



KPMG LLP
Two Financial Center
60 South Street
Boston, MA 02111

Report of Independent Registered Public Accounting Firm

The Board of Directors of Massachusetts Mutual Life Insurance Company and Contract Owners of Massachusetts Mutual Variable Annuity Separate Account 4:

Opinion on the Financial Statements and Financial Highlights

We have audited the accompanying statements of assets and liabilities of Massachusetts Mutual Variable Annuity Separate Account 4 (comprised of the sub-accounts listed in Appendix A to the opinion) (collectively, “the Separate Account”) as of December 31, 2020, the related statements of operations and changes in net assets for each of the years or periods (as described in Appendix A) in the two-year period then ended, and the related notes (collectively, the “financial statements”) and the financial highlights for each of the years or periods in the five-year period then ended. In our opinion, the financial statements and financial highlights present fairly, in all material respects, the financial position of the Separate Account as of December 31, 2020, the results of its operations and the changes in its net assets for each of the years or periods in the two-year period then ended, and the financial highlights for each of the years or periods in the five-year period then ended, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements and financial highlights are the responsibility of the Separate Account's management. Our responsibility is to express an opinion on these financial statements and financial highlights based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Separate Account in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements and financial highlights are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements and financial highlights, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements and financial highlights. Such procedures also included confirmation of securities owned as of December 31, 2020, by correspondence with the underlying mutual funds or their transfer agent. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements and financial highlights. We believe that our audits provide a reasonable basis for our opinion.

KPMG LLP

We have served as the Separate Account's auditor since 2004.

Boston, Massachusetts
March 10, 2021

Appendix A

Massachusetts Mutual Variable Annuity Separate Account 4 is comprised of the following sub-accounts and the activities of each sub-account have been included within the accompanying statements of assets and liabilities as of December 31, 2020 and the related statements of operations and changes in net assets for each of the years or periods (as described below) in the two-year period then ended.

Sub-Accounts	Sub-Accounts
BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III) **	Invesco V.I. Diversified Dividend Sub-Account (Series I)
Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Invesco V.I. Diversified Dividend Sub-Account (Series II)
Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Invesco V.I. Health Care Sub-Account (Series I) **
Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II) *	Invesco V.I. Health Care Sub-Account (Series II) **
Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I) *	Invesco V.I. Technology Sub-Account (Series I)
Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II) *	Invesco V.I. Technology Sub-Account (Series II)
Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I) *	Ivy VIP Asset Strategy Sub-Account
Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub- Account (Series II) *	MML Aggressive Allocation Sub-Account (Initial Class)
Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub- Account (Series I) *	MML Aggressive Allocation Sub-Account (Service Class)
Invesco Oppenheimer V.I. Global Sub-Account (Series II) *	MML American Funds Core Allocation Sub-Account
Invesco Oppenheimer V.I. Global Sub-Account (Series I) *	MML American Funds Growth Sub-Account
Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II) *	MML American Funds International Sub-Account
Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I) *	MML Balanced Allocation Sub-Account (Initial Class)
Invesco Oppenheimer V.I. Government Money Sub-Account *	MML Balanced Allocation Sub-Account (Service Class)
Invesco Oppenheimer V.I. International Growth Sub-Account (Series II) *	MML Blend Sub-Account (Initial Class)
Invesco Oppenheimer V.I. International Growth Sub-Account (Series I) *	MML Blend Sub-Account (Service Class)
Invesco Oppenheimer V.I. Main Street Sub-Account (Series II) *	MML Blue Chip Growth Sub-Account (Initial Class)
Invesco Oppenheimer V.I. Main Street Sub-Account (Series I) *	MML Blue Chip Growth Sub-Account (Service Class)
Invesco Oppenheimer V.I. Total Return Bond Sub-Account *	MML Conservative Allocation Sub-Account (Initial Class)
MML Growth Allocation Sub-Account (Initial Class)	MML Conservative Allocation Sub-Account (Service Class)
MML Growth Allocation Sub-Account (Service Class)	MML Dynamic Bond Sub-Account (Service Class I)
MML High Yield Sub-Account	MML Equity Sub-Account (Initial Class)
MML Income & Growth Sub-Account (Initial Class)	MML Equity Sub-Account (Service Class)
	MML Equity Income Sub-Account (Initial Class)
	MML Equity Income Sub-Account (Service Class)
	MML Equity Index Sub-Account (Class I)
	MML Equity Index Sub-Account (Service Class I)
	MML Equity Momentum Sub-Account (Service Class I)**
	MML Equity Rotation Sub-Account (Service Class I)

Sub-Accounts

MML Income & Growth Sub-Account (Service Class)
MML Inflation-Protected and Income Sub-Account (Initial Class)
MML Inflation-Protected and Income Sub-Account (Service Class)
MML International Equity Sub-Account
MML Large Cap Growth Sub-Account (Initial Class)
MML Large Cap Growth Sub-Account (Service Class)
MML Managed Volatility Sub-Account (Service Class)
MML Mid Cap Growth Sub-Account (Initial Class)
MML Mid Cap Growth Sub-Account (Service Class)
MML Mid Cap Value Sub-Account (Initial Class)
MML Mid Cap Value Sub-Account (Service Class)
MML Managed Bond Sub-Account (Initial Class)
MML Managed Bond Sub-Account (Service Class)
MML Managed Volatility Sub-Account (Initial Class)

Sub-Accounts

MML Focused Equity Sub-Account
MML Foreign Sub-Account (Initial Class)
MML Foreign Sub-Account (Service Class)
MML Fundamental Equity Sub-Account**
MML Fundamental Value Sub-Account
MML Global Sub-Account (Class I)
MML Global Sub-Account (Service Class I)
MML Global Sub-Account (Class II)
MML Growth & Income Sub-Account (Initial Class)
MML Growth & Income Sub-Account (Service Class)
MML Moderate Allocation Sub-Account (Initial Class)
MML Moderate Allocation Sub-Account (Service Class)
MML Short-Duration Bond Sub-Account
MML Small Cap Equity Sub-Account (Initial Class)
MML Small Cap Equity Sub-Account (Service Class)
MML Small Cap Growth Equity Sub-Account (Initial Class)
MML Small Cap Growth Equity Sub-Account (Service Class)
MML Small Company Value Sub-Account
MML Small/Mid Cap Value Sub-Account (Initial Class)
MML Small/Mid Cap Value Sub-Account (Service Class)
MML Special Situations Sub-Account (Service Class I)
MML Strategic Emerging Markets Sub-Account
MML Total Return Bond Sub-Account
MML U.S. Government Money Market Sub-Account
Oppenheimer Global Multi-Alternatives Sub-Account***
PIMCO CommodityRealReturn® Strategy Sub-Account
VY® Clarion Global Real Estate Sub-Account

* See Note 2 to the financial statements for the information regarding the merger of this sub-account.

** See Note 2 to the financial statements for the former name of this Sub-Account.

***Effective April 29, 2019 this Sub-Account liquidated and any contract value in the Sub-Account after the close of the New York Stock Exchange on April 29, 2019 was automatically transferred to the MML U.S. Government Money Market Sub-Account.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES

December 31, 2020

	BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)	Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)
ASSETS								
Investments								
Number of shares	652,618	4,925,428	4,906,007	192,552	2,286,806	4,329	393,877	289,025
Identified cost	\$ 7,729,445	\$ 163,065,088	\$ 164,872,267	\$ 10,243,442	\$ 122,996,270	\$ 51,144	\$ 4,928,420	\$ 21,560,850
Value	\$ 8,908,234	\$ 237,257,876	\$ 229,257,703	\$ 13,216,800	\$ 160,853,938	\$ 76,543	\$ 7,062,219	\$ 28,338,942
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company ...	-	-	-	-	-	-	-	-
Total assets	8,908,234	237,257,876	229,257,703	13,216,800	160,853,938	76,543	7,062,219	28,338,942
LIABILITIES								
Annuitant mortality fluctuation reserve	-	10,606	-	-	5,075	-	1,116	-
Payable to Massachusetts Mutual Life Insurance Company	-	119	4	17	314	9	112	9
Total liabilities	-	10,725	4	17	5,389	9	1,228	9
NET ASSETS	\$ 8,908,234	\$ 237,247,151	\$ 229,257,699	\$ 13,216,783	\$ 160,848,549	\$ 76,534	\$ 7,060,991	\$ 28,338,933
Net Assets:								
Accumulation units - value	\$ 8,908,234	\$ 229,603,366	\$ 229,253,178	\$ 13,216,783	\$ 156,831,207	\$ 76,534	\$ 7,009,694	\$ 28,336,495
Contracts in payout (annuitization) period	-	7,643,785	4,521	-	4,017,342	-	51,297	2,438
Net assets	\$ 8,908,234	\$ 237,247,151	\$ 229,257,699	\$ 13,216,783	\$ 160,848,549	\$ 76,534	\$ 7,060,991	\$ 28,338,933
Outstanding units								
Contract owners	603,542	4,994,284	8,326,913	366,591	4,332,520	4,777	377,168	1,067,971
UNIT VALUE								
Panorama Premier	\$ -	\$ 63.30	\$ -	\$ -	\$ 35.69	\$ -	\$ 18.15	\$ -
Panorama Passage®								
Tier 1	-	47.35	-	-	35.64	-	17.81	-
Tier 2	-	46.03	-	-	34.65	-	17.32	-
Tier 3	-	49.94	-	-	37.59	-	18.76	-
Tier 4	-	47.70	-	-	35.90	-	17.91	-
MassMutual Artistry	-	42.98	-	-	26.28	-	18.39	-
MassMutual Transitions®								
Custom Plan	-	54.52	-	-	40.20	-	20.14	-
Package Plan I	-	54.52	-	-	40.20	-	20.14	-
Package Plan II	-	51.09	-	-	37.67	-	18.87	-
Package Plan III	-	48.77	-	-	35.96	-	18.02	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)	Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	-	42.37	-	-	33.78	-	15.66	-
Tier 2	-	39.61	-	-	31.58	-	14.64	-
Tier 3	-	37.98	-	-	30.28	-	14.04	-
Tier 4	-	39.55	-	-	31.53	-	14.62	-
Tier 5	-	36.97	-	-	29.48	-	13.67	-
Tier 6	-	35.45	-	-	28.26	-	13.10	-
Tier 7	-	39.04	-	-	31.13	-	14.43	-
Tier 8	-	36.44	-	-	29.06	-	13.47	-
Tier 9	-	-	36.94	29.45	-	13.66	-	35.13
Tier 10	-	-	40.08	31.95	-	14.82	-	38.12
Tier 11	-	-	34.48	27.49	-	12.75	-	32.79
Tier 12	-	-	38.15	30.42	-	14.11	-	36.29
Tier 13	-	-	32.86	26.20	-	-	-	31.25
Tier 14	-	-	35.21	28.07	-	-	-	33.48
MassMutual RetireEase Select SM								
Tier 1	-	27.92	-	-	27.26	-	12.31	-
Tier 2	-	29.88	-	-	29.17	-	13.18	-
MassMutual Transitions Select SM								
Tier 1	-	48.30	-	-	39.20	-	17.63	-
Tier 2	-	-	46.83	38.01	-	17.10	-	44.92
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	-	-	19.45	-	-	-	-	22.42
Tier 2	-	-	19.10	-	-	-	-	22.02
Tier 3	-	-	19.45	-	-	-	-	22.42
MassMutual Capital Vantage SM								
Tier 1	14.51	-	19.40	-	-	-	-	22.36
Tier 2	14.77	-	19.76	-	-	-	-	22.77
Tier 3	14.17	-	18.95	-	-	-	-	21.85
Tier 4	14.51	-	19.40	-	-	-	-	22.36
Tier 5	14.43	-	19.30	-	-	-	-	22.25
Tier 6	14.77	-	19.76	-	-	-	-	22.77

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)	Invesco Oppenheimer V.I. Government Money Sub-Account	Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)
ASSETS								
Investments								
Number of shares	994,947	1,475,503	3,388,586	12,223,541	31,845,105	6,850,774	8,499,067	11,011,755
Identified cost	\$ 76,013,175	\$ 59,294,866	\$ 128,887,755	\$ 62,112,456	\$ 158,329,793	\$ 6,850,774	\$ 20,382,241	\$ 24,871,813
Value	\$ 106,389,698	\$ 75,781,849	\$ 176,613,098	\$ 61,117,705	\$ 154,130,311	\$ 6,850,774	\$ 25,837,164	\$ 32,044,207
Dividends receivable	-	-	-	-	-	5	-	-
Receivable from Massachusetts Mutual Life Insurance Company ...	-	-	314	-	-	-	-	-
Total assets	106,389,698	75,781,849	176,613,412	61,117,705	154,130,311	6,850,779	25,837,164	32,044,207
LIABILITIES								
Annuitant mortality fluctuation reserve	6,361	-	5,888	-	5,154	3,346	-	531
Payable to Massachusetts Mutual Life Insurance Company	302	21	-	1	214	78	5	106
Total liabilities	6,663	21	5,888	1	5,368	3,424	5	637
NET ASSETS	\$ 106,383,035	\$ 75,781,828	\$ 176,607,524	\$ 61,117,704	\$ 154,124,943	\$ 6,847,355	\$ 25,837,159	\$ 32,043,570
Net Assets:								
Accumulation units - value	\$ 103,130,177	\$ 75,776,424	\$ 172,348,429	\$ 61,117,704	\$ 150,507,585	\$ 6,735,745	\$ 25,837,159	\$ 30,980,572
Contracts in payout (annuitization) period	3,252,858	5,404	4,259,095	-	3,617,358	111,610	-	1,062,998
Net assets	\$ 106,383,035	\$ 75,781,828	\$ 176,607,524	\$ 61,117,704	\$ 154,124,943	\$ 6,847,355	\$ 25,837,159	\$ 32,043,570
Outstanding units								
Contract owners	2,592,033	2,759,316	4,227,403	4,076,835	8,478,804	657,647	1,189,787	1,029,713
UNIT VALUE								
Panorama Premier	\$ 33.14	\$ -	\$ 51.74	\$ -	\$ 22.99	\$ 11.86	\$ -	\$ 43.95
Panorama Passage®								
Tier 1	32.63	-	50.94	-	22.45	10.17	-	28.24
Tier 2	31.72	-	49.52	-	21.82	9.89	-	27.46
Tier 3	34.41	-	53.72	-	23.67	10.73	-	29.78
Tier 4	32.87	-	51.31	-	22.61	10.25	-	28.45
MassMutual Artistry	18.41	-	35.94	-	22.94	10.44	-	21.09
MassMutual Transitions®								
Custom Plan	46.92	-	46.75	-	22.64	10.41	-	34.27
Package Plan I	46.92	-	46.75	-	22.64	10.41	-	34.27
Package Plan II	43.96	-	43.80	-	21.21	9.76	-	32.11
Package Plan III	41.97	-	41.81	-	20.25	9.31	-	30.66

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)	Invesco Oppenheimer V.I. Government Money Sub-Account	Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	40.33	-	36.01	-	16.72	9.38	-	28.23
Tier 2	37.70	-	33.67	-	15.63	8.77	-	26.40
Tier 3	36.15	-	32.28	-	14.99	8.41	-	25.31
Tier 4	37.64	-	33.61	-	15.61	8.76	-	26.35
Tier 5	35.19	-	31.42	-	14.59	8.19	-	24.64
Tier 6	33.74	-	30.13	-	13.99	7.85	-	23.62
Tier 7	37.17	-	33.19	-	15.41	8.65	-	26.02
Tier 8	34.69	-	30.98	-	14.38	8.07	-	24.29
Tier 9	-	31.40	-	14.56	-	-	24.57	-
Tier 10	-	34.07	-	15.80	-	-	26.66	-
Tier 11	-	29.31	-	13.59	-	-	22.93	-
Tier 12	-	32.44	-	15.04	-	-	25.37	-
Tier 13	-	27.94	-	12.95	-	-	21.85	-
Tier 14	-	29.93	-	13.88	-	-	23.41	-
MassMutual RetireEase Select SM								
Tier 1	29.44	-	22.51	-	13.79	-	-	15.49
Tier 2	31.51	-	24.10	-	14.76	-	-	16.58
MassMutual Transitions Select SM								
Tier 1	46.37	-	42.79	-	17.81	10.06	-	33.62
Tier 2	-	41.50	-	17.24	-	-	32.53	-
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	-	17.97	-	11.16	-	-	14.08	-
Tier 2	-	17.65	-	10.96	-	-	13.83	-
Tier 3	-	17.97	-	11.16	-	-	14.08	-
MassMutual Capital Vantage SM								
Tier 1	-	17.93	-	11.14	-	-	14.05	-
Tier 2	-	18.25	-	11.34	-	-	14.30	-
Tier 3	-	17.51	-	10.88	-	-	13.72	-
Tier 4	-	17.93	-	11.14	-	-	14.05	-
Tier 5	-	17.83	-	11.08	-	-	13.97	-
Tier 6	-	18.25	-	11.34	-	-	14.30	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)	Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)	Invesco Oppenheimer V.I. Total Return Bond Sub-Account (Series I)	Invesco V.I. Diversified Dividend Sub-Account (Series I)	Invesco V.I. Diversified Dividend Sub-Account (Series II)	Invesco V.I. Health Care Sub-Account (Series I)	Invesco V.I. Health Care Sub-Account (Series II)	Invesco V.I. Technology Sub-Account (Series I)
ASSETS								
Investments								
Number of shares	721,789	1,104,850	237,543	245,043	428,663	336,214	391,616	258,910
Identified cost	\$ 20,405,999	\$ 30,579,195	\$ 1,790,733	\$ 5,944,818	\$ 11,054,336	\$ 9,302,983	\$ 9,995,064	\$ 6,626,577
Value	\$ 21,292,784	\$ 33,046,069	\$ 2,002,491	\$ 6,302,514	\$ 10,939,483	\$ 11,327,046	\$ 12,414,238	\$ 9,463,151
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company ...	-	-	-	-	-	-	2	21
Total assets	21,292,784	33,046,069	2,002,491	6,302,514	10,939,483	11,327,046	12,414,240	9,463,172
LIABILITIES								
Annuitant mortality fluctuation reserve	-	1,040	9	-	-	1,098	-	1,816
Payable to Massachusetts Mutual Life Insurance Company	4	145	-	88	10	122	-	-
Total liabilities	4	1,185	9	88	10	1,220	-	1,816
NET ASSETS	\$ 21,292,780	\$ 33,044,884	\$ 2,002,482	\$ 6,302,426	\$ 10,939,473	\$ 11,325,826	\$ 12,414,240	\$ 9,461,356
Net Assets:								
Accumulation units - value	\$ 21,292,780	\$ 32,805,259	\$ 2,002,197	\$ 6,149,915	\$ 10,939,473	\$ 10,879,018	\$ 12,414,240	\$ 9,187,829
Contracts in payout (annuitization) period	-	239,625	285	152,511	-	446,808	-	273,527
Net assets	\$ 21,292,780	\$ 33,044,884	\$ 2,002,482	\$ 6,302,426	\$ 10,939,473	\$ 11,325,826	\$ 12,414,240	\$ 9,461,356
Outstanding units								
Contract owners	1,040,875	1,047,878	120,583	483,803	945,327	309,109	350,828	381,843
UNIT VALUE								
Panorama Premier	\$ -	\$ 27.50	\$ 16.61	\$ 14.16	\$ -	\$ 36.19	\$ -	\$ 11.87
Panorama Passage®								
Tier 1	-	27.93	-	13.90	-	35.52	-	11.66
Tier 2	-	27.15	-	13.51	-	34.53	-	11.33
Tier 3	-	29.45	-	14.64	-	37.40	-	12.27
Tier 4	-	28.13	-	13.98	-	35.72	-	11.72
MassMutual Artistry	-	25.67	-	12.89	-	32.66	-	11.70
MassMutual Transitions®								
Custom Plan	-	35.61	-	13.79	-	40.42	-	45.92
Package Plan I	-	35.61	-	13.79	-	40.42	-	45.92
Package Plan II	-	33.37	-	12.92	-	37.88	-	43.02
Package Plan III	-	31.85	-	12.34	-	36.16	-	41.07

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)	Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)	Invesco Oppenheimer V.I. Total Return Bond Sub-Account	Invesco V.I. Diversified Dividend Sub-Account (Series I)	Invesco V.I. Diversified Dividend Sub-Account (Series II)	Invesco V.I. Health Care Sub-Account (Series I)	Invesco V.I. Health Care Sub-Account (Series II)	Invesco V.I. Technology Sub-Account (Series I)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	-	29.91	-	10.81	-	32.59	-	41.45
Tier 2	-	27.96	-	10.11	-	30.47	-	38.75
Tier 3	-	26.81	-	9.69	-	29.21	-	37.16
Tier 4	-	27.92	-	10.09	-	30.42	-	38.69
Tier 5	-	26.10	-	9.43	-	28.44	-	36.17
Tier 6	-	25.02	-	9.04	-	27.26	-	34.68
Tier 7	-	27.56	-	9.96	-	30.03	-	38.20
Tier 8	-	25.73	-	9.30	-	28.03	-	35.66
Tier 9	26.09	-	-	-	9.44	-	28.42	-
Tier 10	28.31	-	-	-	10.25	-	30.84	-
Tier 11	24.35	-	-	-	8.82	-	26.52	-
Tier 12	26.95	-	-	-	9.76	-	29.35	-
Tier 13	23.21	-	-	-	8.40	-	25.28	-
Tier 14	24.87	-	-	-	9.00	-	27.09	-
MassMutual RetireEase Select SM								
Tier 1	-	22.24	-	8.50	-	26.70	-	35.94
Tier 2	-	23.80	-	9.10	-	28.57	-	38.47
MassMutual Transitions Select SM								
Tier 1	-	34.43	-	12.64	-	38.42	-	55.37
Tier 2	33.40	-	-	-	12.29	-	37.26	-
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	16.60	-	-	-	-	-	-	-
Tier 2	16.30	-	-	-	-	-	-	-
Tier 3	16.60	-	-	-	-	-	-	-
MassMutual Capital Vantage SM								
Tier 1	16.56	-	-	-	-	-	-	-
Tier 2	16.86	-	-	-	-	-	-	-
Tier 3	16.18	-	-	-	-	-	-	-
Tier 4	16.56	-	-	-	-	-	-	-
Tier 5	16.47	-	-	-	-	-	-	-
Tier 6	16.86	-	-	-	-	-	-	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	Invesco V.I. Technology Sub-Account (Series II)	Ivy VIP Asset Strategy Sub-Account	MML Aggressive Allocation Sub-Account (Initial Class)	MML Aggressive Allocation Sub-Account (Service Class)	MML American Funds Core Allocation Sub-Account	MML American Funds Growth Sub-Account	MML American Funds International Sub-Account	MML Balanced Allocation Sub-Account (Initial Class)
ASSETS								
Investments								
Number of shares	386,209	1,270,836	3,174,704	9,008,695	76,505,673	12,775,103	5,436,251	8,043,699
Identified cost	\$ 9,907,682	\$ 11,498,410	\$ 31,445,728	\$ 88,155,911	\$ 913,442,363	\$ 180,196,683	\$ 53,026,219	\$ 78,778,623
Value	\$ 13,181,328	\$ 13,270,579	\$ 33,588,369	\$ 93,600,338	\$ 930,308,981	\$ 249,753,262	\$ 58,820,237	\$ 83,010,968
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company ...	-	-	-	-	-	-	-	-
Total assets	13,181,328	13,270,579	33,588,369	93,600,338	930,308,981	249,753,262	58,820,237	83,010,968
LIABILITIES								
Annuitant mortality fluctuation reserve	-	-	-	-	-	-	-	-
Payable to Massachusetts Mutual Life Insurance Company	2	21	30	3	121	67	61	80
Total liabilities	2	21	30	3	121	67	61	80
NET ASSETS	\$ 13,181,326	\$ 13,270,558	\$ 33,588,339	\$ 93,600,335	\$ 930,308,860	\$ 249,753,195	\$ 58,820,176	\$ 83,010,888
Net Assets:								
Accumulation units - value	\$ 13,178,822	\$ 13,270,558	\$ 33,588,339	\$ 93,600,335	\$ 929,936,518	\$ 249,515,979	\$ 58,820,176	\$ 83,010,888
Contracts in payout (annuitization) period	2,504	-	-	-	372,342	237,216	-	-
Net assets	\$ 13,181,326	\$ 13,270,558	\$ 33,588,339	\$ 93,600,335	\$ 930,308,860	\$ 249,753,195	\$ 58,820,176	\$ 83,010,888
Outstanding units								
Contract owners	274,028	904,514	1,451,095	4,774,344	49,211,939	7,372,819	3,496,882	4,442,634
UNIT VALUE								
Panorama Premier	\$ -	\$ -	\$ 22.56	\$ -	\$ -	\$ -	\$ -	\$ 18.46
Panorama Passage®								
Tier 1	-	-	22.30	-	-	-	-	18.24
Tier 2	-	-	21.84	-	-	-	-	17.87
Tier 3	-	-	23.03	-	-	-	-	18.84
Tier 4	-	-	22.27	-	-	-	-	18.22
MassMutual Artistry	-	-	23.21	-	25.78	60.76	23.24	18.99
MassMutual Transitions®								
Custom Plan	-	-	23.92	-	-	-	-	19.56
Package Plan I	-	-	23.92	-	-	-	-	19.56
Package Plan II	-	-	22.86	-	-	-	-	18.70
Package Plan III	-	-	22.13	-	-	-	-	18.10

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	Invesco V.I. Technology Sub-Account (Series II)	Ivy VIP Asset Strategy Sub-Account	MML Aggressive Allocation Sub-Account (Initial Class)	MML Aggressive Allocation Sub-Account (Service Class)	MML American Funds Core Allocation Sub-Account	MML American Funds Growth Sub-Account	MML American Funds International Sub-Account	MML Balanced Allocation Sub-Account (Initial Class)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	-	15.20	22.13	-	19.59	41.41	16.76	18.10
Tier 2	-	14.71	21.01	-	18.65	39.42	15.96	17.19
Tier 3	-	14.41	20.34	-	18.09	38.23	15.47	16.64
Tier 4	-	14.71	21.01	-	18.65	39.42	15.96	17.19
Tier 5	-	14.24	19.95	-	17.75	37.53	15.19	16.32
Tier 6	-	13.95	19.32	-	17.22	36.39	14.73	15.80
Tier 7	-	14.59	20.74	-	18.42	38.94	15.76	16.97
Tier 8	-	14.12	19.70	-	17.54	37.07	15.00	16.11
Tier 9	36.13	14.35	-	19.60	17.97	37.99	15.38	-
Tier 10	39.21	14.95	-	20.91	19.12	40.41	16.35	-
Tier 11	33.73	13.89	-	18.62	17.11	36.17	14.64	-
Tier 12	37.32	14.47	-	19.91	18.20	38.46	15.57	-
Tier 13	32.15	13.39	-	17.74	16.31	34.47	13.95	-
Tier 14	34.44	13.84	-	18.69	17.13	36.21	14.66	-
MassMutual RetireEase Select SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM								
Tier 1	-	15.70	23.30	-	20.58	43.50	17.61	19.06
Tier 2	53.68	15.70	-	22.57	20.58	43.50	17.61	-
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	-	13.63	-	15.05	14.36	25.47	14.47	-
Tier 2	-	13.38	-	14.78	14.10	25.02	14.21	-
Tier 3	-	13.63	-	15.05	14.36	25.47	14.47	-
MassMutual Capital Vantage SM								
Tier 1	-	13.59	-	15.01	14.33	25.41	14.43	-
Tier 2	-	13.84	-	15.28	14.59	25.87	14.70	-
Tier 3	-	13.28	-	14.66	14.00	24.82	14.10	-
Tier 4	-	13.59	-	15.01	14.33	25.41	14.43	-
Tier 5	-	13.52	-	14.93	14.25	25.28	14.36	-
Tier 6	-	13.84	-	15.28	14.59	25.87	14.70	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Balanced Allocation Sub-Account (Service Class)	MML Blend Sub-Account (Initial Class)	MML Blend Sub-Account (Service Class)	MML Blue Chip Growth Sub-Account (Initial Class)	MML Blue Chip Growth Sub-Account (Service Class)	MML Conservative Allocation Sub-Account (Initial Class)	MML Conservative Allocation Sub-Account (Service Class)	MML Dynamic Bond Sub-Account (Service Class I)
ASSETS								
Investments								
Number of shares	36,513,997	2,622,612	7,529,909	3,164,627	9,365,223	7,362,693	33,086,015	1,198,582
Identified cost	\$ 360,404,521	\$ 57,733,285	\$ 165,883,815	\$ 52,119,095	\$ 151,920,446	\$ 71,462,432	\$ 318,212,978	\$ 11,957,745
Value	\$ 373,173,054	\$ 65,024,697	\$ 185,705,283	\$ 64,906,509	\$ 181,685,334	\$ 76,130,243	\$ 338,139,074	\$ 12,453,262
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company ...	-	274	-	321	-	-	-	-
Total assets	373,173,054	65,024,971	185,705,283	64,906,830	181,685,334	76,130,243	338,139,074	12,453,262
LIABILITIES								
Annuitant mortality fluctuation reserve	-	519	-	1,434	-	-	-	-
Payable to Massachusetts Mutual Life Insurance Company	8	-	7	-	17	36	14	-
Total liabilities	8	519	7	1,434	17	36	14	-
NET ASSETS	\$ 373,173,046	\$ 65,024,452	\$ 185,705,276	\$ 64,905,396	\$ 181,685,317	\$ 76,130,207	\$ 338,139,060	\$ 12,453,262
Net Assets:								
Accumulation units - value	\$ 373,025,091	\$ 63,378,591	\$ 185,705,276	\$ 63,612,482	\$ 181,678,396	\$ 75,989,366	\$ 338,139,060	\$ 12,453,262
Contracts in payout (annuitization) period	147,955	1,645,861	-	1,292,914	6,921	140,841	-	-
Net assets	\$ 373,173,046	\$ 65,024,452	\$ 185,705,276	\$ 64,905,396	\$ 181,685,317	\$ 76,130,207	\$ 338,139,060	\$ 12,453,262
Outstanding units								
Contract owners	22,692,373	2,246,956	10,470,381	1,113,935	6,214,398	4,208,998	21,085,898	1,102,442
UNIT VALUE								
Panorama Premier	\$ -	\$ 25.27	\$ -	\$ 64.02	\$ -	\$ 17.76	\$ -	\$ -
Panorama Passage®								
Tier 1	-	26.71	-	63.01	-	17.55	-	-
Tier 2	-	25.96	-	61.26	-	17.19	-	-
Tier 3	-	28.17	-	65.86	-	18.13	-	-
Tier 4	-	26.90	-	62.90	-	17.53	-	-
MassMutual Artistry	-	27.92	-	66.56	-	18.27	-	-
MassMutual Transitions®								
Custom Plan	-	33.14	-	61.03	-	18.82	-	-
Package Plan I	-	33.14	-	61.03	-	18.82	-	-
Package Plan II	-	31.05	-	57.18	-	17.99	-	-
Package Plan III	-	29.64	-	54.58	-	17.42	-	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Balanced Allocation Sub-Account (Service Class)	MML Blend Sub-Account (Initial Class)	MML Blend Sub-Account (Service Class)	MML Blue Chip Growth Sub-Account (Initial Class)	MML Blue Chip Growth Sub-Account (Service Class)	MML Conservative Allocation Sub-Account (Initial Class)	MML Conservative Allocation Sub-Account (Service Class)	MML Dynamic Bond Sub-Account (Service Class I)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	-	27.35	-	50.13	-	17.42	-	-
Tier 2	-	25.57	-	46.86	-	16.54	-	-
Tier 3	-	24.51	-	44.93	-	16.01	-	-
Tier 4	-	25.53	-	46.79	-	16.54	-	-
Tier 5	-	23.86	-	43.74	-	15.70	-	-
Tier 6	-	22.88	-	41.94	-	15.20	-	-
Tier 7	-	25.20	-	46.19	-	16.33	-	-
Tier 8	-	23.52	-	43.12	-	15.50	-	-
Tier 9	16.07	-	23.84	-	43.69	-	15.43	-
Tier 10	17.14	-	25.87	-	47.41	-	16.46	-
Tier 11	15.26	-	22.26	-	40.79	-	14.65	-
Tier 12	16.32	-	24.63	-	45.13	-	15.67	-
Tier 13	14.54	-	21.21	-	38.87	-	13.96	-
Tier 14	15.32	-	22.73	-	41.65	-	14.70	-
MassMutual RetireEase Select SM								
Tier 1	-	21.64	-	38.92	-	-	-	-
Tier 2	-	23.16	-	41.66	-	-	-	-
MassMutual Transitions Select SM								
Tier 1	-	30.50	-	58.83	-	18.34	-	-
Tier 2	18.51	-	29.57	-	57.04	-	17.76	-
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	13.29	-	15.09	-	22.79	-	12.86	11.24
Tier 2	13.05	-	14.82	-	22.38	-	12.63	11.04
Tier 3	13.29	-	15.09	-	22.79	-	12.86	11.24
MassMutual Capital Vantage SM								
Tier 1	13.26	-	15.06	-	22.73	-	12.83	11.21
Tier 2	13.50	-	15.33	-	23.15	-	13.06	11.42
Tier 3	12.95	-	14.71	-	22.21	-	12.53	10.96
Tier 4	13.26	-	15.06	-	22.73	-	12.83	11.21
Tier 5	13.19	-	14.98	-	22.62	-	12.76	11.16
Tier 6	13.50	-	15.33	-	23.15	-	13.06	11.42

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Equity Sub-Account (Initial Class)	MML Equity Sub-Account (Service Class)	MML Equity Income Sub-Account (Initial Class)	MML Equity Income Sub-Account (Service Class)	MML Equity Index Sub-Account (Class I)	MML Equity Index Sub-Account (Service Class I)	MML Equity Momentum Sub-Account (Service Class I)	MML Equity Rotation Sub-Account (Service Class I)
ASSETS								
Investments								
Number of shares	862,345	3,833,235	13,809,403	8,155,848	1,134,317	1,597,989	155,630	136,965
Identified cost	\$ 21,572,414	\$ 99,522,013	\$ 143,082,518	\$ 85,462,784	\$ 31,272,720	\$ 42,337,856	\$ 1,779,061	\$ 1,757,723
Value	\$ 21,591,157	\$ 94,339,627	\$ 141,960,666	\$ 82,700,293	\$ 32,974,599	\$ 44,360,171	\$ 2,048,092	\$ 2,017,490
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company ...	-	-	-	-	-	1	-	-
Total assets	21,591,157	94,339,627	141,960,666	82,700,293	32,974,599	44,360,172	2,048,092	2,017,490
LIABILITIES								
Annuitant mortality fluctuation reserve	327	-	1,545	-	-	-	-	-
Payable to Massachusetts Mutual Life Insurance Company	74	3	115	8	87	-	-	-
Total liabilities	401	3	1,660	8	87	-	-	-
NET ASSETS	\$ 21,590,756	\$ 94,339,624	\$ 141,959,006	\$ 82,700,285	\$ 32,974,512	\$ 44,360,172	\$ 2,048,092	\$ 2,017,490
Net Assets:								
Accumulation units - value	\$ 20,782,188	\$ 94,339,624	\$ 137,718,296	\$ 82,694,621	\$ 31,628,792	\$ 44,360,172	\$ 2,048,092	\$ 2,017,490
Contracts in payout (annuitization) period	808,568	-	4,240,710	5,664	1,345,720	-	-	-
Net assets	\$ 21,590,756	\$ 94,339,624	\$ 141,959,006	\$ 82,700,285	\$ 32,974,512	\$ 44,360,172	\$ 2,048,092	\$ 2,017,490
Outstanding units								
Contract owners	925,884	4,851,758	5,424,458	3,974,069	1,036,338	1,247,806	109,941	108,233
UNIT VALUE								
Panorama Premier	\$ 18.62	\$ -	\$ 31.56	\$ -	\$ 28.33	\$ -	\$ -	\$ -
Panorama Passage®								
Tier 1	20.65	-	31.06	-	29.38	-	-	-
Tier 2	20.07	-	30.20	-	28.56	-	-	-
Tier 3	21.77	-	32.47	-	30.99	-	-	-
Tier 4	20.80	-	31.01	-	29.59	-	-	-
MassMutual Artistry	22.27	-	32.81	-	26.97	-	-	-
MassMutual Transitions®								
Custom Plan	28.08	-	29.21	-	39.57	-	-	-
Package Plan I	28.08	-	29.21	-	39.57	-	-	-
Package Plan II	26.31	-	27.37	-	37.07	-	-	-
Package Plan III	25.11	-	26.13	-	35.39	-	-	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENT OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Equity Sub-Account (Initial Class)	MML Equity Sub-Account (Service Class)	MML Equity Income Sub-Account (Initial Class)	MML Equity Income Sub-Account (Service Class)	MML Equity Index Sub-Account (Class I)	MML Equity Index Sub-Account (Service Class I)	MML Equity Momentum Sub-Account (Service Class I)	MML Equity Rotation Sub-Account (Service Class I)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	23.12	-	24.10	-	32.94	-	-	-
Tier 2	21.62	-	22.53	-	30.80	-	-	-
Tier 3	20.72	-	21.60	-	29.53	-	-	-
Tier 4	21.58	-	22.49	-	30.75	-	-	-
Tier 5	20.18	-	21.03	-	28.74	-	-	-
Tier 6	19.34	-	20.16	-	27.56	-	-	-
Tier 7	21.31	-	22.21	-	30.36	-	-	-
Tier 8	19.89	-	20.73	-	28.34	-	-	-
Tier 9	-	20.16	-	21.03	-	28.72	-	-
Tier 10	-	21.88	-	22.82	-	31.16	-	-
Tier 11	-	18.82	-	19.63	-	26.80	-	-
Tier 12	-	20.83	-	21.72	-	29.66	-	-
Tier 13	-	17.94	-	18.71	-	25.55	-	-
Tier 14	-	19.22	-	20.04	-	27.37	-	-
MassMutual RetireEase Select SM								
Tier 1	15.68	-	16.76	-	24.56	-	-	-
Tier 2	16.78	-	17.93	-	26.29	-	-	-
MassMutual Transitions Select SM								
Tier 1	25.74	-	26.87	-	37.71	-	-	-
Tier 2	-	24.97	-	26.08	-	36.56	-	-
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	28.71	-	-	-
Tier 2	-	-	-	-	29.13	-	-	-
Tier 3	-	-	-	-	30.22	-	-	-
Tier 4	-	-	-	-	30.22	-	-	-
MassMutual Transitions Select SM II								
Tier 1	-	13.77	-	14.49	-	-	-	-
Tier 2	-	13.52	-	14.23	-	-	-	-
Tier 3	-	13.77	-	14.49	-	-	-	-
MassMutual Capital Vantage SM								
Tier 1	-	13.73	-	14.45	-	-	18.30	18.31
Tier 2	-	13.98	-	14.72	-	-	18.63	18.64
Tier 3	-	13.41	-	14.12	-	-	17.88	17.89
Tier 4	-	13.73	-	14.45	-	-	18.30	18.31
Tier 5	-	13.66	-	14.38	-	-	18.20	18.21
Tier 6	-	13.98	-	14.72	-	-	18.63	18.64

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (continued)

December 31, 2020

	MML Focused Equity Sub-Account	MML Foreign Sub-Account (Initial Class)	MML Foreign Sub-Account (Service Class)	MML Fundamental Equity Sub-Account	MML Fundamental Value Sub-Account	MML Global Sub-Account (Class I)	MML Global Sub-Account (Service Class I)	MML Global Sub-Account (Class II)
ASSETS								
Investments								
Number of shares	2,716,032	11,810,999	836,100	1,843,500	1,309,751	369,955	1,314,265	313,580
Identified cost	\$ 15,998,233	\$ 112,986,106	\$ 8,045,273	\$ 18,684,157	\$ 16,609,378	\$ 4,465,877	\$ 15,625,949	\$ 3,661,881
Value	\$ 18,957,903	\$ 118,346,216	\$ 8,319,199	\$ 19,006,482	\$ 14,865,673	\$ 5,164,568	\$ 18,084,285	\$ 4,487,331
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company	-	-	-	-	-	-	-	-
Total assets	18,957,903	118,346,216	8,319,199	19,006,482	14,865,673	5,164,568	18,084,285	4,487,331
LIABILITIES								
Annuitant mortality fluctuation reserve	-	1,111	-	-	-	-	-	7
Payable to Massachusetts Mutual Life Insurance Company	43	136	16	32	65	84	17	12
Total liabilities	43	1,247	16	32	65	84	17	19
NET ASSETS	\$ 18,957,860	\$ 118,344,969	\$ 8,319,183	\$ 19,006,450	\$ 14,865,608	\$ 5,164,484	\$ 18,084,268	\$ 4,487,312
Net Assets:								
Accumulation units - value	\$ 18,957,860	\$ 114,239,748	\$ 8,319,183	\$ 18,918,472	\$ 14,865,608	\$ 4,805,538	\$ 18,084,268	\$ 4,487,083
Contracts in payout (annuitization) period	-	4,105,221	-	87,978	-	358,946	-	229
Net assets	\$ 18,957,860	\$ 118,344,969	\$ 8,319,183	\$ 19,006,450	\$ 14,865,608	\$ 5,164,484	\$ 18,084,268	\$ 4,487,312
Outstanding units								
Contract owners	881,782	7,346,537	584,504	880,974	1,019,772	214,433	924,023	256,171
UNIT VALUE								
Panorama Premier	\$ 27.24	\$ 15.22	\$ -	\$ 28.28	\$ 18.65	\$ -	\$ -	\$ 19.87
Panorama Passage®								
Tier 1	27.03	15.31	-	28.06	18.51	-	-	19.23
Tier 2	26.66	14.89	-	27.67	18.25	-	-	18.69
Tier 3	27.62	16.15	-	28.68	18.91	-	-	20.28
Tier 4	27.01	15.42	-	28.04	18.49	-	-	19.37
MassMutual Artistry	27.76	14.40	-	28.83	19.01	-	-	14.28
MassMutual Transitions®								
Custom Plan	28.32	18.07	-	29.41	19.39	24.80	-	-
Package Plan I	28.32	18.07	-	29.41	19.39	24.80	-	-
Package Plan II	27.48	16.93	-	28.53	18.81	23.23	-	-
Package Plan III	26.89	16.16	-	27.92	18.41	22.18	-	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Focused Equity Sub-Account	MML Foreign Sub-Account (Initial Class)	MML Foreign Sub-Account (Service Class)	MML Fundamental Equity Sub-Account	MML Fundamental Value Sub-Account	MML Global Sub-Account (Class I)	MML Global Sub-Account (Service Class I)	MML Global Sub-Account (Class II)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	26.89	15.20	-	27.92	18.41	22.02	-	-
Tier 2	25.97	14.21	-	26.96	17.78	20.59	-	-
Tier 3	25.42	13.63	-	26.39	17.40	19.74	-	-
Tier 4	25.97	14.19	-	26.96	17.78	20.56	-	-
Tier 5	25.09	13.26	-	26.05	17.18	19.22	-	-
Tier 6	24.55	12.72	-	25.49	16.81	18.43	-	-
Tier 7	25.75	14.01	-	26.73	17.63	20.30	-	-
Tier 8	24.87	13.08	-	25.82	17.03	18.94	-	-
Tier 9	25.31	-	13.25	26.27	17.33	-	19.28	-
Tier 10	26.43	-	14.38	27.44	18.09	-	20.92	-
Tier 11	24.44	-	12.37	25.38	16.74	-	17.99	-
Tier 12	25.53	-	13.68	26.50	17.48	-	19.91	-
Tier 13	23.51	-	11.79	24.41	16.10	-	17.15	-
Tier 14	24.34	-	12.63	25.27	16.66	-	18.37	-
MassMutual RetireEase Select SM								
Tier 1	-	9.24	-	-	-	17.63	-	-
Tier 2	-	9.89	-	-	-	18.87	-	-
MassMutual Transitions Select SM								
Tier 1	27.84	17.18	-	28.90	19.06	26.82	-	-
Tier 2	27.84	-	16.65	28.90	19.06	-	26.11	-
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	19.03	-	10.83	19.71	13.30	-	16.13	-
Tier 2	18.68	-	10.64	19.36	13.06	-	15.84	-
Tier 3	19.03	-	10.83	19.71	13.30	-	16.13	-
MassMutual Capital Vantage SM								
Tier 1	18.98	-	10.80	19.66	13.27	-	16.08	-
Tier 2	19.32	-	11.00	20.02	13.51	-	16.38	-
Tier 3	18.54	-	10.55	19.21	12.96	-	15.71	-
Tier 4	18.98	-	10.80	19.66	13.27	-	16.08	-
Tier 5	18.88	-	10.75	19.56	13.20	-	16.00	-
Tier 6	19.32	-	11.00	20.02	13.51	-	16.38	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Growth & Income Sub-Account (Initial Class)	MML Growth & Income Sub-Account (Service Class)	MML Growth Allocation Sub-Account (Initial Class)	MML Growth Allocation Sub-Account (Service Class)	MML High Yield Sub-Account	MML Income & Growth Sub-Account (Initial Class)	MML Income & Growth Sub-Account (Service Class)	MML Inflation- Protected and Income Sub-Account (Initial Class)
ASSETS								
Investments								
Number of shares	3,484,525	2,449,344	41,939,540	84,892,152	4,247,340	2,169,541	2,744,896	11,478,243
Identified cost	\$ 39,881,113	\$ 40,542,604	\$ 380,898,269	\$ 779,536,500	\$ 41,274,861	\$ 22,064,496	\$ 27,815,257	\$ 119,636,649
Value	\$ 71,537,293	\$ 49,795,172	\$ 393,392,887	\$ 788,648,089	\$ 42,643,293	\$ 21,695,409	\$ 27,009,778	\$ 130,966,753
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company	-	-	-	135	-	-	-	95
Total assets	71,537,293	49,795,172	393,392,887	788,648,224	42,643,293	21,695,409	27,009,778	130,966,848
LIABILITIES								
Annuitant mortality fluctuation reserve	5,971	-	-	-	106	209	-	2,182
Payable to Massachusetts Mutual Life Insurance Company	256	1	6	-	43	108	3	-
Total liabilities	6,227	1	6	-	149	317	3	2,182
NET ASSETS	\$ 71,531,066	\$ 49,795,171	\$ 393,392,881	\$ 788,648,224	\$ 42,643,144	\$ 21,695,092	\$ 27,009,775	\$ 130,964,666
Net Assets:								
Accumulation units - value	\$ 71,141,684	\$ 49,795,171	\$ 393,392,881	\$ 788,563,256	\$ 42,639,613	\$ 20,778,976	\$ 27,009,775	\$ 127,450,272
Contracts in payout (annuitization) period	389,382	-	-	84,968	3,531	916,116	-	3,514,394
Net assets	\$ 71,531,066	\$ 49,795,171	\$ 393,392,881	\$ 788,648,224	\$ 42,643,144	\$ 21,695,092	\$ 27,009,775	\$ 130,964,666
Outstanding units								
Contract owners	1,995,917	2,420,663	18,484,124	39,460,627	2,894,882	893,631	1,567,693	8,662,812
UNIT VALUE								
Panorama Premier	\$ 36.16	\$ -	\$ 21.01	\$ -	\$ 17.78	\$ 27.07	\$ -	\$ 15.80
Panorama Passage®								
Tier 1	35.59	-	20.77	-	17.61	20.83	-	15.55
Tier 2	34.59	-	20.34	-	17.31	20.25	-	15.12
Tier 3	37.19	-	21.45	-	18.08	21.97	-	16.25
Tier 4	35.52	-	20.74	-	17.59	20.98	-	15.52
MassMutual Artistry	37.59	-	21.62	-	18.20	19.79	-	16.43
MassMutual Transitions®								
Custom Plan	39.15	-	22.27	-	18.65	26.57	-	17.11
Package Plan I	39.15	-	22.27	-	18.65	26.57	-	17.11
Package Plan II	36.80	-	21.28	-	17.97	24.90	-	16.08
Package Plan III	35.21	-	20.61	-	17.50	23.77	-	15.39

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Growth & Income Sub-Account (Initial Class)	MML Growth & Income Sub-Account (Service Class)	MML Growth Allocation Sub-Account (Initial Class)	MML Growth Allocation Sub-Account (Service Class)	MML High Yield Sub-Account	MML Income & Growth Sub-Account (Initial Class)	MML Income & Growth Sub-Account (Service Class)	MML Inflation- Protected and Income Sub-Account (Initial Class)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	26.89	-	20.61	-	17.50	21.52	-	14.43
Tier 2	25.14	-	19.57	-	16.77	20.11	-	13.49
Tier 3	24.11	-	18.94	-	16.33	19.29	-	12.93
Tier 4	25.10	-	19.57	-	16.77	20.08	-	13.47
Tier 5	23.47	-	18.58	-	16.07	18.77	-	12.59
Tier 6	22.50	-	17.99	-	15.64	18.00	-	12.07
Tier 7	24.78	-	19.31	-	16.59	19.83	-	13.29
Tier 8	23.13	-	18.34	-	15.90	18.51	-	12.41
Tier 9	-	23.44	-	18.29	16.24	-	18.77	-
Tier 10	-	25.44	-	19.51	17.13	-	20.37	-
Tier 11	-	21.88	-	17.37	15.56	-	17.52	-
Tier 12	-	24.22	-	18.57	16.41	-	19.39	-
Tier 13	-	20.86	-	16.55	14.83	-	16.70	-
Tier 14	-	22.35	-	17.43	15.48	-	17.89	-
MassMutual RetireEase Select SM								
Tier 1	21.06	-	-	-	-	15.31	-	13.89
Tier 2	22.54	-	-	-	-	16.39	-	14.86
MassMutual Transitions Select SM								
Tier 1	30.74	-	21.70	-	18.26	24.34	-	15.42
Tier 2	-	29.80	-	21.06	18.26	-	23.62	-
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	-	17.62	-	14.40	12.80	-	14.24	-
Tier 2	-	17.30	-	14.14	12.57	-	13.99	-
Tier 3	-	17.62	-	14.40	12.80	-	14.24	-
MassMutual Capital Vantage SM								
Tier 1	-	17.57	-	14.36	12.76	-	14.21	-
Tier 2	-	17.89	-	14.63	13.00	-	14.47	-
Tier 3	-	17.17	-	14.03	12.47	-	13.88	-
Tier 4	-	17.57	-	14.36	12.76	-	14.21	-
Tier 5	-	17.48	-	14.29	12.70	-	14.13	-
Tier 6	-	17.89	-	14.63	13.00	-	14.47	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Inflation- Protected and Income Sub-Account (Service Class)	MML International Equity Sub-Account	MML Large Cap Growth Sub-Account (Initial Class)	MML Large Cap Growth Sub-Account (Service Class)	MML Managed Bond Sub-Account (Initial Class)	MML Managed Bond Sub-Account (Service Class)	MML Managed Volatility Sub-Account (Initial Class)	MML Managed Volatility Sub-Account (Service Class)
ASSETS								
Investments								
Number of shares	4,077,648	691,680	1,250,285	1,657,612	8,416,899	19,720,056	6,763,277	1,968,115
Identified cost	\$ 42,085,043	\$ 6,611,140	\$ 13,431,640	\$ 17,790,814	\$ 106,621,747	\$ 247,725,718	\$ 84,762,993	\$ 24,601,508
Value	\$ 46,199,758	\$ 6,833,800	\$ 17,478,982	\$ 22,228,573	\$ 114,407,663	\$ 266,777,219	\$ 93,222,933	\$ 26,903,894
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company	-	-	-	-	-	-	-	-
Total assets	46,199,758	6,833,800	17,478,982	22,228,573	114,407,663	266,777,219	93,222,933	26,903,894
LIABILITIES								
Annuitant mortality fluctuation reserve	-	-	287	-	1,601	-	1,186	-
Payable to Massachusetts Mutual Life Insurance Company	6	28	62	2	162	31	124	9
Total liabilities	6	28	349	2	1,763	31	1,310	9
NET ASSETS	\$ 46,199,752	\$ 6,833,772	\$ 17,478,633	\$ 22,228,571	\$ 114,405,900	\$ 266,777,188	\$ 93,221,623	\$ 26,903,885
Net Assets:								
Accumulation units - value	\$ 46,193,736	\$ 6,833,772	\$ 17,340,975	\$ 22,228,571	\$ 111,290,744	\$ 266,769,377	\$ 90,528,615	\$ 26,903,885
Contracts in payout (annuitization) period	6,016	-	137,658	-	3,115,156	7,811	2,693,008	-
Net assets	\$ 46,199,752	\$ 6,833,772	\$ 17,478,633	\$ 22,228,571	\$ 114,405,900	\$ 266,777,188	\$ 93,221,623	\$ 26,903,885
Outstanding units								
Contract owners	3,431,376	562,014	492,342	965,919	6,518,330	17,765,196	5,170,638	1,669,075
UNIT VALUE								
Panorama Premier	\$ -	\$ -	\$ 28.15	\$ -	\$ -	\$ 14.27	\$ 16.46	\$ -
Panorama Passage®								
Tier 1	-	-	28.37	-	21.57	-	16.15	-
Tier 2	-	-	27.58	-	20.97	-	15.70	-
Tier 3	-	-	29.92	-	22.75	-	17.01	-
Tier 4	-	-	28.58	-	21.73	-	16.25	-
MassMutual Artistry	-	11.28	23.20	-	21.87	-	17.07	-
MassMutual Transitions®								
Custom Plan	-	11.45	40.27	-	20.18	-	21.43	-
Package Plan I	-	11.45	40.27	-	20.18	-	21.43	-
Package Plan II	-	11.19	37.73	-	18.91	-	20.08	-
Package Plan III	-	11.00	36.02	-	18.05	-	19.17	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Inflation- Protected and Income Sub-Account (Service Class)	MML International Equity Sub-Account	MML Large Cap Growth Sub-Account (Initial Class)	MML Large Cap Growth Sub-Account (Service Class)	MML Managed Bond Sub-Account (Initial Class)	MML Managed Bond Sub-Account (Service Class)	MML Managed Volatility Sub-Account (Initial Class)	MML Managed Volatility Sub-Account (Service Class)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	-	11.00	34.10	-	16.21	-	16.66	-
Tier 2	-	10.71	31.88	-	15.15	-	15.58	-
Tier 3	-	10.54	30.56	-	14.53	-	14.93	-
Tier 4	-	10.71	31.83	-	15.13	-	15.55	-
Tier 5	-	10.43	29.75	-	14.14	-	14.54	-
Tier 6	-	10.26	28.53	-	13.56	-	13.94	-
Tier 7	-	10.64	31.42	-	14.94	-	15.35	-
Tier 8	-	10.36	29.33	-	13.94	-	14.33	-
Tier 9	12.58	10.50	-	29.72	-	14.13	-	14.53
Tier 10	13.65	10.86	-	32.25	-	15.34	-	15.77
Tier 11	11.74	10.23	-	27.74	-	13.19	-	13.56
Tier 12	12.99	10.57	-	30.70	-	14.60	-	15.01
Tier 13	11.19	9.92	-	26.44	-	12.58	-	12.93
Tier 14	11.99	10.19	-	28.32	-	13.47	-	13.85
MassMutual RetireEase Select SM								
Tier 1	-	-	29.86	-	15.04	-	12.13	-
Tier 2	-	-	31.96	-	16.10	-	12.98	-
MassMutual Transitions Select SM								
Tier 1	-	11.30	42.37	-	17.38	-	18.96	-
Tier 2	14.95	11.30	-	41.07	-	16.86	-	18.39
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	11.76	12.28	-	20.89	-	11.48	-	11.91
Tier 2	11.54	12.06	-	20.52	-	11.28	-	11.69
Tier 3	11.76	12.28	-	20.89	-	11.48	-	11.91
MassMutual Capital Vantage SM								
Tier 1	11.73	12.25	-	20.84	-	11.45	-	11.88
Tier 2	11.94	12.47	-	21.22	-	11.66	-	12.09
Tier 3	11.46	11.97	-	20.36	-	11.19	-	11.60
Tier 4	11.73	12.25	-	20.84	-	11.45	-	11.88
Tier 5	11.66	12.19	-	20.73	-	11.39	-	11.81
Tier 6	11.94	12.47	-	21.22	-	11.66	-	12.09

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Mid Cap Sub-Account (Initial Class)	MML Mid Cap Growth Sub-Account (Service Class)	MML Mid Cap Value Sub-Account (Initial Class)	MML Mid Cap Value Sub-Account (Service Class)	MML Moderate Allocation Sub-Account (Initial Class)	MML Moderate Allocation Sub-Account (Service Class)	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account (Initial Class)
ASSETS								
Investments								
Number of shares	4,969,688	6,892,094	12,576,506	4,939,303	21,687,964	147,236,440	4,513,109	2,453,768
Identified cost	\$ 75,771,814	\$ 101,901,816	\$ 130,354,387	\$ 51,653,823	\$ 226,812,137	\$ 1,573,368,889	\$ 43,587,813	\$ 22,173,246
Value	\$ 89,951,347	\$ 117,785,885	\$ 133,185,201	\$ 51,269,965	\$ 235,097,525	\$ 1,575,429,909	\$ 44,273,597	\$ 27,262,515
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company	-	-	-	-	-	23	299	-
Total assets	89,951,347	117,785,885	133,185,201	51,269,965	235,097,525	1,575,429,932	44,273,896	27,262,515
LIABILITIES								
Annuitant mortality fluctuation reserve	1,939	-	3,866	-	-	-	1,016	2,832
Payable to Massachusetts Mutual Life Insurance Company	142	8	192	17	64	-	-	154
Total liabilities	2,081	8	4,058	17	64	-	1,016	2,986
NET ASSETS	\$ 89,949,266	\$ 117,785,877	\$ 133,181,143	\$ 51,269,948	\$ 235,097,461	\$ 1,575,429,932	\$ 44,272,880	\$ 27,259,529
Net Assets:								
Accumulation units - value	\$ 88,465,722	\$ 117,785,877	\$ 129,436,928	\$ 51,269,948	\$ 235,097,461	\$ 1,575,414,397	\$ 44,228,821	\$ 26,929,301
Contracts in payout (annuitization) period	1,483,544	-	3,744,215	-	-	15,535	44,059	330,228
Net assets	\$ 89,949,266	\$ 117,785,877	\$ 133,181,143	\$ 51,269,948	\$ 235,097,461	\$ 1,575,429,932	\$ 44,272,880	\$ 27,259,529
Outstanding units								
Contract owners	1,454,733	4,168,210	3,707,481	2,406,081	11,897,524	87,882,437	4,150,563	706,873
UNIT VALUE								
Panorama Premier	\$ 103.40	\$ -	\$ 45.26	\$ -	\$ 19.40	\$ -	\$ 10.82	\$ 46.65
Panorama Passage®								
Tier 1	76.57	-	47.92	-	19.18	-	10.72	41.99
Tier 2	74.43	-	46.58	-	18.78	-	10.54	40.82
Tier 3	80.75	-	50.53	-	19.81	-	11.01	44.28
Tier 4	77.12	-	48.27	-	19.15	-	10.71	42.29
MassMutual Artistry	61.93	-	51.29	-	19.96	-	11.08	40.65
MassMutual Transitions®								
Custom Plan	70.09	-	41.45	-	20.57	-	11.35	39.49
Package Plan I	70.09	-	41.45	-	20.57	-	11.35	39.49
Package Plan II	65.68	-	38.84	-	19.65	-	10.94	37.00
Package Plan III	62.69	-	37.07	-	19.03	-	10.65	35.32

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Mid Cap Sub-Account (Initial Class)	MML Mid Cap Growth Sub-Account (Service Class)	MML Mid Cap Value Sub-Account (Initial Class)	MML Mid Cap Value Sub-Account (Service Class)	MML Moderate Allocation Sub-Account (Initial Class)	MML Moderate Allocation Sub-Account (Service Class)	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account (Initial Class)
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	41.52	-	32.42	-	19.03	-	10.65	31.09
Tier 2	39.16	-	30.31	-	18.07	-	10.20	29.07
Tier 3	37.75	-	29.06	-	17.49	-	9.94	27.87
Tier 4	39.16	-	30.26	-	18.07	-	10.20	29.02
Tier 5	36.93	-	28.29	-	17.16	-	9.78	27.13
Tier 6	35.60	-	27.13	-	16.61	-	9.52	26.01
Tier 7	38.60	-	29.88	-	17.84	-	10.10	28.66
Tier 8	36.40	-	27.89	-	16.94	-	9.67	26.75
Tier 9	-	36.52	-	28.27	-	16.87	9.88	-
Tier 10	-	39.28	-	30.68	-	18.00	10.42	-
Tier 11	-	34.44	-	26.39	-	16.02	9.47	-
Tier 12	-	37.40	-	29.21	-	17.13	9.99	-
Tier 13	-	32.82	-	25.16	-	15.27	9.03	-
Tier 14	-	34.81	-	26.95	-	16.08	9.42	-
MassMutual RetireEase Select SM								
Tier 1	35.82	-	22.51	-	-	-	-	23.47
Tier 2	38.34	-	24.09	-	-	-	-	25.12
MassMutual Transitions Select SM								
Tier 1	44.03	-	35.71	-	20.04	-	11.11	36.61
Tier 2	-	42.70	-	34.63	-	19.43	11.11	-
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	-	19.81	-	14.28	-	13.60	10.36	-
Tier 2	-	19.46	-	14.02	-	13.35	10.18	-
Tier 3	-	19.81	-	14.28	-	13.60	10.36	-
MassMutual Capital Vantage SM								
Tier 1	-	19.76	-	14.24	-	13.56	10.34	-
Tier 2	-	20.12	-	14.50	-	13.81	10.53	-
Tier 3	-	19.31	-	13.91	-	13.25	10.10	-
Tier 4	-	19.76	-	14.24	-	13.56	10.34	-
Tier 5	-	19.66	-	14.16	-	13.49	10.28	-
Tier 6	-	20.12	-	14.50	-	13.81	10.53	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Small Cap Equity Sub-Account (Service Class)	MML Small Cap Growth Equity Sub-Account (Initial Class)	MML Small Cap Growth Equity Sub-Account (Service Class)	MML Small Company Value Sub-Account	MML Small/Mid Cap Value Sub-Account (Initial Class)	MML Small/Mid Cap Value Sub-Account (Service Class)	MML Special Situations Sub-Account (Service Class I)	MML Strategic Emerging Markets Sub-Account
ASSETS								
Investments								
Number of shares	2,331,431	5,396,406	2,013,469	1,742,820	8,930,505	2,066,029	64,220	1,122,940
Identified cost	\$ 20,872,676	\$ 70,112,793	\$ 26,391,223	\$ 24,917,253	\$ 93,943,461	\$ 22,538,625	\$ 757,915	\$ 12,072,526
Value	\$ 25,344,935	\$ 90,996,175	\$ 31,164,773	\$ 25,549,738	\$ 97,699,723	\$ 22,292,449	\$ 950,460	\$ 16,215,248
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company	-	62	-	-	-	1	-	-
Total assets	25,344,935	90,996,237	31,164,773	25,549,738	97,699,723	22,292,450	950,460	16,215,248
LIABILITIES								
Annuitant mortality fluctuation reserve	-	4,136	-	-	1,514	-	-	-
Payable to Massachusetts Mutual Life Insurance Company	8	-	9	36	37	-	-	77
Total liabilities	8	4,136	9	36	1,551	-	-	77
NET ASSETS	\$ 25,344,927	\$ 90,992,101	\$ 31,164,764	\$ 25,549,702	\$ 97,698,172	\$ 22,292,450	\$ 950,460	\$ 16,215,171
Net Assets:								
Accumulation units - value	\$ 25,344,927	\$ 87,777,419	\$ 31,164,764	\$ 25,549,702	\$ 94,424,016	\$ 22,292,450	\$ 950,460	\$ 16,215,171
Contracts in payout (annuitization) period	-	3,214,682	-	-	3,274,156	-	-	-
Net assets	\$ 25,344,927	\$ 90,992,101	\$ 31,164,764	\$ 25,549,702	\$ 97,698,172	\$ 22,292,450	\$ 950,460	\$ 16,215,171
Outstanding units								
Contract owners	1,169,902	1,790,589	1,072,366	1,280,052	3,498,522	1,139,563	50,391	1,017,814
UNIT VALUE								
Panorama Premier	\$ -	\$ 61.21	\$ -	\$ -	\$ 36.63	\$ -	\$ -	\$ -
Panorama Passage®								
Tier 1	-	54.04	-	-	36.05	-	-	-
Tier 2	-	52.53	-	-	35.05	-	-	-
Tier 3	-	56.98	-	-	37.68	-	-	-
Tier 4	-	54.43	-	-	35.99	-	-	-
MassMutual Artistry	-	38.71	-	33.50	38.08	-	-	19.00
MassMutual Transitions®								
Custom Plan	-	60.18	-	-	39.66	-	-	-
Package Plan I	-	60.18	-	-	39.66	-	-	-
Package Plan II	-	56.38	-	-	37.28	-	-	-
Package Plan III	-	53.82	-	-	35.67	-	-	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Small Cap Equity Sub-Account (Service Class)	MML Small Cap Growth Equity Sub-Account (Initial Class)	MML Small Cap Growth Equity Sub-Account (Service Class)	MML Small Company Value Sub-Account	MML Small/Mid Cap Value Sub-Account (Initial Class)	MML Small/Mid Cap Value Sub-Account (Service Class)	MML Special Situations Sub-Account (Service Class I)	MML Strategic Emerging Markets Sub-Account
UNIT VALUE (continued)								
MassMutual Evolution SM								
Tier 1	-	44.52	-	32.09	25.61	-	-	14.81
Tier 2	-	41.62	-	30.63	23.94	-	-	14.10
Tier 3	-	39.90	-	29.75	22.96	-	-	13.67
Tier 4	-	41.55	-	30.63	23.91	-	-	14.10
Tier 5	-	38.85	-	29.23	22.35	-	-	13.42
Tier 6	-	37.25	-	28.39	21.43	-	-	13.01
Tier 7	-	41.03	-	30.27	23.60	-	-	13.92
Tier 8	-	38.29	-	28.89	22.03	-	-	13.25
Tier 9	27.06	-	38.81	29.57	-	22.32	-	13.58
Tier 10	29.37	-	42.11	31.35	-	24.22	-	14.45
Tier 11	25.26	-	36.23	28.22	-	20.83	-	12.93
Tier 12	27.96	-	40.09	29.92	-	23.05	-	13.75
Tier 13	24.08	-	34.53	26.90	-	19.86	-	12.33
Tier 14	25.80	-	36.99	28.19	-	21.27	-	12.95
MassMutual RetireEase Select SM								
Tier 1	-	31.31	-	-	16.85	-	-	-
Tier 2	-	33.51	-	-	18.03	-	-	-
MassMutual Transitions Select SM								
Tier 1	-	54.46	-	33.62	28.11	-	-	15.56
Tier 2	35.44	-	52.81	33.62	-	27.25	-	15.56
MassMutual Equity Edge SM								
Tier 1	-	-	-	-	-	-	-	-
Tier 2	-	-	-	-	-	-	-	-
Tier 3	-	-	-	-	-	-	-	-
Tier 4	-	-	-	-	-	-	-	-
MassMutual Transitions Select SM II								
Tier 1	17.05	-	21.65	15.61	-	13.56	-	16.22
Tier 2	16.74	-	21.26	15.33	-	13.32	-	15.93
Tier 3	17.05	-	21.65	15.61	-	13.56	-	16.22
MassMutual Capital Vantage SM								
Tier 1	17.00	-	21.59	15.57	-	13.53	18.53	16.18
Tier 2	17.31	-	21.98	15.85	-	13.77	18.87	16.47
Tier 3	16.61	-	21.09	15.21	-	13.21	18.10	15.80
Tier 4	17.00	-	21.59	15.57	-	13.53	18.53	16.18
Tier 5	16.92	-	21.48	15.49	-	13.46	18.43	16.09
Tier 6	17.31	-	21.98	15.85	-	13.77	18.87	16.47

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Total Return Bond Sub-Account	MML U.S. Government Money Market Sub-Account	PIMCO Commodity RealReturn® Strategy Sub-Account	VY® Clarion Global Real Estate Sub-Account
ASSETS				
Investments				
Number of shares	4,307,066	143,713,749	1,244,319	1,197,324
Identified cost	\$ 46,003,502	\$ 143,711,740	\$ 8,302,334	\$ 13,451,539
Value	\$ 47,980,719	\$ 143,713,775	\$ 7,627,679	\$ 12,571,894
Dividends receivable	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company	-	56	-	-
Total assets	47,980,719	143,713,831	7,627,679	12,571,894
LIABILITIES				
Annuitant mortality fluctuation reserve	-	2,014	73	77
Payable to Massachusetts Mutual Life Insurance Company	31	-	115	57
Total liabilities	31	2,014	188	134
NET ASSETS	\$ 47,980,688	\$ 143,711,817	\$ 7,627,491	\$ 12,571,760
Net Assets:				
Accumulation units - value	\$ 47,980,688	\$ 142,989,904	\$ 7,388,714	\$ 12,056,110
Contracts in payout (annuitization) period	-	721,913	238,777	515,650
Net assets	\$ 47,980,688	\$ 143,711,817	\$ 7,627,491	\$ 12,571,760
Outstanding units				
Contract owners	4,106,252	15,675,879	1,401,409	807,288
UNIT VALUE				
Panorama Premier	\$ 11.78	\$ 8.83	\$ 5.35	\$ 15.43
Panorama Passage®				
Tier 1	11.69	8.72	5.28	15.23
Tier 2	11.53	8.55	5.15	14.88
Tier 3	11.94	9.01	5.47	15.80
Tier 4	11.68	8.71	5.27	15.21
MassMutual Artistry	12.01	9.08	5.52	15.94
MassMutual Transitions®				
Custom Plan	12.25	9.36	5.71	16.49
Package Plan I	12.25	9.36	5.71	16.49
Package Plan II	11.88	8.94	5.42	15.66
Package Plan III	11.63	8.66	5.23	15.10

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2020

	MML Total Return Bond Sub-Account	MML U.S. Government Money Market Sub-Account	PIMCO Commodity RealReturn® Strategy Sub-Account	VY® Clarion Global Real Estate Sub-Account
UNIT VALUE (continued)				
MassMutual Evolution SM				
Tier 1	11.63	8.66	5.23	15.09
Tier 2	11.23	8.22	4.93	14.23
Tier 3	10.99	7.96	4.75	13.72
Tier 4	11.23	8.22	4.93	14.23
Tier 5	10.85	7.81	4.65	13.42
Tier 6	10.62	7.56	4.48	12.94
Tier 7	11.13	8.12	4.86	14.03
Tier 8	10.75	7.71	4.58	13.23
Tier 9	10.94	7.92	4.74	13.69
Tier 10	11.43	8.45	5.10	14.72
Tier 11	10.57	7.52	4.47	12.91
Tier 12	11.04	8.04	4.86	14.02
Tier 13	10.17	7.17	4.26	12.30
Tier 14	10.52	7.55	4.52	13.05
MassMutual RetireEase Select SM				
Tier 1	-	8.92	5.28	12.18
Tier 2	-	9.19	5.66	13.04
MassMutual Transitions Select SM				
Tier 1	12.04	9.12	5.54	16.00
Tier 2	12.04	9.12	5.54	16.00
MassMutual Equity Edge SM				
Tier 1	-	8.80	-	-
Tier 2	-	-	-	-
Tier 3	-	-	-	-
Tier 4	-	9.10	-	-
MassMutual Transitions Select SM II				
Tier 1	11.46	9.70	-	-
Tier 2	11.26	9.53	-	-
Tier 3	11.46	9.70	-	-
MassMutual Capital Vantage SM				
Tier 1	11.43	9.68	-	-
Tier 2	11.64	9.85	-	-
Tier 3	11.17	9.45	-	-
Tier 4	11.43	9.68	-	-
Tier 5	11.37	9.63	-	-
Tier 6	11.64	9.85	-	-

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS

For The Year Ended December 31, 2020

	BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)	Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)
Investment income								
Dividends	\$ 116,275	\$ 557,850	\$ 159,181	\$ -	\$ -	\$ 1,391	\$ 141,102	\$ -
Expenses								
Mortality and expense risk fee and administrative charges	61,737	2,795,018	2,620,841	163,741	1,910,010	1,050	77,324	278,443
Net Investment income (loss)	54,538	(2,237,168)	(2,461,660)	(163,741)	(1,910,010)	341	63,778	(278,443)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	86,316	23,385,017	6,208,732	590,231	10,239,137	2,589	275,562	189,797
Realized gain distribution	14,098	1,234,403	1,080,496	1,814,781	21,660,438	1,758	156,789	1,863,813
Realized gain (loss)	100,414	24,619,420	7,289,228	2,405,012	31,899,575	4,347	432,351	2,053,610
Change in net unrealized appreciation/ depreciation of investments	1,053,232	34,970,871	47,885,827	1,391,942	15,551,455	4,511	373,131	6,038,721
Net gain (loss) on investments	1,153,646	59,590,291	55,175,055	3,796,954	47,451,030	8,858	805,482	8,092,331
Net increase (decrease) in net assets resulting from operations	1,208,184	57,353,123	52,713,395	3,633,213	45,541,020	9,199	869,260	7,813,888
Capital transactions:								
Transfer of net premiums	3,661,160	2,112,378	17,286,293	145,925	773,400	-	15,576	4,020,301
Transfers due to death benefits	-	(1,939,940)	(1,210,488)	(107,866)	(1,403,757)	-	(151,874)	(130,010)
Transfers due to annuity benefit payments	-	(806,297)	(105)	-	(312,139)	-	(7,790)	(55)
Transfers due to withdrawal of funds	(134,553)	(30,172,823)	(23,115,223)	(1,736,083)	(22,716,393)	(4,404)	(475,801)	(2,082,172)
Transfers due to loans, net of repayments	-	50,784	-	-	11,863	-	(624)	-
Transfers due to cost of insurance	-	(580,454)	(129,474)	(11,469)	(482,916)	28	(5,420)	(7,285)
Transfers due to contingent deferred sales charges	-	(1,112)	-	-	(434)	-	(74)	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	18,018	(631)	-	109,706	-	2,126	(329)
Transfers between Sub-Accounts and to/from Fixed Account	597,613	(20,897,923)	(7,838,577)	(1,595,520)	(22,019,795)	-	(57,430)	702,304
Net increase (decrease) in net assets resulting from capital transactions	4,124,221	(52,217,369)	(15,008,205)	(3,305,013)	(46,040,465)	(4,376)	(681,311)	2,502,754
Total increase (decrease)	5,332,404	5,135,754	37,705,190	328,200	(499,445)	4,823	187,949	10,316,642
NET ASSETS, at beginning of the year	3,575,830	232,111,397	191,552,509	12,888,583	161,347,994	71,711	6,873,042	18,022,291
NET ASSETS, at end of the year	\$ 8,908,234	\$ 237,247,151	\$ 229,257,699	\$ 13,216,783	\$ 160,848,549	\$ 76,534	\$ 7,060,991	\$ 28,338,933

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2020

	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)	Invesco Oppenheimer V.I. Government Money Sub-Account	Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)
Investment income								
Dividends	\$ 40,848	\$ 293,032	\$ 1,094,284	\$ 3,381,199	\$ 9,052,690	\$ 15,468	\$ 154,359	\$ 284,201
Expenses								
Mortality and expense risk fee and administrative charges	1,286,771	857,975	1,992,610	836,519	1,959,827	79,761	311,079	358,889
Net Investment income (loss)	(1,245,923)	(564,943)	(898,326)	2,544,680	7,092,863	(64,293)	(156,720)	(74,688)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	6,964,624	1,374,744	11,885,653	(3,029,059)	(5,865,207)	-	221,711	1,631,098
Realized gain distribution	8,515,542	2,430,032	5,701,535	-	-	-	324,338	419,761
Realized gain (loss)	15,480,166	3,804,776	17,587,188	(3,029,059)	(5,865,207)	-	546,049	2,050,859
Change in net unrealized appreciation/ depreciation of investments	19,030,198	13,084,911	22,322,127	614,565	747,269	-	3,963,612	3,693,695
Net gain (loss) on investments	34,510,364	16,889,687	39,909,315	(2,414,494)	(5,117,938)	-	4,509,661	5,744,554
Net increase (decrease) in net assets resulting from operations	33,264,441	16,324,744	39,010,989	130,187	1,974,925	(64,293)	4,352,941	5,669,866
Capital transactions:								
Transfer of net premiums	602,760	1,915,116	1,199,778	1,738,065	1,489,551	246,305	982,892	409,575
Transfers due to death benefits	(799,434)	(363,201)	(1,433,584)	(459,037)	(2,452,333)	(68,087)	(113,158)	(182,506)
Transfers due to annuity benefit payments	(280,522)	(122)	(369,034)	-	(324,436)	(9,045)	-	(74,380)
Transfers due to withdrawal of funds	(16,806,972)	(7,474,702)	(23,545,009)	(12,016,537)	(28,502,153)	(1,592,382)	(4,525,875)	(4,297,561)
Transfers due to loans, net of repayments	31,110	-	15,300	-	11,001	-	-	388
Transfers due to cost of insurance	(331,878)	(151,739)	(398,304)	(233,021)	(573,605)	24,574	(52,797)	(100,680)
Transfers due to contingent deferred sales charges	(150)	-	(699)	-	(514)	(492)	-	(255)
Transfers due to net charge (credit) to annuitant mortality fluctuation	60,862	(747)	73,764	-	87,658	1,359	-	2,067
Transfers between Sub-Accounts and to/from Fixed Account	(15,833,872)	(4,320,176)	(13,996,641)	(2,970,774)	7,577,621	1,247,658	(1,773,433)	(2,151,906)
Net increase (decrease) in net assets resulting from capital transactions	(33,358,096)	(10,395,571)	(38,454,429)	(13,941,305)	(22,687,210)	(150,110)	(5,482,371)	(6,395,258)
Total increase (decrease)	(93,655)	5,929,173	556,560	(13,811,118)	(20,712,285)	(214,403)	(1,129,430)	(725,392)
NET ASSETS, at beginning of the year	106,476,690	69,852,655	176,050,964	74,928,822	174,837,228	7,061,758	26,966,589	32,768,962
NET ASSETS, at end of the year	\$ 106,383,035	\$ 75,781,828	\$ 176,607,524	\$ 61,117,704	\$ 154,124,943	\$ 6,847,355	\$ 25,837,159	\$ 32,043,570

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2020

	Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)	Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)	Invesco Oppenheimer V.I. Total Return Bond Sub-Account	Invesco V.I. Diversified Dividend Sub-Account (Series I)	Invesco V.I. Diversified Dividend Sub-Account (Series II)	Invesco V.I. Health Care Sub-Account (Series I)	Invesco V.I. Health Care Sub-Account (Series II)	Invesco V.I. Technology Sub-Account (Series I)
Investment income								
Dividends	\$ 224,043	\$ 452,252	\$ 61,859	\$ 186,110	\$ 297,410	\$ 33,121	\$ 11,164	\$ -
Expenses								
Mortality and expense risk fee and administrative charges	238,834	340,322	26,096	65,654	147,016	122,614	155,243	90,543
Net investment income (loss)	(14,791)	111,930	35,763	120,456	150,394	(89,493)	(144,079)	(90,543)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(258,618)	1,137,243	(30,933)	36,289	(100,883)	1,389	(323,568)	1,076,830
Realized gain distribution	1,897,379	2,978,341	-	154,776	271,103	252,131	293,366	720,315
Realized gain (loss)	1,638,761	4,115,584	(30,933)	191,065	170,220	253,520	(30,202)	1,797,145
Change in net unrealized appreciation/ depreciation of investments	741,960	(569,431)	155,020	(421,581)	(856,870)	1,191,716	1,516,185	1,309,016
Net gain (loss) on investments	2,380,721	3,546,153	124,087	(230,516)	(686,650)	1,445,236	1,485,984	3,106,161
Net increase (decrease) in net assets resulting from operations	2,365,930	3,658,083	159,850	(110,060)	(536,256)	1,355,743	1,341,905	3,015,618
Capital transactions:								
Transfer of net premiums	1,576,897	294,205	-	108,879	82,521	114,126	169,413	165,898
Transfers due to death benefits	(177,909)	(332,631)	(46,161)	(1,938)	(55,543)	(82,555)	(111,366)	(15,719)
Transfers due to annuity benefit payments	-	(16,052)	(22)	(18,539)	-	(83,799)	-	(66,617)
Transfers due to withdrawal of funds	(1,763,373)	(2,610,657)	(89,359)	(508,522)	(1,666,721)	(1,412,055)	(2,150,350)	(1,587,350)
Transfers due to loans, net of repayments	-	13,452	-	732	-	7,146	-	(2,141)
Transfers due to cost of insurance	(2,698)	(27,834)	-	(5,103)	(1,770)	(13,765)	(6,278)	(12,676)
Transfers due to contingent deferred sales charges	-	(327)	(32)	(4)	-	(171)	-	(93)
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	(9,112)	(57)	3,328	-	5,884	-	877
Transfers between Sub-Accounts and to/from Fixed Account	(288,157)	(518,338)	(9,904)	62,179	(1,064,662)	(109,307)	(220,404)	556,281
Net increase (decrease) in net assets resulting from capital transactions	(655,240)	(3,207,294)	(145,535)	(358,988)	(2,706,175)	(1,574,496)	(2,318,985)	(961,540)
Total increase (decrease)	1,710,690	450,789	14,315	(469,048)	(3,242,431)	(218,753)	(977,080)	2,054,078
NET ASSETS, at beginning of the year	19,582,090	32,594,095	1,988,167	6,771,474	14,181,904	11,544,579	13,391,320	7,407,278
NET ASSETS, at end of the year	\$ 21,292,780	\$ 33,044,884	\$ 2,002,482	\$ 6,302,426	\$ 10,939,473	\$ 11,325,826	\$ 12,414,240	\$ 9,461,356

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2020

	Invesco V.I. Technology Sub-Account (Series II)	Ivy VIP Asset Strategy Sub-Account	MML Aggressive Allocation Sub-Account (Initial Class)	MML Aggressive Allocation Sub-Account (Service Class)	MML American Funds Core Allocation Sub-Account	MML American Funds Growth Sub-Account	MML American Funds International Sub-Account	MML Balanced Allocation Sub-Account (Initial Class)
Investment income								
Dividends	\$ -	\$ 243,495	\$ 573,501	\$ 1,179,859	\$ 15,905,441	\$ 1,513,959	\$ 564,967	\$ 2,454,424
Expenses								
Mortality and expense risk fee and administrative charges	144,036	159,381	420,724	1,055,661	12,140,262	2,679,171	694,987	1,197,213
Net Investment income (loss)	(144,036)	84,114	152,777	124,198	3,765,179	(1,165,212)	(130,020)	1,257,211
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	1,500,816	5,940	(961,653)	(5,432,728)	(243,425)	9,032,971	(1,806,686)	(4,863,657)
Realized gain distribution	1,084,374	202,005	2,434,256	5,961,284	49,646,431	21,964,901	3,130,525	3,233,179
Realized gain (loss)	2,585,190	207,945	1,472,603	528,556	49,403,006	30,997,872	1,323,839	(1,630,478)
Change in net unrealized appreciation/ depreciation of investments	1,689,258	1,169,392	2,291,322	8,649,520	31,117,487	59,062,610	5,284,257	7,955,906
Net gain (loss) on investments	4,274,448	1,377,337	3,763,925	9,178,076	80,520,493	90,060,482	6,608,096	6,325,428
Net increase (decrease) in net assets resulting from operations	4,130,412	1,461,451	3,916,702	9,302,274	84,285,672	88,895,270	6,478,076	7,582,639
Capital transactions:								
Transfer of net premiums	97,486	1,044,049	592,241	2,335,373	17,078,306	11,121,431	1,674,170	311,877
Transfers due to death benefits	(4,500)	(96,142)	(214,845)	(1,546,194)	(4,349,251)	(902,395)	(321,865)	(862,295)
Transfers due to annuity benefit payments	(58)	-	-	-	(35,238)	(12,319)	-	(216,246)
Transfers due to withdrawal of funds	(2,287,199)	(1,175,258)	(5,166,688)	(12,115,062)	(121,664,086)	(25,285,087)	(7,531,978)	(25,536,172)
Transfers due to loans, net of repayments	-	-	24,067	-	6,285	14,924	9,862	(32,446)
Transfers due to cost of insurance	(4,066)	2,131	(83,203)	(61,439)	(5,724,751)	(574,558)	(226,801)	(588,963)
Transfers due to contingent deferred sales charges	-	-	(5)	-	-	-	-	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	(347)	-	-	-	5,904	(24,153)	-	(25,817)
Transfers between Sub-Accounts and to/from Fixed Account	1,093,164	(369,033)	(2,988,698)	48,981	(28,794,470)	(15,225,807)	(2,771,294)	3,352,143
Net increase (decrease) in net assets resulting from capital transactions	(1,105,520)	(594,253)	(7,837,131)	(11,338,341)	(143,477,301)	(30,887,964)	(9,167,906)	(23,597,919)
Total increase (decrease)	3,024,892	867,198	(3,920,429)	(2,036,067)	(59,191,629)	58,007,306	(2,689,830)	(16,015,280)
NET ASSETS, at beginning of the year	10,156,434	12,403,360	37,508,768	95,636,402	989,500,489	191,745,889	61,510,006	99,026,168
NET ASSETS, at end of the year	\$ 13,181,326	\$ 13,270,558	\$ 33,588,339	\$ 93,600,335	\$ 930,308,860	\$ 249,753,195	\$ 58,820,176	\$ 83,010,888

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2020

	MML Balanced Allocation Sub-Account (Service Class)	MML Blend Sub-Account (Initial Class)	MML Blend Sub-Account (Service Class)	MML Blue Chip Growth Sub-Account (Initial Class)	MML Blue Chip Growth Sub-Account (Service Class)	MML Conservative Allocation Sub-Account (Initial Class)	MML Conservative Allocation Sub-Account (Service Class)	MML Dynamic Bond Sub-Account (Service Class I)
Investment income								
Dividends	\$ 9,184,783	\$ -	\$ -	\$ -	\$ -	\$ 1,961,221	\$ 7,902,848	\$ 38,159
Expenses								
Mortality and expense risk fee and administrative charges	4,950,616	727,851	2,098,960	699,208	1,990,475	940,240	4,221,451	135,495
Net Investment income (loss)	4,234,167	(727,851)	(2,098,960)	(699,208)	(1,990,475)	1,020,981	3,681,397	(97,336)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(14,039,466)	1,582,968	(146,129)	2,613,420	2,263,299	(684,695)	(6,449,105)	2,351
Realized gain distribution	13,440,374	2,657,314	7,363,875	4,992,911	14,108,057	2,089,319	9,264,320	-
Realized gain (loss)	(599,092)	4,240,282	7,217,746	7,606,331	16,371,356	1,404,624	2,815,215	2,351
Change in net unrealized appreciation/ depreciation of investments	28,374,634	3,130,351	13,549,436	10,177,219	30,387,676	4,196,494	20,748,401	334,065
Net gain (loss) on investments	27,775,542	7,370,633	20,767,182	17,783,550	46,759,032	5,601,118	23,563,616	336,416
Net increase (decrease) in net assets resulting from operations	32,009,709	6,642,782	18,668,222	17,084,342	44,768,557	6,622,099	27,245,013	239,080
Capital transactions:								
Transfer of net premiums	15,804,694	403,389	14,002,423	671,307	14,654,393	979,900	14,216,941	1,811,288
Transfers due to death benefits	(2,817,835)	(1,543,685)	(953,676)	(587,552)	(874,301)	(1,311,367)	(2,128,188)	(29,784)
Transfers due to annuity benefit payments	(748)	(246,627)	-	(449,042)	(162)	(16,714)	-	-
Transfers due to withdrawal of funds	(61,877,451)	(5,359,739)	(10,485,842)	(7,594,052)	(11,491,986)	(57,485,898)	(105,137,283)	(316,614)
Transfers due to loans, net of repayments	-	24,990	-	3,330	-	332	-	-
Transfers due to cost of insurance	(1,641,221)	(87,842)	(38,065)	(95,980)	(43,970)	(471,348)	(1,271,216)	-
Transfers due to contingent deferred sales charges	-	(872)	-	(433)	-	(9)	-	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	56,595	-	22,166	(975)	3,248	-	-
Transfers between Sub-Accounts and to/from Fixed Account	(17,214,650)	2,154,655	2,653,482	(515,122)	(2,659,936)	53,015,936	92,491,649	604,942
Net increase (decrease) in net assets resulting from capital transactions	(67,747,211)	(4,599,136)	5,178,322	(8,545,378)	(416,937)	(5,285,920)	(1,828,097)	2,069,832
Total increase (decrease)	(35,737,502)	2,043,646	23,846,544	8,538,964	44,351,620	1,336,179	25,416,916	2,308,912
NET ASSETS, at beginning of the year	408,910,548	62,980,806	161,858,732	56,366,432	137,333,697	74,794,028	312,722,144	10,144,350
NET ASSETS, at end of the year	\$ 373,173,046	\$ 65,024,452	\$ 185,705,276	\$ 64,905,396	\$ 181,685,317	\$ 76,130,207	\$ 338,139,060	\$ 12,453,262

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued) For The Year Ended December 31, 2020

	MML Equity Sub-Account (Initial Class)	MML Equity Sub-Account (Service Class)	MML Equity Income Sub-Account (Initial Class)	MML Equity Income Sub-Account (Service Class)	MML Equity Index Sub-Account (Class I)	MML Equity Index Sub-Account (Service Class I)	MML Equity Momentum Sub-Account (Service Class I)	MML Equity Rotation Sub-Account (Service Class I)
Investment income								
Dividends	\$ 494,101	\$ 1,837,083	\$ 3,343,656	\$ 1,643,101	\$ 491,663	\$ 613,730	\$ 144	\$ 23,469
Expenses								
Mortality and expense risk fee and administrative charges	262,209	1,102,647	1,710,873	963,033	387,457	529,773	18,310	16,905
Net investment income (loss)	231,892	734,436	1,632,783	680,068	104,206	83,957	(18,166)	6,564
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(514,579)	(3,604,074)	(9,567,610)	(5,909,073)	1,312,657	1,507,291	27,846	8,407
Realized gain distribution	2,399,290	10,037,569	9,568,072	5,294,534	7,120,435	10,485,053	192,206	29,940
Realized gain (loss)	1,884,711	6,433,495	462	(614,539)	8,433,092	11,992,344	220,052	38,347
Change in net unrealized appreciation/ depreciation of investments	(2,019,460)	(5,723,865)	(255,045)	9,508	(3,896,364)	(5,662,509)	113,790	295,370
Net gain (loss) on investments	(134,749)	709,630	(254,583)	(605,031)	4,536,728	6,329,835	333,842	333,717
Net increase (decrease) in net assets resulting from operations	97,143	1,444,066	1,378,200	75,037	4,640,934	6,413,792	315,676	340,281
Capital transactions:								
Transfer of net premiums	186,159	4,433,683	879,502	3,300,651	331,117	303,099	29,552	35,783
Transfers due to death benefits	(290,537)	(1,483,499)	(1,368,322)	(423,466)	(556,049)	(275,080)	-	-
Transfers due to annuity benefit payments	(56,520)	-	(309,059)	(128)	(298,062)	-	-	-
Transfers due to withdrawal of funds	(3,419,457)	(11,175,499)	(21,592,335)	(9,193,600)	(3,571,071)	(7,448,636)	(129,055)	(32,053)
Transfers due to loans, net of repayments	15,985	-	4,818	-	(67)	-	-	-
Transfers due to cost of insurance	(49,348)	(342,472)	(453,193)	(316,054)	(18,568)	(144,557)	-	-
Transfers due to contingent deferred sales charges	(125)	-	(172)	-	(217)	-	-	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	4,121	-	110,062	(788)	27,291	-	-	-
Transfers between Sub-Accounts and to/from Fixed Account	18,370	4,405,402	6,290,243	2,519,693	(625,871)	(461,216)	(61,767)	(67,826)
Net increase (decrease) in net assets resulting from capital transactions	(3,591,352)	(4,162,385)	(16,438,456)	(4,113,692)	(4,711,497)	(8,026,390)	(161,270)	(64,096)
Total increase (decrease)	(3,494,209)	(2,718,319)	(15,060,256)	(4,038,655)	(70,563)	(1,612,598)	154,406	276,185
NET ASSETS, at beginning of the year	25,084,965	97,057,943	157,019,262	86,738,940	33,045,075	45,972,770	1,893,686	1,741,305
NET ASSETS, at end of the year	\$ 21,590,756	\$ 94,339,624	\$ 141,959,006	\$ 82,700,285	\$ 32,974,512	\$ 44,360,172	\$ 2,048,092	\$ 2,017,490

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2020

	MML Focused Equity Sub-Account	MML Foreign Sub-Account (Initial Class)	MML Foreign Sub-Account (Service Class)	MML Fundamental Equity Sub-Account	MML Fundamental Value Sub-Account	MML Global Sub-Account (Class I)	MML Global Sub-Account (Service Class I)	MML Global Sub-Account (Class II)
Investment income								
Dividends	\$ 111,489	\$ 3,494,647	\$ 236,635	\$ -	\$ 142,651	\$ 54,689	\$ 146,255	\$ 41,614
Expenses								
Mortality and expense risk fees and administrative charges	216,524	1,455,834	107,089	204,971	163,499	57,488	209,240	50,738
Net Investment income (loss)	(105,035)	2,038,813	129,546	(204,971)	(20,848)	(2,799)	(62,985)	(9,124)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(1,512,399)	(1,406,010)	(666,274)	(794,047)	(864,651)	118,423	(63,385)	78,945
Realized gain distribution	815,027	4,113,265	306,522	2,029,175	1,669,207	193,055	658,822	150,452
Realized gain (loss)	(697,372)	2,707,256	(359,752)	1,235,128	804,556	311,478	595,437	229,397
Change in net unrealized appreciation/ depreciation of investments	2,850,433	1,342,570	496,229	1,868,693	(603,186)	242,081	1,426,151	264,809
Net gain (loss) on investments	2,153,061	4,049,826	136,478	3,103,821	201,370	553,559	2,021,588	494,206
Net increase (decrease) in net assets resulting from operations	2,048,026	6,088,639	266,024	2,898,850	180,522	550,760	1,958,603	485,082
Capital transactions:								
Transfer of net premiums	1,877,283	693,862	165,147	2,035,290	724,517	15,187	1,273,850	66,261
Transfers due to death benefits	(161,590)	(879,967)	(120,908)	-	(109,665)	(16,433)	(63,953)	(101,345)
Transfers due to annuity benefit payments	-	(288,436)	-	(5,886)	-	(31,877)	-	(30)
Transfers due to withdrawal of funds	(1,846,771)	(18,262,985)	(1,442,712)	(927,878)	(1,419,864)	(927,843)	(1,714,396)	(161,360)
Transfers due to loans, net of repayments	75	8,329	-	-	135	-	-	983
Transfers due to cost of insurance	1,299	(435,022)	(20,082)	472	522	(17,235)	(41,111)	-
Transfers due to contingent deferred sales charges	-	(49)	-	-	-	-	-	(107)
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	101,377	-	(8,404)	-	(9,967)	-	4
Transfers between Sub-Accounts and to/from Fixed Account	(640,385)	3,210,920	(343,701)	210,731	439,339	(115,929)	(433,446)	(118,279)
Net increase (decrease) in net assets resulting from capital transactions	(770,089)	(15,851,971)	(1,762,257)	1,304,325	(365,016)	(1,104,097)	(979,056)	(313,873)
Total increase (decrease)	1,277,937	(9,763,332)	(1,496,233)	4,203,175	(184,494)	(553,337)	979,547	171,209
NET ASSETS, at beginning of the year	17,679,923	128,108,301	9,815,416	14,803,275	15,050,102	5,717,821	17,104,721	4,316,103
NET ASSETS, at end of the year	\$ 18,957,860	\$ 118,344,969	\$ 8,319,183	\$ 19,006,450	\$ 14,865,608	\$ 5,164,484	\$ 18,084,268	\$ 4,487,312

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2020

	MML Growth & Income Sub-Account (Initial Class)	MML Growth & Income Sub-Account (Service Class)	MML Growth Allocation Sub-Account (Initial Class)	MML Growth Allocation Sub-Account (Service Class)	MML High Yield Sub-Account	MML Income & Growth Sub-Account (Initial Class)	MML Income & Growth Sub-Account (Service Class)	MML Inflation- Protected and Income Sub-Account (Initial Class)
Investment income								
Dividends	\$ 610,571	\$ 318,699	\$ 9,829,049	\$ 16,342,725	\$ 9,851	\$ 405,219	\$ 452,593	\$ 143,457
Expenses								
Mortality and expense risk fees and administrative charges	716,750	557,818	5,934,671	10,709,684	506,821	236,039	317,632	1,644,202
Net Investment income (loss)	(106,179)	(239,119)	3,894,378	5,633,041	(496,970)	169,180	134,961	(1,500,745)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	6,754,506	2,328,425	(36,377,012)	(58,704,285)	(762,433)	(684,589)	(2,140,181)	1,175,792
Realized gain distribution	4,848,013	3,335,341	29,330,178	55,942,227	-	57,035	73,434	-
Realized gain (loss)	11,602,519	5,663,766	(7,046,834)	(2,762,058)	(762,433)	(627,554)	(2,066,747)	1,175,792
Change in net unrealized appreciation/ depreciation of investments	(3,133,875)	325,252	46,364,299	80,243,355	2,629,248	589,092	2,001,019	11,503,768
Net gain (loss) on investments	8,468,644	5,989,018	39,317,465	77,481,297	1,866,815	(38,462)	(65,728)	12,679,560
Net increase (decrease) in net assets resulting from operations	8,362,465	5,749,899	43,211,843	83,114,338	1,369,845	130,718	69,234	11,178,815
Capital transactions:								
Transfer of net premiums	395,512	3,512,819	3,626,243	13,561,246	3,087,289	281,481	1,347,941	950,456
Transfers due to death benefits	(1,077,026)	(230,858)	(1,357,734)	(4,888,600)	(237,225)	(209,420)	(116,848)	(1,668,092)
Transfers due to annuity benefit payments	(45,640)	-	-	-	(546)	(76,672)	-	(415,663)
Transfers due to withdrawal of funds	(7,117,344)	(3,931,359)	(132,405,262)	(191,647,465)	(3,382,889)	(2,303,296)	(3,079,953)	(25,069,004)
Transfers due to loans, net of repayments	6,851	-	35,144	-	3,262	2,900	-	12,229
Transfers due to cost of insurance	(85,951)	(60,152)	(3,756,204)	(4,924,820)	2,353	(31,742)	(30,338)	(467,565)
Transfers due to contingent deferred sales charges	(329)	-	(191)	-	-	(324)	-	(30)
Transfers due to net charge (credit) to annuitant mortality fluctuation	14,956	-	-	-	239	9,401	-	90,271
Transfers between Sub-Accounts and to/from Fixed Account	(2,285,027)	(1,242,079)	(29,972,914)	(85,366,751)	(1,388,937)	(306,256)	(619,559)	9,231,835
Net increase (decrease) in net assets resulting from capital transactions	(10,193,998)	(1,951,629)	(163,830,918)	(273,266,390)	(1,916,454)	(2,633,928)	(2,498,757)	(17,335,563)
Total increase (decrease)	(1,831,533)	3,798,270	(120,619,075)	(190,152,052)	(546,609)	(2,503,210)	(2,429,523)	(6,156,748)
NET ASSETS, at beginning of the year	73,362,599	45,996,901	514,011,956	978,800,276	43,189,753	24,198,302	29,439,298	137,121,414
NET ASSETS, at end of the year	\$ 71,531,066	\$ 49,795,171	\$ 393,392,881	\$ 788,648,224	\$ 42,643,144	\$ 21,695,092	\$ 27,009,775	\$ 130,964,666

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2020

	MML Inflation- Protected and Income Sub-Account (Service Class)	MML International Equity Sub-Account	MML Large Cap Growth Sub-Account (Initial Class)	MML Large Cap Growth Sub-Account (Service Class)	MML Managed Bond Sub-Account (Initial Class)	MML Managed Bond Sub-Account (Service Class)	MML Managed Volatility Sub-Account (Initial Class)	MML Managed Volatility Sub-Account (Service Class)
Investment income								
Dividends	\$ 51,184	\$ 180,546	\$ 54,131	\$ 30,950	\$ 106,933	\$ 244,955	\$ 1,261,730	\$ 317,733
Expenses								
Mortality and expense risk fees and administrative charges	578,271	68,737	174,665	240,571	1,389,568	3,244,733	1,162,620	361,420
Net investment income (loss)	(527,087)	111,809	(120,534)	(209,621)	(1,282,635)	(2,999,778)	99,110	(43,687)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	550,477	(505,042)	109,185	333,827	962,544	973,433	(1,335,757)	(680,056)
Realized gain distribution	-	171,435	734,836	877,134	-	-	-	-
Realized gain (loss)	550,477	(333,607)	844,021	1,210,961	962,544	973,433	(1,335,757)	(680,056)
Change in net unrealized appreciation/ depreciation of investments	3,915,603	550,600	3,652,163	4,012,144	6,875,643	16,502,588	4,951,983	1,938,274
Net gain (loss) on investments	4,466,080	216,993	4,496,184	5,223,105	7,838,187	17,476,021	3,616,226	1,258,218
Net increase (decrease) in net assets resulting from operations	3,938,993	328,802	4,375,650	5,013,484	6,555,552	14,476,243	3,715,336	1,214,531
Capital transactions:								
Transfer of net premiums	2,142,964	557,891	326,097	2,399,865	1,014,488	7,967,302	688,268	771,652
Transfers due to death benefits	(292,511)	(54,801)	(432,479)	(92,455)	(1,871,119)	(1,709,009)	(732,987)	(177,289)
Transfers due to annuity benefit payments	(143)	-	(123,025)	-	(357,053)	(186)	(216,033)	-
Transfers due to withdrawal of funds	(8,728,239)	(570,897)	(1,954,907)	(1,545,218)	(27,928,878)	(37,410,465)	(15,225,348)	(5,058,370)
Transfers due to loans, net of repayments	-	-	3,714	-	6,345	-	13,349	-
Transfers due to cost of insurance	(101,411)	191	(20,362)	(5,766)	(340,095)	(1,253,471)	(361,647)	(125,537)
Transfers due to contingent deferred sales charges	-	-	(186)	-	(176)	(71)	(287)	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	(847)	-	2,444	-	155,870	(1,107)	69,646	-
Transfers between Sub-Accounts and to/from Fixed Account	6,003,620	(70,846)	(525,880)	67,869	19,362,493	24,004,932	4,061,114	(311,960)
Net increase (decrease) in net assets resulting from capital transactions	(976,568)	(138,462)	(2,724,584)	824,295	(9,958,126)	(8,402,075)	(11,703,925)	(4,901,504)
Total increase (decrease)	2,962,425	190,340	1,651,066	5,837,779	(3,402,574)	6,074,168	(7,988,589)	(3,686,973)
NET ASSETS, at beginning of the year	43,237,327	6,643,432	15,827,567	16,390,792	117,808,474	260,703,020	101,210,212	30,590,858
NET ASSETS, at end of the year	\$ 46,199,752	\$ 6,833,772	\$ 17,478,633	\$ 22,228,571	\$ 114,405,900	\$ 266,777,188	\$ 93,221,623	\$ 26,903,885

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued) For The Year Ended December 31, 2020

	MML Mid Cap Growth Sub-Account (Initial Class)	MML Mid Cap Growth Sub-Account (Service Class)	MML Mid Cap Value Sub-Account (Initial Class)	MML Mid Cap Value Sub-Account (Service Class)	MML Moderate Allocation Sub-Account (Initial Class)	MML Moderate Allocation Sub-Account (Service Class)	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account (Initial Class)
Investment income								
Dividends	\$ 62,150	\$ -	\$ 2,299,399	\$ 737,517	\$ 6,979,627	\$ 35,189,855	\$ 81	\$ 124,436
Expenses								
Mortality and expense risk fees and administrative charges	919,811	1,344,574	1,581,886	598,749	3,453,280	20,419,613	422,721	263,146
Net Investment income (loss)	(857,661)	(1,344,574)	717,513	138,768	3,526,347	14,770,242	(422,640)	(138,710)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	1,184,077	(1,056,477)	(7,551,226)	(2,202,680)	(11,778,568)	(44,321,025)	(244,636)	(591,926)
Realized gain distribution	7,619,607	10,615,548	-	-	12,971,783	73,504,537	-	223,302
Realized gain (loss)	8,803,684	9,559,071	(7,551,226)	(2,202,680)	1,193,215	29,183,512	(244,636)	(368,624)
Change in net unrealized appreciation/ depreciation of investments	10,021,075	15,274,250	8,214,495	2,194,081	15,322,789	79,597,270	785,424	4,876,989
Net gain (loss) on investments	18,824,759	24,833,321	663,270	(8,599)	16,516,004	108,780,782	540,789	4,508,365
Net increase (decrease) in net assets resulting from operations	17,967,098	23,488,747	1,380,783	130,169	20,042,351	123,551,024	118,149	4,369,655
Capital transactions:								
Transfer of net premiums	852,411	4,847,398	857,283	2,322,306	1,990,550	24,098,436	3,053,614	308,128
Transfers due to death benefits	(545,468)	(1,019,057)	(1,004,043)	(151,110)	(1,694,201)	(9,383,841)	(153,270)	(130,285)
Transfers due to annuity benefit payments	(192,136)	-	(337,244)	-	-	(187)	(5,443)	(26,420)
Transfers due to withdrawal of funds	(7,650,653)	(11,067,418)	(18,523,734)	(4,806,389)	(83,715,445)	(252,298,517)	(13,319,863)	(2,906,233)
Transfers due to loans, net of repayments	15,210	-	16,287	-	52,596	-	-	2,385
Transfers due to cost of insurance	(94,939)	(179,554)	(387,037)	(108,613)	(2,054,550)	(9,219,729)	(3,711)	(29,251)
Transfers due to contingent deferred sales charges	(1,371)	-	(1,305)	-	(5)	-	-	(305)
Transfers due to net charge (credit) to annuitant mortality fluctuation	(18,134)	-	100,322	-	-	(315)	3,628	(156)
Transfers between Sub-Accounts and to/from Fixed Account	(3,975,630)	(7,083,799)	6,099,542	660,587	(10,316,624)	(53,427,740)	22,406,133	(1,038,646)
Net increase (decrease) in net assets resulting from capital transactions	(11,610,710)	(14,502,430)	(13,179,929)	(2,083,219)	(95,737,679)	(300,231,893)	11,981,089	(3,820,783)
Total increase (decrease)	6,356,388	8,986,317	(11,799,146)	(1,953,050)	(75,695,328)	(176,680,869)	12,099,237	548,872
NET ASSETS, at beginning of the year	83,592,878	108,799,560	144,980,289	53,222,998	310,792,789	1,752,110,801	32,173,643	26,710,657
NET ASSETS, at end of the year	\$ 89,949,266	\$ 117,785,877	\$ 133,181,143	\$ 51,269,948	\$ 235,097,461	\$ 1,575,429,932	\$ 44,272,880	\$ 27,259,529

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2020

	MML Small Cap Equity Sub-Account (Service Class)	MML Small Cap Growth Equity Sub-Account (Initial Class)	MML Small Cap Growth Equity Sub-Account (Service Class)	MML Small Company Value Sub-Account	MML Small/Mid Cap Value Sub-Account (Initial Class)	MML Small/Mid Cap Value Sub-Account (Service Class)	MML Special Situations Sub-Account (Service Class I)	MML Strategic Emerging Markets Sub-Account
Investment income								
Dividends	\$ 62,292	\$ -	\$ -	\$ 13,885	\$ 1,015,721	\$ 166,203	\$ 196	\$ 29,231
Expenses								
Mortality and expense risk fees and administrative charges	264,734	1,117,083	317,174	276,647	1,179,713	252,169	7,682	177,425
Net investment income (loss)	(202,442)	(1,117,083)	(317,174)	(262,762)	(163,992)	(85,966)	(7,486)	(148,194)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(644,904)	2,784,341	(367,806)	(1,360,940)	(7,720,193)	(2,178,860)	27,338	763,451
Realized gain distribution	206,796	10,878,120	3,402,966	1,174,511	4,199,225	913,591	107,618	409,015
Realized gain (loss)	(438,108)	13,662,461	3,035,160	(186,429)	(3,520,968)	(1,265,269)	134,956	1,172,466
Change in net unrealized appreciation/ depreciation of investments	4,801,749	15,663,756	5,352,138	2,424,334	10,922,813	2,198,420	75,779	1,182,854
Net gain (loss) on investments	4,363,641	29,326,217	8,387,298	2,237,905	7,401,845	933,151	210,735	2,355,320
Net increase (decrease) in net assets resulting from operations	4,161,199	28,209,134	8,070,124	1,975,143	7,237,853	847,185	203,249	2,207,126
Capital transactions:								
Transfer of net premiums	1,929,835	507,134	1,567,145	1,738,580	788,978	1,122,164	3,927	690,398
Transfers due to death benefits	(349,997)	(632,837)	(154,321)	(60,565)	(687,844)	(116,339)	-	(75,198)
Transfers due to annuity benefit payments	-	(213,260)	-	-	(232,787)	-	-	-
Transfers due to withdrawal of funds	(1,835,869)	(13,666,331)	(2,279,492)	(2,309,393)	(14,946,928)	(2,680,002)	(26,235)	(1,598,239)
Transfers due to loans, net of repayments	-	6,626	-	5,753	12,702	-	-	22
Transfers due to cost of insurance	(8,640)	(318,807)	(28,288)	(11,842)	(324,426)	(37,265)	-	(14,999)
Transfers due to contingent deferred sales charges	-	(226)	-	-	(7)	-	-	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	70,841	-	-	69,834	-	-	-
Transfers between Sub-Accounts and to/from Fixed Account	(1,246,230)	(17,715,045)	(2,036,515)	(453,096)	77,983	(130,043)	(66,226)	(732,958)
Net increase (decrease) in net assets resulting from capital transactions	(1,510,901)	(31,961,905)	(2,931,471)	(1,090,563)	(15,242,495)	(1,841,485)	(88,534)	(1,730,974)
Total increase (decrease)	2,650,298	(3,752,771)	5,138,653	884,580	(8,004,642)	(994,300)	114,715	476,152
NET ASSETS, at beginning of the year	22,694,629	94,744,872	26,026,111	24,665,122	105,702,814	23,286,750	835,745	15,739,019
NET ASSETS, at end of the year	\$ 25,344,927	\$ 90,992,101	\$ 31,164,764	\$ 25,549,702	\$ 97,698,172	\$ 22,292,450	\$ 950,460	\$ 16,215,171

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued) For The Year Ended December 31, 2020

	MML Total Return Bond Sub-Account	MML U.S. Government Money Market Sub-Account	PIMCO Commodity RealReturn® Strategy Sub-Account	VY® Clarion Global Real Estate Sub-Account
Investment income				
Dividends	\$ 1,229,618	\$ 175,914	\$ 477,603	\$ 742,132
Expenses				
Mortality and expense risk fees and administrative charges	492,403	1,272,620	95,620	162,251
Net investment income (loss)	737,215	(1,096,706)	381,983	579,881
Net realized and unrealized gain (loss) on investments				
Realized gain (loss) on sale of fund shares	610,725	3,442	(1,373,916)	(692,959)
Realized gain distribution	181,822	-	-	1,090,688
Realized gain (loss)	792,547	3,442	(1,373,916)	397,729
Change in net unrealized appreciation/ depreciation of investments	1,136,855	(3,415)	909,027	(2,096,688)
Net gain (loss) on investments	1,929,402	27	(464,889)	(1,698,959)
Net increase (decrease) in net assets resulting from operations	2,666,617	(1,096,679)	(82,906)	(1,119,078)
Capital transactions:				
Transfer of net premiums	5,611,075	11,978,609	93,165	192,625
Transfers due to death benefits	(280,764)	(509,353)	(32,677)	(81,225)
Transfers due to annuity benefit payments	-	(55,060)	(18,360)	(42,689)
Transfers due to withdrawal of funds	(4,903,961)	(180,003,121)	(1,284,088)	(2,150,747)
Transfers due to loans, net of repayments	2,735	23,654	1,491	(867)
Transfers due to cost of insurance	6,441	(53,103)	(30,854)	(38,175)
Transfers due to contingent deferred sales charges	-	(356)	(6)	(12)
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	14,482	3,609	10,573
Transfers between Sub-Accounts and to/from Fixed Account	12,904,738	237,878,522	(55,757)	49,599
Net increase (decrease) in net assets resulting from capital transactions	13,340,264	69,274,274	(1,323,477)	(2,060,918)
Total increase (decrease)	16,006,881	68,177,595	(1,406,383)	(3,179,996)
NET ASSETS, at beginning of the year	31,973,807	75,534,222	9,033,874	15,751,756
NET ASSETS, at end of the year	\$ 47,980,688	\$ 143,711,817	\$ 7,627,491	\$ 12,571,760

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS

For The Year Ended December 31, 2019

	BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)	Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)
Investment income								
Dividends	\$ 63,619	\$ 1,031,459	\$ 383,073	\$ -	\$ 98,041	\$ 1,436	\$ 155,492	\$ -
Expenses								
Mortality and expense risk fees and administrative charges	15,576	2,831,394	2,252,071	165,124	2,015,235	1,034	78,807	188,124
Net Investment income (loss)	48,043	(1,799,935)	(1,868,998)	(165,124)	(1,917,194)	402	76,685	(188,124)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	21,130	20,486,032	4,165,800	(287,724)	6,138,714	2,285	209,796	20,027
Realized gain distribution	31,781	26,730,567	19,673,650	1,215,071	15,438,471	1,154	110,137	1,950,061
Realized gain (loss)	52,911	47,216,599	23,839,450	927,347	21,577,185	3,439	319,933	1,970,088
Change in net unrealized appreciation/ depreciation of investments	172,192	14,339,328	22,307,326	2,828,645	28,148,314	6,345	642,199	2,552,659
Net gain (loss) on investments	225,103	61,555,927	46,146,776	3,755,992	49,725,499	9,784	962,132	4,522,747
Net increase (decrease) in net assets resulting from operations	273,146	59,755,992	44,277,778	3,590,868	47,808,305	10,186	1,038,817	4,334,623
Capital transactions:								
Transfer of net premiums	2,352,817	2,005,517	20,128,525	258,032	957,594	-	12,626	3,493,349
Transfers due to death benefits	-	(1,287,714)	(988,830)	(160,906)	(1,316,677)	-	(108,365)	(79,387)
Transfers due to annuity benefit payments	-	(639,595)	-	-	(295,422)	-	(7,390)	-
Transfers due to withdrawal of funds	(50,176)	(26,306,517)	(19,660,946)	(1,583,089)	(21,843,667)	(4,505)	(765,392)	(1,646,226)
Transfers due to loans, net of repayments	-	(3,155)	-	-	(2,505)	-	551	-
Transfers due to cost of insurance	-	(651,127)	(147,774)	(13,461)	(545,922)	21	(5,898)	(5,710)
Transfers due to contingent deferred sales charges	-	(1,040)	-	-	(377)	-	(83)	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	97,460	-	-	83,973	-	2,932	-
Transfers between Sub-Accounts and to/from Fixed Account	(51,014)	(13,001,508)	(2,267,590)	(228,902)	(14,225,111)	(1)	(19,821)	746,734
Net increase (decrease) in net assets resulting from capital transactions	2,251,627	(39,787,679)	(2,936,615)	(1,728,326)	(37,188,114)	(4,485)	(890,840)	2,508,760
Total increase (decrease)	2,524,773	19,968,313	41,341,163	1,862,542	10,620,191	5,701	147,977	6,843,383
NET ASSETS, at beginning of the year	1,051,057	212,143,084	150,211,346	11,026,041	150,727,803	66,010	6,725,065	11,178,908
NET ASSETS, at end of the year	\$ 3,575,830	\$ 232,111,397	\$ 191,552,509	\$ 12,888,583	\$ 161,347,994	\$ 71,711	\$ 6,873,042	\$ 18,022,291

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)	Invesco Oppenheimer V.I. Government Money Sub-Account	Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)
Investment income								
Dividends	\$ -	\$ 424,340	\$ 1,558,872	\$ 2,446,735	\$ 6,649,244	\$ 122,182	\$ 181,114	\$ 337,841
Expenses								
Mortality and expense risk fees and administrative charges	1,371,376	857,020	2,124,329	925,238	2,193,467	80,722	321,450	379,862
Net investment income (loss)	(1,371,376)	(432,680)	(565,457)	1,521,497	4,455,777	41,460	(140,336)	(42,021)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	13,318,154	1,443,645	14,304,507	(1,109,341)	(3,142,770)	-	422,436	1,473,017
Realized gain distribution	13,843,266	9,583,142	24,623,412	-	-	-	1,252,186	1,656,553
Realized gain (loss)	27,161,420	11,026,787	38,927,919	(1,109,341)	(3,142,770)	-	1,674,622	3,129,570
Change in net unrealized appreciation/ depreciation of investments	8,693,739	6,457,530	7,534,847	5,915,099	14,432,197	-	4,435,578	4,578,494
Net gain (loss) on investments	35,855,159	17,484,317	46,462,766	4,805,758	11,289,427	-	6,110,200	7,708,064
Net increase (decrease) in net assets resulting from operations	34,483,783	17,051,637	45,897,309	6,327,255	15,745,204	41,460	5,969,864	7,666,043
Capital transactions:								
Transfer of net premiums	846,960	3,998,368	1,343,993	4,106,953	1,382,765	465,601	1,607,203	270,377
Transfers due to death benefits	(780,422)	(402,402)	(1,130,674)	(316,017)	(1,870,164)	(132,243)	(149,846)	(177,061)
Transfers due to annuity benefit payments	(212,706)	-	(325,379)	-	(341,262)	(9,447)	-	(79,400)
Transfers due to withdrawal of funds	(14,669,535)	(7,102,098)	(19,812,113)	(8,139,311)	(22,400,256)	(1,877,281)	(3,043,515)	(3,166,155)
Transfers due to loans, net of repayments	19,201	-	721	-	(479)	6,721	-	(359)
Transfers due to cost of insurance	(379,813)	(168,620)	(459,844)	(262,142)	(675,617)	14,157	(61,880)	(115,825)
Transfers due to contingent deferred sales charges	(150)	-	(663)	-	(546)	(415)	-	(237)
Transfers due to net charge (credit) to annuitant mortality fluctuation	58,468	-	94,020	-	93,073	2,847	-	17,347
Transfers between Sub-Accounts and to/from Fixed Account	(12,360,018)	(1,841,257)	(10,595,545)	3,005,528	9,654,837	714,026	(985,075)	(1,690,800)
Net increase (decrease) in net assets resulting from capital transactions	(27,478,015)	(5,516,009)	(30,885,484)	(1,604,989)	(14,157,649)	(816,034)	(2,633,113)	(4,942,113)
Total increase (decrease)	7,005,768	11,535,628	15,011,825	4,722,266	1,587,555	(774,574)	3,336,751	2,723,930
NET ASSETS, at beginning of the year	99,470,922	58,317,027	161,039,139	70,206,556	173,249,673	7,836,332	23,629,838	30,045,032
NET ASSETS, at end of the year	\$ 106,476,690	\$ 69,852,655	\$ 176,050,964	\$ 74,928,822	\$ 174,837,228	\$ 7,061,758	\$ 26,966,589	\$ 32,768,962

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)	Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)	Invesco Oppenheimer V.I. Total Return Bond Sub-Account	Invesco V.I. Diversified Dividend Sub-Account (Series I)	Invesco V.I. Diversified Dividend Sub-Account (Series II)	Invesco V.I. Health Care Sub-Account (Series I)	Invesco V.I. Health Care Sub-Account (Series II)	Invesco V.I. Technology Sub-Account (Series I)
Investment income								
Dividends	\$ 144,284	\$ 339,072	\$ 69,198	\$ 194,279	\$ 384,177	\$ 4,470	\$ -	\$ -
Expenses								
Mortality and expense risk fees and administrative charges	223,032	355,970	27,243	74,454	201,762	119,524	162,048	79,523
Net investment income (loss)	(78,748)	(16,898)	41,955	119,825	182,415	(115,054)	(162,048)	(79,523)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(81,269)	2,031,625	(72,863)	354,836	560,348	14,228	(1,048,946)	371,991
Realized gain distribution	2,862,220	5,104,342	-	360,544	781,526	248,462	311,373	600,781
Realized gain (loss)	2,780,951	7,135,967	(72,863)	715,380	1,341,874	262,690	(737,573)	972,772
Change in net unrealized appreciation/ depreciation of investments	1,782,839	1,265,119	193,430	582,389	1,633,360	2,701,215	4,223,352	1,127,027
Net gain (loss) on investments	4,563,790	8,401,086	120,567	1,297,769	2,975,234	2,963,905	3,485,779	2,099,799
Net increase (decrease) in net assets resulting from operations	4,485,042	8,384,188	162,522	1,417,594	3,157,649	2,848,851	3,323,731	2,020,276
Capital transactions:								
Transfer of net premiums	1,615,212	207,202	-	135,299	163,728	185,100	219,770	126,743
Transfers due to death benefits	(64,820)	(246,034)	(49,227)	(69,543)	(36,521)	(100,551)	(52,250)	(80,759)
Transfers due to annuity benefit payments	-	(17,022)	-	(22,395)	-	(36,727)	-	(13,965)
Transfers due to withdrawal of funds	(1,435,312)	(3,079,307)	(167,887)	(482,620)	(3,879,312)	(999,953)	(1,983,721)	(709,263)
Transfers due to loans, net of repayments	-	13,983	-	(570)	-	(4,969)	-	815
Transfers due to cost of insurance	(3,949)	(31,480)	-	(6,633)	(2,293)	(15,284)	(6,033)	(11,513)
Transfers due to contingent deferred sales charges	-	(337)	(31)	(6)	-	(165)	-	(84)
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	4,303	-	4,519	-	7,858	-	5,546
Transfers between Sub-Accounts and to/from Fixed Account	309,564	(1,631,978)	(29,862)	(464,336)	(204,922)	(25,105)	161,302	26,038
Net increase (decrease) in net assets resulting from capital transactions	420,695	(4,780,670)	(247,007)	(906,285)	(3,959,320)	(989,796)	(1,660,932)	(656,442)
Total increase (decrease)	4,905,737	3,603,518	(84,485)	511,309	(801,671)	1,859,055	1,662,799	1,363,834
NET ASSETS, at beginning of the year	14,676,353	28,990,577	2,072,652	6,260,165	14,983,575	9,685,524	11,728,521	6,043,444
NET ASSETS, at end of the year	\$ 19,582,090	\$ 32,594,095	\$ 1,988,167	\$ 6,771,474	\$ 14,181,904	\$ 11,544,579	\$ 13,391,320	\$ 7,407,278

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	Invesco V.I. Technology Sub-Account (Series II)	Ivy VIP Asset Strategy Sub-Account	MML Aggressive Allocation Sub-Account (Initial Class)	MML Aggressive Allocation Sub-Account (Service Class)	MML American Funds Core Allocation Sub-Account	MML American Funds Growth Sub-Account	MML American Funds International Sub-Account	MML Asset Momentum Sub-Account (Service Class I)
Investment income								
Dividends	\$ -	\$ 252,128	\$ 701,564	\$ 1,532,835	\$ 23,331,103	\$ 566,898	\$ 1,620,351	\$ 11,125
Expenses								
Mortality and expense risk fees and administrative charges	134,886	160,806	433,410	1,105,512	13,092,232	2,313,930	761,627	16,385
Net investment income (loss)	(134,886)	91,322	268,154	427,323	10,238,871	(1,747,032)	858,724	(5,260)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	709,623	(247,527)	(235,566)	(1,570,531)	12,980,725	1,672,272	510,970	13,151
Realized gain distribution	901,658	480,737	3,182,935	7,977,684	69,255,848	22,925,352	2,987,202	82,458
Realized gain (loss)	1,611,281	233,210	2,947,369	6,407,153	82,236,573	24,597,624	3,498,172	95,609
Change in net unrealized appreciation/ depreciation of investments	1,459,573	1,843,362	3,765,968	10,968,570	56,642,518	21,658,126	6,690,165	399,315
Net gain (loss) on investments	3,070,854	2,076,572	6,713,337	17,375,723	138,879,091	46,255,750	10,188,337	494,924
Net increase (decrease) in net assets resulting from operations	2,935,968	2,167,894	6,981,491	17,803,046	149,117,962	44,508,718	11,047,061	489,664
Capital transactions:								
Transfer of net premiums	89,531	887,307	915,247	5,042,933	27,613,079	15,223,124	2,454,248	51,199
Transfers due to death benefits	(5,090)	(68,520)	(10,572)	(377,679)	(6,184,778)	(1,092,483)	(241,490)	-
Transfers due to annuity benefit payments	-	-	-	-	(31,165)	-	-	-
Transfers due to withdrawal of funds	(2,168,617)	(1,586,502)	(2,848,186)	(7,817,189)	(120,703,201)	(18,770,012)	(5,897,403)	(108,009)
Transfers due to loans, net of repayments	-	-	(16,185)	-	14,964	(22,550)	1,705	-
Transfers due to cost of insurance	(3,865)	1,624	(99,361)	(68,304)	(6,271,281)	(600,221)	(257,470)	-
Transfers due to contingent deferred sales charges	-	-	(5)	-	-	-	-	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	-	-	-	5,696	-	-	-
Transfers between Sub-Accounts and to/from Fixed Account	(257,207)	(122,301)	1,501,250	(2,134,615)	961,143	(5,959,275)	(199,607)	80,219
Net increase (decrease) in net assets resulting from capital transactions	(2,345,248)	(888,392)	(557,812)	(5,354,854)	(104,595,543)	(11,221,417)	(4,140,017)	23,409
Total increase (decrease)	590,720	1,279,502	6,423,679	12,448,192	44,522,419	33,287,301	6,907,044	513,073
NET ASSETS, at beginning of the year	9,565,714	11,123,858	31,085,089	83,188,210	944,978,070	158,458,588	54,602,962	1,380,613
NET ASSETS, at end of the year	\$ 10,156,434	\$ 12,403,360	\$ 37,508,768	\$ 95,636,402	\$ 989,500,489	\$ 191,745,889	\$ 61,510,006	\$ 1,893,686

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	MML Balanced Allocation Sub-Account (Initial Class)	MML Balanced Allocation Sub-Account (Service Class)	MML Blend Sub-Account (Initial Class)	MML Blend Sub-Account (Service Class)	MML Blue Chip Growth Sub-Account (Initial Class)	MML Blue Chip Growth Sub-Account (Service Class)	MML Conservative Allocation Sub-Account (Initial Class)	MML Conservative Allocation Sub-Account (Service Class)
Investment income								
Dividends	\$ 2,487,669	\$ 9,417,853	\$ 1,477,989	\$ 3,100,730	\$ -	\$ -	\$ 1,978,322	\$ 7,830,240
Expenses								
Mortality and expense risk fees and administrative charges	1,257,566	5,351,668	727,089	1,813,433	647,645	1,566,365	911,282	4,261,074
Net Investment income (loss)	1,230,103	4,066,185	750,900	1,287,297	(647,645)	(1,566,365)	1,067,040	3,569,166
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(1,778,522)	(7,423,221)	1,057,206	(73,179)	405,776	(348,578)	(1,662,609)	(7,575,750)
Realized gain distribution	4,474,621	18,903,620	3,001,460	6,623,292	7,087,372	16,705,052	2,740,736	12,038,400
Realized gain (loss)	2,696,099	11,480,399	4,058,666	6,550,113	7,493,148	16,356,474	1,078,127	4,462,650
Change in net unrealized appreciation/ depreciation of investments	9,658,376	41,306,061	6,115,051	16,815,310	6,405,103	13,746,567	7,402,973	31,647,572
Net gain (loss) on investments	12,354,475	52,786,460	10,173,717	23,365,423	13,898,251	30,103,041	8,481,100	36,110,222
Net increase (decrease) in net assets resulting from operations	13,584,578	56,852,645	10,924,617	24,652,720	13,250,606	28,536,676	9,548,140	39,679,388
Capital transactions:								
Transfer of net premiums	822,191	23,585,504	704,086	28,306,885	599,469	17,920,830	913,574	16,370,995
Transfers due to death benefits	(1,059,605)	(5,526,818)	(811,623)	(759,035)	(397,075)	(594,311)	(435,446)	(4,488,827)
Transfers due to annuity benefit payments	-	-	(164,737)	-	(103,503)	-	(12,388)	-
Transfers due to withdrawal of funds	(10,426,606)	(56,175,493)	(4,709,066)	(10,775,020)	(5,162,760)	(9,890,716)	(10,938,468)	(51,013,859)
Transfers due to loans, net of repayments	161	-	10,879	-	1,770	-	1,349	-
Transfers due to cost of insurance	(676,653)	(1,975,339)	(97,048)	(47,055)	(96,492)	(50,196)	(507,759)	(1,464,941)
Transfers due to contingent deferred sales charges	-	-	(884)	-	(416)	-	(9)	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	-	18,606	-	24,967	-	3,148	-
Transfers between Sub-Accounts and to/from Fixed Account	5,251,910	1,032,323	528,310	1,874,532	39,107	1,943,125	4,034,277	7,483,468
Net increase (decrease) in net assets resulting from capital transactions	(6,088,602)	(39,059,823)	(4,521,477)	18,600,307	(5,094,933)	9,328,732	(6,941,722)	(33,113,164)
Total increase (decrease)	7,495,976	17,792,822	6,403,140	43,253,027	8,155,673	37,865,408	2,606,418	6,566,224
NET ASSETS, at beginning of the year	91,530,192	391,117,726	56,577,666	118,605,705	48,210,759	99,468,289	72,187,610	306,155,920
NET ASSETS, at end of the year	\$ 99,026,168	\$ 408,910,548	\$ 62,980,806	\$ 161,858,732	\$ 56,366,432	\$ 137,333,697	\$ 74,794,028	\$ 312,722,144

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	MML Dynamic Bond Sub-Account (Service Class I)	MML Equity Sub-Account (Initial Class)	MML Equity Sub-Account (Service Class)	MML Equity Income Sub-Account (Initial Class)	MML Equity Income Sub-Account (Service Class)	MML Equity Index Sub-Account (Class I)	MML Equity Index Sub-Account (Service Class I)	MML Equity Rotation Sub-Account (Service Class I)
Investment income								
Dividends	\$ 274,456	\$ 485,153	\$ 1,676,046	\$ 3,576,268	\$ 1,717,767	\$ 884,171	\$ 1,149,404	\$ 3,009
Expenses								
Mortality and expense risk fees and administrative charges	95,181	296,446	1,200,457	1,961,158	1,075,963	447,557	571,371	16,022
Net investment income (loss)	179,275	188,707	475,589	1,615,110	641,804	436,614	578,033	(13,013)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	1,427	749,881	777,595	5,871,611	(1,050,516)	4,484,017	2,224,443	9,364
Realized gain distribution	-	1,256,784	4,947,171	14,400,377	7,762,803	2,865,640	4,048,456	28,617
Realized gain (loss)	1,427	2,006,665	5,724,766	20,271,988	6,712,287	7,349,657	6,272,899	37,981
Change in net unrealized appreciation/ depreciation of investments	346,144	2,950,898	13,402,010	12,687,501	10,590,788	902,994	4,403,413	199,355
Net gain (loss) on investments	347,571	4,957,563	19,126,776	32,959,489	17,303,075	8,252,651	10,676,312	237,336
Net increase (decrease) in net assets resulting from operations	526,846	5,146,270	19,602,365	34,574,599	17,944,879	8,689,265	11,254,345	224,323
Capital transactions:								
Transfer of net premiums	2,974,296	185,153	6,706,389	1,087,477	4,776,915	471,599	527,775	70,159
Transfers due to death benefits	(45,005)	(158,112)	(412,527)	(1,086,408)	(375,312)	(256,839)	(271,227)	-
Transfers due to annuity benefit payments	-	(53,342)	-	(313,693)	-	(276,703)	-	-
Transfers due to withdrawal of funds	(344,139)	(2,317,806)	(9,491,666)	(19,508,804)	(9,422,654)	(5,842,613)	(4,858,285)	(52,309)
Transfers due to loans, net of repayments	-	16,384	-	253	-	356	-	-
Transfers due to cost of insurance	-	(57,173)	(399,000)	(542,262)	(377,941)	(20,905)	(174,466)	-
Transfers due to contingent deferred sales charges	-	(138)	-	(197)	-	(205)	-	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	18,777	-	92,785	-	36,550	-	-
Transfers between Sub-Accounts and to/from Fixed Account	762,486	346,927	(1,923,228)	(5,876,500)	(1,147,099)	(2,645,108)	(1,330,691)	36,723
Net increase (decrease) in net assets resulting from capital transactions	3,347,638	(2,019,330)	(5,520,032)	(26,147,349)	(6,546,091)	(8,533,868)	(6,106,894)	54,573
Total increase (decrease)	3,874,484	3,126,940	14,082,333	8,427,250	11,398,788	155,397	5,147,451	278,896
NET ASSETS, at beginning of the year	6,269,866	21,958,025	82,975,610	148,592,012	75,340,152	32,889,678	40,825,319	1,462,409
NET ASSETS, at end of the year	\$ 10,144,350	\$ 25,084,965	\$ 97,057,943	\$ 157,019,262	\$ 86,738,940	\$ 33,045,075	\$ 45,972,770	\$ 1,741,305

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	MML Focused Equity Sub-Account	MML Foreign Sub-Account (Initial Class)	MML Foreign Sub-Account (Service Class)	MML Fundamental Growth Sub-Account	MML Fundamental Value Sub-Account	MML Global Sub-Account (Class I)	MML Global Sub-Account (Service Class I)	MML Global Sub-Account (Class II)
Investment income								
Dividends	\$ 6,699	\$ 2,272,943	\$ 144,438	\$ 54,648	\$ 232,145	\$ 37,767	\$ 54,838	\$ 22,489
Expenses								
Mortality and expense risk fees and administrative charges	175,527	1,633,343	122,796	154,034	170,309	63,754	205,129	47,771
Net Investment income (loss)	(168,828)	639,600	21,642	(99,386)	61,836	(25,987)	(150,291)	(25,282)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(2,184,422)	3,539,573	(145,497)	(326,200)	(294,936)	211,854	(142,953)	33,609
Realized gain distribution	337,215	1,885,363	142,048	2,557,420	1,571,320	179,921	500,867	121,283
Realized gain (loss)	(1,847,207)	5,424,936	(3,449)	2,231,220	1,276,384	391,775	357,914	154,892
Change in net unrealized appreciation/ depreciation of investments	5,321,730	7,941,866	1,003,675	1,140,270	1,220,745	1,037,749	3,656,323	783,827
Net gain (loss) on investments	3,474,523	13,366,802	1,000,226	3,371,490	2,497,129	1,429,524	4,014,237	938,719
Net increase (decrease) in net assets resulting from operations	3,305,695	14,006,402	1,021,868	3,272,104	2,558,965	1,403,537	3,863,946	913,437
Capital transactions:								
Transfer of net premiums	3,164,542	941,022	526,877	2,037,236	1,671,731	42,259	1,915,690	86,452
Transfers due to death benefits	-	(923,814)	(154,274)	(7,178)	(106,796)	(48,380)	(18,406)	(20,300)
Transfers due to annuity benefit payments	-	(279,323)	-	(1,461)	-	(24,812)	-	(31)
Transfers due to withdrawal of funds	(1,070,252)	(17,512,310)	(1,087,729)	(772,024)	(1,610,521)	(680,605)	(2,496,196)	(172,591)
Transfers due to loans, net of repayments	212	969	-	21	359	-	-	(142)
Transfers due to cost of insurance	2,442	(511,222)	(24,191)	326	914	(19,424)	(46,045)	-
Transfers due to contingent deferred sales charges	-	(64)	-	-	-	-	-	(121)
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	84,269	-	611	-	10,956	-	2
Transfers between Sub-Accounts and to/from Fixed Account	1,897,869	8,100,781	205,070	293,384	429,042	(47,233)	(99,849)	382,365
Net increase (decrease) in net assets resulting from capital transactions	3,994,813	(10,099,692)	(534,247)	1,550,915	384,729	(767,239)	(744,806)	275,634
Total increase (decrease)	7,300,508	3,906,710	487,621	4,823,019	2,943,694	636,298	3,119,140	1,189,071
NET ASSETS, at beginning of the year	10,379,415	124,201,591	9,327,795	9,980,256	12,106,408	5,081,523	13,985,581	3,127,032
NET ASSETS, at end of the year	\$ 17,679,923	\$ 128,108,301	\$ 9,815,416	\$ 14,803,275	\$ 15,050,102	\$ 5,717,821	\$ 17,104,721	\$ 4,316,103

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	MML Growth & Income Sub-Account (Initial Class)	MML Growth & Income Sub-Account (Service Class)	MML Growth Allocation Sub-Account (Initial Class)	MML Growth Allocation Sub-Account (Service Class)	MML High Yield Sub-Account	MML Income & Growth Sub-Account (Initial Class)	MML Income & Growth Sub-Account (Service Class)	MML Inflation- Protected and Income Sub-Account (Initial Class)
Investment income								
Dividends	\$ 672,195	\$ 307,225	\$ 11,446,890	\$ 19,537,848	\$ 2,412,973	\$ 460,893	\$ 492,319	\$ 3,272,991
Expenses								
Mortality and expense risk fees and administrative charges	757,278	513,163	6,572,344	11,876,132	504,446	272,859	356,924	1,769,421
Net Investment income (loss)	(85,083)	(205,938)	4,874,546	7,661,716	1,908,527	188,034	135,395	1,503,570
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	5,522,284	2,017,856	10,475,690	1,737,755	(513,435)	173,854	(782,735)	(2,007,838)
Realized gain distribution	6,384,555	3,734,294	41,510,815	80,232,504	-	874,162	1,063,492	-
Realized gain (loss)	11,906,839	5,752,150	51,986,505	81,970,259	(513,435)	1,048,016	280,757	(2,007,838)
Change in net unrealized appreciation/ depreciation of investments	6,966,573	4,836,076	33,540,151	80,413,697	2,476,461	3,452,493	5,080,163	9,764,163
Net gain (loss) on investments	18,873,412	10,588,226	85,526,656	162,383,956	1,963,026	4,500,509	5,360,920	7,756,325
Net increase (decrease) in net assets resulting from operations	18,788,329	10,382,288	90,401,202	170,045,672	3,871,553	4,688,543	5,496,315	9,259,895
Capital transactions:								
Transfer of net premiums	468,473	5,785,071	5,339,237	14,997,556	5,998,856	270,832	2,340,640	1,117,735
Transfers due to death benefits	(446,328)	(271,180)	(1,529,300)	(3,096,552)	(263,938)	(190,348)	(233,995)	(1,850,026)
Transfers due to annuity benefit payments	(42,347)	-	-	(2,263)	(574)	(83,618)	-	(305,244)
Transfers due to withdrawal of funds	(8,116,917)	(3,515,917)	(42,098,972)	(103,778,660)	(3,872,436)	(2,022,827)	(2,523,761)	(18,756,163)
Transfers due to loans, net of repayments	(1,516)	-	(5,141)	-	(2,837)	3,648	-	(10,131)
Transfers due to cost of insurance	(99,638)	(66,959)	(4,240,050)	(5,630,300)	1,308	(37,073)	(40,500)	(534,538)
Transfers due to contingent deferred sales charges	(316)	-	(190)	-	-	(375)	-	(32)
Transfers due to net charge (credit) to annuitant mortality fluctuation	16,840	-	-	(1,112)	229	25,034	-	92,098
Transfers between Sub-Accounts and to/from Fixed Account	(1,888,680)	(129,602)	(18,071,826)	(9,001,361)	1,464,730	675,415	(35,132)	12,314,609
Net increase (decrease) in net assets resulting from capital transactions	(10,110,429)	1,801,413	(60,606,242)	(106,512,692)	3,325,338	(1,359,312)	(492,748)	(7,931,692)
Total increase (decrease)	8,677,900	12,183,701	29,794,960	63,532,980	7,196,891	3,329,231	5,003,567	1,328,203
NET ASSETS, at beginning of the year	64,684,699	33,813,200	484,216,996	915,267,296	35,992,862	20,869,071	24,435,731	135,793,211
NET ASSETS, at end of the year	\$ 73,362,599	\$ 45,996,901	\$ 514,011,956	\$ 978,800,276	\$ 43,189,753	\$ 24,198,302	\$ 29,439,298	\$ 137,121,414

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	MML Inflation- Protected and Income Sub-Account (Service Class)	MML International Equity Sub-Account	MML Large Cap Growth Sub-Account (Initial Class)	MML Large Cap Growth Sub-Account (Service Class)	MML Managed Bond Sub-Account (Initial Class)	MML Managed Bond Sub-Account (Service Class)	MML Managed Volatility Sub-Account (Initial Class)	MML Managed Volatility Sub-Account (Service Class)
Investment income								
Dividends	\$ 933,563	\$ 99,692	\$ 90,420	\$ 61,834	\$ 4,354,846	\$ 8,767,931	\$ 1,635,550	\$ 407,250
Expenses								
Mortality and expense risk fees and administrative charges	548,685	68,125	167,366	176,307	1,467,059	3,283,312	1,297,370	390,199
Net investment income (loss)	384,878	31,567	(76,946)	(114,473)	2,887,787	5,484,619	338,180	17,051
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(1,017,498)	(68,061)	(387,196)	(196,708)	(851,705)	(1,741,366)	2,643,757	46,512
Realized gain distribution	-	371,778	1,911,728	1,827,707	-	-	-	-
Realized gain (loss)	(1,017,498)	303,717	1,524,532	1,630,999	(851,705)	(1,741,366)	2,643,757	46,512
Change in net unrealized appreciation/ depreciation of investments	3,323,559	817,753	2,626,699	1,837,611	7,653,288	16,063,860	6,951,075	2,813,553
Net gain (loss) on investments	2,306,061	1,121,470	4,151,231	3,468,610	6,801,583	14,322,494	9,594,832	2,860,065
Net increase (decrease) in net assets resulting from operations	2,690,939	1,153,037	4,074,285	3,354,137	9,689,370	19,807,113	9,933,012	2,877,116
Capital transactions:								
Transfer of net premiums	4,480,483	1,159,841	181,779	3,688,983	1,149,609	10,318,815	735,111	1,065,432
Transfers due to death benefits	(336,538)	(47,888)	(202,147)	(91,936)	(1,637,188)	(1,884,956)	(761,097)	(207,031)
Transfers due to annuity benefit payments	-	-	(6,748)	-	(251,526)	-	(212,082)	-
Transfers due to withdrawal of funds	(6,401,188)	(404,412)	(1,947,654)	(1,230,296)	(16,207,043)	(32,989,096)	(14,004,484)	(3,280,834)
Transfers due to loans, net of repayments	-	-	7,935	-	(5,917)	-	(3,155)	-
Transfers due to cost of insurance	(113,632)	(543)	(19,547)	(5,144)	(380,702)	(1,373,407)	(419,452)	(147,142)
Transfers due to contingent deferred sales charges	-	-	(170)	-	(170)	(75)	(296)	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	-	1,960	-	(19,363)	-	58,766	-
Transfers between Sub-Accounts and to/from Fixed Account	1,518,047	114,017	(541,528)	87,387	7,827,258	16,536,477	6,896,791	1,319,963
Net increase (decrease) in net assets resulting from capital transactions	(852,828)	821,015	(2,526,120)	2,448,994	(9,525,042)	(9,392,242)	(7,709,898)	(1,249,612)
Total increase (decrease)	1,838,111	1,974,052	1,548,165	5,803,131	164,328	10,414,871	2,223,114	1,627,504
NET ASSETS, at beginning of the year	41,399,216	4,669,380	14,279,402	10,587,661	117,644,146	250,288,149	98,987,098	28,963,354
NET ASSETS, at end of the year	\$ 43,237,327	\$ 6,643,432	\$ 15,827,567	\$ 16,390,792	\$ 117,808,474	\$ 260,703,020	\$ 101,210,212	\$ 30,590,858

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued) For The Year Ended December 31, 2019

	MML Mid Cap Growth Sub-Account (Initial Class)	MML Mid Cap Growth Sub-Account (Service Class)	MML Mid Cap Value Sub-Account (Initial Class)	MML Mid Cap Value Sub-Account (Service Class)	MML Moderate Allocation Sub-Account (Initial Class)	MML Moderate Allocation Sub-Account (Service Class)	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account (Initial Class)
Investment income								
Dividends	\$ 17,189	\$ -	\$ 2,343,586	\$ 717,625	\$ 7,705,794	\$ 39,415,583	\$ 877,443	\$ 123,700
Expenses								
Mortality and expense risk fees and administrative charges	945,631	1,335,109	1,798,227	645,484	3,855,856	22,874,917	362,171	294,425
Net Investment income (loss)	(928,442)	(1,335,109)	545,359	72,141	3,849,938	16,540,666	515,272	(170,725)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	3,225,081	75,254	(4,702,859)	(1,449,968)	2,787,411	(8,168,525)	(93,672)	(56,468)
Realized gain distribution	10,776,125	14,186,832	14,458,779	5,181,581	18,234,185	104,673,927	-	2,221,545
Realized gain (loss)	14,001,206	14,262,086	9,755,920	3,731,613	21,021,596	96,505,402	(93,672)	2,165,077
Change in net unrealized appreciation/ depreciation of investments	7,882,228	12,770,845	24,652,920	7,917,263	22,949,084	157,224,534	353,421	3,755,794
Net gain (loss) on investments	21,883,434	27,032,931	34,408,840	11,648,876	43,970,680	253,729,936	259,749	5,920,871
Net increase (decrease) in net assets resulting from operations	20,954,992	25,697,822	34,954,199	11,721,017	47,820,618	270,270,602	775,021	5,750,146
Capital transactions:								
Transfer of net premiums	591,856	8,319,419	1,124,564	4,670,803	2,308,004	44,475,190	4,828,347	192,318
Transfers due to death benefits	(366,600)	(418,095)	(937,553)	(155,184)	(2,197,148)	(8,476,592)	(420,870)	(273,705)
Transfers due to annuity benefit payments	(194,349)	-	(341,749)	-	-	-	(508)	(18,708)
Transfers due to withdrawal of funds	(7,949,060)	(11,424,523)	(18,654,446)	(5,522,537)	(27,842,530)	(230,383,971)	(5,436,024)	(2,806,611)
Transfers due to loans, net of repayments	4,159	-	4,968	-	(3,523)	-	163	2,935
Transfers due to cost of insurance	(111,621)	(206,235)	(459,683)	(130,856)	(2,362,558)	(10,686,266)	721	(34,306)
Transfers due to contingent deferred sales charges	(1,359)	-	(1,429)	-	(7)	-	-	(303)
Transfers due to net charge (credit) to annuitant mortality fluctuation	34,192	-	84,838	-	-	-	211	(2,268)
Transfers between Sub-Accounts and to/from Fixed Account	(2,929,978)	(2,106,070)	(6,718,743)	(613,538)	2,149,241	(2,995,200)	4,955,519	(129,646)
Net increase (decrease) in net assets resulting from capital transactions	(10,922,760)	(5,835,504)	(25,899,233)	(1,751,312)	(27,948,521)	(208,066,839)	3,927,559	(3,070,294)
Total increase (decrease)	10,032,232	19,862,318	9,054,966	9,969,705	19,872,097	62,203,763	4,702,580	2,679,852
NET ASSETS, at beginning of the year	73,560,646	88,937,242	135,925,323	43,253,293	290,920,692	1,689,907,038	27,471,063	24,030,805
NET ASSETS, at end of the year	\$ 83,592,878	\$ 108,799,560	\$ 144,980,289	\$ 53,222,998	\$ 310,792,789	\$ 1,752,110,801	\$ 32,173,643	\$ 26,710,657

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2019

	MML Small Cap Equity Sub-Account (Service Class)	MML Small Cap Growth Equity Sub-Account (Initial Class)	MML Small Cap Growth Equity Sub-Account (Service Class)	MML Small Company Value Sub-Account	MML Small/Mid Cap Value Sub-Account (Initial Class)	MML Small/Mid Cap Value Sub-Account (Service Class)	MML Special Situations Sub-Account (Service Class I)	MML Strategic Emerging Markets Sub-Account
Investment income								
Dividends	\$ 54,890	\$ -	\$ -	\$ 17,086	\$ 643,843	\$ 84,555	\$ -	\$ 808
Expenses								
Mortality and expense risk fees and administrative charges	273,113	1,230,552	297,507	279,820	1,335,767	282,219	7,493	177,655
Net investment income (loss)	(218,223)	(1,230,552)	(297,507)	(262,734)	(691,924)	(197,664)	(7,493)	(176,847)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	(528,103)	(2,139,360)	(411,252)	(268,857)	5,032,444	(586,307)	18,818	308,458
Realized gain distribution	1,868,747	16,362,801	4,375,793	3,270,006	12,450,021	2,708,057	-	-
Realized gain (loss)	1,340,644	14,223,441	3,964,541	3,001,149	17,482,465	2,121,750	18,818	308,458
Change in net unrealized appreciation/ depreciation of investments	3,410,403	14,231,752	2,583,821	1,810,489	1,273,499	1,671,298	133,505	2,888,283
Net gain (loss) on investments	4,751,047	28,455,193	6,548,362	4,811,638	18,755,964	3,793,048	152,323	3,196,741
Net increase (decrease) in net assets resulting from operations	4,532,824	27,224,641	6,250,855	4,548,904	18,064,040	3,595,384	144,830	3,019,894
Capital transactions:								
Transfer of net premiums	2,409,137	646,149	3,650,727	2,704,368	780,026	2,345,390	72,574	1,793,029
Transfers due to death benefits	(219,187)	(765,536)	(215,011)	(122,337)	(654,097)	(176,395)	-	(192,291)
Transfers due to annuity benefit payments	-	(201,492)	-	-	(255,812)	-	-	-
Transfers due to withdrawal of funds	(2,372,962)	(13,247,148)	(2,421,982)	(1,627,235)	(13,952,871)	(1,904,858)	(15,077)	(1,469,743)
Transfers due to loans, net of repayments	-	762	-	(3,997)	(2,780)	-	-	755
Transfers due to cost of insurance	(10,528)	(369,155)	(30,616)	(14,126)	(382,430)	(42,655)	-	(16,440)
Transfers due to contingent deferred sales charges	-	(220)	-	-	(13)	-	-	-
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	54,368	-	-	69,768	-	-	-
Transfers between Sub-Accounts and to/from Fixed Account	(69,857)	(7,676,486)	(488,533)	156,888	1,652,039	275,047	(9,017)	(90,869)
Net increase (decrease) in net assets resulting from capital transactions	(263,397)	(21,558,758)	494,585	1,093,561	(12,746,170)	496,529	48,480	24,441
Total increase (decrease)	4,269,427	5,665,883	6,745,440	5,642,465	5,317,870	4,091,913	193,310	3,044,335
NET ASSETS, at beginning of the year	18,425,202	89,078,989	19,280,671	19,022,657	100,384,944	19,194,837	642,435	12,694,684
NET ASSETS, at end of the year	\$ 22,694,629	\$ 94,744,872	\$ 26,026,111	\$ 24,665,122	\$ 105,702,814	\$ 23,286,750	\$ 835,745	\$ 15,739,019

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued) For The Year Ended December 31, 2019

	MML Total Return Bond Sub-Account	MML U.S. Government Money Market Sub-Account	Oppenheimer Global Multi- Alternatives Sub-Account	PIMCO Commodity RealReturn® Strategy Sub-Account	VY® Clarion Global Real Estate Sub-Account
Investment income					
Dividends	\$ 840,729	\$ 1,236,319	\$ 25,745	\$ 395,402	\$ 402,148
Expenses					
Mortality and expense risk fees and administrative charges	345,638	853,495	9,712	116,223	198,024
Net investment income (loss)	495,091	382,824	16,033	279,179	204,124
Net realized and unrealized gain (loss) on investments					
Realized gain (loss) on sale of fund shares	44,377	9,172	(52,512)	(1,242,030)	279,825
Realized gain distribution	-	-	-	-	-
Realized gain (loss)	44,377	9,172	(52,512)	(1,242,030)	279,825
Change in net unrealized appreciation/ depreciation of investments	1,325,845	(9,171)	105,766	1,820,946	2,648,085
Net gain (loss) on investments	1,370,222	1	53,254	578,916	2,927,910
Net increase (decrease) in net assets resulting from operations	1,865,313	382,825	69,287	858,095	3,132,034
Capital transactions:					
Transfer of net premiums	6,878,184	7,178,793	77,299	245,228	244,406
Transfers due to death benefits	(207,413)	(695,051)	-	(25,266)	(96,548)
Transfers due to annuity benefit payments	-	(54,531)	-	(19,829)	(49,653)
Transfers due to withdrawal of funds	(2,032,460)	(24,972,215)	(97,676)	(1,162,008)	(1,750,988)
Transfers due to loans, net of repayments	1,485	11,537	-	635	2,106
Transfers due to cost of insurance	466	(87,585)	251	(35,387)	(45,552)
Transfers due to contingent deferred sales charges	-	(382)	-	(7)	(17)
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	16,604	-	4,098	11,761
Transfers between Sub-Accounts and to/from Fixed Account	1,792,124	16,989,570	(2,332,862)	201,011	129,245
Net increase (decrease) in net assets resulting from capital transactions	6,432,386	(1,613,260)	(2,352,988)	(791,525)	(1,555,240)
Total increase (decrease)	8,297,699	(1,230,435)	(2,283,701)	66,570	1,576,794
NET ASSETS, at beginning of the year	23,676,108	76,764,657	2,283,703	8,967,304	14,174,962
NET ASSETS, at end of the year	\$ 31,973,807	\$ 75,534,222	\$ 2	\$ 9,033,874	\$ 15,751,756

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 4

Notes To Financial Statements

1. ORGANIZATION

Massachusetts Mutual Variable Annuity Separate Account 4 (“the Separate Account”) is a separate investment account of Massachusetts Mutual Life Insurance Company (“MassMutual”) established on July 9, 1998. The Separate Account is registered as a unit investment trust under the Investment Company Act of 1940 (“the 1940 Act”).

MassMutual maintains ten segments within the Separate Account, they are: Panorama Premier, Panorama Passage®, MassMutual Artistry, MassMutual Transitions®, MassMutual EvolutionSM, MassMutual RetireEase SelectSM, MassMutual Transitions SelectSM, MassMutual Equity EdgeSM, MassMutual Transitions SelectSM II and MassMutual Capital Vantage®. Seven of the ten segments within the Separate Account: Panorama Passage®, MassMutual EvolutionSM, MassMutual RetireEase SelectSM, MassMutual Transitions SelectSM, MassMutual EquityEdgeSM, MassMutual Transitions SelectSM II and MassMutual Capital Vantage® have multiple tiers. The unit values of these tiers differ based on the associated expense ratios.

The assets and liabilities of the Separate Account are clearly identified and distinguished from MassMutual’s other assets and liabilities. The Separate Account assets are not chargeable with liabilities arising from any other MassMutual business.

Notes To Financial Statements (Continued)

2 INVESTMENT OF THE SEPARATE ACCOUNT'S ASSETS

As of December 31, 2020, the Separate Account consists of ninety-two sub-accounts which invest in the following mutual funds. All of the funds may not be available to all of the ten segments of the Separate Account:

Sub-Accounts	The sub-account listed in the first column invests in the fund in this column
BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)	BlackRock 60/40 Target Allocation ETF V.I. Fund(Class III) ^{7,9}
Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Fidelity® VIP Contrafund® Portfolio (Initial Class) ¹
Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Fidelity® VIP Contrafund® Portfolio (Service Class 2) ¹
Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)	Invesco Oppenheimer V.I. Capital Appreciation Fund (Series II) ^{3,10}
Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)	Invesco Oppenheimer V.I. Capital Appreciation Fund (Series I) ^{3,10}
Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)	Invesco Oppenheimer V.I. Conservative Balanced Fund (Series II) ^{3, 10}
Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)	Invesco Oppenheimer V.I. Conservative Balanced Fund (Series I) ^{3, 10}
Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Fund (Series II) ^{3, 10}
Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Fund (Series I) ^{3, 10}
Invesco Oppenheimer V.I. Global Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Fund (Series II) ^{3, 10}
Invesco Oppenheimer V.I. Global Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Fund (Series I) ^{3, 10}
Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Strategic Income Fund (Series I) ^{3, 10}
Invesco Oppenheimer V.I. Government Money Sub-Account	Invesco Oppenheimer V.I. Government Money Fund ^{3, 10}
Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. International Growth Fund (Series II) ^{3, 10}
Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. International Growth Fund (Series I) ^{3, 10}
Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)	Invesco Oppenheimer V.I. Main Street Fund® (Series II) ^{3, 10}
Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)	Invesco Oppenheimer V.I. Main Street Fund® (Series I) ^{3, 10}
Invesco Oppenheimer V.I. Total Return Bond Sub-Account	Invesco Oppenheimer V.I. Total Return Bond Fund ^{3, 10}
Invesco V.I. Diversified Dividend Sub-Account (Series I)	Invesco V.I. Diversified Dividend Fund (Series I) ³
Invesco V.I. Diversified Dividend Sub-Account (Series II)	Invesco V.I. Diversified Dividend Fund (Series II) ³
Invesco V.I. Health Care Sub-Account (Series I)	Invesco V.I. Health Care Fund (Series I) ³
Invesco V.I. Health Care Sub-Account (Series II)	Invesco V.I. Health Care Fund (Series II) ^{3, 8}
Invesco V.I. Technology Sub-Account (Series I)	Invesco V.I. Technology Fund (Series I) ^{3, 8}
Invesco V.I. Technology Sub-Account (Series II)	Invesco V.I. Technology Fund (Series II) ³
Ivy VIP Asset Strategy Sub-Account	Ivy VIP Asset Strategy Portfolio ⁶
MML Aggressive Allocation Sub-Account (Initial Class)	MML Aggressive Allocation Fund (Initial Class) ⁴
MML Aggressive Allocation Sub-Account (Service Class)	MML Aggressive Allocation Fund (Service Class) ⁴
MML American Funds Core Allocation Sub-Account	MML American Funds Core Allocation Fund ⁴
MML American Funds Growth Sub-Account	MML American Funds Growth Fund ⁴
MML American Funds International Sub-Account	MML American Funds International Fund ⁴
MML Balanced Allocation Sub-Account (Initial Class)	MML Balanced Allocation Fund (Initial Class) ⁴
MML Balanced Allocation Sub-Account (Service Class)	MML Balanced Allocation Fund (Service Class) ⁴
MML Blend Sub-Account (Initial Class)	MML Blend Fund (Initial Class) ⁴

Notes To Financial Statements (Continued)

MML Blend Sub-Account (Service Class)	MML Blend Fund (Service Class) ⁴
MML Blue Chip Growth Sub-Account (Initial Class)	MML Blue Chip Growth Fund (Initial Class) ⁴
MML Blue Chip Growth Sub-Account (Service Class)	MML Blue Chip Growth Fund (Service Class) ⁴
MML Conservative Allocation Sub-Account (Initial Class)	MML Conservative Allocation Fund (Initial Class) ⁴
MML Conservative Allocation Sub-Account (Service Class)	MML Conservative Allocation Fund (Service Class) ⁴
MML Dynamic Bond Sub-Account (Service Class I)	MML Dynamic Bond Fund (Service Class I) ⁴
MML Equity Sub-Account (Initial Class)	MML Equity Fund (Initial Class) ⁴
MML Equity Sub-Account (Service Class)	MML Equity Fund (Service Class) ⁴
MML Equity Income Sub-Account (Initial Class)	MML Equity Income Fund (Initial Class) ⁴
MML Equity Income Sub-Account (Service Class)	MML Equity Income Fund (Service Class) ⁴
MML Equity Index Sub-Account (Class I)	MML Equity Index Fund (Class I) ⁴
MML Equity Index Sub-Account (Service Class I)	MML Equity Index Fund (Service Class I) ⁴
MML Equity Momentum Sub-Account (Service Class I)	MML Equity Momentum Fund (Service Class I) ^{4,12}
MML Equity Rotation Sub-Account (Service Class I)	MML Equity Rotation Fund (Service Class I) ⁴
MML Focused Equity Sub-Account	MML Focused Equity Fund (Initial Class) ⁴
MML Foreign Sub-Account (Initial Class)	MML Foreign Fund (Initial Class) ⁴
MML Foreign Sub-Account (Service Class)	MML Foreign Fund (Service Class) ⁴
MML Fundamental Equity Sub-Account	MML Fundamental Equity Fund (Initial Class) ^{4,13}
MML Fundamental Value Sub-Account	MML Fundamental Value Fund (Initial Class) ⁴
MML Global Sub-Account (Class I)	MML Global Fund (Class I) ⁴
MML Global Sub-Account (Service Class I)	MML Global Fund (Service Class I) ⁴
MML Global Sub-Account (Class II)	MML Global Fund (Class II) ⁴
MML Growth & Income Sub-Account (Initial Class)	MML Growth & Income Fund (Initial Class) ⁴
MML Growth & Income Sub-Account (Service Class)	MML Growth & Income Fund (Service Class) ⁴
MML Growth Allocation Sub-Account (Initial Class)	MML Growth Allocation Fund (Initial Class) ⁴
MML Growth Allocation Sub-Account (Service Class)	MML Growth Allocation Fund (Service Class) ⁴
MML High Yield Sub-Account	MML High Yield Fund ⁴
MML Income & Growth Sub-Account (Initial Class)	MML Income & Growth Fund (Initial Class) ⁴
MML Income & Growth Sub-Account (Service Class)	MML Income & Growth Fund (Service Class) ⁴
MML Inflation-Protected and Income Sub-Account (Initial Class)	MML Inflation-Protected and Income Fund (Initial Class) ⁴
MML Inflation-Protected and Income Sub-Account (Service Class)	MML Inflation-Protected and Income Fund (Service Class) ⁴
MML International Equity Sub-Account	MML International Equity Fund ⁴
MML Large Cap Growth Sub-Account (Initial Class)	MML Large Cap Growth Fund (Initial Class) ⁴
MML Large Cap Growth Sub-Account (Service Class)	MML Large Cap Growth Fund (Service Class) ⁴
MML Managed Bond Sub-Account (Initial Class)	MML Managed Bond Fund (Initial Class) ⁴
MML Managed Bond Sub-Account (Service Class)	MML Managed Bond Fund (Service Class) ⁴
MML Managed Volatility Sub-Account (Initial Class)	MML Managed Volatility Fund (Initial Class) ⁴
MML Managed Volatility Sub-Account (Service Class)	MML Managed Volatility Fund (Service Class) ⁴
MML Mid Cap Growth Sub-Account (Initial Class)	MML Mid Cap Growth Fund (Initial Class) ⁴
MML Mid Cap Growth Sub-Account (Service Class)	MML Mid Cap Growth Fund (Service Class) ⁴
MML Mid Cap Value Sub-Account (Initial Class)	MML Mid Cap Value Fund (Initial Class) ⁴
MML Mid Cap Value Sub-Account (Service Class)	MML Mid Cap Value Fund (Service Class) ⁴
MML Moderate Allocation Sub-Account (Initial Class)	MML Moderate Allocation Fund (Initial Class) ⁴
MML Moderate Allocation Sub-Account (Service Class)	MML Moderate Allocation Fund (Service Class) ⁴
MML Short-Duration Bond Sub-Account	MML Short-Duration Bond Fund ⁴

Notes To Financial Statements (Continued)

MML Small Cap Equity Sub-Account (Initial Class)	MML Small Cap Equity Fund (Initial Class) ⁴
MML Small Cap Equity Sub-Account (Service Class)	MML Small Cap Equity Fund (Service Class) ⁴
MML Small Cap Growth Equity Sub-Account (Initial Class)	MML Small Cap Growth Equity Fund (Initial Class) ⁴
MML Small Cap Growth Equity Sub-Account (Service Class)	MML Small Cap Growth Equity Fund (Service Class) ⁴
MML Small Company Value Sub-Account	MML Small Company Value Fund ⁴
MML Small/Mid Cap Value Sub-Account (Initial Class)	MML Small/Mid Cap Value Fund (Initial Class) ⁴
MML Small/Mid Cap Value Sub-Account (Service Class)	MML Small/Mid Cap Value Fund (Service Class) ⁴
MML Special Situations Sub-Account (Service Class I)	MML Special Situations Fund (Service Class I) ⁴
MML Strategic Emerging Markets Sub-Account	MML Strategic Emerging Markets Fund ⁴
MML Total Return Bond Sub-Account	MML Total Return Bond Fund ⁴
MML U.S. Government Money Market Sub-Account	MML U.S. Government Money Market Fund ⁴
PIMCO CommodityRealReturn® Strategy Sub-Account	PIMCO CommodityRealReturn® Strategy Portfolio ⁵
VY® Clarion Global Real Estate Sub-Account	VY® Clarion Global Real Estate Portfolio ²

In addition to the ninety-two sub-accounts, some contract owners may also allocate funds to the Fixed Interest Account (“FIA”), which is part of MassMutual’s general investment account (“General Account”). Because of exemptive and exclusionary provisions in the securities law, interests in the FIA are not registered under the Securities Act of 1933, and the General Account and the FIA are not registered as an investment company under the 1940 Act.

¹ Fidelity Management & Research Company LLC is the investment adviser to this Portfolio.

² Voya Investments, LLC is the investment adviser to this Portfolio.

³ Invesco Advisers, Inc. is the investment adviser to this Fund.

⁴ MML Investment Advisers, LLC is the investment adviser to this Fund.

⁵ Pacific Investment Management Company LLC is the investment adviser to this Portfolio.

⁶ Ivy Investment Management Company is the investment adviser to this Portfolio.

⁷ BlackRock Advisors, LLC is the investment adviser for this Fund.

⁸ Invesco V.I. Health Care was formerly known as Invesco V.I. Global Health Care.

⁹ BlackRock 60/40 Target Allocation ETF V.I. was formerly known as BlackRock iShares® Dynamic Allocation V.I.

¹⁰ Effective after the close of the New York Stock Exchange on May 24, 2019, Invesco Ltd. completed its acquisition of OppenheimerFunds, Inc. The Acquiring Funds/Sub-Accounts assume the accounting and performance history of the corresponding Merging Funds/Sub-Accounts. In connection with that transaction the following Funds/Sub-Accounts merged:

MERGING FUND/SUB-ACCOUNT	ACQUIRING FUND/SUB-ACCOUNT
Fund: Oppenheimer Capital Appreciation Fund/VA Sub-Account: Oppenheimer Capital Appreciation Sub-Account	Fund: Invesco Oppenheimer V.I. Capital Appreciation Fund Sub-Account: Invesco Oppenheimer V.I. Capital Appreciation Sub-Account
Fund: Oppenheimer Conservative Balanced Fund/VA Sub-Account: Oppenheimer Conservative Balanced Sub-Account	Fund: Invesco Oppenheimer V.I. Conservative Balanced Fund Sub-Account: Invesco Oppenheimer V.I. Conservative Balanced Sub-Account
Fund: Oppenheimer Discovery Mid Cap Growth Fund/VA Sub-Account: Oppenheimer Discovery Mid Cap Growth Sub-Account	Fund: Invesco Oppenheimer V.I. Discovery Mid Cap Growth Fund Sub-Account: Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-
Fund: Oppenheimer Global Fund/VA Sub-Account: Oppenheimer Global Sub-Account	Fund: Invesco Oppenheimer V.I. Global Fund Sub-Account: Invesco Oppenheimer V.I. Global Sub-Account
Fund: Oppenheimer Global Strategic Income Fund/VA Sub-Account: Oppenheimer Global Strategic Income Sub-Account	Fund: Invesco Oppenheimer V.I. Global Strategic Income Fund Sub-Account: Invesco Oppenheimer V.I. Global Strategic Income Sub-Account
Fund: Oppenheimer Government Money Fund/VA Sub-Account: Oppenheimer Government Money Sub-Account	Fund: Invesco Oppenheimer V.I. Government Money Fund Sub-Account: Invesco Oppenheimer V.I. Government Money Sub-Account
Fund: Oppenheimer International Growth Fund/VA Sub-Account: Oppenheimer International Growth Sub-Account	Fund: Invesco Oppenheimer V.I. International Growth Fund Sub-Account: Invesco Oppenheimer V.I. International Growth Sub-Account
Fund: Oppenheimer Main Street Fund®/VA Sub-Account: Oppenheimer Main Street Sub-Account	Fund: Invesco Oppenheimer V.I. Main Street Fund® Sub-Account: Invesco Oppenheimer V.I. Main Street Sub-Account
Fund: Oppenheimer Total Return Bond Fund/VA Sub-Account: Oppenheimer Total Return Bond Sub-Account	Fund: Invesco Oppenheimer V.I. Total Return Bond Fund Sub-Account: Invesco Oppenheimer V.I. Total Return Bond Sub-Account

¹¹ Effective April 29, 2019 Oppenheimer Global Multi-Alternatives Sub-Account liquidated and any contract value in the Sub-Account after the close of the New York Stock Exchange on April 29, 2019 was automatically transferred to the MML U.S. Government Money Market Sub-Account. In addition to the ninety-two Sub-Accounts listed above, the accompanying financial statements also include statement of operations for the period from January 1, 2019 to April 29, 2019.

¹² MML Equity Momentum Sub-Account was formerly known as MML Asset Momentum Sub-Account.

¹³ MML Fundamental Equity Sub-Account was formerly known as MML Fundamental Growth Sub-Account.

Notes To Financial Statements (Continued)

3. SIGNIFICANT ACCOUNTING POLICIES

The following is a summary of significant accounting policies followed by the Separate Account in preparation of the financial statements in conformity with generally accepted accounting principles. Separate Account Massachusetts Mutual Variable Annuity Separate Account 4 follows the accounting and reporting guidance in FASB Accounting Standards Codification 946.

A. Investment Valuation

Investments in the investment sub-accounts are valued at the closing net asset value of each of the respective underlying funds, which value their investment securities at fair value.

B. Accounting for Investments

Investment transactions are accounted for on a trade-date basis and identified cost is the basis followed in determining the cost of investments sold for financial statement purposes. Dividend income and gains from realized gain distributions are recorded on the ex-distribution date, and they are generally reinvested in the underlying investment sub-accounts.

C. Federal Income Taxes

MassMutual is taxed under federal law as a life insurance company under the provisions of the 1986 Internal Revenue Code, as amended. Under existing federal law, no taxes are payable on net investment income and net realized capital gains attributable to contracts which depend on the Separate Account's investment performance. Accordingly, no provision for federal income tax has been made. MassMutual may, however, make such a charge in the future if an unanticipated change of current law results in a company tax liability attributable to the Separate Account.

D. Contract Charges

See Note 8B for charges associated with the contracts

E. Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

F. Loans

If the certificate is a tax-sheltered annuity ("TSA"), the participants may be able to take a loan under their certificate. All such loans must conform to the requirements of the Internal Revenue Code. There are limitations on the amount of the loan the participants can take, and there is a required loan repayment schedule. When a loan is made, the Separate Account transfers the amount of the loan to MassMutual, thereby decreasing both the investments and net assets of the Separate Account by an equal amount. The contract owner is charged interest on the outstanding loan amount based on the interest rate then in effect.

G. Annuitant Mortality Fluctuation

The Separate Account maintains a reserve as required by regulatory authorities to provide for mortality losses incurred. The reserve is adjusted quarterly for mortality losses and gains and its proportionate

Notes To Financial Statements (Continued)

share of changes in value. Transfers to or from MassMutual are then made quarterly to adjust the Separate Account. Net transfers from the Separate Account to MassMutual totaled \$1,210,647 for the year ended December 31, 2020. Net transfers from the Separate Account to MassMutual totaled \$1,216,739 for the year ended December 31, 2019. The reserve is subject to a maximum of 3% of the Separate Account's annuity reserves. Any mortality losses in excess of this reserve will be borne by MassMutual. The reserve is not available to owners of the contracts except to the extent necessary to cover mortality losses under the contracts.

H. Annuity Reserves

Annuity reserves are developed by using accepted actuarial methods and are computed using the 1994 MGDB table, except for the MassMutual RetireEase Select SM Segment which uses the Annuity 2000 table.

4. FAIR VALUE OF FINANCIAL INSTRUMENTS

The Separate Account defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, the Separate Account generally uses the market approach as the valuation technique due to the nature of the mutual fund investments offered in the Separate Account. This technique maximizes the use of observable inputs and minimizes the use of unobservable inputs. Investments in mutual funds are valued at the mutual fund's closing net asset value per share on the day of valuation.

Valuation Inputs: Various inputs are used to determine the value of the Separate Account's investments. These inputs are summarized in the three broad levels listed below:

- **Level 1** – quoted prices in active markets for identical securities
- **Level 2** – observable inputs other than Level 1 quoted prices (including, but not limited to, quoted prices for similar securities, interest rates, prepayment speeds and credit risk)
- **Level 3** – unobservable inputs

The investments of the Separate Account are measured at fair value. All the investments are categorized as Level 1 as of December 31, 2020. There have been no transfers between levels for the year ended December 31, 2020.

5. RELATED PARTY TRANSACTIONS

A. Sales Agreements

The contracts currently being offered are sold by both registered representatives of MML Investors Services, LLC ("MMLIS"), a subsidiary of MassMutual, and by registered representatives of other broker-dealers who have entered into distribution agreements with MML Strategic Distributors, LLC ("MSD"), a subsidiary of MassMutual. Pursuant to separate underwriting agreements with MassMutual, on its own behalf and on behalf of the Separate Account, MMLIS serves as principal underwriter of the contracts sold by its registered representatives and MSD serves as principal underwriter of the contracts sold by registered representatives of other broker-dealers who have entered into distribution agreements with MSD.

Both MMLIS and MSD are registered with the Securities and Exchange Commission (the "SEC") as broker-dealers under the Securities and Exchange Act of 1934 and are members of the Financial Industry Regulatory Authority ("FINRA"). Commissions for sales of contracts by MMLIS registered representatives are paid on behalf of MMLIS to its registered representatives. Commissions for sales of contracts by registered representatives of other broker-dealers are paid on behalf of MSD to those

Notes To Financial Statements (Continued)

broker-dealers. MMLIS and MSD also receive compensation for their actions as principal underwriters of the contracts.

B. Receivable from/Payable to MassMutual

Certain fees such as cost of insurance fees and mortality and expense risk fees are charges paid between the General Account and the Separate Account.

Notes To Financial Statements (Continued)

6. PURCHASES AND SALES OF INVESTMENTS

The cost of purchases and proceeds from sales investments for the year ended December 31, 2020 were as follows:

	BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)	Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)
Cost of purchases.....\$	4,658,916	\$ 16,219,530	\$ 21,504,443	\$ 2,431,615	\$ 27,904,326	\$ 3,209	\$ 368,796	\$ 8,675,488
Proceeds from sales	(466,058)	(69,438,233)	(37,893,807)	(4,085,582)	(54,193,030)	(5,491)	(829,486)	(4,587,373)

	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)	Invesco Oppenheimer V.I. Government Money Sub-Account (Series I)	Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)
Cost of purchases.....\$	13,969,315	\$ 6,229,147	\$ 14,591,122	\$ 9,654,611	\$ 31,741,691	\$ 2,416,727	\$ 1,979,748	\$ 3,953,156
Proceeds from sales	(40,053,672)	(14,759,622)	(48,241,757)	(21,051,233)	(47,336,331)	(2,630,826)	(7,294,506)	(10,003,281)

	Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)	Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)	Invesco Oppenheimer V.I. Total Return Bond Sub-Account	Invesco V.I. Diversified Dividend Sub-Account (Series I)	Invesco V.I. Diversified Dividend Sub-Account (Series II)	Invesco V.I. Health Care Sub-Account (Series I)	Invesco V.I. Health Care Sub-Account (Series II)	Invesco V.I. Technology Sub-Account (Series I)
Cost of purchases.....\$	4,638,836	\$ 4,483,825	\$ 62,161	\$ 1,252,126	\$ 1,154,869	\$ 1,217,333	\$ 1,120,627	\$ 3,060,326
Proceeds from sales	(3,411,503)	(4,601,019)	(171,926)	(1,335,871)	(3,439,549)	(2,628,413)	(3,290,323)	(3,390,397)

	Invesco V.I. Technology Sub-Account (Series II)	Ivy VIP Asset Strategy Sub-Account	MML Aggressive Allocation Sub-Account (Initial Class)	MML Aggressive Allocation Sub-Account (Service Class)	MML American Funds Core Allocation Sub-Account	MML American Funds Growth Sub-Account	MML American Funds International Sub-Account	MML Balanced Allocation Sub-Account (Initial Class)
Cost of purchases.....\$	3,963,653	\$ 1,786,987	\$ 8,068,107	\$ 14,680,179	\$ 109,076,106	\$ 47,107,628	\$ 8,469,251	\$ 36,002,247
Proceeds from sales	(4,128,840)	(2,095,120)	(13,318,202)	(19,933,035)	(199,141,812)	(57,195,892)	(14,636,632)	(55,109,740)

Notes To Financial Statements (Continued)

6. PURCHASES AND SALES OF INVESTMENTS (Continued)

	MML Balanced Allocation Sub-Account (Service Class)	MML Blend Sub-Account (Initial Class)	MML Blend Sub-Account (Service Class)	MML Blue Chip Growth Sub-Account (Initial Class)	MML Blue Chip Growth Sub-Account (Service Class)	MML Conservative Allocation Sub-Account (Initial Class)	MML Conservative Allocation Sub-Account (Service Class)	MML Dynamic Bond Sub-Account (Service Class I)
Cost of purchases.....\$	46,400,239	\$ 13,220,482	\$ 28,323,549	\$ 12,652,393	\$ 35,120,050	\$ 79,302,303	\$ 135,580,648	\$ 3,540,871
Proceeds from sales	(96,472,898)	(15,891,155)	(17,880,305)	(16,904,092)	(23,419,396)	(81,477,918)	(124,463,031)	(1,568,375)

	MML Equity Sub-Account (Initial Class)	MML Equity Sub-Account (Service Class)	MML Equity Income Sub-Account (Initial Class)	MML Equity Income Sub-Account (Service Class)	MML Equity Index Sub-Account (Class I)	MML Equity Index Sub-Account (Service Class I)	MML Equity Momentum Sub-Account (Service Class I)	MML Equity Rotation Sub-Account (Service Class I)
Cost of purchases.....\$	6,300,283	\$ 22,807,136	\$ 35,026,328	\$ 16,815,857	\$ 9,797,402	\$ 14,434,786	\$ 269,808	\$ 109,824
Proceeds from sales	(7,260,492)	(16,197,507)	(40,264,021)	(14,954,955)	(7,284,247)	(11,892,177)	(257,038)	(137,416)

	MML Focused Equity Sub-Account (Initial Class)	MML Foreign Sub-Account (Initial Class)	MML Foreign Sub-Account (Service Class)	MML Fundamental Equity Sub-Account (Service Class)	MML Fundamental Value Sub-Account (Service Class)	MML Global Sub-Account (Class I)	MML Global Sub-Account (Service Class I)	MML Global Sub-Account (Class II)
Cost of purchases.....\$	4,384,308	\$ 22,897,953	\$ 1,453,839	\$ 5,735,816	\$ 3,708,525	\$ 1,026,128	\$ 3,018,360	\$ 290,775
Proceeds from sales	(4,444,415)	(32,597,817)	(2,780,014)	(2,607,313)	(2,425,165)	(1,939,967)	(3,401,566)	(463,317)

	MML Growth & Income Sub-Account (Initial Class)	MML Growth & Income Sub-Account (Service Class)	MML Growth Allocation Sub-Account (Initial Class)	MML Growth Allocation Sub-Account (Service Class)	MML High Yield Sub-Account (Service Class)	MML Income & Growth Sub-Account (Initial Class)	MML Income & Growth Sub-Account (Service Class)	MML Inflation- Protected and Income Sub-Account (Initial Class)
Cost of purchases.....\$	7,960,773	\$ 8,836,854	\$ 98,327,256	\$ 91,276,468	\$ 4,333,002	\$ 2,452,520	\$ 3,254,364	\$ 31,172,564
Proceeds from sales	(13,412,804)	(7,692,264)	(228,933,621)	(302,967,700)	(6,746,419)	(4,860,169)	(5,544,723)	(50,008,852)

Notes To Financial Statements (Continued)

6. PURCHASES AND SALES OF INVESTMENTS (Continued)

	<u>MML Inflation- Protected and Income Sub-Account</u> (Service Class)	<u>MML International Equity Sub-Account</u> (Service Class)	<u>MML Large Cap Growth Sub-Account</u> (Initial Class)	<u>MML Large Cap Growth Sub-Account</u> (Service Class)	<u>MML Managed Bond Sub-Account</u> (Initial Class)	<u>MML Managed Bond Sub-Account</u> (Service Class)	<u>MML Managed Volatility Sub-Account</u> (Initial Class)	<u>MML Managed Volatility Sub-Account</u> (Service Class)
Cost of purchases.....\$	13,131,006	\$ 1,418,620	\$ 2,329,471	\$ 5,353,103	\$ 29,798,427	\$ 40,456,146	\$ 20,320,550	\$ 3,565,906
Proceeds from sales	(14,634,662)	(1,273,834)	(4,439,680)	(3,861,293)	(41,039,223)	(51,857,970)	(31,925,351)	(8,511,098)
	<u>MML Mid Cap Growth Sub-Account</u> (Initial Class)	<u>MML Mid Cap Growth Sub-Account</u> (Service Class)	<u>MML Mid Cap Value Sub-Account</u> (Initial Class)	<u>MML Mid Cap Value Sub-Account</u> (Service Class)	<u>MML Moderate Allocation Sub-Account</u> (Initial Class)	<u>MML Moderate Allocation Sub-Account</u> (Service Class)	<u>MML Short-Duration Bond Sub-Account</u> (Service Class I)	<u>MML Small Cap Equity Sub-Account</u> (Initial Class)
Cost of purchases.....\$	11,837,060	\$ 17,475,899	\$ 19,313,959	\$ 5,800,615	\$ 60,572,865	\$ 136,913,840	\$ 28,710,101	\$ 1,953,658
Proceeds from sales	(16,685,672)	(22,707,359)	(31,776,768)	(7,745,062)	(139,812,419)	(348,871,079)	(17,151,056)	(5,687,937)
	<u>MML Small Cap Equity Sub-Account</u> (Service Class)	<u>MML Small Cap Growth Equity Sub-Account</u> (Initial Class)	<u>MML Small Cap Growth Equity Sub-Account</u> (Service Class)	<u>MML Small Company Value Sub-Account</u> (Service Class)	<u>MML Small/Mid Cap Value Sub-Account</u> (Initial Class)	<u>MML Small/Mid Cap Value Sub-Account</u> (Service Class)	<u>MML Special Situations Sub-Account</u> (Service Class I)	<u>MML Strategic Emerging Markets Sub-Account</u> (Service Class I)
Cost of purchases.....\$	4,797,826	\$ 20,790,256	\$ 6,165,250	\$ 4,641,917	\$ 22,798,028	\$ 4,282,299	\$ 132,640	\$ 1,922,091
Proceeds from sales	(6,304,366)	(42,990,405)	(6,010,938)	(4,820,728)	(34,005,477)	(5,296,163)	(121,042)	(3,392,243)
	<u>MML Total Return Bond Sub-Account</u>	<u>MML U.S. Government Money Market Sub-Account</u>	<u>PIMCO Commodity RealReturn® Strategy Sub-Account</u>	<u>VY® Clarion Global Real Estate Sub-Account</u>				
Cost of purchases.....\$	24,102,720	205,038,984	1,733,772	3,513,141				
Proceeds from sales	(9,843,418)	(136,860,918)	(2,675,261)	(3,903,503)				

Notes To Financial Statements (Continued)

7. NET INCREASE (DECREASE) IN OUTSTANDING UNITS

The changes in outstanding units for the two years ended December 31, 2020 were as follows:

	BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)	Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)
2020								
Units purchased	357,566	55,306	1,090,897	5,260	31,433	-	1,066	317,419
Units withdrawn	(28,337)	(803,152)	(934,347)	(64,156)	(783,313)	(302)	(37,459)	(139,686)
Units transferred between Sub-Accounts and to/from the Fixed Account	-	(577,336)	(165,683)	(55,689)	(761,706)	-	(3,653)	15,124
Net increase (decrease)	<u>329,229</u>	<u>(1,325,182)</u>	<u>(9,133)</u>	<u>(114,585)</u>	<u>(1,513,586)</u>	<u>(302)</u>	<u>(40,046)</u>	<u>192,857</u>
	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)	Invesco Oppenheimer V.I. Government Money Sub-Account	Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)
2020 (Continued)								
Units purchased	27,305	166,719	42,433	225,515	87,367	23,626	90,434	16,970
Units withdrawn	(547,575)	(351,563)	(738,346)	(911,056)	(1,871,852)	(156,928)	(219,208)	(176,567)
Units transferred between Sub-Accounts and to/from the Fixed Account	(470,118)	(110,061)	(402,608)	(195,511)	442,795	116,952	(57,919)	(78,135)
Net increase (decrease)	<u>(990,388)</u>	<u>(294,905)</u>	<u>(1,098,520)</u>	<u>(881,051)</u>	<u>(1,341,690)</u>	<u>(16,351)</u>	<u>(186,693)</u>	<u>(237,732)</u>
	Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)	Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)	Invesco Oppenheimer V.I. Total Return Bond Sub-Account	Invesco V.I. Diversified Dividend Sub-Account (Series I)	Invesco V.I. Diversified Dividend Sub-Account (Series II)	Invesco V.I. Health Care Sub-Account (Series I)	Invesco V.I. Health Care Sub-Account (Series II)	Invesco V.I. Technology Sub-Account (Series I)
2020 (Continued)								
Units purchased	159,047	11,478	22	9,806	7,846	4,488	5,539	10,121
Units withdrawn	(112,216)	(102,290)	(8,349)	(47,085)	(167,712)	(48,001)	(71,745)	(59,668)
Units transferred between Sub-Accounts and to/from the Fixed Account	(28,545)	(20,597)	(609)	3,639	(98,678)	(2,612)	(7,407)	22,117
Net increase (decrease)	<u>18,285</u>	<u>(111,410)</u>	<u>(8,936)</u>	<u>(33,641)</u>	<u>(258,544)</u>	<u>(46,125)</u>	<u>(73,613)</u>	<u>(27,431)</u>
	Invesco V.I. Technology Sub-Account (Series II)	Ivy VIP Asset Strategy Sub-Account	MML Aggressive Allocation Sub-Account (Initial Class)	MML Aggressive Allocation Sub-Account (Service Class)	MML American Funds Core Allocation Sub-Account	MML American Funds Growth Sub-Account	MML American Funds International Sub-Account	MML Balanced Allocation Sub-Account (Initial Class)
2020 (Continued)								
Units purchased	2,662	101,162	31,461	346,717	1,250,095	639,896	176,521	19,421
Units withdrawn	(56,979)	(116,431)	(259,568)	(879,812)	(7,609,223)	(978,949)	(594,858)	(1,573,259)
Units transferred between Sub-Accounts and to/from the Fixed Account	28,252	(24,072)	(141,820)	(18,320)	(1,463,806)	(393,049)	(154,323)	186,997
Net increase (decrease)	<u>(26,064)</u>	<u>(39,341)</u>	<u>(369,927)</u>	<u>(551,415)</u>	<u>(7,822,933)</u>	<u>(732,103)</u>	<u>(572,661)</u>	<u>(1,366,841)</u>

Notes To Financial Statements (Continued)

7. NET INCREASE (DECREASE) IN OUTSTANDING UNITS (Continued)

	MML Balanced Allocation Sub-Account (Service Class)	MML Blend Sub-Account (Initial Class)	MML Blend Sub-Account (Service Class)	MML Blue Chip Growth Sub-Account (Initial Class)	MML Blue Chip Growth Sub-Account (Service Class)	MML Conservative Allocation Sub-Account (Initial Class)	MML Conservative Allocation Sub-Account (Service Class)	MML Dynamic Bond Sub-Account (Service Class I)
2020 (Continued)								
Units purchased	1,328,458	19,811	1,159,518	13,774	937,124	59,582	1,962,641	318,673
Units withdrawn	(4,412,817)	(276,375)	(767,709)	(174,491)	(625,471)	(3,459,470)	(7,230,536)	(125,575)
Units transferred between Sub-Accounts and to/from the Fixed Account	(868,962)	84,240	83,360	(15,098)	(12,811)	3,128,829	5,423,744	(8,871)
Net increase (decrease)	<u>(3,953,321)</u>	<u>(172,324)</u>	<u>475,170</u>	<u>(175,814)</u>	<u>298,842</u>	<u>(271,059)</u>	<u>155,848</u>	<u>184,227</u>

	MML Equity Sub-Account (Initial Class)	MML Equity Sub-Account (Service Class)	MML Equity Income Sub-Account (Initial Class)	MML Equity Income Sub-Account (Service Class)	MML Equity Index Sub-Account (Class I)	MML Equity Index Sub-Account (Service Class I)	MML Equity Momentum Sub-Account (Service Class I)	MML Equity Rotation Sub-Account (Service Class I)
2020 (Continued)								
Units purchased	10,828	471,429	44,557	396,316	14,492	10,248	5,566	3,610
Units withdrawn	(180,938)	(741,244)	(1,026,116)	(601,450)	(154,310)	(262,150)	(16,405)	(7,351)
Units transferred between Sub-Accounts and to/from the Fixed Account	(1,061)	198,347	418,955	130,021	(28,661)	(7,303)	(19)	(1,387)
Net increase (decrease)	<u>(171,171)</u>	<u>(71,469)</u>	<u>(562,604)</u>	<u>(75,113)</u>	<u>(168,479)</u>	<u>(259,204)</u>	<u>(10,858)</u>	<u>(5,128)</u>

	MML Focused Equity Sub-Account	MML Foreign Sub-Account (Initial Class)	MML Foreign Sub-Account (Service Class)	MML Fundamental Equity Sub-Account	MML Fundamental Value Sub-Account	MML Global Sub-Account (Class I)	MML Global Sub-Account (Service Class I)	MML Global Sub-Account (Class II)
2020 (Continued)								
Units purchased	168,194	62,827	32,387	171,772	138,482	981	131,122	5,605
Units withdrawn	(156,801)	(1,376,138)	(120,427)	(101,441)	(120,105)	(47,205)	(130,138)	(15,927)
Units transferred between Sub-Accounts and to/from the Fixed Account	(17,246)	387,929	(27,643)	12,960	(14,988)	(5,552)	(21,480)	(7,919)
Net increase (decrease)	<u>(5,853)</u>	<u>(925,382)</u>	<u>(115,684)</u>	<u>83,290</u>	<u>3,389</u>	<u>(51,777)</u>	<u>(20,495)</u>	<u>(18,240)</u>

	MML Growth & Income Sub-Account (Initial Class)	MML Growth & Income Sub-Account (Service Class)	MML Growth Allocation Sub-Account (Initial Class)	MML Growth Allocation Sub-Account (Service Class)	MML High Yield Sub-Account	MML Income & Growth Sub-Account (Initial Class)	MML Income & Growth Sub-Account (Service Class)	MML Inflation- Protected and Income Sub-Account (Initial Class)
2020 (Continued)								
Units purchased	13,778	288,681	199,594	1,181,761	317,975	16,031	165,766	72,571
Units withdrawn	(264,264)	(315,398)	(7,065,734)	(10,960,916)	(309,574)	(126,066)	(245,593)	(1,880,486)
Units transferred between Sub-Accounts and to/from the Fixed Account	(76,263)	(24,039)	(1,534,624)	(4,544,010)	(96,220)	(10,949)	(34,446)	536,155
Net increase (decrease)	<u>(326,749)</u>	<u>(50,756)</u>	<u>(8,400,764)</u>	<u>(14,323,164)</u>	<u>(87,819)</u>	<u>(120,985)</u>	<u>(114,273)</u>	<u>(1,271,760)</u>

Notes To Financial Statements (Continued)

7. NET INCREASE (DECREASE) IN OUTSTANDING UNITS (Continued)

	MML Inflation- Protected and Income Sub-Account (Service Class)	MML International Equity Sub-Account (Initial Class)	MML Large Cap Growth Sub-Account (Initial Class)	MML Large Cap Growth Sub-Account (Service Class)	MML Managed Bond Sub-Account (Initial Class)	MML Managed Bond Sub-Account (Service Class)	MML Managed Volatility Sub-Account (Initial Class)	MML Managed Volatility Sub-Account (Service Class)
2020 (Continued)								
Units purchased	453,757	111,913	12,223	203,665	69,774	1,293,093	45,976	111,234
Units withdrawn	(712,543)	(113,763)	(77,268)	(130,043)	(1,819,283)	(2,747,441)	(951,940)	(367,263)
Units transferred between Sub-Accounts and to/from the Fixed Account	238,623	(7,684)	(20,530)	(4,265)	1,143,895	1,089,448	182,258	(26,689)
Net increase (decrease)	<u>(20,163)</u>	<u>(9,534)</u>	<u>(85,575)</u>	<u>69,357</u>	<u>(605,615)</u>	<u>(364,900)</u>	<u>(723,706)</u>	<u>(282,718)</u>

	MML Mid Cap Growth Sub-Account (Initial Class)	MML Mid Cap Growth Sub-Account (Service Class)	MML Mid Cap Value Sub-Account (Initial Class)	MML Mid Cap Value Sub-Account (Service Class)	MML Moderate Allocation Sub-Account (Initial Class)	MML Moderate Allocation Sub-Account (Service Class)	MML Short-Duration Bond Sub-Account (Service Class I)	MML Small Cap Equity Sub-Account (Initial Class)
2020 (Continued)								
Units purchased	19,263	367,727	30,405	270,336	114,317	1,967,183	657,905	11,156
Units withdrawn	(185,942)	(537,727)	(638,867)	(256,768)	(4,799,088)	(16,042,323)	(1,517,915)	(105,075)
Units transferred between Sub-Accounts and to/from the Fixed Account	(88,805)	(159,582)	271,794	12,234	(597,413)	(3,220,297)	1,985,352	(30,756)
Net increase (decrease)	<u>(255,484)</u>	<u>(329,582)</u>	<u>(336,669)</u>	<u>25,802</u>	<u>(5,282,184)</u>	<u>(17,295,437)</u>	<u>1,125,341</u>	<u>(124,674)</u>

	MML Small Cap Equity Sub-Account (Service Class)	MML Small Cap Growth Equity Sub-Account (Initial Class)	MML Small Cap Growth Equity Sub-Account (Service Class)	MML Small Company Value Sub-Account (Service Class)	MML Small/Mid Cap Value Sub-Account (Initial Class)	MML Small/Mid Cap Value Sub-Account (Service Class)	MML Special Situations Sub-Account (Service Class I)	MML Strategic Emerging Markets Sub-Account
2020 (Continued)								
Units purchased	172,720	16,856	129,646	229,882	37,584	213,542	2,202	72,528
Units withdrawn	(171,514)	(368,620)	(138,535)	(190,068)	(690,431)	(219,818)	(7,058)	(174,796)
Units transferred between Sub-Accounts and to/from the Fixed Account	(15,492)	(345,811)	(46,066)	(14,577)	252,454	(10,173)	(1,443)	(30,537)
Net increase (decrease)	<u>(14,285)</u>	<u>(697,575)</u>	<u>(54,954)</u>	<u>25,237</u>	<u>(400,392)</u>	<u>(16,448)</u>	<u>(6,299)</u>	<u>(132,805)</u>

	MML Total Return Bond Sub-Account	MML U.S. Government Money Market Sub-Account	PIMCO Commodity RealReturn® Strategy Sub-Account	VY® Clarion Global Real Estate Sub-Account
2020 (Continued)				
Units purchased	999,043	4,010,672	20,500	15,562
Units withdrawn	(655,687)	(21,919,889)	(280,439)	(160,648)
Units transferred between Sub-Accounts and to/from the Fixed Account	826,869	25,510,380	(78)	3,913
Net increase (decrease)	<u>1,170,225</u>	<u>7,601,162</u>	<u>(260,016)</u>	<u>(141,173)</u>

Notes To Financial Statements (Continued)

7. NET INCREASE (DECREASE) IN OUTSTANDING UNITS (Continued)

	BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)	Fidelity® VIP Contrafund® Sub-Account (Initial Class)	Fidelity® VIP Contrafund® Sub-Account (Service Class 2)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)	Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)	Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)
2019								
Units purchased	189,641	69,290	1,419,698	11,187	44,075	-	939	283,614
Units withdrawn	(12,054)	(863,590)	(839,360)	(73,709)	(967,794)	(340)	(56,007)	(82,102)
Units transferred between Sub-Accounts and to/from the Fixed Account	6	(372,643)	(65,201)	(9,752)	(563,198)	-	(1,028)	647
Net increase (decrease)	<u>177,593</u>	<u>(1,166,943)</u>	<u>515,136</u>	<u>(72,274)</u>	<u>(1,486,917)</u>	<u>(340)</u>	<u>(56,096)</u>	<u>202,159</u>
	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Sub-Account (Series I)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II)	Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)	Invesco Oppenheimer V.I. Government Money Sub-Account	Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)	Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)
2019 (Continued)								
Units purchased	39,716	331,553	51,327	397,597	84,446	44,577	160,185	15,166
Units withdrawn	(574,727)	(315,390)	(725,975)	(597,553)	(1,462,923)	(192,075)	(180,072)	(147,834)
Units transferred between Sub-Accounts and to/from the Fixed Account	(418,531)	(84,041)	(335,364)	183,604	605,055	71,689	(37,247)	(69,215)
Net increase (decrease)	<u>(953,542)</u>	<u>(67,879)</u>	<u>(1,010,012)</u>	<u>(16,352)</u>	<u>(773,422)</u>	<u>(75,809)</u>	<u>(57,133)</u>	<u>(201,884)</u>
	Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)	Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)	Invesco Oppenheimer V.I. Total Return Bond Sub-Account	Invesco V.I. Diversified Dividend Sub-Account (Series I)	Invesco V.I. Diversified Dividend Sub-Account (Series II)	Invesco V.I. Health Care Sub-Account (Series I)	Invesco V.I. Health Care Sub-Account (Series II)	Invesco V.I. Technology Sub-Account (Series I)
2019 (Continued)								
Units purchased	175,511	9,713	-	12,016	14,434	7,121	8,085	10,555
Units withdrawn	(109,465)	(130,272)	(14,333)	(48,130)	(359,475)	(40,819)	(77,472)	(36,289)
Units transferred between Sub-Accounts and to/from the Fixed Account	2,086	(62,497)	(1,978)	(36,696)	(19,259)	(271)	6,417	(5,272)
Net increase (decrease)	<u>68,131</u>	<u>(183,056)</u>	<u>(16,311)</u>	<u>(72,810)</u>	<u>(364,300)</u>	<u>(33,968)</u>	<u>(62,970)</u>	<u>(31,007)</u>
	Invesco V.I. Technology Sub-Account (Series II)	Ivy VIP Asset Strategy Sub-Account	MML Aggressive Allocation Sub-Account (Initial Class)	MML Aggressive Allocation Sub-Account (Service Class)	MML American Funds Core Allocation Sub-Account	MML American Funds Growth Sub-Account	MML American Funds International Sub-Account	MML Asset Momentum Sub-Account (Service Class I)
2019 (Continued)								
Units purchased	2,943	98,698	48,661	518,013	1,978,329	979,415	228,772	10,949
Units withdrawn	(72,251)	(132,535)	(157,042)	(705,473)	(8,189,022)	(851,095)	(462,063)	(11,172)
Units transferred between Sub-Accounts and to/from the Fixed Account	(8,507)	(31,304)	79,963	(46,440)	216,201	(236,456)	(40,316)	1,100
Net increase (decrease)	<u>(77,815)</u>	<u>(65,141)</u>	<u>(28,418)</u>	<u>(233,899)</u>	<u>(5,994,492)</u>	<u>(108,135)</u>	<u>(273,607)</u>	<u>877</u>

Notes To Financial Statements (Continued)

7. NET INCREASE (DECREASE) IN OUTSTANDING UNITS (Continued)

	MML Balanced Allocation Sub-Account (Initial Class)	MML Balanced Allocation Sub-Account (Service Class)	MML Blend Sub-Account (Initial Class)	MML Blend Sub-Account (Service Class)	MML Blue Chip Growth Sub-Account (Initial Class)	MML Blue Chip Growth Sub-Account (Service Class)	MML Conservative Allocation Sub-Account (Initial Class)	MML Conservative Allocation Sub-Account (Service Class)
2019 (Continued)								
Units purchased	51,675	2,026,029	31,846	2,186,950	14,769	1,252,468	57,489	1,984,269
Units withdrawn	(751,487)	(4,286,597)	(239,671)	(536,822)	(140,292)	(386,909)	(744,924)	(3,982,691)
Units transferred between Sub-Accounts and to/from the Fixed Account	335,689	60,045	22,527	13,622	7,172	(19,589)	251,390	116,375
Net increase (decrease)	<u>(364,123)</u>	<u>(2,200,522)</u>	<u>(185,299)</u>	<u>1,663,751</u>	<u>(118,351)</u>	<u>845,970</u>	<u>(436,045)</u>	<u>(1,882,047)</u>

	MML Dynamic Bond Sub-Account (Service Class I)	MML Equity Sub-Account (Initial Class)	MML Equity Sub-Account (Service Class)	MML Equity Income Sub-Account (Initial Class)	MML Equity Income Sub-Account (Service Class)	MML Equity Index Sub-Account (Class I)	MML Equity Index Sub-Account (Service Class I)	MML Equity Rotation Sub-Account (Service Class I)
2019 (Continued)								
Units purchased	373,967	11,847	572,428	48,820	426,641	18,812	19,212	11,709
Units withdrawn	(64,240)	(122,354)	(572,820)	(893,149)	(489,311)	(261,713)	(200,527)	(7,852)
Units transferred between Sub-Accounts and to/from the Fixed Account	617	16,937	(93,101)	(232,217)	(86,845)	(97,852)	(43,951)	(137)
Net increase (decrease)	<u>310,344</u>	<u>(93,570)</u>	<u>(93,493)</u>	<u>(1,076,546)</u>	<u>(149,516)</u>	<u>(340,752)</u>	<u>(225,266)</u>	<u>3,720</u>

	MML Focused Equity Sub-Account	MML Foreign Sub-Account (Initial Class)	MML Foreign Sub-Account (Service Class)	MML Fundamental Growth Sub-Account	MML Fundamental Value Sub-Account	MML Global Sub-Account (Class I)	MML Global Sub-Account (Service Class I)	MML Global Sub-Account (Class II)
2019 (Continued)								
Units purchased	306,026	72,025	57,192	161,905	163,886	2,929	169,454	7,328
Units withdrawn	(106,994)	(1,284,160)	(94,883)	(78,808)	(110,948)	(38,382)	(146,613)	(12,577)
Units transferred between Sub-Accounts and to/from the Fixed Account	49,220	552,356	12,533	17,465	7,247	(4,534)	(22,378)	23,931
Net increase (decrease)	<u>248,252</u>	<u>(659,779)</u>	<u>(25,158)</u>	<u>100,562</u>	<u>60,185</u>	<u>(39,987)</u>	<u>463</u>	<u>18,682</u>

	MML Growth & Income Sub-Account (Initial Class)	MML Growth & Income Sub-Account (Service Class)	MML Growth Allocation Sub-Account (Initial Class)	MML Growth Allocation Sub-Account (Service Class)	MML High Yield Sub-Account	MML Income & Growth Sub-Account (Initial Class)	MML Income & Growth Sub-Account (Service Class)	MML Inflation- Protected and Income Sub-Account (Initial Class)
2019 (Continued)								
Units purchased	17,084	422,955	300,417	1,283,599	517,866	14,723	175,355	87,978
Units withdrawn	(300,163)	(233,929)	(2,695,267)	(6,518,290)	(253,007)	(103,285)	(167,158)	(1,589,248)
Units transferred between Sub-Accounts and to/from the Fixed Account	(63,095)	(9,485)	(1,037,634)	(675,511)	47,905	38,841	7,150	924,600
Net increase (decrease)	<u>(346,174)</u>	<u>179,541</u>	<u>(3,432,485)</u>	<u>(5,910,202)</u>	<u>312,764</u>	<u>(49,721)</u>	<u>15,347</u>	<u>(576,671)</u>

Notes To Financial Statements (Continued)

7. NET INCREASE (DECREASE) IN OUTSTANDING UNITS (Continued)

	MML Inflation- Protected and Income Sub-Account (Service Class)	MML International Equity Sub-Account	MML Large Cap Growth Sub-Account (Initial Class)	MML Large Cap Growth Sub-Account (Service Class)	MML Managed Bond Sub-Account (Initial Class)	MML Managed Bond Sub-Account (Service Class)	MML Managed Volatility Sub-Account (Initial Class)	MML Managed Volatility Sub-Account (Service Class)
2019 (Continued)								
Units purchased	425,361	123,717	9,302	299,671	70,250	1,013,292	48,854	122,389
Units withdrawn	(531,945)	(66,586)	(85,570)	(121,404)	(1,156,891)	(2,512,273)	(924,097)	(258,555)
Units transferred between Sub-Accounts and to/from the Fixed Account	102,712	18,466	(22,608)	2,287	507,733	989,459	411,250	76,516
Net increase (decrease)	<u>(3,872)</u>	<u>75,597</u>	<u>(98,876)</u>	<u>180,554</u>	<u>(578,908)</u>	<u>(509,522)</u>	<u>(463,993)</u>	<u>(59,650)</u>

	MML Mid Cap Growth Sub-Account (Initial Class)	MML Mid Cap Growth Sub-Account (Service Class)	MML Mid Cap Value Sub-Account (Initial Class)	MML Mid Cap Value Sub-Account (Service Class)	MML Moderate Allocation Sub-Account (Initial Class)	MML Moderate Allocation Sub-Account (Service Class)	MML Short-Duration Bond Sub-Account (Service Class I)	MML Small Cap Equity Sub-Account (Initial Class)
2019 (Continued)								
Units purchased	15,093	585,095	36,333	395,313	139,009	3,285,111	1,086,005	8,190
Units withdrawn	(195,489)	(438,756)	(628,848)	(236,738)	(1,913,048)	(15,368,442)	(816,570)	(108,640)
Units transferred between Sub-Accounts and to/from the Fixed Account	(67,953)	(108,466)	(205,384)	(39,390)	122,343	(369,316)	121,323	(3,227)
Net increase (decrease)	<u>(248,350)</u>	<u>37,873</u>	<u>(797,899)</u>	<u>119,185</u>	<u>(1,651,696)</u>	<u>(12,452,647)</u>	<u>390,758</u>	<u>(103,677)</u>

	MML Small Cap Equity Sub-Account (Service Class)	MML Small Cap Growth Equity Sub-Account (Initial Class)	MML Small Cap Growth Equity Sub-Account (Service Class)	MML Small Company Value Sub-Account	MML Small/Mid Cap Value Sub-Account (Initial Class)	MML Small/Mid Cap Value Sub-Account (Service Class)	MML Special Situations Sub-Account (Service Class I)	MML Strategic Emerging Markets Sub-Account
2019 (Continued)								
Units purchased	204,885	20,979	255,914	219,444	33,233	227,459	7,042	148,852
Units withdrawn	(147,945)	(413,608)	(123,478)	(110,020)	(592,164)	(137,352)	(3,669)	(143,182)
Units transferred between Sub-Accounts and to/from the Fixed Account	(4,027)	(213,516)	(13,270)	4,945	70,526	4,449	39	(10,233)
Net increase (decrease)	<u>52,913</u>	<u>(606,145)</u>	<u>119,167</u>	<u>114,369</u>	<u>(488,404)</u>	<u>94,556</u>	<u>3,412</u>	<u>(4,563)</u>

	MML Total Return Bond Sub-Account	MML U.S. Government Money Market Sub-Account	Oppenheimer Global Multi- Alternatives Sub-Account	PIMCO Commodity Global Multi- RealReturn® Strategy Sub-Account	VY® Clarion Global Real Estate Sub-Account
2019 (Continued)					
Units purchased	736,983	1,648,532	11,797	47,261	17,200
Units withdrawn	(192,058)	(3,609,517)	(141,453)	(237,753)	(124,378)
Units transferred between Sub-Accounts and to/from the Fixed Account	69,784	1,750,432	(117,338)	39,024	6,478
Net increase (decrease)	<u>614,710</u>	<u>(210,553)</u>	<u>(246,994)</u>	<u>(151,467)</u>	<u>(100,700)</u>

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS

A. A summary of units outstanding, unit values, net assets, investment income ratios, expense ratios (excluding expenses of the underlying funds) and total return ratios for each of the five years in the period ended December 31, 2020 follows:

	At December 31,				For the Years Ended December 31,						
	Units	Unit Value ³ (Lowest to Highest)		Net Assets	Investment Income Ratio ¹		Expense Ratio ² (Lowest to Highest)		Total Return ³ (Lowest to Highest)		
BlackRock iShares® Alternatives Strategies V.I. Sub-Account (Class III)											
2020	-	\$ -	to \$ -	-	-	-	to	-	-	-	
2019	-	-	to -	-	-	-	to -	-	-	-	
2018 ⁷	-	11.29	to 11.55	-	-	1.00	to 1.80	0.98	to 1.52		
2017	92,123	11.18	to 11.37	1,047,836	2.98	1.00	to 1.80	10.45	to 11.33		
2016	54,350	10.12	to 10.22	555,192	4.32	1.00	to 1.80	4.33	to 5.16		
BlackRock 60/40 Target Allocation ETF V.I. Sub-Account (Class III)											
2020	603,542	14.17	to 14.77	8,908,234	1.89	1.00	to 1.80	12.31	to 13.21		
2019	274,313	12.62	to 13.05	3,575,830	4.15	1.00	to 1.80	19.06	to 20.02		
2018	96,720	10.60	to 10.87	1,051,057	0.87	1.00	to 1.80	(6.88)	to (6.13)		
2017	76,335	11.38	to 11.58	884,020	2.54	1.00	to 1.80	12.69	to 13.59		
2016	35,649	10.10	to 10.20	363,359	2.71	1.00	to 1.80	4.27	to 5.10		
BlackRock iShares® Dynamic Fixed Income V.I. Sub-Account (Class III)											
2020	-	-	to -	-	-	-	to -	-	to -	-	
2019	-	-	to -	-	-	-	to -	-	to -	-	
2018 ⁸	-	9.88	to 10.07	-	-	1.00	to 1.80	(2.29)	to (2.10)		
2017	162,634	10.11	to 10.29	1,672,552	2.52	1.00	to 1.80	1.76	to 2.57		
2016	111,228	9.94	to 10.03	1,115,162	2.42	1.00	to 1.80	1.48	to 2.29		
BlackRock iShares® Equity Appreciation V.I. Sub-Account (Class III)											
2020	-	-	to -	-	-	-	to -	-	to -	-	
2019	-	-	to -	-	-	-	to -	-	to -	-	
2018 ⁸	-	11.96	to 12.20	-	-	1.00	to 1.80	(2.34)	to (2.15)		
2017	70,900	12.25	to 12.47	882,818	1.88	1.00	to 1.80	19.41	to 20.36		
2016	59,162	10.26	to 10.36	612,291	2.98	1.00	to 1.80	7.11	to 7.97		
Fidelity® VIP Contrafund® Sub-Account (Initial Class)											
2020	4,994,284	35.45	to 54.52	237,247,151	0.24	0.95	to 2.60	27.22	to 29.33		
2019	6,319,467	27.86	to 42.16	232,111,397	0.45	0.95	to 2.60	28.20	to 30.33		
2018	7,486,410	21.73	to 32.34	212,143,084	0.68	0.95	to 2.60	(8.79)	to (7.27)		
2017	8,813,211	23.83	to 34.88	270,257,413	0.98	0.95	to 2.60	18.76	to 20.73		
2016	10,065,234	20.07	to 28.89	256,505,001	0.79	0.95	to 2.60	5.24	to 6.99		
Fidelity® VIP Contrafund® Sub-Account (Service Class 2)											
2020	8,326,913	19.76	to 32.86	229,257,699	0.08	1.00	to 3.10	26.26	to 28.94		
2019	8,336,046	15.32	to 26.03	191,552,509	0.22	1.00	to 3.10	27.27	to 29.97		
2018	7,820,910	11.79	to 20.45	150,211,346	0.45	1.00	to 3.10	(9.51)	to (7.57)		
2017	6,722,621	12.76	to 22.60	154,879,781	0.80	1.00	to 3.10	17.89	to 20.38		
2016	5,476,326	10.60	to 19.17	118,297,754	0.66	1.00	to 3.10	4.45	to 6.66		
Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series II)⁹											
2020	366,591	26.20	to 38.01	13,216,783	-	1.15	to 3.10	32.08	to 34.68		
2019	481,175	19.83	to 28.22	12,888,583	-	1.15	to 3.10	31.70	to 34.29		
2018	553,449	15.06	to 21.01	11,026,041	-	1.15	to 3.10	(8.84)	to (7.04)		
2017	636,528	16.52	to 22.60	13,651,148	0.01	1.15	to 3.10	22.66	to 25.06		
2016	669,136	13.47	to 18.07	11,507,034	0.11	1.15	to 3.10	(5.40)	to (3.54)		
Invesco Oppenheimer V.I. Capital Appreciation Sub-Account (Series I)⁹											
2020	4,332,520	28.26	to 40.20	160,848,549	-	0.95	to 2.60	33.08	to 35.30		
2019	5,846,107	21.24	to 29.72	161,347,994	0.06	0.95	to 2.60	32.70	to 34.91		
2018	7,333,024	16.00	to 22.03	150,727,803	0.33	0.95	to 2.60	(8.16)	to (6.63)		
2017	8,824,152	17.42	to 23.59	195,124,067	0.24	0.95	to 2.60	23.59	to 25.64		
2016	10,289,099	14.10	to 18.78	181,883,596	0.42	0.95	to 2.60	(4.71)	to (3.12)		

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,				For the Years Ended December 31,						
	Units	Unit Value ³		Net Assets	Investment		Expense Ratio ²		Total Return ³		
		(Lowest to Highest)			Income Ratio ¹	(Lowest to Highest)	(Lowest to Highest)				
Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series II)⁹											
2020	4,777	\$ 12.75	to \$ 17.10	\$ 76,534	1.88 %	1.15 %	to 2.65 %	11.59 %	to 13.28 %		
2019	5,079	11.42	to 15.09	71,711	2.00	1.15	to 2.65	14.15	to 15.88		
2018	5,419	10.01	to 13.03	66,010	1.73	1.15	to 2.65	(8.02)	to (6.62)		
2017	5,979	10.88	to 13.95	78,036	1.69	1.15	to 2.65	6.11	to 7.71		
2016	6,910	10.25	to 12.95	84,787	2.12	1.15	to 2.65	2.22	to 3.77		
Invesco Oppenheimer V.I. Conservative Balanced Sub-Account (Series I)⁹											
2020	377,168	13.10	to 20.14	7,060,991	2.07	0.95	to 2.60	11.91	to 13.77		
2019	417,214	11.71	to 17.70	6,873,042	2.24	0.95	to 2.60	14.50	to 16.40		
2018	473,310	10.23	to 15.21	6,725,065	1.97	0.95	to 2.60	(7.77)	to (6.22)		
2017	534,403	11.09	to 16.22	8,114,383	1.96	0.95	to 2.60	6.46	to 8.22		
2016	630,503	10.42	to 14.99	8,876,450	2.39	0.95	to 2.60	2.57	to 4.27		
Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series II)⁹											
2020	1,067,971	22.77	to 31.25	28,338,933	-	1.00	to 3.10	35.96	to 38.85		
2019	875,114	16.40	to 22.99	18,022,291	-	1.00	to 3.10	34.77	to 37.63		
2018	672,955	11.92	to 17.06	11,178,908	-	1.00	to 3.10	(9.18)	to (7.24)		
2017	531,806	12.85	to 18.78	10,967,039	-	1.00	to 3.10	24.55	to 27.18		
2016	413,368	10.10	to 15.08	7,455,029	-	1.00	to 3.10	(1.03)	to 1.06		
Invesco Oppenheimer V.I. Discovery Mid Cap Growth Sub-Account (Series I)⁹											
2020	2,592,033	33.74	to 46.92	106,383,035	0.04	0.95	to 2.60	37.08	to 39.36		
2019	3,582,421	24.61	to 33.67	106,476,690	-	0.95	to 2.60	35.79	to 38.05		
2018	4,535,962	18.13	to 24.39	99,470,922	-	0.95	to 2.60	(8.51)	to (6.98)		
2017	5,478,879	19.81	to 26.22	130,393,799	0.03	0.95	to 2.60	25.50	to 27.58		
2016	6,350,802	15.79	to 20.55	119,229,530	-	0.95	to 2.60	(0.29)	to 1.37		
Invesco Oppenheimer V.I. Global Sub-Account (Series II)⁹											
2020	2,759,316	18.25	to 27.94	75,781,828	0.44	1.00	to 3.10	23.45	to 26.07		
2019	3,054,222	14.48	to 22.63	69,852,655	0.64	1.00	to 3.10	27.44	to 30.15		
2018	3,122,101	11.13	to 17.76	58,317,027	0.76	1.00	to 3.10	(16.05)	to (14.26)		
2017	2,668,038	12.98	to 21.15	65,203,626	0.72	1.00	to 3.10	32.17	to 34.97		
2016	2,429,442	9.61	to 16.00	47,830,566	0.77	1.00	to 3.10	(3.20)	to (1.15)		
Invesco Oppenheimer V.I. Global Sub-Account (Series I)⁹											
2020	4,227,403	30.13	to 46.75	176,607,524	0.67	0.95	to 2.60	24.36	to 26.43		
2019	5,325,923	24.23	to 36.97	176,050,964	0.89	0.95	to 2.60	28.41	to 30.54		
2018	6,335,935	18.87	to 28.32	161,039,139	0.99	0.95	to 2.60	(15.42)	to (14.01)		
2017	7,226,325	22.31	to 32.94	214,656,278	0.94	0.95	to 2.60	33.17	to 35.38		
2016	8,685,167	16.75	to 24.33	191,007,098	1.07	0.95	to 2.60	(2.48)	to (0.86)		
Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series II)⁹											
2020	4,076,835	11.34	to 12.95	61,117,704	5.16	1.00	to 3.10	(0.15)	to 1.97		
2019	4,957,887	11.12	to 12.97	74,928,822	3.39	1.00	to 3.10	7.23	to 9.51		
2018	4,974,238	10.16	to 12.10	70,206,556	4.56	1.00	to 3.10	(7.47)	to (5.49)		
2017	4,881,261	10.75	to 13.07	75,321,693	1.95	1.00	to 3.10	2.81	to 4.99		
2016	4,528,125	10.24	to 12.72	68,620,181	4.57	1.00	to 3.10	3.03	to 5.21		
Invesco Oppenheimer V.I. Global Strategic Income Sub-Account (Series I)⁹											
2020	8,478,804	13.99	to 22.64	154,124,943	5.81	0.95	to 2.60	0.75	to 2.42		
2019	9,820,494	13.89	to 22.10	174,837,228	3.80	0.95	to 2.60	7.96	to 9.76		
2018	10,593,916	12.86	to 20.14	173,249,673	4.84	0.95	to 2.60	(6.86)	to (5.31)		
2017	12,240,624	13.81	to 21.27	211,836,285	2.29	0.95	to 2.60	3.55	to 5.27		
2016	13,230,514	13.34	to 20.20	218,695,233	5.00	0.95	to 2.60	3.81	to 5.53		

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,				For the Years Ended December 31,						
	Units	Unit Value ³		Net Assets	Investment		Expense Ratio ²		Total Return ³		
		(Lowest to Highest)			Income Ratio ¹	(Lowest to Highest)	(Lowest to Highest)				
Invesco Oppenheimer V.I. Government Money Sub-Account⁹											
2020	657,647	\$ 7.85	to \$ 10.41	\$ 6,847,355	0.22 %	0.95 %	to 2.60 %	(2.35)%	to (0.73)%		
2019	673,998	8.04	to 10.49	7,061,758	1.70	0.95	to 2.60	(0.90)	to 0.75		
2018	749,807	8.11	to 10.41	7,836,332	1.34	0.95	to 2.60	(1.26)	to 0.39		
2017	758,493	8.21	to 10.37	7,890,182	0.38	0.95	to 2.60	(2.18)	to (0.56)		
2016	769,084	8.40	to 10.43	8,057,894	0.01	0.95	to 2.60	(2.55)	to (0.93)		
Invesco Oppenheimer V.I. International Growth Sub-Account (Series II)⁹											
2020	1,189,787	14.30	to 21.85	25,837,159	0.62	1.00	to 3.10	17.35	to 19.84		
2019	1,376,480	11.94	to 18.62	26,966,589	0.71	1.00	to 3.10	24.05	to 26.68		
2018	1,433,614	9.42	to 15.01	23,629,838	0.60	1.00	to 3.10	(22.02)	to (20.36)		
2017	1,259,629	11.83	to 19.25	28,549,998	1.14	1.00	to 3.10	22.60	to 25.19		
2016	1,142,092	9.45	to 15.70	22,105,225	0.82	1.00	to 3.10	(5.68)	to (3.68)		
Invesco Oppenheimer V.I. International Growth Sub-Account (Series I)⁹											
2020	1,029,713	23.62	to 34.27	32,043,570	0.93	0.95	to 2.60	18.38	to 20.35		
2019	1,267,445	19.95	to 28.48	32,768,962	1.05	0.95	to 2.60	25.30	to 27.39		
2018	1,469,329	15.92	to 22.36	30,045,032	0.86	0.95	to 2.60	(21.50)	to (20.18)		
2017	1,586,186	20.29	to 28.01	40,886,987	1.43	0.95	to 2.60	23.06	to 25.10		
2016	1,727,776	16.48	to 22.39	35,872,901	1.10	0.95	to 2.60	(4.62)	to (3.04)		
Invesco Oppenheimer V.I. Main Street Sub-Account (Series II)⁹											
2020	1,040,875	16.86	to 23.21	21,292,780	1.17	1.00	to 3.10	10.22	to 12.56		
2019	1,022,590	14.98	to 21.06	19,582,090	0.81	1.00	to 3.10	27.72	to 30.43		
2018	954,458	11.49	to 16.49	14,676,353	0.90	1.00	to 3.10	(10.92)	to (9.02)		
2017	811,263	12.62	to 18.51	14,827,618	1.01	1.00	to 3.10	13.09	to 15.48		
2016	578,264	10.93	to 16.37	10,570,828	0.81	1.00	to 3.10	7.91	to 10.19		
Invesco Oppenheimer V.I. Main Street Sub-Account (Series I)⁹											
2020	1,047,878	25.02	to 35.61	33,044,884	1.49	0.95	to 2.60	11.02	to 12.87		
2019	1,159,288	22.54	to 31.55	32,594,095	1.06	0.95	to 2.60	28.69	to 30.83		
2018	1,342,344	17.52	to 24.12	28,990,577	1.17	0.95	to 2.60	(10.26)	to (8.76)		
2017	1,485,284	19.52	to 26.43	35,355,748	1.25	0.95	to 2.60	13.92	to 15.81		
2016	1,636,217	17.13	to 22.82	33,814,437	1.12	0.95	to 2.60	8.76	to 10.56		
Invesco Oppenheimer V.I. Total Return Bond Sub-Account⁹											
2020	120,583	-	to 16.61	2,002,482	3.09	-	to 1.40	-	to 8.18		
2019	129,518	-	to 15.35	1,988,167	3.32	-	to 1.40	-	to 8.00		
2018	145,829	-	to 14.21	2,072,652	3.33	-	to 1.40	-	to (2.41)		
2017	165,749	-	to 14.56	2,413,840	2.43	-	to 1.40	-	to 3.14		
2016	187,107	-	to 14.12	2,642,040	3.70	-	to 1.40	-	to 1.84		
Invesco V.I. Diversified Dividend Sub-Account (Series I)⁹											
2020	483,803	9.04	to 13.79	6,302,426	3.18	0.95	to 2.60	(2.43)	to (0.81)		
2019	517,444	9.27	to 13.91	6,771,474	2.90	0.95	to 2.60	21.88	to 23.91		
2018	590,254	7.60	to 11.22	6,260,165	2.36	0.95	to 2.60	(9.96)	to (8.45)		
2017	676,418	8.45	to 12.26	7,720,912	1.65	0.95	to 2.60	5.80	to 7.55		
2016	736,362	7.98	to 11.40	7,837,640	1.38	0.95	to 2.60	11.87	to 13.73		
Invesco V.I. Diversified Dividend Sub-Account (Series II)											
2020	945,327	8.40	to 12.29	10,939,473	2.70	1.15	to 3.10	(3.18)	to (1.28)		
2019	1,203,871	8.68	to 12.44	14,181,904	2.53	1.15	to 3.10	20.97	to 23.35		
2018	1,568,171	7.17	to 10.09	14,983,575	2.15	1.15	to 3.10	(10.64)	to (8.87)		
2017	1,643,070	8.03	to 11.07	17,155,729	1.50	1.15	to 3.10	5.05	to 7.11		
2016	1,687,179	7.64	to 10.34	16,407,276	1.27	1.15	to 3.10	11.05	to 13.23		

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,		For the Years Ended December 31,							
	Units	Unit Value ³		Net Assets	Investment		Expense Ratio ²		Total Return ³	
		(Lowest to Highest)			Income Ratio ¹	(Lowest to Highest)	(Lowest to Highest)	(Lowest to Highest)		
Invesco V.I. Health Care Sub-Account (Series I)										
2020	309,109	\$ 27.26	to \$ 40.42	\$ 11,325,826	0.31 %	0.95 %	to 2.60 %	11.52 %	to 13.38 %	
2019	355,234	24.45	to 35.65	11,544,579	0.04	0.95	to 2.60	29.10	to 31.25	
2018	389,202	18.94	to 27.16	9,685,524	-	0.95	to 2.60	(1.70)	to (0.05)	
2017	449,464	19.26	to 27.18	11,252,795	0.36	0.95	to 2.60	12.86	to 14.73	
2016	550,239	17.07	to 23.69	12,141,263	-	0.95	to 2.60	(13.73)	to (12.30)	
Invesco V.I. Health Care Sub-Account (Series II)										
2020	350,828	25.28	to 37.26	12,414,240	0.09	1.15	to 3.10	10.71	to 12.89	
2019	424,441	22.83	to 33.00	13,391,320	-	1.15	to 3.10	28.15	to 30.67	
2018	487,410	17.82	to 25.26	11,728,521	-	1.15	to 3.10	(2.47)	to (0.54)	
2017	579,001	18.27	to 25.40	13,988,456	0.08	1.15	to 3.10	12.03	to 14.23	
2016	665,130	16.31	to 22.23	14,005,123	-	1.15	to 3.10	(14.37)	to (12.69)	
Invesco V.I. Technology Sub-Account (Series I)										
2020	381,843	34.68	to 45.92	9,461,356	-	0.95	to 2.60	42.37	to 44.74	
2019	409,274	24.36	to 31.73	7,407,278	-	0.95	to 2.60	32.39	to 34.59	
2018	440,280	18.40	to 23.57	6,043,444	-	0.95	to 2.60	(3.02)	to (1.40)	
2017	485,107	18.97	to 23.91	7,039,384	-	0.95	to 2.60	31.68	to 33.86	
2016	477,318	14.41	to 17.86	5,520,565	-	0.95	to 2.60	(3.30)	to (1.69)	
Invesco V.I. Technology Sub-Account (Series II)										
2020	274,028	32.15	to 53.68	13,181,326	-	1.15	to 3.10	41.35	to 44.13	
2019	300,092	22.74	to 37.25	10,156,434	-	1.15	to 3.10	31.42	to 34.01	
2018	377,907	17.30	to 27.79	9,565,714	-	1.15	to 3.10	(3.76)	to (1.85)	
2017	364,551	17.98	to 28.32	9,417,375	-	1.15	to 3.10	30.64	to 33.20	
2016	347,245	13.76	to 21.26	6,782,767	-	1.15	to 3.10	(4.02)	to (2.14)	
Ivy VIP Asset Strategy Sub-Account										
2020	904,514	13.39	to 13.84	13,270,558	2.02	1.00	to 3.10	10.40	to 12.74	
2019	943,855	12.13	to 12.27	12,403,360	2.13	1.00	to 3.10	18.06	to 20.57	
2018	1,008,997	10.18	to 10.27	11,123,858	1.88	1.00	to 3.10	(8.34)	to (6.39)	
2017	982,489	10.88	to 11.21	11,774,897	1.59	1.00	to 3.10	14.67	to 17.10	
2016	1,062,865	9.29	to 9.77	11,011,299	0.59	1.00	to 3.10	(5.53)	to (3.54)	
MML Aggressive Allocation Sub-Account (Initial Class)										
2020	1,451,095	19.32	to 23.92	33,588,339	1.67	0.95	to 2.60	10.44	to 12.27	
2019	1,821,022	17.49	to 21.30	37,508,768	1.99	0.95	to 2.60	20.75	to 22.76	
2018	1,849,440	14.49	to 17.35	31,085,089	1.34	0.95	to 2.60	(10.49)	to (8.99)	
2017	2,054,640	16.18	to 19.07	38,015,322	1.11	0.95	to 2.60	15.73	to 17.65	
2016	2,239,323	13.98	to 16.21	35,369,015	1.55	0.95	to 2.60	5.76	to 7.52	
MML Aggressive Allocation Sub-Account (Service Class)										
2020	4,774,344	15.28	to 17.74	93,600,335	1.38	1.00	to 3.10	9.63	to 11.95	
2019	5,325,759	13.65	to 16.18	95,636,402	1.71	1.00	to 3.10	19.87	to 22.42	
2018	5,559,658	11.15	to 13.50	83,188,210	1.17	1.00	to 3.10	(11.26)	to (9.36)	
2017	5,308,383	12.30	to 15.21	90,242,471	0.96	1.00	to 3.10	14.83	to 17.26	
2016	4,946,142	10.49	to 13.25	73,642,938	1.34	1.00	to 3.10	4.98	to 7.20	
MML Amerian Funds Core Allocation Sub-Account										
2020	49,211,939	14.59	to 16.31	930,308,860	1.73	1.00	to 3.10	7.99	to 10.28	
2019	57,034,873	13.23	to 15.10	989,500,489	2.39	1.00	to 3.10	14.51	to 16.94	
2018	63,029,364	11.31	to 13.19	944,978,070	1.71	1.00	to 3.10	(7.76)	to (5.79)	
2017	67,444,935	12.01	to 14.30	1,083,277,030	1.41	1.00	to 3.10	11.44	to 13.80	
2016	64,956,863	10.55	to 12.83	932,979,667	1.87	1.00	to 3.10	5.65	to 7.89	
MML Amerian Funds Growth Sub-Account										
2020	7,372,819	25.87	to 34.47	249,753,195	0.72	1.00	to 3.10	46.80	to 49.91	
2019	8,104,921	17.26	to 23.48	191,745,889	0.32	1.00	to 3.10	26.25	to 28.93	
2018	8,213,057	13.39	to 18.60	158,458,588	0.28	1.00	to 3.10	(3.70)	to (1.65)	
2017	8,081,415	13.61	to 19.32	167,744,731	0.30	1.00	to 3.10	23.90	to 26.52	
2016	7,943,777	10.76	to 15.59	136,717,100	0.21	1.00	to 3.10	5.69	to 7.92	

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,		For the Years Ended December 31,							
	Units	Unit Value ³		Net Assets	Investment		Expense Ratio ²		Total Return ³	
		(Lowest to Highest)			Income Ratio ¹	(Lowest to Highest)	(Lowest to Highest)	(Lowest to Highest)		
MML Amerian Funds International Sub-Account										
2020	3,496,882	\$ 13.95 to \$ 14.70	\$ 58,820,176	1.03 %	1.00 % to 3.10 %	9.98 % to 12.31 %				
2019	4,069,542	12.69 to 13.09	61,510,006	2.74	1.00 to 3.10	18.58 to 21.09				
2018	4,343,149	10.70 to 10.81	54,602,962	0.82	1.00 to 3.10	(16.18) to (14.39)				
2017	4,359,057	12.62 to 12.76	64,715,051	0.82	1.00 to 3.10	27.64 to 30.35				
2016	4,560,968	9.68 to 10.00	52,316,709	1.16	1.00 to 3.10	(0.16) to 1.95				
MML Balanced Allocation Sub-Account (Initial Class)										
2020	4,442,634	15.80 to 19.56	83,010,888	2.67	0.95 to 2.60	8.09 to 9.89				
2019	5,809,475	14.62 to 17.80	99,026,168	2.57	0.95 to 2.60	13.75 to 15.65				
2018	6,173,598	12.85 to 15.40	91,530,192	2.29	0.95 to 2.60	(6.93) to (5.38)				
2017	7,150,965	13.81 to 16.27	112,285,437	1.92	0.95 to 2.60	8.63 to 10.43				
2016	7,704,110	12.71 to 14.73	110,199,123	2.28	0.95 to 2.60	3.43 to 5.15				
MML Balanced Allocation Sub-Account (Service Class)										
2020	22,692,373	13.50 to 14.54	373,173,046	2.42	1.00 to 3.10	7.27 to 9.54				
2019	26,645,694	12.32 to 13.56	408,910,548	2.31	1.00 to 3.10	13.05 to 15.45				
2018	28,846,215	10.67 to 11.99	391,117,726	2.07	1.00 to 3.10	(7.69) to (5.72)				
2017	31,226,600	11.32 to 12.99	459,709,617	1.71	1.00 to 3.10	7.82 to 10.11				
2016	32,113,847	10.28 to 12.05	438,781,835	2.11	1.00 to 3.10	2.60 to 4.77				
MML Blend Sub-Account (Initial Class)										
2020	2,246,956	22.88 to 33.14	65,024,452	-	0.95 to 2.60	9.97 to 11.80				
2019	2,419,280	20.81 to 29.64	62,980,806	2.43	0.95 to 2.60	18.27 to 20.23				
2018	2,604,579	17.59 to 24.65	56,577,666	2.11	0.95 to 2.60	(6.81) to (5.25)				
2017	2,870,494	18.88 to 26.02	66,201,478	2.11	0.95 to 2.60	12.31 to 14.17				
2016	3,185,857	16.81 to 22.79	64,599,999	2.13	0.95 to 2.60	6.62 to 8.39				
MML Blend Sub-Account (Service Class)										
2020	10,470,381	15.33 to 21.21	185,705,276	-	1.00 to 3.10	9.14 to 11.45				
2019	9,995,211	13.76 to 19.44	161,858,732	2.20	1.00 to 3.10	17.38 to 19.87				
2018	8,331,460	11.47 to 16.56	118,605,705	2.01	1.00 to 3.10	(7.51) to (5.53)				
2017	5,096,057	12.15 to 17.90	88,119,240	1.97	1.00 to 3.10	11.47 to 13.83				
2016	3,435,697	10.67 to 16.06	60,017,383	1.94	1.00 to 3.10	5.82 to 8.06				
MML Blue Chip Growth Sub-Account (Initial Class)										
2020	1,113,935	41.94 to 61.03	64,905,396	-	0.95 to 2.60	30.96 to 33.13				
2019	1,289,749	32.02 to 45.84	56,366,432	-	0.95 to 2.60	26.51 to 28.62				
2018	1,408,101	25.31 to 35.64	48,210,759	-	0.95 to 2.60	(0.75) to 0.91				
2017	1,675,677	25.51 to 35.32	57,023,079	0.01	0.95 to 2.60	32.74 to 34.94				
2016	1,882,269	19.22 to 26.17	47,571,672	-	0.95 to 2.60	(1.68) to (0.04)				
MML Blue Chip Growth Sub-Account (Service Class)										
2020	6,214,398	23.15 to 38.87	181,685,317	-	1.00 to 3.10	29.91 to 32.66				
2019	5,915,556	17.45 to 29.92	137,333,697	-	1.00 to 3.10	25.60 to 28.27				
2018	5,069,585	13.60 to 23.82	99,468,289	-	1.00 to 3.10	(1.44) to 0.66				
2017	3,342,409	13.51 to 24.17	77,072,040	-	1.00 to 3.10	31.76 to 34.55				
2016	2,352,355	10.04 to 18.35	47,399,149	-	1.00 to 3.10	(2.41) to (0.35)				
MML Conservative Allocation Sub-Account (Initial Class)										
2020	4,208,998	15.20 to 18.82	76,130,207	2.60	0.95 to 2.60	7.11 to 8.89				
2019	4,480,056	14.19 to 17.29	74,794,028	2.68	0.95 to 2.60	12.24 to 14.11				
2018	4,916,102	12.65 to 15.15	72,187,610	2.52	0.95 to 2.60	(5.99) to (4.41)				
2017	5,515,710	13.45 to 15.85	84,980,369	2.17	0.95 to 2.60	6.81 to 8.59				
2016	6,405,735	12.59 to 14.59	91,123,910	2.33	0.95 to 2.60	3.08 to 4.79				
MML Conservative Allocation Sub-Account (Service Class)										
2020	21,085,898	13.06 to 13.96	338,139,060	2.48	1.00 to 3.10	6.32 to 8.58				
2019	20,930,050	12.03 to 13.13	312,722,144	2.47	1.00 to 3.10	11.42 to 13.79				
2018	22,812,097	10.57 to 11.79	306,155,920	2.26	1.00 to 3.10	(6.65) to (4.66)				
2017	25,771,201	11.09 to 12.63	368,723,696	1.97	1.00 to 3.10	6.01 to 8.25				
2016	27,042,671	10.25 to 11.91	364,206,497	2.16	1.00 to 3.10	2.27 to 4.43				

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,				For the Years Ended December 31,						
	Unit Value ³		Net Assets	Investment	Income Ratio ¹	Expense Ratio ²		Total Return ³			
	Units	(Lowest to Highest)				(Lowest to Highest)	(Lowest to Highest)	(Lowest to Highest)			
MML Dynamic Bond Sub-Account (Service Class I)											
2020	1,102,442	\$ 10.96 to \$ 11.42	\$ 12,453,262	0.34 %	1.00 % to 1.80 %	1.67 % to 2.48 %					
2019	918,215	10.78 to 11.14	10,144,350	3.42	1.00 to 1.80	6.59 to 7.45					
2018	607,871	10.11 to 10.37	6,269,866	3.31	1.00 to 1.80	(2.11) to (1.32)					
2017	421,103	10.33 to 10.51	4,411,076	3.26	1.00 to 1.80	2.26 to 3.08					
2016	275,395	10.10 to 10.20	2,803,633	3.26	1.00 to 1.80	2.80 to 3.63					
MML Equity Sub-Account (Initial Class)											
2020	925,884	19.34 to 28.08	21,590,756	2.35	0.95 to 2.60	0.38 to 2.05					
2019	1,097,055	19.27 to 27.51	25,084,965	2.04	0.95 to 2.60	22.69 to 24.73					
2018	1,190,624	15.71 to 22.06	21,958,025	1.77	0.95 to 2.60	(12.32) to (10.85)					
2017	1,330,305	17.91 to 24.74	27,833,264	1.82	0.95 to 2.60	12.83 to 14.70					
2016	1,478,690	15.88 to 21.57	27,122,827	1.72	0.95 to 2.60	9.71 to 11.53					
MML Equity Sub-Account (Service Class)											
2020	4,851,758	13.98 to 17.94	94,339,624	2.14	1.00 to 3.10	(0.37) to 1.75					
2019	4,923,227	13.74 to 18.01	97,057,943	1.82	1.00 to 3.10	21.78 to 24.36					
2018	5,016,720	11.05 to 14.79	82,975,610	1.58	1.00 to 3.10	(12.97) to (11.12)					
2017	4,961,769	12.43 to 16.99	94,815,216	1.67	1.00 to 3.10	11.99 to 14.36					
2016	4,623,570	10.87 to 15.17	82,044,629	1.56	1.00 to 3.10	8.89 to 11.19					
MML Equity Income Sub-Account (Initial Class)											
2020	5,424,458	20.16 to 29.21	141,959,006	2.46	0.95 to 2.60	(1.26) to 0.38					
2019	5,987,062	20.42 to 29.10	157,019,262	2.28	0.95 to 2.60	23.21 to 25.26					
2018	7,063,608	16.57 to 23.23	148,592,012	1.88	0.95 to 2.60	(11.70) to (10.23)					
2017	8,186,156	18.77 to 25.88	192,596,091	2.14	0.95 to 2.60	13.36 to 15.24					
2016	9,518,731	16.56 to 22.46	194,949,078	2.01	0.95 to 2.60	15.65 to 17.56					
MML Equity Income Sub-Account (Service Class)											
2020	3,974,069	14.72 to 18.71	82,700,285	2.20	1.00 to 3.10	(1.92) to 0.16					
2019	4,049,182	14.69 to 19.07	86,738,940	2.07	1.00 to 3.10	22.27 to 24.86					
2018	4,198,697	11.77 to 15.60	75,340,152	1.70	1.00 to 3.10	(12.37) to (10.50)					
2017	4,146,101	13.15 to 17.80	86,207,492	1.98	1.00 to 3.10	12.44 to 14.82					
2016	4,106,682	11.45 to 15.83	77,668,627	1.83	1.00 to 3.10	14.86 to 17.29					
MML Equity Index Sub-Account (Class I)											
2020	1,036,338	27.56 to 39.57	32,974,512	1.64	0.95 to 2.60	15.03 to 16.94					
2019	1,204,817	23.96 to 33.84	33,045,075	2.57	0.95 to 2.60	27.50 to 29.62					
2018	1,545,569	18.79 to 26.10	32,889,678	1.51	0.95 to 2.60	(7.26) to (5.71)					
2017	1,976,015	20.26 to 27.68	44,330,016	0.94	0.95 to 2.60	18.24 to 20.20					
2016	2,503,591	17.14 to 23.03	46,624,051	1.61	0.95 to 2.60	8.63 to 10.43					
MML Equity Index Sub-Account (Service Class I)											
2020	1,247,806	25.55 to 36.56	44,360,172	1.46	1.15 to 3.10	14.14 to 16.39					
2019	1,507,010	22.38 to 31.41	45,972,770	2.57	1.15 to 3.10	26.57 to 29.06					
2018	1,732,277	17.68 to 24.34	40,825,319	1.36	1.15 to 3.10	(7.96) to (6.13)					
2017	1,942,798	19.21 to 25.93	48,715,396	0.87	1.15 to 3.10	17.37 to 19.68					
2016	2,014,920	16.37 to 21.66	42,156,829	1.57	1.15 to 3.10	7.81 to 9.93					
MML Equity Momentum Sub-Account (Service Class I)											
2020 ¹¹	109,941	17.88 to 18.63	2,048,092	0.01	1.00 to 1.80	17.86 to 18.81					
2019	120,799	15.17 to 15.68	1,893,686	0.68	1.00 to 1.80	35.06 to 36.14					
2018	119,922	11.23 to 11.52	1,380,613	0.09	1.00 to 1.80	(18.42) to (17.76)					
2017	108,500	13.77 to 14.01	1,518,813	1.42	1.00 to 1.80	31.40 to 32.45					
2016	78,083	10.48 to 10.58	824,965	0.85	1.00 to 1.80	7.89 to 8.76					
MML Equity Rotation Sub-Account (Service Class I)											
2020	108,233	17.89 to 18.64	2,017,490	1.39	1.00 to 1.80	20.39 to 21.35					
2019	113,361	14.86 to 15.36	1,741,305	0.19	1.00 to 1.80	14.22 to 15.14					
2018	109,641	13.01 to 13.34	1,462,409	0.76	1.00 to 1.80	(10.73) to (10.01)					
2017	86,852	14.57 to 14.83	1,286,782	0.82	1.00 to 1.80	27.38 to 28.40					
2016	27,425	11.44 to 11.55	316,663	1.69	1.00 to 1.80	15.13 to 16.06					

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,				For the Years Ended December 31,						
	Unit Value ³		Net Assets	Investment	Income Ratio ¹	Expense Ratio ²		Total Return ³			
	Units	(Lowest to Highest)				(Lowest to Highest)	(Lowest to Highest)	(Lowest to Highest)			
MML Focused Equity Sub-Account											
2020	881,782	\$ 23.51 to \$ 28.32	\$ 18,957,860	0.64 %	0.95 % to 3.10 %	9.10 % to 11.47 %					
2019	887,636	21.55 to 25.41	17,679,923	0.05	0.95 to 3.10	25.77 to 28.50					
2018	639,384	17.13 to 19.77	10,379,415	2.82	0.95 to 3.10	(2.11) to 0.03					
2017	514,836	17.50 to 19.77	9,043,125	2.54	0.95 to 3.10	17.91 to 20.46					
2016	389,111	14.84 to 16.41	6,163,329	1.17	0.95 to 3.10	14.16 to 16.63					
MML Foreign Sub-Account (Initial Class)											
2020	7,346,537	12.72 to 18.07	118,344,969	3.10	0.95 to 2.60	3.21 to 4.93					
2019	8,271,919	12.32 to 17.22	128,108,301	1.79	0.95 to 2.60	10.26 to 12.10					
2018	8,931,698	11.18 to 15.36	124,201,591	2.25	0.95 to 2.60	(18.07) to (16.70)					
2017	9,523,939	13.64 to 18.44	159,914,007	2.06	0.95 to 2.60	18.62 to 20.59					
2016	11,158,817	11.50 to 15.29	156,153,111	2.02	0.95 to 2.60	(1.16) to 0.48					
MML Foreign Sub-Account (Service Class)											
2020	584,504	11.00 to 11.79	8,319,183	2.84	1.00 to 3.10	2.34 to 4.52					
2019	700,188	10.52 to 11.52	9,815,416	1.52	1.00 to 3.10	9.34 to 11.66					
2018	725,345	9.43 to 10.53	9,327,795	2.00	1.00 to 3.10	(18.61) to (16.87)					
2017	719,693	11.34 to 12.94	11,484,300	1.85	1.00 to 3.10	17.76 to 20.25					
2016	751,624	9.43 to 10.99	10,230,593	1.76	1.00 to 3.10	(1.90) to 0.18					
MML Fundamental Equity Sub-Account											
2020 ¹²	880,974	24.41 to 29.41	19,006,450	-	0.95 to 3.10	15.94 to 18.46					
2019	797,684	21.05 to 24.82	14,803,275	0.44	0.95 to 3.10	29.26 to 32.07					
2018	697,122	16.29 to 18.80	9,980,256	1.16	0.95 to 3.10	(2.43) to (0.30)					
2017	415,149	16.69 to 18.85	6,501,613	1.01	0.95 to 3.10	23.44 to 26.12					
2016	298,369	13.52 to 14.95	4,030,111	0.55	0.95 to 3.10	0.38 to 2.56					
MML Fundamental Value Sub-Account											
2020	1,019,772	16.10 to 19.39	14,865,608	1.08	0.95 to 3.10	(0.76) to 1.40					
2019	1,016,383	16.22 to 19.12	15,050,102	1.71	0.95 to 3.10	18.75 to 21.33					
2018	956,198	13.66 to 15.76	12,106,408	1.56	0.95 to 3.10	(13.31) to (11.41)					
2017	791,976	15.75 to 17.79	11,904,817	1.83	0.95 to 3.10	11.29 to 13.70					
2016	586,038	14.16 to 15.65	8,339,048	1.20	0.95 to 3.10	9.61 to 11.99					
MML Global Sub-Account (Class I)											
2020	214,433	18.43 to 24.80	5,164,484	1.09	0.95 to 2.60	11.09 to 12.94					
2019	266,210	16.59 to 21.96	5,717,821	0.68	0.95 to 2.60	27.24 to 29.36					
2018	306,197	13.04 to 16.97	5,081,523	1.12	0.95 to 2.60	(11.87) to (10.39)					
2017	350,013	14.79 to 18.94	6,524,622	1.21	0.95 to 2.60	20.99 to 22.99					
2016	386,442	12.22 to 15.40	5,876,396	1.16	0.95 to 2.60	4.80 to 6.54					
MML Global Sub-Account (Service Class I)											
2020	924,023	16.38 to 17.15	18,084,268	0.90	1.00 to 3.10	10.23 to 12.57					
2019	944,518	14.55 to 15.56	17,104,721	0.35	1.00 to 3.10	26.30 to 28.98					
2018	944,055	11.28 to 12.32	13,985,581	0.94	1.00 to 3.10	(12.61) to (10.74)					
2017	932,097	12.64 to 14.10	15,992,714	1.10	1.00 to 3.10	20.18 to 22.72					
2016	824,746	10.30 to 11.73	12,126,653	1.02	1.00 to 3.10	4.08 to 6.28					
MML Global Sub-Account (Class II)											
2020	256,171	14.28 to 18.69	4,487,312	1.05	1.18 to 1.65	12.10 to 12.63					
2019	274,411	12.68 to 16.68	4,316,103	0.60	1.18 to 1.65	28.45 to 29.05					
2018	255,730	9.82 to 12.98	3,127,032	1.12	1.18 to 1.65	(11.06) to (10.64)					
2017	279,833	10.99 to 14.60	3,861,879	1.21	1.18 to 1.65	22.27 to 22.84					
2016	279,376	8.95 to 11.94	3,199,295	1.15	1.18 to 1.65	5.78 to 6.28					

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,			For the Years Ended December 31,					
	Units	Unit Value ³ (Lowest to Highest)		Net Assets	Investment	Expense Ratio ² (Lowest to Highest)		Total Return ³ (Lowest to Highest)	
		Income Ratio ¹							
MML Growth & Income Sub-Account (Initial Class)									
2020	1,995,917	\$ 22.50	to \$ 39.15	\$ 71,531,066	0.91 %	0.95 %	to 2.60 %	11.57 %	to 13.43 %
2019	2,322,666	20.17	to 34.51	73,362,599	0.94	0.95	to 2.60	28.71	to 30.85
2018	2,668,840	15.67	to 26.38	64,684,699	0.85	0.95	to 2.60	(7.65)	to (6.10)
2017	3,052,179	16.97	to 28.09	78,933,783	0.92	0.95	to 2.60	20.53	to 22.53
2016	3,454,803	14.08	to 22.93	72,981,281	1.05	0.95	to 2.60	5.99	to 7.75
MML Growth & Income Sub-Account (Service Class)									
2020	2,420,663	17.89	to 20.86	49,795,171	0.72	1.00	to 3.10	10.75	to 13.10
2019	2,471,418	15.82	to 18.83	45,996,901	0.76	1.00	to 3.10	27.79	to 30.51
2018	2,291,878	12.12	to 14.74	33,813,200	0.71	1.00	to 3.10	(8.37)	to (6.41)
2017	1,766,489	12.95	to 16.08	30,613,749	0.78	1.00	to 3.10	19.66	to 22.19
2016	1,516,385	10.60	to 13.44	23,199,559	0.85	1.00	to 3.10	5.20	to 7.43
MML Growth Allocation Sub-Account (Initial Class)									
2020	18,484,124	17.99	to 22.27	393,392,881	2.15	0.95	to 2.60	9.87	to 11.69
2019	26,884,888	16.37	to 19.94	514,011,956	2.27	0.95	to 2.60	18.10	to 20.06
2018	30,317,373	13.86	to 16.61	484,216,996	1.76	0.95	to 2.60	(9.31)	to (7.79)
2017	33,909,954	15.29	to 18.01	589,829,186	1.49	0.95	to 2.60	13.10	to 14.98
2016	36,689,881	13.52	to 15.66	556,965,915	1.90	0.95	to 2.60	4.82	to 6.56
MML Growth Allocation Sub-Account (Service Class)									
2020	39,460,627	14.63	to 16.55	788,648,224	1.88	1.00	to 3.10	9.04	to 11.35
2019	53,783,791	13.13	to 15.18	978,800,276	2.03	1.00	to 3.10	17.24	to 19.73
2018	59,693,993	10.97	to 12.95	915,267,296	1.53	1.00	to 3.10	(9.95)	to (8.03)
2017	64,140,636	11.93	to 14.38	1,080,894,605	1.26	1.00	to 3.10	12.28	to 14.66
2016	67,568,784	10.40	to 12.81	1,001,300,773	1.66	1.00	to 3.10	3.96	to 6.16
MML High Yield Sub-Account									
2020	2,894,882	14.83	to 18.65	42,643,144	0.02	0.95	to 3.10	2.16	to 4.38
2019	2,982,701	14.52	to 17.87	43,189,753	6.00	0.95	to 3.10	8.45	to 10.80
2018	2,669,937	13.39	to 16.13	35,992,862	6.18	0.95	to 3.10	(6.50)	to (4.46)
2017	2,318,594	14.32	to 16.88	34,421,883	7.05	0.95	to 3.10	4.60	to 6.87
2016	1,814,841	13.69	to 15.80	26,901,271	7.19	0.95	to 3.10	12.72	to 15.16
MML Income & Growth Sub-Account (Initial Class)									
2020	893,631	18.00	to 26.57	21,695,092	2.03	0.95	to 2.60	0.38	to 2.05
2019	1,014,616	17.93	to 26.04	24,198,302	1.99	0.95	to 2.60	21.24	to 23.26
2018	1,064,337	14.79	to 21.13	20,869,071	1.74	0.95	to 2.60	(13.96)	to (12.52)
2017	1,224,390	17.19	to 24.15	27,604,331	1.65	0.95	to 2.60	14.43	to 16.33
2016	1,362,608	15.02	to 20.76	26,577,770	1.78	0.95	to 2.60	13.42	to 15.30
MML Income & Growth Sub-Account (Service Class)									
2020	1,567,693	14.47	to 16.70	27,009,775	1.83	1.00	to 3.10	(0.35)	to 1.76
2019	1,681,966	14.22	to 16.76	29,439,298	1.78	1.00	to 3.10	20.35	to 22.90
2018	1,666,619	11.57	to 13.93	24,435,731	1.59	1.00	to 3.10	(14.64)	to (12.82)
2017	1,541,562	13.27	to 16.31	27,684,978	1.52	1.00	to 3.10	13.65	to 16.05
2016	1,231,768	11.43	to 14.36	20,617,145	1.56	1.00	to 3.10	12.56	to 14.94
MML Inflation-Protected and Income Sub-Account (Initial Class)									
2020	8,662,812	12.07	to 17.11	130,964,666	0.11	0.95	to 2.60	8.26	to 10.06
2019	9,934,572	11.15	to 15.54	137,121,414	2.38	0.95	to 2.60	5.53	to 7.29
2018	10,511,243	10.56	to 14.49	135,793,211	3.09	0.95	to 2.60	(3.84)	to (2.23)
2017	12,563,423	10.99	to 14.82	166,498,888	3.30	0.95	to 2.60	0.56	to 2.23
2016	12,945,199	10.92	to 14.49	168,517,535	2.36	0.95	to 2.60	2.52	to 4.22
MML Inflation-Protected and Income Sub-Account (Service Class)									
2020	3,431,376	11.19	to 11.94	46,199,752	0.11	1.00	to 3.10	7.49	to 9.77
2019	3,451,539	10.41	to 10.88	43,237,327	2.22	1.00	to 3.10	4.76	to 6.98
2018	3,455,411	9.94	to 10.17	41,399,216	2.86	1.00	to 3.10	(4.57)	to (2.53)
2017	3,682,017	10.41	to 10.43	46,122,629	3.07	1.00	to 3.10	(0.17)	to 1.94
2016	3,768,338	10.23	to 10.43	47,031,894	2.09	1.00	to 3.10	1.71	to 3.86

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,				For the Years Ended December 31,					
	Unit Value ³		Net Assets	Investment	Income Ratio ¹	Expense Ratio ²		Total Return ³		
	Units	(Lowest to Highest)				(Lowest to Highest)	(Lowest to Highest)	(Lowest to Highest)		
MML International Equity Sub-Account										
2020	562,014	\$ 9.92 to \$ 11.45	\$ 6,833,772	3.20 %	0.95 % to 3.10 %	1.86 % to 4.07 %				
2019	571,549	9.74 to 11.01	6,643,432	1.79	0.95 to 3.10	20.55 to 23.17				
2018	495,952	8.08 to 8.94	4,669,380	1.59	0.95 to 3.10	(26.38) to (24.77)				
2017	312,168	10.98 to 11.88	3,854,469	1.76	0.95 to 3.10	26.20 to 28.94				
2016	98,906	8.70 to 9.21	931,432	1.70	0.95 to 3.10	4.68 to 6.95				
MML Large Cap Growth Sub-Account (Initial Class)										
2020	492,342	28.53 to 40.27	17,478,633	0.33	0.95 to 2.60	28.40 to 30.53				
2019	577,917	22.22 to 30.85	15,827,567	0.58	0.95 to 2.60	28.60 to 30.74				
2018	676,794	17.28 to 23.60	14,279,402	0.63	0.95 to 2.60	(4.79) to (3.19)				
2017	782,688	18.15 to 24.38	17,285,084	0.37	0.95 to 2.60	30.09 to 32.25				
2016	891,625	13.95 to 18.43	15,027,089	0.13	0.95 to 2.60	(2.93) to (1.32)				
MML Large Cap Growth Sub-Account (Service Class)										
2020	965,919	21.22 to 26.44	22,228,571	0.17	1.00 to 3.10	27.52 to 30.22				
2019	896,562	16.30 to 20.73	16,390,792	0.46	1.00 to 3.10	27.64 to 30.35				
2018	716,008	12.50 to 16.24	10,587,661	0.56	1.00 to 3.10	(5.46) to (3.44)				
2017	426,985	12.95 to 17.18	7,506,816	0.24	1.00 to 3.10	28.96 to 31.69				
2016	239,844	9.83 to 13.32	3,605,074	-	1.00 to 3.10	(3.55) to (1.51)				
MML Managed Bond Sub-Account (Initial Class)										
2020	6,518,330	13.56 to 20.18	114,405,900	0.10	0.95 to 2.60	4.95 to 6.69				
2019	7,123,945	12.92 to 18.91	117,808,474	3.67	0.95 to 2.60	6.99 to 8.77				
2018	7,702,853	12.08 to 17.39	117,644,146	3.44	0.95 to 2.60	(3.01) to (1.38)				
2017	9,210,636	12.45 to 17.63	143,060,562	3.15	0.95 to 2.60	2.02 to 3.71				
2016	9,792,140	12.21 to 17.00	147,103,492	2.81	0.95 to 2.60	0.12 to 1.78				
MML Managed Bond Sub-Account (Service Class)										
2020	17,765,196	11.66 to 12.58	266,777,188	0.10	1.00 to 3.10	4.16 to 6.37				
2019	18,130,096	10.96 to 12.07	260,703,020	3.46	1.00 to 3.10	6.19 to 8.45				
2018	18,639,618	10.11 to 11.37	250,288,149	3.23	1.00 to 3.10	(3.73) to (1.68)				
2017	19,712,043	10.28 to 11.81	273,576,011	2.94	1.00 to 3.10	1.25 to 3.40				
2016	18,648,805	9.94 to 11.66	255,334,043	2.61	1.00 to 3.10	(0.63) to 1.47				
MML Managed Volatility Sub-Account (Initial Class)										
2020	5,170,638	13.94 to 21.43	93,221,623	1.40	0.95 to 2.60	3.94 to 5.67				
2019	5,894,344	13.41 to 20.28	101,210,212	1.62	0.95 to 2.60	9.03 to 10.84				
2018	6,358,338	12.30 to 18.30	98,987,098	1.20	0.95 to 2.60	(7.15) to (5.59)				
2017	7,501,892	13.25 to 19.38	124,404,125	1.26	0.95 to 2.60	6.24 to 8.01				
2016	8,129,791	12.47 to 17.95	125,435,320	1.74	0.95 to 2.60	1.03 to 2.71				
MML Managed Volatility Sub-Account (Service Class)										
2020	1,669,075	12.09 to 12.93	26,903,885	1.15	1.00 to 3.10	3.17 to 5.36				
2019	1,951,793	11.48 to 12.53	30,590,858	1.37	1.00 to 3.10	8.21 to 10.51				
2018	2,011,443	10.39 to 11.58	28,963,354	0.95	1.00 to 3.10	(7.84) to (5.88)				
2017	2,157,161	11.04 to 12.56	33,697,976	1.04	1.00 to 3.10	5.45 to 7.69				
2016	2,218,201	10.25 to 11.91	32,568,807	1.53	1.00 to 3.10	0.27 to 2.39				
MML Mid Cap Growth Sub-Account (Initial Class)										
2020	1,454,733	35.60 to 70.09	89,949,266	0.08	0.95 to 2.60	22.35 to 24.38				
2019	1,710,217	29.09 to 56.35	83,592,878	0.02	0.95 to 2.60	27.93 to 30.05				
2018	1,958,567	22.74 to 43.33	73,560,646	-	0.95 to 2.60	(4.70) to (3.10)				
2017	2,245,834	23.86 to 44.72	86,805,680	0.03	0.95 to 2.60	21.62 to 23.64				
2016	2,524,036	19.62 to 36.17	79,181,316	-	0.95 to 2.60	3.57 to 5.29				
MML Mid Cap Growth Sub-Account (Service Class)										
2020	4,168,210	20.12 to 32.82	117,785,877	-	1.00 to 3.10	21.43 to 24.01				
2019	4,497,792	16.23 to 27.03	108,799,560	-	1.00 to 3.10	27.01 to 29.71				
2018	4,459,919	12.51 to 21.28	88,937,242	-	1.00 to 3.10	(5.45) to (3.43)				
2017	4,003,907	12.96 to 22.51	91,130,983	-	1.00 to 3.10	20.68 to 23.24				
2016	3,514,218	10.51 to 18.65	71,215,184	-	1.00 to 3.10	2.80 to 4.97				

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,				For the Years Ended December 31,					
	Unit Value ³		Net Assets	Investment Income Ratio ¹	Expense Ratio ²		Total Return ³			
	Units	(Lowest to Highest)			(Lowest to Highest)	(Lowest to Highest)				
MML Mid Cap Value Sub-Account (Initial Class)										
2020	3,707,481	\$ 27.13 to \$ 41.45	\$ 133,181,143	1.82 %	0.95 % to 2.60 %	(0.90)% to 0.75 %				
2019	4,044,150	27.37 to 41.14	144,980,289	1.62	0.95 to 2.60	25.82 to 27.91				
2018	4,842,049	21.75 to 32.16	135,925,323	1.50	0.95 to 2.60	(15.24) to (13.82)				
2017	5,436,760	25.67 to 37.32	177,889,628	1.55	0.95 to 2.60	8.84 to 10.65				
2016	6,226,253	23.58 to 33.73	184,615,243	1.57	0.95 to 2.60	20.08 to 22.07				
MML Mid Cap Value Sub-Account (Service Class)										
2020	2,406,081	14.50 to 25.16	51,269,948	1.58	1.00 to 3.10	(1.62) to 0.47				
2019	2,380,279	14.43 to 25.57	53,222,998	1.44	1.00 to 3.10	24.97 to 27.62				
2018	2,261,094	11.31 to 20.46	43,253,293	1.33	1.00 to 3.10	(15.97) to (14.18)				
2017	2,049,183	13.18 to 24.35	49,740,379	1.41	1.00 to 3.10	8.07 to 10.36				
2016	1,782,027	11.94 to 22.53	44,150,408	1.48	1.00 to 3.10	19.12 to 21.64				
MML Moderate Allocation Sub-Account (Initial Class)										
2020	11,897,524	16.61 to 20.57	235,097,461	2.55	0.95 to 2.60	7.71 to 9.50				
2019	17,179,709	15.42 to 18.78	310,792,789	2.52	0.95 to 2.60	15.54 to 17.46				
2018	18,831,405	13.35 to 15.99	290,920,692	2.12	0.95 to 2.60	(7.92) to (6.38)				
2017	21,236,900	14.50 to 17.08	351,616,486	1.79	0.95 to 2.60	10.43 to 12.26				
2016	23,743,681	13.13 to 15.21	351,322,644	2.08	0.95 to 2.60	4.15 to 5.88				
MML Moderate Allocation Sub-Account (Service Class)										
2020	87,882,437	13.81 to 15.27	1,575,429,932	2.23	1.00 to 3.10	6.80 to 9.07				
2019	105,177,875	12.66 to 14.30	1,752,110,801	2.26	1.00 to 3.10	14.75 to 17.18				
2018	117,630,522	10.81 to 12.46	1,689,907,038	1.88	1.00 to 3.10	(8.60) to (6.65)				
2017	131,309,540	11.58 to 13.63	2,047,325,711	1.58	1.00 to 3.10	9.55 to 11.87				
2016	139,446,724	10.35 to 12.44	1,969,560,365	1.88	1.00 to 3.10	3.34 to 5.53				
MML Short-Duration Bond Sub-Account										
2020	4,150,563	9.03 to 11.35	44,272,880	-	0.95 to 3.10	(1.75) to 0.39				
2019	3,025,222	9.19 to 11.31	32,173,643	3.11	0.95 to 3.10	0.99 to 3.19				
2018	2,634,464	9.10 to 10.96	27,471,063	2.75	0.95 to 3.10	(1.82) to 0.33				
2017	2,599,515	9.26 to 10.92	27,262,598	2.47	0.95 to 3.10	(0.82) to 1.33				
2016	2,606,803	9.34 to 10.78	27,104,043	2.00	0.95 to 3.10	(0.57) to 1.58				
MML Small Cap Equity Sub-Account (Initial Class)										
2020	706,873	26.01 to 39.49	27,259,529	0.53	0.95 to 2.60	17.60 to 19.55				
2019	831,548	22.12 to 33.03	26,710,657	0.47	0.95 to 2.60	23.22 to 25.27				
2018	935,224	17.95 to 26.37	24,030,805	0.49	0.95 to 2.60	(12.51) to (11.04)				
2017	1,054,841	20.52 to 29.64	30,563,941	0.83	0.95 to 2.60	11.44 to 13.29				
2016	1,204,534	18.41 to 26.16	30,878,286	1.05	0.95 to 2.60	15.19 to 17.10				
MML Small Cap Equity Sub-Account (Service Class)										
2020	1,169,902	17.31 to 24.08	25,344,927	0.30	1.00 to 3.10	16.72 to 19.20				
2019	1,184,188	14.53 to 20.63	22,694,629	0.26	1.00 to 3.10	22.30 to 24.89				
2018	1,131,275	11.63 to 16.87	18,425,202	0.32	1.00 to 3.10	(13.16) to (11.31)				
2017	855,645	13.11 to 19.42	17,644,215	0.69	1.00 to 3.10	10.61 to 12.96				
2016	631,631	11.61 to 17.56	13,279,472	0.85	1.00 to 3.10	14.33 to 16.75				
MML Small Cap Growth Equity Sub-Account (Initial Class)										
2020	1,790,589	37.25 to 60.18	90,992,101	-	0.95 to 2.60	32.15 to 34.34				
2019	2,488,164	28.19 to 44.79	94,744,872	-	0.95 to 2.60	30.88 to 33.06				
2018	3,094,310	21.54 to 33.66	89,078,989	-	0.95 to 2.60	(7.33) to (5.78)				
2017	3,752,747	23.24 to 35.73	115,332,900	-	0.95 to 2.60	19.67 to 21.66				
2016	4,504,045	19.42 to 29.37	114,360,455	-	0.95 to 2.60	9.86 to 11.68				

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,				For the Years Ended December 31,							
	Units	Unit Value ³		Net Assets	Investment		Expense Ratio ²		Total Return ³			
		(Lowest to Highest)			Income Ratio ¹	(Lowest to Highest)		(Lowest to Highest)				
MML Small Cap Growth Equity Sub-Account (Service Class)												
2020	1,072,366	\$ 21.98	to \$ 34.53	\$ 31,164,764	- %	1.00 %	to 3.10 %	31.16 %	to 33.94 %			
2019	1,127,320	16.41	to 26.33	26,026,111	-	1.00	to 3.10	29.90	to 32.66			
2018	1,008,153	12.37	to 20.27	19,280,671	-	1.00	to 3.10	(8.03)	to (6.06)			
2017	646,706	13.17	to 22.03	16,123,932	-	1.00	to 3.10	18.78	to 21.29			
2016	559,854	10.86	to 18.55	12,968,514	-	1.00	to 3.10	9.04	to 11.35			
MML Small Company Value Sub-Account												
2020	1,280,052	15.85	to 26.90	25,549,702	0.06	1.00	to 3.10	5.60	to 7.84			
2019	1,254,816	14.70	to 25.47	24,665,122	0.08	1.00	to 3.10	21.43	to 24.01			
2018	1,140,446	11.85	to 20.98	19,022,657	0.19	1.00	to 3.10	(15.86)	to (14.06)			
2017	891,099	13.79	to 24.93	19,508,502	0.48	1.00	to 3.10	8.03	to 10.31			
2016	612,066	12.50	to 23.08	14,305,376	0.41	1.00	to 3.10	28.14	to 30.85			
MML Small/Mid Cap Value Sub-Account (Initial Class)												
2020	3,498,522	21.43	to 39.66	97,698,172	1.10	0.95	to 2.60	1.96	to 3.66			
2019	3,898,914	21.01	to 38.26	105,702,814	0.61	0.95	to 2.60	17.19	to 19.14			
2018	4,387,318	17.93	to 32.11	100,384,944	0.46	0.95	to 2.60	(17.12)	to (15.73)			
2017	4,849,266	21.64	to 38.11	132,667,980	0.50	0.95	to 2.60	10.54	to 12.37			
2016	5,653,797	19.57	to 33.91	138,163,724	0.55	0.95	to 2.60	21.90	to 23.92			
MML Small/Mid Cap Value Sub-Account (Service Class)												
2020	1,139,563	13.77	to 19.86	22,292,450	0.84	1.00	to 3.10	1.14	to 3.29			
2019	1,156,012	13.34	to 19.63	23,286,750	0.39	1.00	to 3.10	16.32	to 18.78			
2018	1,061,456	11.23	to 16.88	19,194,837	0.26	1.00	to 3.10	(17.73)	to (15.97)			
2017	962,628	13.36	to 20.51	22,379,494	0.30	1.00	to 3.10	9.63	to 11.96			
2016	886,931	11.93	to 18.71	19,564,381	0.32	1.00	to 3.10	21.03	to 23.58			
MML Special Situations Sub-Account (Service Class I)												
2020	50,391	18.10	to 18.87	950,460	0.03	1.00	to 1.80	26.93	to 27.95			
2019	56,690	14.26	to 14.75	835,745	-	1.00	to 1.80	21.29	to 22.27			
2018	53,278	11.76	to 12.06	642,435	0.41	1.00	to 1.80	(6.83)	to (6.08)			
2017	37,834	12.62	to 12.84	485,763	-	1.00	to 1.80	16.47	to 17.40			
2016	23,898	10.83	to 10.94	261,283	0.54	1.00	to 1.80	13.48	to 14.39			
MML Strategic Emerging Markets Sub-Account												
2020	1,017,814	12.33	to 16.47	16,215,171	0.20	1.00	to 3.10	13.68	to 16.09			
2019	1,150,619	10.84	to 14.19	15,739,019	0.01	1.00	to 3.10	21.36	to 23.93			
2018	1,155,182	8.93	to 11.45	12,694,684	-	1.00	to 3.10	(15.28)	to (13.47)			
2017	1,061,488	10.55	to 13.23	13,380,725	-	1.00	to 3.10	29.77	to 32.51			
2016	947,781	8.13	to 9.99	8,983,421	0.24	1.00	to 3.10	2.88	to 5.05			
MML Total Return Bond Sub-Account												
2020	4,106,252	10.17	to 12.25	47,980,688	3.09	0.95	to 3.10	5.28	to 7.57			
2019	2,936,027	9.66	to 11.39	31,973,807	3.02	0.95	to 3.10	5.34	to 7.63			
2018	2,321,318	9.17	to 10.58	23,676,108	1.76	0.95	to 3.10	(3.41)	to (1.29)			
2017	1,912,466	9.49	to 10.72	19,956,564	1.84	0.95	to 3.10	(0.40)	to 1.76			
2016	1,691,159	9.53	to 10.53	17,462,137	1.68	0.95	to 3.10	(0.82)	to 1.33			
MML U.S. Government Money Market Sub-Account												
2020	15,675,879	7.17	to 9.36	143,711,817	0.17	0.95	to 3.10	(2.83)	to (0.72)			
2019	8,074,717	7.37	to 9.42	75,534,222	1.69	0.95	to 3.10	(1.40)	to 0.75			
2018	8,285,272	7.48	to 9.35	76,764,657	1.34	0.95	to 3.10	(1.77)	to 0.37			
2017	7,302,616	7.61	to 9.32	67,087,752	0.35	0.95	to 3.10	(2.70)	to (0.59)			
2016	7,886,513	7.83	to 9.37	72,659,675	-	0.95	to 3.10	(2.94)	to (0.84)			
Oppenheimer Global Multi-Alternatives Sub-Account												
2020	-	-	to -	-	-	-	to -	-	to -			
2019	2	8.54	to 9.51	-	1.11	0.95	to 3.10	2.36	to 3.08			
2018	246,995	8.34	to 9.22	2,283,703	0.17	0.95	to 3.10	(6.27)	to (4.22)			
2017	232,850	8.90	to 9.63	2,246,753	0.79	0.95	to 3.10	(2.86)	to (0.76)			
2016	179,042	9.16	to 9.70	1,736,290	1.31	0.95	to 3.10	0.34	to 2.51			

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,				For the Years Ended December 31,					
	Units	Unit Value ³		Net Assets	Investme		Expense Ratio ²		Total Return ³	
		(Lowest to Highest)			Income	Ratio ¹	(Lowest to Highest)		(Lowest to Highest)	
PIMCO CommodityRealReturn® Strategy Sub-Account										
2020	1,401,409	\$ 4.26	to \$ 5.71	\$ 7,627,491	6.33	%	0.95	% to	3.10	% (1.86) % to 0.27 %
2019	1,661,426	4.34	to 5.70	9,033,874	4.33		0.95	to	3.10	7.95 to 10.30
2018	1,812,893	4.02	to 5.16	8,967,304	1.98		0.95	to	3.10	(16.84) to (15.02)
2017	2,037,819	4.84	to 6.08	11,904,973	10.98		0.95	to	3.10	(1.06) to 1.09
2016	2,151,246	4.89	to 6.01	12,471,316	1.01		0.95	to	3.10	11.37 to 13.79
VY® Clarion Global Real Estate Sub-Account										
2020	807,288	12.30	to 16.49	12,571,760	5.83		0.95	to	3.10	(7.94) to (5.94)
2019	948,461	13.36	to 17.53	15,751,756	2.58		0.95	to	3.10	20.55 to 23.17
2018	1,049,161	11.09	to 14.23	14,174,962	5.26		0.95	to	3.10	(11.55) to (9.61)
2017	1,209,503	12.53	to 15.74	18,104,285	3.51		0.95	to	3.10	7.14 to 9.46
2016	1,330,784	11.70	to 14.38	18,270,700	1.09		0.95	to	3.10	(2.44) to (0.33)

Notes To Financial Statements (Continued)

8. Financial Highlights (Continued)

- B.** The Separate Account assesses charges associated with the contract. These charges are either assessed as a direct reduction in unit values or through a redemption of units for all contracts contained within the Separate Account. The assessment of charges is based on the actual product and additional benefits or riders purchased.

Mortality and Expense Risk Charge*	This charge is equal, on an annual basis, to 0.80% - 1.60% of the daily value of the assets invested in each fund.
This charge is assessed through a reduction in unit values.	
Administrative Charge	This charge is equal, on an annual basis, to 0.15% of the daily value of the assets invested in each fund.
This charge is assessed through a reduction in unit values.	
Administrative Contract Maintenance Charge	\$0 - \$40 per contract, annually.
This charge is assessed through the redemption of units.	
Contingent Deferred Sales Charge/Surrender Charge	0% - 8%
This charge is assessed through the redemption of units.	
Payment Protector Charge	This charge is equal, on an annual basis, to 0.00% - 0.50% of the daily value of the assets invested in each fund.
This charge is assessed through a reduction in unit values.	
Additional Death Benefit Options	
These charges are annualized and are assessed through either a reduction in unit values or the redemption of units.	
A. Reset Death Benefit**	0.00% - 0.20%
B. Ratchet Death Benefit***	0.00% - 0.70%
C. 5% roll Up Death Benefit	0.00% - 0.40%
D. Basic Death Benefit with Combination Feature	0.00% - 0.45%
E. Return of Purchase Payment	0.00% - 0.35%

Notes To Financial Statements (Continued)

8. Financial Highlights (Continued)

Rider Charges	
These charges are annualized and are assessed through either a reduction in unit values or the redemption of units.	
A. Equalizer Benefit	0.00% - 0.50%
B. Nursing Home Waiver	0.00% - 0.05%
C. Earnings Enhancement Benefit	0.00% - 0.30%
D. 10% / 20% Free Withdrawal Amount	0.00% - 0.25%
E. 15% / 30% Free Withdrawal Amount	0.00% - 0.15%
F. Guaranteed Minimum Income Benefit (GMIB)	0.00% - 1.50%
G. Guaranteed Minimum Accumulation Benefit (GMAB)	0.00% - 1.40%
H. Guaranteed Minimum Withdrawal Benefit (GMWB)	0.00% - 0.95%

* The Panorama Premier segment charges its contract owners a mortality and expense risk charge equal, on an annual basis, to 1.25% of the daily value of the assets invested in each fund. Subject to state availability, certificates issued on or after September 10, 2001 will receive an increase in the certificate value allocated to the fund by 0.15% on each certificate anniversary.

** For Panorama Passage the charge for the Reset Death Benefit is 0.10% on an annual basis of the daily value of the certificate value allocated to the funds and the fixed accounts, unless the charge exceeds the maximum charge, in which case, the charge is the maximum charge. The maximum charge is 0.20% on an annual basis of the daily value of the certificate value allocated to the funds.

*** The Ratchet Death Benefit is 0.25% for Panorama Passage and 0.15% for Panorama Premier on an annual basis of the daily value of the certificate value allocated to the funds and the fixed accounts, unless that charge exceeds the maximum, in this case the charge is the maximum charge. The maximum charge is 0.35% if age 60 or less at certificate issue, 0.50% if age 61 through age 70 at certificate issue, and 0.70% if age 71 or older at certificate issue, of the certificate value allocated to the funds.

Certain contracts may offer credits which will result in the purchase of units.

9. SUBSEQUENT EVENTS

The Separate Account's management has reviewed events occurring through March 10, 2021, the date the financial statements were issued, and no subsequent events occurred requiring accrual or disclosure.