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Report of Independent Registered Public Accounting Firm

The Board of Directors of Massachusetts Mutual Life Insurance Company and Contract Owners of Panorama Separate Account:

Opinion on the Financial Statements

We have audited the accompanying statements of assets and liabilities of Panorama Separate Account (comprised of the sub-accounts listed in Appendix A to the opinion) (collectively, “the Separate Account”) as of December 31, 2018, the related statements of operations and changes in net assets for each of the years in the two-year period then ended, and the related notes (collectively, the “financial statements”) and the financial highlights for each of the years in the five-year period then ended (collectively, the “financial highlights”). 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, 2018, the results of its operations and the changes in its net assets for each of the years in the two-year period then ended, and the financial highlights for each of the years 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, 2018, 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.

Hartford, Connecticut
March 19, 2019

KPMG LLP is a Delaware limited liability partnership and the U.S. member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (“KPMG International”), a Swiss entity.

Appendix A

Panorama Separate Account 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, 2018 and the related statements of operations and changes in net assets for each of the years in the two-year period then ended.

Sub-Accounts

- MML Equity Index Sub-Account
- MML High Yield Sub-Account
- MML Managed Bond Sub-Account
- MML Short-Duration Bond Sub-Account
- MML Small Cap Equity Sub-Account
- Oppenheimer Capital Appreciation Sub-Account
- Oppenheimer Conservative Balanced Sub-Account
- Oppenheimer Discovery Mid Cap Growth Sub-Account
- Oppenheimer Global Sub-Account
- Oppenheimer Government Money Sub-Account
- Oppenheimer Main Street Sub-Account
- Oppenheimer Total Return Bond Sub-Account

Panorama Separate Account

STATEMENTS OF ASSETS AND LIABILITIES

December 31, 2018

	MML Equity Index Sub-Account	MML High Yield Sub-Account	MML Managed Bond Sub-Account	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account	Oppenheimer Capital Appreciation Sub-Account	Oppenheimer Conservative Balanced Sub-Account	Oppenheimer Discovery Mid Cap Growth Sub-Account
ASSETS								
Investments								
Number of shares	71,767	61,990	58,746	19,037	181,771	39,455	2,814,320	18,595
Identified cost	\$ 1,614,086	\$ 626,071	\$ 739,945	\$ 186,159	\$ 1,703,228	\$ 1,920,229	\$36,578,845	\$ 1,293,762
Value	\$ 2,015,948	\$ 560,392	\$ 699,691	\$ 182,371	\$ 1,484,573	\$ 1,913,575	\$40,610,642	\$ 1,276,533
Dividends receivable	-	-	-	-	-	-	-	-
Receivable from Massachusetts Mutual Life Insurance Company	-	1	-	2	-	-	1,180	1
Total assets	2,015,948	560,393	699,691	182,373	1,484,573	1,913,575	40,611,822	1,276,534
LIABILITIES								
Annuitant mortality fluctuation reserve	152	-	-	-	-	452	29,226	-
Payable to Massachusetts Mutual Life Insurance Company	6	-	-	-	1	6	-	-
Total liabilities	158	-	-	-	1	458	29,226	-
NET ASSETS	\$ 2,015,790	\$ 560,393	\$ 699,691	\$ 182,373	\$ 1,484,572	\$ 1,913,117	\$40,582,596	\$ 1,276,534
Net Assets:								
Accumulation units – value	\$ 2,010,739	\$ 560,393	\$ 699,691	\$ 182,373	\$ 1,484,572	\$ 1,898,043	\$39,608,383	\$ 1,276,534
Contracts in payout (annuitization) period	5,051	-	-	-	-	15,074	974,213	-
Net assets	\$ 2,015,790	\$ 560,393	\$ 699,691	\$ 182,373	\$ 1,484,572	\$ 1,913,117	\$40,582,596	\$ 1,276,534
Outstanding units								
Contract owners	918,293	340,912	52,578	163,262	504,682	1,091,674	3,945,356	843,400
UNIT VALUE								
Panorama	\$ 2.20	\$ 1.64	\$ 13.31	\$ 1.12	\$ 2.94	\$ 1.75	\$ 10.29	\$ 1.51

See Notes to Financial Statements.

Panorama Separate Account

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2018

	Oppenheimer Global Sub-Account	Oppenheimer Government Money Sub-Account	Oppenheimer Main Street Sub-Account	Oppenheimer Total Return Bond Sub-Account
ASSETS				
Investments				
Number of shares	82,930	3,147,116	1,251,375	523,792
Identified cost	\$ 2,624,069	\$ 3,147,116	\$30,284,475	\$ 4,372,645
Value	\$ 3,151,346	\$ 3,147,116	\$33,549,359	\$ 3,923,204
Dividends receivable	-	2,498	-	-
Receivable from Massachusetts Mutual Life Insurance Company	-	-	-	-
Total assets	3,151,346	3,149,614	33,549,359	3,923,204
LIABILITIES				
Annuitant mortality fluctuation reserve	-	2,097	34,244	2,083
Payable to Massachusetts Mutual Life Insurance Company	3	486	911	41
Total liabilities	3	2,583	35,155	2,124
NET ASSETS	\$ 3,151,343	\$ 3,147,031	\$33,514,204	\$ 3,921,080
Net Assets:				
Accumulation units – value	\$ 3,151,343	\$ 3,077,116	\$32,372,723	\$ 3,851,650
Contracts in payout (annuitization) period	-	69,915	1,141,481	69,430
Net assets	\$ 3,151,343	\$ 3,147,031	\$33,514,204	\$ 3,921,080
Outstanding units				
Contract owners	1,217,491	983,811	1,326,942	590,433
UNIT VALUE				
Panorama	\$ 2.59	\$ 3.20	\$ 25.26	\$ 6.64

See Notes to Financial Statements.

Panorama Separate Account

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS For The Year Ended December 31, 2018

	MML Equity Index Sub-Account	MML High Yield Sub-Account	MML Managed Bond Sub-Account	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account	Oppenheimer Capital Appreciation Sub-Account	Oppenheimer Conservative Balanced Sub-Account	Oppenheimer Discovery Mid Cap Growth Sub-Account
Investment income								
Dividends	\$ 35,096	\$ 38,522	\$ 23,894	\$ 6,730	\$ 8,605	\$ 6,832	\$ 890,240	\$ -
Expenses								
Mortality and expense risk fees	16,706	4,734	5,491	2,198	12,759	15,704	330,050	10,544
Net investment income (loss)	18,390	33,788	18,403	4,532	(4,154)	(8,872)	560,190	(10,544)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	156,671	(12,709)	(11,727)	(8,944)	13,509	9,065	1,533,081	16,647
Realized gain distribution	81,549	-	-	-	214,296	160,674	1,052,689	197,817
Realized gain (loss)	238,220	(12,709)	(11,727)	(8,944)	227,805	169,739	2,585,770	214,464
Change in net unrealized appreciation/ depreciation of investments	(370,156)	(45,087)	(18,094)	5,747	(403,305)	(291,312)	(5,809,107)	(296,522)
Net gain (loss) on investments	(131,936)	(57,796)	(29,821)	(3,197)	(175,500)	(121,573)	(3,223,337)	(82,058)
Net increase (decrease) in net assets resulting from operations	(113,546)	(24,008)	(11,418)	1,335	(179,654)	(130,445)	(2,663,147)	(92,602)
Capital transactions:								
Transfer of net premiums	5,361	-	3,155	-	4,251	5,696	381,973	10,460
Transfers due to death benefits	(9,655)	-	(9,300)	-	(10,276)	(697)	(469,698)	-
Transfers due to annuity benefit payments	(459)	-	-	-	-	(1,496)	(104,914)	-
Transfers due to withdrawal of funds	(251,516)	(99,735)	(118,143)	(252,714)	(24,866)	(35,764)	(4,562,897)	(28,122)
Transfers due to net charge (credit) to annuitant mortality fluctuation	100	-	-	-	-	330	24,943	-
Transfers between Sub-Accounts	133,577	(1,187)	21,364	9,827	4,200	2,714	(49,622)	9,625
Net increase (decrease) in net assets resulting from capital transactions	(122,592)	(100,922)	(102,924)	(242,887)	(26,691)	(29,217)	(4,780,215)	(8,037)
Total increase (decrease)	(236,138)	(124,930)	(114,342)	(241,552)	(206,345)	(159,662)	(7,443,362)	(100,639)
NET ASSETS, at beginning of the year	2,251,928	685,323	814,033	423,925	1,690,917	2,072,779	48,025,958	1,377,173
NET ASSETS, at end of the year	\$ 2,015,790	\$ 560,393	\$ 699,691	\$ 182,373	\$ 1,484,572	\$ 1,913,117	\$40,582,596	\$ 1,276,534

See Notes to Financial Statements.

Panorama Separate Account

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued) For The Year Ended December 31, 2018

	Oppenheimer Global Sub-Account	Oppenheimer Government Money Sub-Account	Oppenheimer Main Street Sub-Account	Oppenheimer Total Return Bond Sub-Account
Investment income				
Dividends	\$ 36,939	\$ 44,738	\$ 448,174	\$ 138,125
Expenses				
Mortality and expense risk fees	27,529	24,678	283,420	29,971
Net investment income (loss)	9,410	20,060	164,754	108,154
Net realized and unrealized gain (loss) on investments				
Realized gain (loss) on sale of fund shares	99,755	-	2,039,642	(158,423)
Realized gain distribution	261,157	-	3,371,004	-
Realized gain (loss)	360,912	-	5,410,646	(158,423)
Change in net unrealized appreciation/ depreciation of investments	(871,477)	-	(8,697,476)	(26,541)
Net gain (loss) on investments	(510,565)	-	(3,286,830)	(184,964)
Net increase (decrease) in net assets resulting from operations	(501,155)	20,060	(3,122,076)	(76,810)
Capital transactions:				
Transfer of net premiums	4,547	31,678	432,764	-
Transfers due to death benefits	(10,509)	(60,089)	(287,353)	(129,377)
Transfers due to annuity benefit payments	-	(28,013)	(158,325)	(15,063)
Transfers due to withdrawal of funds	(201,494)	(463,589)	(2,798,529)	(168,704)
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	5,142	13,011	(5,306)
Transfers between Sub-Accounts	12,636	28,572	(162,386)	(9,320)
Net increase (decrease) in net assets resulting from capital transactions	(194,820)	(486,299)	(2,960,818)	(327,770)
Total increase (decrease)	(695,975)	(466,239)	(6,082,894)	(404,580)
NET ASSETS, at beginning of the year	3,847,318	3,613,270	39,597,098	4,325,660
NET ASSETS, at end of the year	\$ 3,151,343	\$ 3,147,031	\$33,514,204	\$ 3,921,080

See Notes to Financial Statements.

Panorama Separate Account

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS For The Year Ended December 31, 2017

	MML Equity Index Sub-Account	MML High Yield Sub-Account	MML Managed Bond Sub-Account	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account	Oppenheimer Capital Appreciation Sub-Account	Oppenheimer Conservative Balanced Sub-Account	Oppenheimer Discovery Mid Cap Growth Sub-Account
Investment income								
Dividends	\$ 18,526	\$ 42,525	\$ 20,582	\$ 9,989	\$ 13,431	\$ 4,587	\$ 980,157	\$ 392
Expenses								
Mortality and expense risk fees	14,263	4,328	4,766	2,812	11,746	15,499	360,133	9,375
Net investment income (loss)	4,263	38,197	15,816	7,177	1,685	(10,912)	620,024	(8,983)
Net realized and unrealized gain (loss) on investments								
Realized gain (loss) on sale of fund shares	87,982	(746)	(1,080)	(1,566)	22,535	113,883	2,680,227	54,826
Realized gain distribution	50,572	-	-	-	60,623	174,621	-	128,613
Realized gain (loss)	138,554	(746)	(1,080)	(1,566)	83,158	288,504	2,680,227	183,439
Change in net unrealized appreciation/ depreciation of investments	227,423	1,384	7,809	(35)	121,928	230,960	731,863	138,757
Net gain (loss) on investments	365,977	638	6,729	(1,601)	205,086	519,464	3,412,090	322,196
Net increase (decrease) in net assets resulting from operations	370,240	38,835	22,545	5,576	206,771	508,552	4,032,114	313,213
Capital transactions:								
Transfer of net premiums	42,909	-	5,211	-	144,946	5,000	255,427	378
Transfers due to death benefits	-	-	-	-	(86,160)	-	(910,364)	-
Transfers due to annuity benefit payments	(417)	-	-	-	-	(1,342)	(105,393)	-
Transfers due to withdrawal of funds	(148,566)	(8,042)	(38,400)	(39,540)	(119,183)	(589,782)	(4,950,430)	(103,241)
Transfers due to net charge (credit) to annuitant mortality fluctuation	45	-	-	-	-	139	(37,865)	-
Transfers between Sub-Accounts	292,986	124,817	255,822	100,738	2,517	(25,448)	(294,584)	(10,159)
Net increase (decrease) in net assets resulting from capital transactions	186,957	116,775	222,633	61,198	(57,880)	(611,433)	(6,043,209)	(113,022)
Total increase (decrease)	557,197	155,610	245,178	66,774	148,891	(102,881)	(2,011,095)	200,191
NET ASSETS, at beginning of the year	1,694,731	529,713	568,855	357,151	1,542,026	2,175,660	50,037,053	1,176,982
NET ASSETS, at end of the year	\$ 2,251,928	\$ 685,323	\$ 814,033	\$ 423,925	\$ 1,690,917	\$ 2,072,779	\$48,025,958	\$ 1,377,173

See Notes to Financial Statements.

Panorama Separate Account

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued) For The Year Ended December 31, 2017

	Oppenheimer Global Sub-Account	Oppenheimer Government Money Sub-Account	Oppenheimer Main Street Sub-Account	Oppenheimer Total Return Bond Sub-Account
Investment income				
Dividends	\$ 32,491	\$ 15,517	\$ 496,118	\$ 106,513
Expenses				
Mortality and expense risk fees	25,567	30,642	289,258	32,563
Net investment income (loss)	6,924	(15,125)	206,860	73,950
Net realized and unrealized gain (loss) on investments				
Realized gain (loss) on sale of fund shares	103,070	-	2,087,112	(205,292)
Realized gain distribution	-	-	665,618	-
Realized gain (loss)	103,070	-	2,752,730	(205,292)
Change in net unrealized appreciation/depreciation of investments	946,078	-	2,936,242	300,695
Net gain (loss) on investments	1,049,148	-	5,688,972	95,403
Net increase (decrease) in net assets resulting from operations	1,056,072	(15,125)	5,895,832	169,353
Capital transactions:				
Transfer of net premiums	4,633	30,075	231,102	-
Transfers due to death benefits	-	(56,003)	(1,125,525)	(153,546)
Transfers due to annuity benefit payments	-	(14,336)	(182,341)	(10,707)
Transfers due to withdrawal of funds	(289,117)	(1,141,345)	(3,121,153)	(331,890)
Transfers due to net charge (credit) to annuitant mortality fluctuation	-	7,271	(38,590)	2,805
Transfers between Sub-Accounts	3,605	(65,369)	(381,750)	(3,174)
Net increase (decrease) in net assets resulting from capital transactions	(280,879)	(1,239,707)	(4,618,257)	(496,512)
Total increase (decrease)	775,193	(1,254,832)	1,277,575	(327,159)
NET ASSETS, at beginning of the year	3,072,125	4,868,102	38,319,523	4,652,819
NET ASSETS, at end of the year \$	3,847,318	\$ 3,613,270	\$39,597,098	\$4,325,660

See Notes to Financial Statements.

Panorama Separate Account

Notes to Financial Statements

1. ORGANIZATION

Panorama Separate Account (the “Separate Account”) is a separate investment account of Massachusetts Mutual Life Insurance Company (“MassMutual”) established on June 23, 1981. The Separate Account is registered as a unit investment trust under the Investment Company Act of 1940 (“the 1940 Act”).

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.

2. INVESTMENT OF THE SEPARATE ACCOUNT’S ASSETS

As of December 31, 2018, the Separate Account consists of twelve sub-accounts which invest in the following mutual funds:

Sub-Accounts	The sub-account listed in the first column invests in the fund in this column
MML Equity Index Sub-Account	MML Equity Index Fund ¹
MML High Yield Sub-Account	MML High Yield Fund ¹
MML Managed Bond Sub-Account	MML Managed Bond Fund ¹
MML Short-Duration Bond Sub-Account	MML Short-Duration Bond Fund ¹
MML Small Cap Equity Sub-Account	MML Small Cap Equity Fund ¹
Oppenheimer Capital Appreciation Sub-Account	Oppenheimer Capital Appreciation Fund/VA ²
Oppenheimer Conservative Balanced Sub-Account	Oppenheimer Conservative Balanced Fund/VA ²
Oppenheimer Discovery Mid Cap Growth Sub-Account	Oppenheimer Discovery Mid Cap Growth Fund/VA ²
Oppenheimer Global Sub-Account	Oppenheimer Global Fund/VA ²
Oppenheimer Government Money Sub-Account	Oppenheimer Government Money Fund/VA ²
Oppenheimer Main Street Sub-Account	Oppenheimer Main Street Fund®/VA ²
Oppenheimer Total Return Bond Sub-Account	Oppenheimer Total Return Bond Fund/VA ²

¹ MML Investment Advisers, LLC is the investment adviser to this Fund.

² OFI Global Asset Management, Inc. is the investment adviser to this Fund.

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 Panorama Separate Account 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.

Notes To Financial Statements (Continued)

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. 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 share of changes in value. Transfers to or from MassMutual are then made quarterly to adjust the Separate Account. Net transfers from MassMutual to the Separate Account totaled \$38,219 for the year ended December 31, 2018. Net transfers from the Separate Account to MassMutual totaled \$66,711 for the year ended December 31, 2017. 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.

G. Annuity Reserves

Annuity reserves are developed by using accepted actuarial methods and are computed using the 83 IAM or Annuity 2000, depending on the year of issue.

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 net assets of the Separate Account are measured at fair value. All the net assets are categorized as Level 1 as of December 31, 2018. There have been no transfers between levels for the year ended December 31, 2018.

Notes To Financial Statements (Continued)

5. RELATED PARTY TRANSACTIONS

A. Sales Agreements

Pursuant to separate underwriting agreements with MassMutual, on its own behalf and on behalf of the Separate Account, MML Investors Services, LLC (“MMLIS”) serves as principal underwriter of the contracts sold by its registered representatives, and MML Strategic Distributors, LLC (“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 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 broker-dealers. MMLIS and MSD also receive compensation for their actions as principal underwriters of the contracts.

The contracts are no longer offered for sale to the public. Contract owners may continue, however, to make purchase payments under existing 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 investment account (the “General Account”) and the Separate Account. The General Account is not registered as an investment company under the 1940 Act.

6. PURCHASES AND SALES OF INVESTMENTS

The cost of purchases and proceeds from sales of investments for the year ended December 31, 2018 were as follows:

	<u>MML Equity Index Sub-Account</u>	<u>MML High Yield Sub-Account</u>	<u>MML Managed Bond Sub-Account</u>	<u>MML Short-Duration Bond Sub-Account</u>	<u>MML Small Cap Equity Sub-Account</u>
Cost of purchases	\$ 253,225	\$ 53,204	\$ 49,854	\$ 16,562	\$ 232,287
Proceeds from sales	(275,894)	(120,335)	(134,375)	(254,924)	(48,838)
	<u>Oppenheimer Capital Appreciation Sub-Account</u>	<u>Oppenheimer Conservative Balanced Sub-Account</u>	<u>Oppenheimer Discovery Mid Cap Growth Sub-Account</u>	<u>Oppenheimer Global Sub-Account</u>	<u>Oppenheimer Government Money Sub-Account</u>
Cost of purchases	\$ 175,219	\$ 2,305,470	\$ 223,035	\$ 318,610	\$ 111,055
Proceeds from sales	(52,701)	(5,475,726)	(43,802)	(242,859)	(578,797)
	<u>Oppenheimer Main Street Sub-Account</u>	<u>Oppenheimer Total Return Bond Sub-Account</u>			
Cost of purchases	\$ 4,425,980	\$ 147,470			
Proceeds from sales	(3,855,075)	(367,797)			

Notes To Financial Statements (Continued)

7. NET INCREASE (DECREASE) IN OUTSTANDING UNITS

The changes in outstanding units for the two years ended December 31, 2018 were as follows:

	MML Equity Index Sub-Account	MML High Yield Sub-Account	MML Managed Bond Sub-Account	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account
2018					
Units purchased	2,211	-	238	-	1,255
Units withdrawn	(108,676)	(57,539)	(9,577)	(227,132)	(10,406)
Units transferred between Sub-Accounts	55,320	(745)	1,610	8,800	1,333
Net increase (decrease)	<u>(51,145)</u>	<u>(58,284)</u>	<u>(7,729)</u>	<u>(218,332)</u>	<u>(7,818)</u>

	Oppenheimer Capital Appreciation Sub-Account	Oppenheimer Conservative Balanced Sub-Account	Oppenheimer Discovery Mid Cap Growth Sub-Account	Oppenheimer Global Sub-Account	Oppenheimer Government Money Sub-Account
2018 (continued)					
Units purchased	3,059	48,091	6,179	1,491	12,686
Units withdrawn	(19,547)	(486,375)	(16,453)	(69,409)	(174,328)
Units transferred between Sub-Accounts	1,296	(4,539)	5,376	4,379	8,952
Net increase (decrease)	<u>(15,193)</u>	<u>(442,823)</u>	<u>(4,898)</u>	<u>(63,539)</u>	<u>(152,689)</u>

	Oppenheimer Main Street Sub-Account	Oppenheimer Total Return Bond Sub-Account
2018 (continued)		
Units purchased	24,245	424
Units withdrawn	(125,136)	(48,558)
Units transferred between Sub-Accounts	(5,753)	(1,413)
Net increase (decrease)	<u>(106,644)</u>	<u>(49,548)</u>

	MML Equity Index Sub-Account	MML High Yield Sub-Account	MML Managed Bond Sub-Account	MML Short-Duration Bond Sub-Account	MML Small Cap Equity Sub-Account
2017					
Units purchased	21,706	-	392	-	48,750
Units withdrawn	(67,527)	(4,849)	(2,863)	(35,585)	(67,163)
Units transferred between Sub-Accounts	136,403	73,579	19,085	90,700	259
Net increase (decrease)	<u>90,582</u>	<u>68,730</u>	<u>16,615</u>	<u>55,114</u>	<u>(18,155)</u>

	Oppenheimer Capital Appreciation Sub-Account	Oppenheimer Conservative Balanced Sub-Account	Oppenheimer Discovery Mid Cap Growth Sub-Account	Oppenheimer Global Sub-Account	Oppenheimer Government Money Sub-Account
2017 (continued)					
Units purchased	3,061	31,775	270	1,859	11,733
Units withdrawn	(344,829)	(575,017)	(74,325)	(110,672)	(380,768)
Units transferred between Sub-Accounts	(14,228)	(27,269)	(4,592)	2,015	(20,468)
Net increase (decrease)	<u>(355,997)</u>	<u>(570,512)</u>	<u>(78,647)</u>	<u>(106,798)</u>	<u>(389,503)</u>

	Oppenheimer Main Street Sub-Account	Oppenheimer Total Return Bond Sub-Account
2017 (continued)		
Units purchased	12,481	438
Units withdrawn	(174,785)	(74,700)
Units transferred between Sub-Accounts	(14,269)	(485)
Net increase (decrease)	<u>(176,572)</u>	<u>(74,746)</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, 2018 follows:

	At December 31,			For the Years Ended December 31,		
	Units	Unit Value	Net Assets	Investment Income Ratio ¹	Expense Ratio ²	Total Return ³
MML Equity Index Sub-Account						
2018	918,293	\$ 2.20	\$ 2,015,790	1.54%	0.73%	(5.50)%
2017	969,438	2.32	2,251,928	0.94	0.73	20.46
2016	878,856	1.93	1,694,731	1.67	0.73	10.67
2015	927,522	1.74	1,616,103	1.47	0.73	0.26
2014	969,221	1.74	1,684,403	1.32	0.73	12.35
MML High Yield Sub-Account						
2018	340,912	1.64	560,393	5.98	0.73	(4.25)
2017	399,196	1.72	685,323	7.14	0.73	7.10
2016	330,466	1.60	529,713	7.02	0.73	15.41
2015	382,538	1.39	531,301	6.44	0.73	(2.10)
2014	318,685	1.42	452,134	6.30	0.73	(0.02)
MML Managed Bond Sub-Account						
2018	52,578	13.31	699,691	3.20	0.73	(1.41)
2017	60,307	13.50	814,033	3.13	0.73	3.68
2016	43,692	13.02	568,855	2.59	0.73	1.75
2015	56,445	12.80	722,260	2.58	0.73	(1.72)
2014	65,813	13.02	856,845	2.99	0.73	5.42
MML Short-Duration Bond Sub-Account						
2018	163,262	1.12	182,373	2.26	0.73	0.55
2017	381,595	1.11	423,925	2.58	0.73	1.55
2016	326,480	1.09	357,151	2.02	0.73	1.80
2015	326,605	1.07	350,960	2.10	0.73	(0.06)
2014	329,916	1.08	354,722	2.22	0.73	0.38
MML Small Cap Equity Sub-Account						
2018	504,682	2.94	1,484,572	0.49	0.73	(10.84)
2017	512,500	3.30	1,690,917	0.83	0.73	13.54
2016	530,655	2.91	1,542,026	1.05	0.73	17.36
2015	558,746	2.48	1,383,513	0.86	0.73	(6.32)
2014	538,115	2.64	1,422,313	0.93	0.73	11.34
Oppenheimer Capital Appreciation Sub-Account						
2018	1,091,674	1.75	1,913,117	0.32	0.73	(6.42)
2017	1,106,867	1.87	2,072,779	0.22	0.73	25.91
2016	1,462,864	1.49	2,175,660	0.41	0.73	(2.91)
2015	1,543,266	1.53	2,364,072	0.09	0.73	2.79
2014	1,663,984	1.49	2,479,818	0.44	0.73	14.57
Oppenheimer Conservative Balanced Sub-Account						
2018	3,945,356	10.29	40,582,596	1.98	0.73	(6.01)
2017	4,388,178	10.94	48,025,958	1.98	0.73	8.46
2016	4,958,690	10.09	50,037,053	2.38	0.73	4.50
2015	5,471,021	9.66	52,831,586	2.25	0.73	0.10
2014	6,125,542	9.65	59,094,099	2.04	0.73	7.41

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,			For the Years Ended December 31,		
	Units	Unit Value	Net Assets	Investment Income Ratio ¹	Expense Ratio ²	Total Return ³
Oppenheimer Discovery Mid Cap Growth Sub-Account						
2018	843,400	\$ 1.51	\$ 1,276,534	-%	0.73%	(6.77)%
2017	848,298	1.62	1,377,173	0.03	0.73	27.86
2016	926,945	1.27	1,176,982	-	0.73	1.59
2015	1,012,246	1.25	1,265,154	-	0.73	5.83
2014	1,014,082	1.18	1,197,622	-	0.73	5.01
Oppenheimer Global Sub-Account						
2018	1,217,491	2.59	3,151,343	0.98	0.73	(13.82)
2017	1,281,030	3.00	3,847,318	0.92	0.73	35.67
2016	1,387,829	2.21	3,072,125	1.06	0.73	(0.64)
2015	1,457,824	2.23	3,247,988	1.33	0.73	3.19
2014	1,536,206	2.16	3,316,878	1.12	0.73	1.55
Oppenheimer Government Money Sub-Account						
2018	983,811	3.20	3,147,031	1.33	0.73	0.61
2017	1,136,500	3.18	3,613,270	0.37	0.73	(0.34)
2016	1,526,003	3.19	4,868,102	0.01	0.73	(0.72)
2015	1,629,611	3.21	5,236,065	0.01	0.73	(0.72)
2014	1,911,663	3.24	6,186,693	0.01	0.73	(0.72)
Oppenheimer Main Street Sub-Account						
2018	1,326,942	25.26	33,514,204	1.16	0.73	(8.56)
2017	1,433,586	27.62	39,597,098	1.25	0.73	16.06
2016	1,610,159	23.80	38,319,523	1.12	0.73	10.81
2015	1,733,787	21.48	37,237,348	0.93	0.73	2.58
2014	1,920,855	20.94	40,218,761	0.83	0.73	9.90
Oppenheimer Total Return Bond Sub-Account						
2018	590,433	6.64	3,921,080	3.38	0.73	(1.75)
2017	639,981	6.76	4,325,660	2.38	0.73	3.83
2016	714,727	6.51	4,652,819	3.67	0.73	2.52
2015	775,360	6.35	4,923,417	4.06	0.73	0.23
2014	871,787	6.34	5,523,193	5.23	0.73	6.48

¹ The investment income ratios represent the dividends, excluding distributions of capital gains, received by the sub-account from the underlying mutual fund, net of management fees assessed by the fund manager, divided by the average net assets. These ratios exclude those expenses, such as mortality and expense charges, that are assessed against contract owners accounts either through reductions in the unit values or the redemption of units. The recognition of investment income by the sub-account is affected by the timing of the declaration of dividends by the underlying fund in which the sub-account invests.

² The expense ratios represent the annualized contract expenses of the Separate Account, consisting primarily of mortality and expense charges, for each period indicated. The ratios include only those expenses that result in a direct reduction of unit values. Charges made directly to contract owners accounts through the redemption of units and expenses of the underlying fund have been excluded.

³ The total returns are for the periods indicated, including changes in the value of the underlying fund, and the expenses assessed through the reduction of unit values. These ratios do not include any expenses assessed through the redemption of units. Investment options with a date notation indicate the effective date of that investment option in the variable account. The total return is calculated for each period indicated or from the effective date through the end of the reporting period.

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.

<p>Mortality and Expense Risk Charge</p> <p>This charge is assessed through reduction of unit values.</p>	<p>This charge is equal, on an annual basis, to 0.73% of the daily value of the assets invested in each fund.</p>
<p>Annual Maintenance Charge – for deferred contracts. This charge is assessed through the redemption of units.</p>	<p>\$40 per contract, annually</p>
<p>Policy Fee – for immediate contracts. This charge is assessed through a reduction in the number of units purchased.</p>	<p>\$70 per contract</p>
<p>Contingent Deferred Sales Charge – for deferred contracts. This charge is assessed through the redemption of units.</p>	<p>0% - 5%</p>
<p>Sales Charge – for immediate contracts. This charge is assessed through a reduction in the number of units purchased.</p>	<p>3% of the purchase payment up to \$10,000; 2% of the next \$90,000 and 1% of any purchase payment over \$100,000</p>

9. SUBSEQUENT EVENTS

The Separate Account's management has reviewed events occurring through March 19, 2019, the date the financial statements were issued, and no subsequent events occurred requiring accrual or disclosure.

