2005-5 CLASS B	1	13,515,490	13,789,539
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,900,000	3,906,338	12/06/2016	12/06/2046	Interest Rate Swap			87244A-BC-3	WIND RIVER CLO LTD-SERIES 12-1A CLASS BR	1	3,900,000	3,906,338
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,000,000	7,942,720	12/06/2016	12/06/2046	Interest Rate Swap			03328T-AS-4	ANCHORAGE CAPITAL CLO 7 -ANCHC 2015-7A B1R	1	8,000,000	7,942,720
57629*DF5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,000,000	2,994,747	12/06/2016	12/06/2046	Interest Rate Swap			89852T-AN-8	Tryon Park CLO Ltd-TPCLO 2013-1A A1JR	1	3,000,000	2,994,747
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	10,926,351	535,031	12/06/2016	12/06/2046	Interest Rate Swap		(10,423,609)	MXP001-TT-1	Grupo Aeromexico S.A.B. Floating Rate S	1	10,926,351	10,958,640
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,363,849	9,637,410	12/05/2016	12/05/2046	Interest Rate Swap			83715R-AG-7	SOUTH CAROLINA STUDENT L-SERIES 2014-1 CLASS B	1	9,363,849	9,637,410
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,134,663	6,840,678	12/06/2016	12/06/2046	Interest Rate Swap			784420-AE-1	SLC STUDENT LOAN TRUST-SERIES 2005-1 CLASS B	1	6,134,663	6,840,678
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,781,825	6,119,230	12/06/2016	12/06/2046	Interest Rate Swap			78442G-QT-6	SLM STUDENT LOAN TRUST-SERIES 2005-8 CLASS B	1	5,781,825	6,119,230
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,630,008	5,849,550	12/06/2016	12/06/2046	Interest Rate Swap			78442G-PD-2	SLM STUDENT LOAN TRUST-SERIES 2005-3 CLASS B	1	5,630,008	5,849,550
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,829,550	4,184,300	12/06/2016	12/06/2046	Interest Rate Swap			493268-AU-0	KEYCORP STUDENT LOAN TRU-SERIES 1999-B CLASS CTFS	1	3,829,550	4,184,300
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,628,512	6,624,107	12/06/2016	12/06/2046	Interest Rate Swap			78446C-AB-7	SLM STUDENT LOAN TRUST-SERIES 2013-2 CLASS B	1	6,628,512	6,624,107
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,955,000	6,568,522	12/06/2016	12/06/2046	Interest Rate Swap			63938E-AE-4	NAVIENT STUDENT LOAN TRU-SERIES 2014-1 CLASS B	1	6,955,000	6,568,522
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,456,475	5,370,309	12/06/2016	12/06/2046	Interest Rate Swap			64031A-AJ-5	NELNET STUDENT LOAN TRUS-SERIES 2006-3 CLASS B	1	5,456,475	5,370,309
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,168,330	6,823,432	12/06/2016	12/06/2046	Interest Rate Swap			63939L-AC-1	NAVIENT STUDENT LOAN TRU-SERIES 2015-3 CLASS B	1	6,168,330	6,823,432
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,500,000	6,657,453	12/06/2016	12/06/2046	Interest Rate Swap			78447M-AD-0	SLM STUDENT LOAN TRUST-SERIES 2013-1 CLASS B	1	6,500,000	6,657,453
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,357,512	5,599,889	12/06/2016	12/06/2046	Interest Rate Swap			64033J-AB-1	NELNET STUDENT LOAN TRUS-SERIES 2014-1A CLASS B	1	5,357,512	5,599,889
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,775,650	3,893,601	12/06/2016	12/06/2046	Interest Rate Swap			194266-AE-2	COLLEGE LOAN CORPORATION-SERIES 2005-2 CLASS B	1	3,775,650	3,893,601

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**SCHEDULE DB - PART C - SECTION 1**

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

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,456,891	4,656,480	12/06/2016	12/06/2046	Interest Rate Swap			64033N-AB-2	NELNET STUDENT LOAN TRUS-SERIES 2014-5A CLASS B	1	4,456,891	4,656,480
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,601,298	3,825,391	12/06/2016	12/06/2046	Interest Rate Swap			194262-CF-6	COLLEGE LOAN CORPORATION-SERIES 2004-1 CLASS B	1	3,601,298	3,825,391
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,849,889	2,998,740	12/06/2016	12/06/2046	Interest Rate Swap			78442G-LJ-3	SLM STUDENT LOAN TRUST-SERIES 2004-3 CLASS B	1	2,849,889	2,998,740
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,650,000	3,462,274	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	3,462,274
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,023,162	3,256,961	12/06/2016	12/06/2046	Interest Rate Swap			64032F-AH-7	NELNET STUDENT LOAN TRUS-SERIES 2007-2A CLASS A42	1	3,023,162	3,256,961
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,173,631	3,085,803	12/06/2016	12/06/2046	Interest Rate Swap			64033L-AD-2	NELNET STUDENT LOAN TRUS-SERIES 2014-2A CLASS B	1	3,173,631	3,085,803
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,240,000	3,180,788	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	3,180,788
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		14,750,000	14,749,690	12/06/2016	12/06/2046	Interest Rate Swap			03767M-AG-3	Apidos CLO-SERIES 18-29A CLASS A2 Magnetite VIII Ltd-MAGNE 2014-8A	1	14,750,000	14,749,690
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,500,000	4,497,705	12/06/2016	12/06/2046	Interest Rate Swap			55852Y-AT-4	CR2	1	4,500,000	4,497,705
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,500,000	2,509,015	12/06/2016	12/06/2046	Interest Rate Swap			94949L-AE-0	WELLFLEET CLO LTD-WELF 2016-2A B Ares XXVIII CLO Ltd-SERIES 15-38A	1	2,500,000	2,509,015
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,700,000	6,653,134	12/06/2016	12/06/2046	Interest Rate Swap			04015U-AJ-7	CLASS BR ATRIUM CDO CORP-SERIES 8A CLASS BR	1	6,700,000	6,653,134
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	8,900,000	(1,877,790)	12/06/2016	12/06/2046	Interest Rate Swap		(10,787,536)	04964H-AN-8	Grupo Aeromexico S.A.B. Floating Rate S TICP CLO LTD-SERIES 2016-6A CLASS B	1	8,900,000	8,909,746
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		993,305	996,240	12/05/2016	12/05/2046	Interest Rate Swap			MXP001-TT-1	ATLAS SENIOR LOAN FUND L-ATCLO 2016-7A B1	1	993,305	996,240
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,900,000	8,919,794	12/06/2016	12/06/2046	Interest Rate Swap			87246M-AB-8	CARLYLE GLOBAL MARKET ST-SERIES 2012-4A CLASS BR	1	8,900,000	8,919,794
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,850,000	8,864,735	12/06/2016	12/06/2046	Interest Rate Swap			04941T-AE-0	APIDOS CLO-SERIES 2014-17A CLASS A2R	1	8,850,000	8,864,735
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,850,000	8,867,355	12/06/2016	12/06/2046	Interest Rate Swap			14309Y-AQ-7	BARINGS CLO LTD-BABSN 2016-3A A2 SEVEN STICKS CLO LTD-SR SEC2 NT CL A-2 144A	1	8,850,000	8,867,355
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,850,000	8,852,062	12/06/2016	12/06/2046	Interest Rate Swap			03764X-AJ-6	Babson CLO Ltd 2015-1-BABSN 2015-1A AR	1	8,850,000	8,852,062
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,500,000	7,512,180	12/06/2016	12/06/2046	Interest Rate Swap			06759Y-AC-9	Sounds Point CLO IV-R LT-SERIES 13-3RA CLASS B	1	7,500,000	7,512,180
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,370,000	7,372,123	12/06/2016	12/06/2046	Interest Rate Swap			81789G-AC-5	SLM STUDENT LOAN TRUST-SERIES 2013-4 CLASS B	1	7,370,000	7,372,123
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		12,575,000	12,540,947	12/06/2016	12/06/2046	Interest Rate Swap			056162-AN-0	ACCESS GROUP INC-SERIES 2006-1 CLASS B	1	12,575,000	12,540,947
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		10,000,000	10,007,830	12/06/2016	12/06/2046	Interest Rate Swap			83609Y-AE-6	SLM STUDENT LOAN TRUST-SERIES 2003-14 CLASS A6	1	10,000,000	10,007,830
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,200,000	3,199,997	12/06/2016	12/06/2046	Interest Rate Swap			78448A-AD-5	KEYCORP STUDENT LOAN TRU-SERIES 2004-A CLASS 1B	1	3,200,000	3,199,997
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,834,557	2,030,399	12/06/2016	12/06/2046	Interest Rate Swap			00432C-DE-8	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS B1	1	1,834,557	2,030,399
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,473,901	2,493,908	12/06/2016	12/06/2046	Interest Rate Swap			78442G-KN-5	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS B2	1	2,473,901	2,493,908
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,802,357	1,769,577	12/06/2016	12/06/2046	Interest Rate Swap			493268-BW-5	NELNET STUDENT LOAN TRUS-SERIES 2015-3A CLASS B	1	1,802,357	1,769,577
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		599,291	648,355	12/06/2016	12/06/2046	Interest Rate Swap			429827-AR-9	COLLEGIATE FUNDING SERVI-SERIES 2005-A CLASS B	1	599,291	648,355
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,020,789	2,147,350	12/06/2016	12/06/2046	Interest Rate Swap			429827-AS-7	ACCESS GROUP INC-SERIES 2015-1 CLASS B	1	2,020,789	2,147,350
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,936,953	1,982,590	12/06/2016	12/06/2046	Interest Rate Swap			64033T-AB-9	SLM STUDENT LOAN TRUST-SERIES 2006-2 CLASS B	1	1,936,953	1,982,590
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,610,776	1,613,517	12/06/2016	12/06/2046	Interest Rate Swap			19458L-BD-1		1	1,610,776	1,613,517
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,876,357	1,963,106	12/06/2016	12/06/2046	Interest Rate Swap			00435T-AB-7		1	1,876,357	1,963,106
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,890,858	2,945,938	12/06/2016	12/06/2046	Interest Rate Swap			78442G-RY-4		1	2,890,858	2,945,938

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STATEMENT AS OF JUNE 30, 2018 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*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,208,796	2,959,062	12/06/2016	12/06/2046	Interest Rate Swap			194267-AM-2	COLLEGE LOAN CORPORATION-SERIES 2007-1 CLASS B2	1	3,208,796	2,959,062
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,614,516	2,496,880	12/06/2016	12/06/2046	Interest Rate Swap			92978J-AH-6	WACHOVIA STUDENT LOAN TR-SERIES 2006-1 CLASS B	1	2,614,516	2,496,880
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,157,292	2,253,334	12/06/2016	12/06/2046	Interest Rate Swap			83715R-AH-5	SOUTH CAROLINA STUDENT L-SERIES 15-A CLASS A	1	2,157,292	2,253,334
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,480,754	2,445,114	12/06/2016	12/06/2046	Interest Rate Swap			28137T-AB-9	EDUCATIONAL SERVICES OF -SERIES 2014-2 CLASS B	1	2,480,754	2,445,114
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,019,608	2,092,106	12/06/2016	12/06/2046	Interest Rate Swap			78443B-AK-2	SLM STUDENT LOAN TRUST-SERIES 2006-10 CLASS B	1	2,019,608	2,092,106
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,385,602	2,313,046	12/06/2016	12/06/2046	Interest Rate Swap			69340Q-AB-2	PENNSYLVANIA HIGHER EDUC-SERIES 2015-1A CLASS B	1	2,385,602	2,313,046
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,146,576	2,252,279	12/06/2016	12/06/2046	Interest Rate Swap			281378-AB-5	EDUCATIONAL SERVICES OF -SERIES 2015-1 CLASS B	1	2,146,576	2,252,279
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		1,342,766	1,427,937	12/06/2016	12/06/2046	Interest Rate Swap			00432C-AR-2	ACCESS GROUP-STUDENT LN REVENUE NT	1	1,342,766	1,427,937
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,542,689	4,542,962	12/06/2016	12/06/2046	Interest Rate Swap			63939D-AD-7	NAVIENT STUDENT LOAN TRUST 2014-8 CL B	1	4,542,689	4,542,962
57629*DD0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		9,900,000	9,834,106	12/06/2016	12/06/2046	Interest Rate Swap			69688X-AU-5	Palmer Square CLO 2014-1-SERIES 2014-1A CLASS A2PR	1	9,900,000	9,834,106
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1	125,000,000	3,977,404	(6,781,673)	12/06/2016	12/06/2046	Interest Rate Swap		(10,782,517)	09627L-AJ-6	BLUEMOUNTAIN CLO 2014-1 LTD SR SEC DEF NT CL D	2	3,977,404	4,000,844
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		3,989,807	4,001,956	12/06/2016	12/06/2046	Interest Rate Swap			87165V-AE-9	SYMPHONY CLO LTD-SYMP 2015-16A D	2	3,989,807	4,001,956
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,580,547	13,533,399	12/06/2016	12/06/2046	Interest Rate Swap			04017E-AE-2	ARES XXXIIR CLO LTD-SERIES 14-32RA CLASS A1B	1	13,580,547	13,533,399
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,790,000	8,642,592	12/06/2016	12/06/2046	Interest Rate Swap			55951P-BC-0	Magnetite VII Ltd-MAGNE 2012-7A A2R2	1	8,790,000	8,642,592
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		13,560,000	13,559,783	12/06/2016	12/06/2046	Interest Rate Swap			40436V-AB-7	HIGHBRIDGE LOAN MANAGEM-HLMI 11A-17 B	1	13,560,000	13,559,783
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,021,963	2,014,756	12/06/2016	12/06/2046	Interest Rate Swap			87230A-AD-8	TCI-FLATIRON CLO LTD-TFLAT 2016-1A D	3	2,021,963	2,014,756
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		8,200,000	8,219,655	12/06/2016	12/06/2046	Interest Rate Swap			04964H-AQ-1	ATRIUM VIII-DEF NT CL C-R	1	8,200,000	8,219,655
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		7,516,250	7,547,736	12/06/2016	12/06/2046	Interest Rate Swap			06759Y-AE-5	BARINGS CLO LTD-BABNS 2016-3A B	1	7,516,250	7,547,736
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		2,500,000	2,512,253	12/06/2016	12/06/2046	Interest Rate Swap			50189P-AN-2	LOM LTD PARTNERSHIP-SERIES 25A CLASS C2	1	2,500,000	2,512,253
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,769,847	6,774,866	12/06/2016	12/06/2046	Interest Rate Swap			87244A-BE-9	WIND RIVER CLO LTD-WINDR 2012-1A CR	1	6,769,847	6,774,866
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,700,000	6,726,338	12/06/2016	12/06/2046	Interest Rate Swap			14309Y-AY-0	CARLYLE GLOBAL MARKET ST-SERIES 2012-4A CLASS C1R	1	6,700,000	6,726,338
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,585,000	6,589,353	12/06/2016	12/06/2046	Interest Rate Swap			88433A-AE-9	THL CR WIND RIV 2016-1 CLO-SR SECD NT CL C 144A	1	6,585,000	6,589,353
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,013,990	12/06/2016	12/06/2046	Interest Rate Swap			00164B-AU-1	ALM LOAN FUNDING-SERIES ALM 2013-7R2A CLASS BR	1	5,000,000	5,013,990
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,024,470	12/06/2016	12/06/2046	Interest Rate Swap			03328W-AE-8	ANCHORAGE CAPITAL CLO LT-ANCHC 2016-9A C	1	5,000,000	5,024,470
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		5,000,000	5,006,160	12/06/2016	12/06/2046	Interest Rate Swap			09627V-AW-5	BLUEMOUNTAIN CLO LTD-SERIES 2014-4A CLASS CR	1	5,000,000	5,006,160
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,750,000	4,771,907	12/06/2016	12/06/2046	Interest Rate Swap			55820N-AE-1	MADISON PARK FUNDING LTD-MDPK 2016-24A C1	1	4,750,000	4,771,907
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,525,240	4,502,696	12/06/2016	12/06/2046	Interest Rate Swap			26244Y-AE-6	DRYDEN 42 SR LN FD-SR SEC DEF NT CL C	1	4,525,240	4,502,696
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,500,000	4,515,714	12/06/2016	12/06/2046	Interest Rate Swap			67091H-AP-6	CHA LOAN FUNDING LTD-SERIES 2012-1A CLASS CR	1	4,500,000	4,515,714
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		6,750,000	6,740,496	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	6,740,496
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,375,000	4,387,241	12/06/2016	12/06/2046	Interest Rate Swap			48251B-AE-0	KKR FINANCIAL CLO LTD-KKR 16 B1	1	4,375,000	4,387,241
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,200,000	4,209,421	12/06/2016	12/06/2046	Interest Rate Swap			03763Y-AS-5	APIDOS CLO-SERIES 12-11A CLASS CR	1	4,200,000	4,209,421

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STATEMENT AS OF JUNE 30, 2018 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*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	4,001,388	12/06/2016	12/06/2046	Interest Rate Swap			03765L-AL-6	APIDOS CLO-SERIES 2015-20A CLASS BR	1	4,000,000	4,001,388
57629*DC2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corp Bonds	1		4,000,000	4,014,888	12/06/2016	12/06/2046	Interest Rate Swap			09626R-AS-4	BLUEMOUNTAIN CLO LTD-BLUEM 2012-2A CR	1	4,000,000	4,014,888
Awaiting PPN	Inverse JPY Long Term Bond		50,000,000	59,651,027	61,352,493	03/24/2017	03/28/2019	Currency Forward		949,368	912828-KQ-2	US TREASURY 3.125% TO 5/15/2019 US TREASURY STRIP 0% DUE 05/15/2023	1	59,651,027	60,403,125
Awaiting PPN	Inverse JPY Long Term Bond		50,000,000	62,458,706	71,155,745	03/28/2017	04/01/2019	Currency Forward		1,280,663	912833-LN-8	US TREASURY 1.625% DUE 3/30/2019	1	62,458,706	69,875,082
Awaiting PPN	Inverse JPY Long Term Bond		50,000,000	54,931,598	56,157,488	04/11/2017	04/15/2019	Currency Forward		1,423,894	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019	1	54,931,598	54,733,594
Awaiting PPN	Inverse JPY Long Term Bond		50,000,000	52,934,085	53,301,309	05/01/2017	05/08/2019	Currency Forward		558,028	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019	1	52,934,085	52,743,281
Awaiting PPN	Inverse JPY Long Term Bond		75,000,000	78,901,750	79,178,983	05/02/2017	05/09/2019	Currency Forward		561,639	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019	1	78,901,750	78,617,344
91283# AP8	Inverse JPY Long Term Bond		90,000,000	76,904,237	77,095,204	05/03/2017	05/09/2019	Currency Forward		468,173	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019 Allegro CLO VI Ltd-ALLEG 2017-2A B	1	76,904,237	76,627,031
91283# AP8	Inverse JPY Long Term Bond			6,400,000	6,369,766	05/03/2017	05/09/2019	Currency Forward			01749B-AB-5	Greenwood Park CLO Ltd-SERIES 18-1A CLASS B	1	6,400,000	6,369,766
91283# AP8	Inverse JPY Long Term Bond			4,400,000	4,353,791	05/03/2017	05/09/2019	Currency Forward			39729R-AC-2	Babson CLO Ltd 2015-1-BABSN 2015-1A CR	1	4,400,000	4,353,791
91283# AP8	Inverse JPY Long Term Bond			5,095,000	5,065,908	05/03/2017	05/09/2019	Currency Forward			056162-AS-9	BlueMountain Fuji US CLO-SERIES 2017-3A CLASS B	1	5,095,000	5,065,908
91283# AP8	Inverse JPY Long Term Bond			4,000,000	3,953,316	05/03/2017	05/09/2019	Currency Forward			09628F-AE-9	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS C	1	4,000,000	3,953,316
91283# AP8	Inverse JPY Long Term Bond			2,000,000	2,004,780	05/03/2017	05/09/2019	Currency Forward			22616C-AE-3	Babson CLO Ltd 2013-1-SERIES 2013-1S CLASS BR	1	2,000,000	2,004,780
91283# AP8	Inverse JPY Long Term Bond			1,995,000	1,989,783	05/03/2017	05/09/2019	Currency Forward			06780E-AC-0	US TREASURY 1.625% DUE 3/30/2019	1	1,995,000	1,989,783
Awaiting PPN	Inverse JPY Long Term Bond		50,000,000	54,931,598	54,279,831	05/10/2017	05/13/2019	Currency Forward		(453,763)	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019	1	54,931,598	54,733,594
Awaiting PPN	Inverse JPY Long Term Bond		50,000,000	53,932,842	53,275,129	05/11/2017	05/15/2019	Currency Forward		(463,309)	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019	1	53,932,842	53,738,438
Awaiting PPN	Inverse JPY Long Term Bond		25,000,000	26,966,421	26,796,188	05/16/2017	05/20/2019	Currency Forward		(73,031)	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019	1	26,966,421	26,869,219
Awaiting PPN	Inverse JPY Long Term Bond		25,000,000	26,966,421	27,070,469	05/17/2017	05/20/2019	Currency Forward		201,250	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019	1	26,966,421	26,869,219
Awaiting PPN	Inverse JPY Long Term Bond		25,000,000	25,967,665	26,224,480	05/17/2017	05/20/2019	Currency Forward		350,417	912828-C6-5	US TREASURY 1.625% DUE 3/30/2019 Ameri sourceBergen Corp-SENIOR UNSECURED	2	25,967,665	25,874,063
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1	250,000,000	21,248,935	(7,105,728)	09/15/2017	09/15/2047	Interest Rate Swap		(27,261,879)	03073E-AM-7	BHP Billiton Finance USA-DEBENTURE	1	21,248,935	20,156,151
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		28,644,875	32,787,427	09/15/2017	09/15/2047	Interest Rate Swap			055450-AH-3	ONE GROUP INC-SR UNSECURED	1	28,644,875	30,100,184
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		31,145,606	30,100,184	09/15/2017	09/15/2047	Interest Rate Swap			12572Q-AG-0	ENERGY MISSISSIPPI INC-SECURED NOTE	1	31,145,606	19,661,905
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		19,645,761	19,661,905	09/15/2017	09/15/2047	Interest Rate Swap			29364N-AS-7	ENERGY TEXAS INC-NOTE	1	19,645,761	21,023,238
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		20,629,903	21,023,238	09/15/2017	09/15/2047	Interest Rate Swap			29365T-AA-2	FEDERAL REALTY INVESTMEN-NOTE REID	1	20,629,903	30,692,496
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		25,729,838	30,692,496	09/15/2017	09/15/2047	Interest Rate Swap			313747-AF-4	GILEAD SCIENCES INC-SENIOR UNSECURED NOTE	1	25,729,838	20,889,864
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		20,831,740	20,889,864	09/15/2017	09/15/2047	Interest Rate Swap			375558-AW-3	GRAIN SPECTRUM FUND II-SECURED NOTE	1	20,831,740	19,509,260
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		19,672,039	19,509,260	09/15/2017	09/15/2047	Interest Rate Swap			384780-AA-0	RENAISSANCE FINEANCE-SR UNSECURED	1	19,672,039	28,014,752
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		28,494,719	28,014,752	09/15/2017	09/15/2047	Interest Rate Swap			75972Y-AA-9	THOMAS & BETTS CORP-NOTE	1	28,494,719	19,208,307
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		25,098,722	26,741,021	09/15/2017	09/15/2047	Interest Rate Swap			884315-AG-7	WEST MASS ELECTRIC CO-SENIOR UNSECURED NOTE	1	25,098,722	3,200,000
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		19,090,739	19,208,307	09/15/2017	09/15/2047	Interest Rate Swap			958587-BJ-5	CRESTLINE DENALI CLO LTD-SERIES 2018-1A CLASS C	1	19,090,739	7,968,000
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		3,200,000	3,154,451	09/15/2017	09/15/2047	Interest Rate Swap			22615E-AE-0	OHA Loan Funding 2013-2 -OHALF 2013-2A CR	1	3,200,000	31,754,408
57629* DMO	Evergreen Basket of Inverse Floating Rate Corporate Bonds	1		8,000,000	7,968,000	09/15/2017	09/15/2047	Interest Rate Swap			67104L-AG-2	AMGEN INC-SENIOR UNSECURED	2	8,000,000	36,683,268
57629* DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	250,000,000	31,754,408	3,914,221	09/15/2017	09/15/2047	Interest Rate Swap		(26,878,358)	031162-CJ-7	HOST HOTELS & RESORTS LP-SENIOR UNSECURED NOTE	2	31,754,408	33,309,545
57629* DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		36,340,386	36,683,268	09/15/2017	09/15/2047	Interest Rate Swap			44107T-AT-3	JB HUNT TRANSPRT SVCS-SENIOR UNSECURED NOTE	2	36,340,386	36,650,469
57629* DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		33,309,545	33,193,992	09/15/2017	09/15/2047	Interest Rate Swap			445658-CD-7	INGERSOLL-RAND CO-DEBENTURE	2	33,309,545	
57629* DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		35,341,540	36,650,469	09/15/2017	09/15/2047	Interest Rate Swap			456866-AM-4		2	35,341,540	

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STATEMENT AS OF JUNE 30, 2018 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		42,886,133	41,349,354	09/15/2017	09/15/2047	Interest Rate Swap			664397-AK-2	EVERSOURCE ENERGY-UNSECURED NOTE	2	42,886,133	41,349,354
57629* DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		32,996,291	32,467,243	09/15/2017	09/15/2047	Interest Rate Swap			760759-AP-5	Republic Services Inc-SENIOR UNSECURED NOTE	2	32,996,291	32,467,243
57629* DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		37,888,086	36,572,820	09/15/2017	09/15/2047	Interest Rate Swap			94106L-BA-6	Waste Management Inc-SR UNSECURED	2	37,888,086	36,572,820
57629* DL2	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		40,467,574	39,599,515	09/15/2017	09/15/2047	Interest Rate Swap			A05830-41-6	SPARC EM SPC PANAMA METR-SECURED	2	40,467,574	39,599,515
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	250,000,000	23,413,581	(3,719,704)	09/15/2017	09/15/2047	Interest Rate Swap		(26,673,814)	00287Y-AL-3	AbbVie Inc-SENIOR UNSECURED NOTE	2	23,413,581	22,954,110
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		6,469,556	6,293,343	09/15/2017	09/15/2047	Interest Rate Swap			00507U-AS-0	ACTAVIS FUNDING SCS-SENIOR UNSECURED NOTE	2	6,469,556	6,293,343
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		28,279,960	27,704,104	09/15/2017	09/15/2047	Interest Rate Swap			035242-AP-1	ANHEUSER-BUSCH INBEV FIN GTD NT	2	28,279,960	27,704,104
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		30,187,987	29,259,877	09/15/2017	09/15/2047	Interest Rate Swap			254709-AM-0	DISCOVER FINANCIAL SVS-SENIOR UNSECURED	2	30,187,987	29,259,877
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		25,100,913	24,556,523	09/15/2017	09/15/2047	Interest Rate Swap			444859-BA-9	Humana Inc-SENIOR UNSECURED NOTE	2	25,100,913	24,556,523
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		23,618,289	23,187,715	09/15/2017	09/15/2047	Interest Rate Swap			61945C-AA-1	MOSAIC CO/THE-SENIOR UNSECURED NOTE	2	23,618,289	23,187,715
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		24,570,100	23,371,914	09/15/2017	09/15/2047	Interest Rate Swap			718549-AB-4	PHILLIPS 66 PARTNERS LP-SENIOR UNSECURED	2	24,570,100	23,371,914
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		26,488,826	26,132,843	09/15/2017	09/15/2047	Interest Rate Swap			756109-AN-4	REALTY INCOME CORP-SENIOR UNSECURED NOTE REID	2	26,488,826	26,132,843
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		26,813,239	26,484,152	09/15/2017	09/15/2047	Interest Rate Swap			824348-BB-1	SHERWIN-WILLIAMS CO/THE-SENIOR UNSECURED	2	26,813,239	26,484,152
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		27,552,986	28,829,329	09/15/2017	09/15/2047	Interest Rate Swap			883203-B0-3	Textron Inc-Note	2	27,552,986	28,829,329
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		19,670,335	19,354,949	09/15/2017	09/15/2047	Interest Rate Swap			760759-AP-5	Republic Services Inc-SENIOR UNSECURED NOTE	2	19,670,335	19,354,949
57629* DP3	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		19,670,335	19,354,949	09/15/2017	09/15/2047	Interest Rate Swap			04017T-AE-9	Republic Services Inc-SENIOR UNSECURED NOTE	2	19,670,335	19,354,949
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2	250,000,000	22,495,496	(4,652,249)	09/15/2017	09/15/2047	Interest Rate Swap		(27,134,039)	032095-AC-5	AMPHENOL CORP-SENIOR UNSECURED NOTE	2	22,495,496	22,481,790
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		22,538,521	22,338,232	09/15/2017	09/15/2047	Interest Rate Swap			045487-AA-3	ASSOC BANC-CORP-SR UNSECURED	2	22,538,521	22,338,232
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,864,098	21,131,010	09/15/2017	09/15/2047	Interest Rate Swap			378272-AL-2	GLENCORE FUNDING LLC-SR UNSECURED	2	21,864,098	21,131,010
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		22,876,993	23,091,287	09/15/2017	09/15/2047	Interest Rate Swap			45167R-AF-1	IDEX Corp-SENIOR UNSECURED NOTE	2	22,876,993	23,091,287
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,093,543	20,636,897	09/15/2017	09/15/2047	Interest Rate Swap			49245P-AA-4	KERRY GROUP FIN SERVICES-SENIOR UNSECURED NOTE	2	21,093,543	20,636,897
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,133,120	19,997,293	09/15/2017	09/15/2047	Interest Rate Swap			67103H-AF-4	O'REILLY AUTOMOTIVE INC-SENIOR UNSECURED	2	21,133,120	19,997,293
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,019,587	20,586,383	09/15/2017	09/15/2047	Interest Rate Swap			72925P-AD-7	PLUM CREEK TIMBERLANDS-SENIOR UNSECURED NOTE	2	21,019,587	20,586,383
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		23,756,230	23,743,389	09/15/2017	09/15/2047	Interest Rate Swap			759351-AG-4	Reinsurance Group of Ame-SENIOR UNSECURED NOTE	2	23,756,230	23,743,389
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		22,348,156	22,265,411	09/15/2017	09/15/2047	Interest Rate Swap			806851-AG-6	SCHLUMBERGER HLDGS CORP-SR UNSECURED	2	22,348,156	22,265,411
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,815,440	22,694,778	09/15/2017	09/15/2047	Interest Rate Swap			92936M-AB-3	WPP FINANCE 2010-SENIOR UNSECURED NOTE	2	21,815,440	22,694,778
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,949,164	20,161,875	09/15/2017	09/15/2047	Interest Rate Swap			98310W-AL-2	WYNDHAM WORLDWIDE CORP-SENIOR UNSECURED NOTE	3	21,949,164	20,161,875
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,113,993	20,132,912	09/15/2017	09/15/2047	Interest Rate Swap			98956P-AF-9	Zimmer Biomet Holdings I-SR UNSECURED	2	21,113,993	20,132,912
57629* DN8	Evergreen Basket of Inverse Floating Rate Corporate Bonds	2		21,056,867	21,556,500	09/15/2017	09/15/2047	Interest Rate Swap			EK5851-40-8	ISRAEL ELECTRIC CORP LTD-SECURED NOTE	2	21,056,867	21,556,500
Awaiting PPN	Sovereign Bond of Peru	1	5,000,000	10,889,598	10,055,514	12/20/2017	06/20/2023	5 Yr Credit Default Swap	43,680	20,358	912810-RP-5	UNITED STATES TREASURY 3.00% DUE 11/15/45	1	10,845,918	10,035,156
Awaiting PPN	Sovereign Bond of Mexico	1	15,000,000	15,677,935	17,354,526	12/20/2017	06/20/2023	5 Yr Credit Default Swap	(125,539)	(236,268)	912833-LL-2	US TREASURY DUE 2/15/2023	1	15,803,474	17,590,794
Awaiting PPN	Sovereign Bond of Panama	1	10,000,000	13,752,883	16,858,261	03/20/2018	06/20/2023	5 Yr Credit Default Swap	155,690	114,259	912810-RF-7	US TREASURY 1.375% DUE 2/15/2044	1	13,597,193	16,744,002
Awaiting PPN	Sovereign Bond of India	1	15,000,000	16,325,023	19,832,834	03/20/2018	06/20/2023	5 Yr Credit Default Swap	8,392	(259,969)	912810-RF-7	US TREASURY 1.375% DUE 2/15/2044	1	16,316,631	20,092,803

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**SCHEDULE DB - PART C - SECTION 1**

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

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
Awaiting PPN	Sovereign Bond of Columbia	1	15,000,000	15,363,091	18,813,812	12/20/2017	06/20/2023	5 Yr Credit Default Swap	(47,061)	(162,724)	912810-RF-7	US TREASURY 1.375% DUE 2/15/2044	1	15,410,152	18,976,536
Awaiting PPN	Sovereign Bond of Russia	1	10,000,000	21,731,600	26,693,289	03/20/2018	06/20/2023	5 Yr Credit Default Swap	(101,775)	(193,002)	912810-RF-7	US TREASURY 1.375% DUE 2/15/2044	1	21,833,375	26,886,291
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2	517,000,000	273,051,161	277,286,510	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index	9,056,320	7,577,956	912828-PX-2	US TREASURY N/B Note 3.625% DUE 02/15/2021	1	263,994,841	269,708,554
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2		247,297,205	262,860,544	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index			76116F-AG-2	RFSCP PRINCIPAL STRIP	1	247,297,205	262,860,544
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2	1,519,000,000	693,450,325	703,560,941	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index	26,587,312	22,264,827	912828-PX-2	US TREASURY N/B Note 3.625% DUE 02/15/2021	1	666,863,013	681,296,114
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2		315,698,559	335,566,652	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index			76116F-AG-2	RFSCP PRINCIPAL STRIP	1	315,698,559	335,566,652
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2		256,961,231	291,234,130	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index			912810-QQ-4	US TREASURY N/B-BOND 4.375% DUE 05/15/2041	1	256,961,231	291,234,130
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2		257,797,188	254,566,406	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index			912810-RU-4	US TREASURY N/B-UNSECURED 2.875% DUE 11/15/2046	1	257,797,188	254,566,406
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2	257,000,000	94,860,176	96,062,695	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index	4,519,736	3,766,992	912828-PX-2	US TREASURY N/B Note 3.625% DUE 02/15/2021	1	90,340,440	92,295,703
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2		77,170,759	82,027,404	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index			76116F-AG-2	RFSCP PRINCIPAL STRIP	1	77,170,759	82,027,404
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2		87,264,503	109,324,219	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index			912810-QK-7	US Treasury 3.875% DUE 8/15/2040	1	87,264,503	109,324,219
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2	105,000,000	130,400,728	162,648,418	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index	1,800,408	1,539,043	912810-QK-7	US Treasury 3.875% DUE 8/15/2040	1	128,600,320	161,109,375
Awaiting PPN	Credit Default Indices (CDIG030/CDX.NA.IG.30)	2	35,000,000	64,894,872	81,067,702	03/20/2018	06/20/2023	5 Yr Credit Default Swap Index	594,712	513,014	912810-QK-7	US Treasury 3.875% DUE 8/15/2040	1	64,300,160	80,554,688
Awaiting PPN	Inverse JPY Long Term Bond	1	76,207,323	19,518,346	20,185,347	05/31/2018	05/20/2019	Currency Forward		(1,650,616)	912833-LN-8	US TREASURY STRIP 0% DUE 05/15/2023	1	19,518,346	21,835,963
Awaiting PPN	Inverse JPY Long Term Bond	1		56,879,609	56,879,609	05/31/2018	05/20/2019	Currency Forward			912828-KQ-2	US TREASURY 3.125% TO 5/15/2019	1	56,879,609	56,879,609
Awaiting PPN	Inverse JPY Long Term Bond	1		31,960,202	31,845,000	05/31/2018	05/20/2019	Currency Forward			912828-C6-5	US TREASURY 1.625% DUE 3/30/2019	1	31,960,202	31,845,000
Awaiting PPN	Inverse JPY Long Term Bond	1	49,665,019	70,095,549	69,833,886	05/31/2018	04/15/2019	Currency Forward		(1,095,802)	912828-LJ-7	US TREAS N/B-NOTE 3.625% 08/15/2019	1	70,095,549	70,929,688
Awaiting PPN	Inverse JPY Long Term Bond	1	167,790,725	170,232,047	168,686,092	05/31/2018	05/09/2019	Currency Forward		(3,571,721)	912828-LJ-7	US TREAS N/B-NOTE 3.625% 08/15/2019	1	170,232,047	172,257,813
Awaiting PPN	Inverse JPY Long Term Bond	1	49,878,194	70,095,549	69,838,306	05/31/2018	04/01/2019	Currency Forward		(1,091,382)	912828-LJ-7	US TREAS N/B-NOTE 3.625% 08/15/2019	1	70,095,549	70,929,688
Awaiting PPN	Inverse JPY Long Term Bond	1	50,207,107	70,095,549	69,852,659	05/31/2018	03/28/2019	Currency Forward		(1,077,029)	912828-LJ-7	US TREAS N/B-NOTE 3.625% 08/15/2019	1	70,095,549	70,929,688
Awaiting PPN	Inverse JPY Long Term Bond	1	50,616,145	70,095,549	69,836,931	05/31/2018	05/08/2019	Currency Forward		(1,092,757)	912828-LJ-7	US TREAS N/B-NOTE 3.625% 08/15/2019	1	70,095,549	70,929,688
Awaiting PPN	Inverse JPY Long Term Bond	1	51,627,893	70,095,549	69,859,585	05/31/2018	05/13/2019	Currency Forward		(1,070,103)	912828-LJ-7	US TREAS N/B-NOTE 3.625% 08/15/2019	1	70,095,549	70,929,688
Awaiting PPN	Inverse JPY Long Term Bond	1	51,630,473	70,095,549	69,870,100	05/31/2018	05/15/2019	Currency Forward		(1,059,588)	912828-LJ-7	US TREAS N/B-NOTE 3.625% 08/15/2019	1	70,095,549	70,929,688
<b>9999999 - Totals</b>				<b>13,809,819,798</b>	<b>13,749,552,888</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>42,575,105</b>	<b>(214,028,026)</b>	<b>XXX</b>	<b>XXX</b>	<b>XXX</b>	<b>13,767,244,693</b>	<b>13,963,580,914</b>

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STATEMENT AS OF JUNE 30, 2018 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 .....	109	11,517,000,000	109	12,582,000,000					109	11,517,000,000
2. Add: Opened or Acquired Transactions.....	15	2,673,000,000	8	547,622,879					23	3,220,622,879
3. Add: Increases in Replication (Synthetic Asset) Transactions Statement Value.....	XXX									
4. Less: Closed or Disposed of Transactions.....	15	1,608,000,000	4	270,000,000					19	1,878,000,000
5. Less: Positions Disposed of for Failing Effectiveness Criteria.....										
6. Less: Decreases in Replication (Synthetic Asset) Transactions Statement Value.....	XXX									
7. Ending Inventory .....	109	12,582,000,000	113	12,859,622,879					113	12,859,622,879

STATEMENT AS OF JUNE 30, 2018 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE DB - VERIFICATION**

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

	Book/Adjusted Carrying Value Check
1. Part A, Section 1, Column 14.....	3,466,004,608
2. Part B, Section 1, Column 15 plus Part B, Section 1 Footnote - Total Ending Cash Balance.....	.....
3. Total (Line 1 plus Line 2).....	3,466,004,608
4. Part D, Section 1, Column 5.....	8,823,797,563
5. Part D, Section 1, Column 6.....	(5,216,254,341)
6. Total (Line 3 minus Line 4 minus Line 5).....	(141,538,614)
	Fair Value Check
7. Part A, Section 1, Column 16.....	3,209,401,576
8. Part B, Section 1, Column 13.....	141,538,614
9. Total (Line 7 plus Line 8).....	3,350,940,190
10. Part D, Section 1, Column 8.....	8,970,703,783
11. Part D, Section 1, Column 9.....	(5,619,763,593)
12. Total (Line 9 minus Line 10 minus Line 11).....	.....
	Potential Exposure Check
13. Part A, Section 1, Column 21.....	5,569,733,861
14. Part B, Section 1, Column 20.....	98,428,550
15. Part D, Section 1, Column 11.....	5,668,162,411
16. Total (Line 13 plus Line 14 minus Line 15).....	.....

**SCHEDULE E - PART 2 - VERIFICATION**

(Cash Equivalents)

	1	2
	Year To Date	Prior Year Ended December 31
1. Book/adjusted carrying value, December 31 of prior year .....	2,852,941,262	3,113,185,611
2. Cost of cash equivalents acquired .....	48,296,373,954	87,472,714,310
3. Accrual of discount .....	34,814,994	34,021,259
4. Unrealized valuation increase (decrease) .....	40,000	
5. Total gain (loss) on disposals .....	744	62,534
6. Deduct consideration received on disposals .....	47,225,543,846	87,767,042,452
7. Deduct amortization of premium .....		
8. Total foreign exchange change in book/adjusted carrying value .....		
9. Deduct current year's other than temporary impairment recognized .....		
10. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9) .....	3,958,627,108	2,852,941,262
11. Deduct total nonadmitted amounts .....		
12. Statement value at end of current period (Line 10 minus Line 11)	3,958,627,108	2,852,941,262