



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 1:

### *Opinion on the Financial Statements*

We have audited the accompanying statements of assets and liabilities of the divisions listed in Appendix A that comprise Massachusetts Mutual Variable Annuity Separate Account 1 (collectively, “the Separate Account”), as of December 31, 2021, 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 including the financial highlights in Note 8 for each of the years in the five-year period then ended (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of each division as of December 31, 2021, and the results of their operations and changes in 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 are the responsibility of the Separate Account’s management. Our responsibility is to express an opinion on these financial statements 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 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, 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. Such procedures also included confirmation of securities owned as of December 31, 2021, 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. We believe that our audits provide a reasonable basis for our opinion.

**KPMG LLP**

We have served as the MassMutual Separate Accounts’ auditor since 2004.

Boston, Massachusetts  
March 8, 2022

## Appendix A

### Divisions

Invesco V.I. Discovery Mid Cap Growth Division\*

Invesco V.I. Global Division\*

Invesco V.I. Global Strategic Income Division\*

MML Blend Division

MML Equity Division

MML Managed Bond Division

MML U.S. Government Money Market Division

\* See Note 2 to the financial statements for the previous name of this division.

# Massachusetts Mutual Variable Annuity Separate Account 1

## STATEMENTS OF ASSETS AND LIABILITIES

December 31, 2021

	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division	Invesco V.I. Global Strategic Income Division	MML Blend Division	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
<b>ASSETS</b>							
Investments							
Number of shares .....	1,308,486	2,127,051	1,944,481	11,588,334	7,109,098	1,272,597	6,678,140
Identified cost .....	\$ 97,081,726	\$ 76,383,736	\$ 9,847,514	\$ 239,399,859	\$ 173,520,153	\$ 16,191,116	\$ 6,678,130
Value .....	\$ 149,991,699	\$ 121,709,836	\$ 8,652,940	\$ 241,474,837	\$ 228,139,498	\$ 16,569,307	\$ 6,678,140
Dividends receivable .....	-	-	-	-	-	-	1
Receivable from Massachusetts Mutual Life Insurance Company .....	1,426	-	144	402	494	-	-
<b>Total assets.....</b>	<b>149,993,125</b>	<b>121,709,836</b>	<b>8,653,084</b>	<b>241,475,239</b>	<b>228,139,992</b>	<b>16,569,307</b>	<b>6,678,141</b>
<b>LIABILITIES</b>							
Annuitant mortality fluctuation reserve .....	88,104	54,815	3,120	289,929	184,147	10,228	51,413
Payable to Massachusetts Mutual Life Insurance Company .....	-	1,445	-	-	-	276	1,161
<b>Total liabilities .....</b>	<b>88,104</b>	<b>56,260</b>	<b>3,120</b>	<b>289,929</b>	<b>184,147</b>	<b>10,504</b>	<b>52,574</b>
<b>NET ASSETS</b>	<b>\$ 149,905,021</b>	<b>\$ 121,653,576</b>	<b>\$ 8,649,964</b>	<b>\$ 241,185,310</b>	<b>\$ 227,955,845</b>	<b>\$ 16,558,803</b>	<b>\$ 6,625,567</b>
<b>Net Assets:</b>							
Accumulation units - value.....	\$ 146,968,226	\$ 119,826,425	\$ 8,545,971	\$ 233,299,504	\$ 221,817,613	\$ 16,217,875	\$ 4,911,813
Contracts in payout (annuitization) period.....	2,936,795	1,827,151	103,993	7,885,806	6,138,232	340,928	1,713,754
<b>Net assets.....</b>	<b>\$ 149,905,021</b>	<b>\$ 121,653,576</b>	<b>\$ 8,649,964</b>	<b>\$ 241,185,310</b>	<b>\$ 227,955,845</b>	<b>\$ 16,558,803</b>	<b>\$ 6,625,567</b>
<b>Outstanding units</b>							
Contract owners .....	<b>15,734,508</b>	<b>12,193,063</b>	<b>2,908,049</b>	<b>21,572,012</b>	<b>19,492,149</b>	<b>3,173,007</b>	<b>3,662,309</b>
<b>UNIT VALUE</b>							
Flex Extra (Qualified) .....	\$ 9.53	\$ 9.98	\$ 2.97	\$ 10.39	\$ 11.12	\$ 5.01	\$ 1.72
Variable Annuity Fund 4 .....	-	-	-	21.15	37.46	11.38	3.18
Flex-Annuity IV (Qualified) .....	-	-	-	17.37	30.61	8.56	2.41

See Notes to Financial Statements.

# Massachusetts Mutual Variable Annuity Separate Account 1

## STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS For The Year Ended December 31, 2021

	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Global Division	Invesco V.I. Global Strategic Income Division	MML Blend Division	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
<b>Investment Income</b>							
Dividends .....	\$ -	\$ -	\$ 421,103	\$ 5,065,679	\$ 3,656,183	\$ 540,451	\$ -
<b>Expenses</b>							
Mortality and expense risk fees and administrative charges .....	1,910,786	1,582,573	120,069	3,087,232	2,851,056	222,801	90,567
<b>Net investment income (loss) .....</b>	<b>(1,910,786)</b>	<b>(1,582,573)</b>	<b>301,034</b>	<b>1,978,447</b>	<b>805,127</b>	<b>317,650</b>	<b>(90,567)</b>
<b>Net realized and unrealized gain (loss) on investments</b>							
Realized gain (loss) on sale of fund shares .....	10,147,873	6,914,486	(168,719)	8,831,923	4,980,262	118,688	(2)
Realized gain distribution .....	15,582,852	6,170,146	-	60,744,080	-	315,252	-
Realized gain (loss) .....	25,730,725	13,084,632	(168,719)	69,576,003	4,980,262	433,940	(2)
Change in net unrealized appreciation/depreciation of investments .....	(182,825)	4,290,576	(585,007)	(41,105,917)	48,190,839	(842,434)	2
<b>Net gain (loss) on investments .....</b>	<b>25,547,900</b>	<b>17,375,208</b>	<b>(753,726)</b>	<b>28,470,086</b>	<b>53,171,101</b>	<b>(408,494)</b>	<b>-</b>
<b>Net increase (decrease) in net assets resulting from operations .....</b>	<b>23,637,114</b>	<b>15,792,635</b>	<b>(452,692)</b>	<b>30,448,533</b>	<b>53,976,228</b>	<b>(90,844)</b>	<b>(90,567)</b>
Capital transactions:							
Transfers of net premiums .....	1,647,455	1,862,624	150,706	1,973,146	3,329,980	273,014	278,872
Transfers due to death benefits .....	(749,100)	(536,974)	(66,874)	(3,677,833)	(2,510,784)	(271,759)	(125,231)
Transfers due to annuity benefit payments .....	(251,481)	(164,818)	(10,546)	(750,219)	(514,836)	(35,652)	(168,899)
Transfers due to withdrawal of funds .....	(11,774,260)	(9,911,113)	(911,341)	(20,139,865)	(17,950,685)	(1,521,908)	(917,800)
Transfers due to annual administrative and contingent deferred sales charges .....	(57,280)	(26,691)	(2,557)	(267,802)	(218,039)	(58,890)	(6,946)
Transfers due to net charge (credit) to annuitant mortality fluctuation reserve .....	(107,639)	(114,806)	(704)	(309,243)	(365,277)	(4,489)	(62,276)
Transfers between divisions and to/from Guaranteed Principal Account .....	(2,519,532)	(1,842,813)	(11,102)	(867,346)	(3,144,102)	(44,600)	553,855
Net increase (decrease) in net assets resulting from capital transactions .....	(13,811,837)	(10,734,591)	(852,418)	(24,039,162)	(21,373,743)	(1,664,284)	(448,425)
<b>Total increase (decrease) .....</b>	<b>9,825,277</b>	<b>5,058,044</b>	<b>(1,305,110)</b>	<b>6,409,371</b>	<b>32,602,485</b>	<b>(1,755,128)</b>	<b>(538,992)</b>
<b>NET ASSETS, at beginning of the year .....</b>	<b>140,079,744</b>	<b>116,595,532</b>	<b>9,955,074</b>	<b>234,775,939</b>	<b>195,353,360</b>	<b>18,313,931</b>	<b>7,164,559</b>
<b>NET ASSETS, at end of the year .....</b>	<b>\$ 149,905,021</b>	<b>\$ 121,653,576</b>	<b>\$ 8,649,964</b>	<b>\$ 241,185,310</b>	<b>\$ 227,955,845</b>	<b>\$ 16,558,803</b>	<b>\$ 6,625,567</b>

See Notes to Financial Statements.

# Massachusetts Mutual Variable Annuity Separate Account 1

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

	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Division	Invesco Oppenheimer V.I. Global Division	Invesco Oppenheimer V.I. Global Strategic Income Division	MML Blend Division	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
<b>Investment Income</b>							
Dividends .....	\$ 45,430	\$ 687,263	\$ 570,499	\$ -	\$ 4,164,254	\$ 17,368	\$ 16,206
<b>Expenses</b>							
Mortality and expense risk fees and administrative charges.....	1,522,966	1,281,677	127,590	2,849,795	2,331,580	236,883	93,783
<b>Net investment income (loss) .....</b>	<b>(1,477,536)</b>	<b>(594,414)</b>	<b>442,909</b>	<b>(2,849,795)</b>	<b>1,832,674</b>	<b>(219,515)</b>	<b>(77,577)</b>
<b>Net realized and unrealized gain (loss) on investments</b>							
Realized gain (loss) on sale of fund shares .....	7,971,485	3,793,038	(206,737)	7,592,980	(1,917,260)	40,935	234
Realized gain distribution.....	9,470,769	3,580,841	-	9,705,644	20,221,100	-	-
Realized gain (loss).....	17,442,254	7,373,879	(206,737)	17,298,624	18,303,840	40,935	234
Change in net unrealized appreciation/depreciation of investments .....	24,677,338	17,517,552	(69,143)	9,700,864	(19,016,176)	1,303,667	(239)
<b>Net gain (loss) on investments .....</b>	<b>42,119,592</b>	<b>24,891,431</b>	<b>(275,880)</b>	<b>26,999,488</b>	<b>(712,336)</b>	<b>1,344,602</b>	<b>(5)</b>
<b>Net increase (decrease) in net assets resulting from operations.....</b>	<b>40,642,056</b>	<b>24,297,017</b>	<b>167,029</b>	<b>24,149,693</b>	<b>1,120,338</b>	<b>1,125,087</b>	<b>(77,582)</b>
Capital transactions:							
Transfers of net premiums.....	2,014,782	1,360,992	126,974	1,756,881	2,508,301	171,051	108,468
Transfers due to death benefits .....	(826,940)	(554,244)	(109,065)	(2,527,572)	(1,607,677)	(224,912)	(111,324)
Transfers due to annuity benefit payments .....	(181,644)	(112,279)	(10,542)	(611,376)	(321,784)	(34,757)	(161,528)
Transfers due to withdrawal of funds .....	(10,573,587)	(8,315,780)	(804,793)	(16,920,113)	(14,609,655)	(1,681,564)	(1,547,627)
Transfers due to annual administrative and contingent deferred sales charges ....	(60,237)	(28,206)	(2,578)	(290,608)	(237,357)	(64,924)	(7,655)
Transfers due to net charge (credit) to annuitant mortality fluctuation reserve....	(105,326)	(38,079)	(6,431)	(231,555)	(183,296)	(21,128)	(50,314)
Transfers between divisions and to/from Guaranteed Principal Account .....	(4,127,038)	(2,968,306)	(80,023)	(3,480,856)	(4,333,682)	237,155	2,305,618
Net increase (decrease) in net assets resulting from capital transactions .....	(13,859,990)	(10,655,902)	(886,458)	(22,305,199)	(18,785,150)	(1,619,079)	535,638
<b>Total increase (decrease).....</b>	<b>26,782,066</b>	<b>13,641,115</b>	<b>(719,429)</b>	<b>1,844,494</b>	<b>(17,664,812)</b>	<b>(493,992)</b>	<b>458,056</b>
<b>NET ASSETS, at beginning of the year.....</b>	<b>113,297,678</b>	<b>102,954,417</b>	<b>10,674,503</b>	<b>232,931,445</b>	<b>213,018,172</b>	<b>18,807,923</b>	<b>6,706,503</b>
<b>NET ASSETS, at end of the year.....</b>	<b>\$ 140,079,744</b>	<b>\$ 116,595,532</b>	<b>\$ 9,955,074</b>	<b>\$ 234,775,939</b>	<b>\$ 195,353,360</b>	<b>\$ 18,313,931</b>	<b>\$ 7,164,559</b>

See Notes to Financial Statements.

# *Massachusetts Mutual Variable Annuity Separate Account 1*

## *Notes To Financial Statements*

### **1. ORGANIZATION**

Massachusetts Mutual Variable Annuity Separate Account 1 (“the Separate Account”) is a separate investment account of Massachusetts Mutual Life Insurance Company (“MassMutual”) established on April 8, 1981. The Separate Account is registered as a unit investment trust under the Investment Company Act of 1940 (“the 1940 Act”).

MassMutual maintains three segments within the Separate Account, they are: Variable Annuity Fund 4, Flex - Annuity IV (Qualified) and Flex Extra (Qualified).

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, 2021, the Separate Account consists of seven divisions which invest in the following mutual funds. All of the funds may not be available to all of the three segments of the Separate Account:

<b>Divisions</b>	<b>The division listed in the first column invests in the fund in this column</b>
Invesco V.I. Discovery Mid Cap Growth Division <sup>1</sup>	Invesco V.I. Discovery Mid Cap Growth Fund <sup>1,4</sup>
Invesco V.I. Global Division <sup>2</sup>	Invesco V.I. Global Fund <sup>2,4</sup>
Invesco V.I. Global Strategic Income Division <sup>3</sup>	Invesco V.I. Global Strategic Income Fund <sup>3,4</sup>
MML Blend Division	MML Blend Fund <sup>5</sup>
MML Equity Division	MML Equity Fund <sup>5</sup>
MML Managed Bond Division	MML Managed Bond Fund <sup>5</sup>
MML U.S. Government Money Market Division	MML U.S. Government Money Market Fund <sup>5</sup>

In addition to the seven divisions, 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.

<sup>1</sup>Prior to April 30, 2021, known as Invesco Oppenheimer V.I. Discovery Mid Cap Growth Division/Fund.

<sup>2</sup>Prior to April 30, 2021, known as Invesco Oppenheimer V.I. Global Division/Fund.

<sup>3</sup>Prior to April 30, 2021, known as Invesco Oppenheimer V.I. Global Strategic Income Division/Fund.

<sup>4</sup>Invesco Advisers, Inc. is the investment adviser to this Fund.

<sup>5</sup>MML Investment Advisers, LLC is the investment adviser to this Fund.

## *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 1 follows the accounting and reporting guidance in FASB Accounting Standards Codification 946.

#### **A. Investment Valuation**

Investments in the underlying funds held by each division are carried at fair value which is based on 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 divisions.

#### **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 contract owners 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. 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 contributes to a reserve maintained by MassMutual 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 the Separate Account to MassMutual totaled \$964,434 and \$636,129 for the years ended December 31, 2021 and 2020, respectively. 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.

## *Notes To Financial Statements (Continued)*

### **H. Annuity Reserves**

Annuity reserves are developed by using accepted actuarial methods and are computed using the 83 IAM, 1994 MGDB or Annuity 2000 table, 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 investments of the Separate Account are measured at fair value. All the investments are categorized as Level 1 as of December 31, 2021. There have been no transfers between levels for the year ended December 31, 2021.

### **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. 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.



## *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, 2021 were as follows:

	<b>Invesco V.I. Discovery Mid Cap Growth Division</b>	<b>Invesco V.I. Global Division</b>	<b>Invesco V.I. Global Strategic Income Division</b>	<b>MML Blend Division</b>	<b>MML Equity Division</b>
Cost of purchases.....\$	16,579,297	\$ 7,601,045	\$ 605,503	\$ 68,017,187	\$ 6,099,816
Proceeds from sales.....	(16,701,808)	(13,736,204)	(1,157,216)	(29,288,183)	(26,603,511)

  

	<b>MML Managed Bond Division</b>	<b>MML U.S. Government Money Market Division</b>
Cost of purchases.....\$	1,550,493	\$ 1,373,751
Proceeds from sales.....	(2,582,080)	(1,909,098)

## Notes To Financial Statements (Continued)

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

The changes in outstanding units for the two years ended December 31, 2021 were as follows:

	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division	Invesco V.I. Global Strategic Income Division	MML Blend Division	MML Equity Division
<b>2021</b>					
Units purchased.....	234,775	237,227	55,978	333,087	428,816
Units withdrawn .....	(1,502,807)	(1,168,927)	(335,028)	(2,517,934)	(2,135,573)
Units transferred between divisions and to/from GPA .....	(282,640)	(197,180)	(3,732)	(98,105)	(288,151)
Net increase (decrease).....	<u>(1,550,671)</u>	<u>(1,128,880)</u>	<u>(282,781)</u>	<u>(2,282,952)</u>	<u>(1,994,908)</u>

	MML Managed Bond Division	MML U.S. Government Money Market Division
<b>2021 (continued)</b>		
Units purchased.....	62,644	376,278
Units withdrawn .....	(375,206)	(952,706)
Units transferred between divisions and to/from GPA .....	(23,535)	319,667
Net increase (decrease).....	<u>(336,096)</u>	<u>(256,761)</u>

	Invesco Oppenheimer V.I. Discovery Mid Cap Growth Division	Invesco Oppenheimer V.I. Global Division	Invesco Oppenheimer V.I. Global Strategic Income Division	MML Blend Division	MML Equity Division
<b>2020</b>					
Units purchased.....	405,865	225,798	57,763	321,821	492,518
Units withdrawn .....	(1,896,124)	(1,304,053)	(327,130)	(2,496,068)	(2,310,242)
Units transferred between divisions and to/from GPA .....	(639,447)	(420,382)	(31,883)	(412,634)	(545,544)
Net increase (decrease).....	<u>(2,129,707)</u>	<u>(1,498,637)</u>	<u>(301,251)</u>	<u>(2,586,881)</u>	<u>(2,363,268)</u>

	MML Managed Bond Division	MML U.S. Government Money Market Division
<b>2020 (continued)</b>		
Units purchased.....	50,712	216,598
Units withdrawn .....	(413,890)	(1,172,357)
Units transferred between divisions and to/from GPA .....	45,033	1,240,043
Net increase (decrease).....	<u>(318,145)</u>	<u>284,284</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, 2021 follows:

	At December 31,				For the Years Ended December 31,					
	Units	Unit Value <sup>3</sup>		Net Assets	Investment		Expense Ratio <sup>2</sup>		Total Return <sup>3</sup>	
		(Lowest to Highest)			Income Ratio <sup>1</sup>	(Lowest to Highest)		(Lowest to Highest)		
<b>Invesco V.I. Discovery Mid Cap Growth Division<sup>4</sup></b>										
2021.....	15,734,508	\$	\$ 9.53	\$ 149,905,021	- %	%	1.30 %	%	17.56 %	
2020.....	17,285,180		8.10	140,079,744	0.04		1.30		38.87	
2019.....	19,414,886		5.84	113,297,678	-		1.30		37.56	
2018.....	21,601,324		4.24	91,635,575	-		1.30		(7.30)	
2017.....	23,493,015		4.58	107,511,615	0.03		1.30		27.13	
<b>Invesco V.I. Global Division<sup>4</sup></b>										
2021.....	12,193,063		9.98	121,653,576	-		1.30		14.00	
2020.....	13,321,943		8.75	116,595,532	0.70		1.30		25.99	
2019.....	14,820,580		6.95	102,954,417	0.90		1.30		30.09	
2018.....	16,576,166		5.34	88,518,710	0.99		1.30		(14.31)	
2017.....	18,087,184		6.23	112,715,013	0.93		1.30		34.91	
<b>Invesco V.I. Global Strategic Income Division<sup>4</sup></b>										
2021.....	2,908,049		2.97	8,649,964	4.57		1.30		(4.66)	
2020.....	3,190,830		3.12	9,955,074	5.82		1.30		2.07	
2019.....	3,492,081		3.06	10,674,503	3.79		1.30		9.37	
2018.....	3,888,716		2.79	10,868,296	4.95		1.30		(5.64)	
2017.....	4,236,600		2.96	12,548,182	2.31		1.30		4.90	
<b>MML Blend Division</b>										
2021.....	21,572,012	10.39 to	21.15	241,185,310	2.11	0.73 to	1.30	13.54 to	14.19	
2020.....	23,854,964	9.15 to	18.52	234,775,939	-	0.73 to	1.30	11.41 to	12.05	
2019.....	26,441,844	8.21 to	16.53	232,931,445	2.42	0.73 to	1.30	19.81 to	20.50	
2018.....	29,662,205	6.85 to	13.72	218,328,901	2.11	0.73 to	1.30	(5.58) to	(5.04)	
2017.....	32,461,158	7.26 to	14.45	253,241,743	2.11	0.73 to	1.30	13.77 to	14.42	
<b>MML Equity Division</b>										
2021.....	19,492,149	11.12 to	37.46	227,955,845	1.66	0.73 to	1.30	28.58 to	29.31	
2020.....	21,487,056	8.65 to	28.97	195,353,360	2.31	0.73 to	1.30	1.69 to	2.28	
2019.....	23,850,325	8.50 to	28.32	213,018,172	2.03	0.73 to	1.30	24.30 to	25.01	
2018.....	26,338,675	6.84 to	22.66	189,237,032	1.77	0.73 to	1.30	(11.16) to	(10.65)	
2017.....	29,013,886	7.70 to	25.36	234,712,505	1.81	0.73 to	1.30	14.30 to	14.95	
<b>MML Managed Bond Division</b>										
2021.....	3,173,007	5.01 to	11.38	16,558,803	3.13	0.73 to	1.30	(0.49) to	0.08	
2020.....	3,509,103	5.04 to	11.37	18,313,931	0.09	0.73 to	1.30	6.32 to	6.93	
2019.....	3,827,248	4.74 to	10.64	18,807,923	3.67	0.73 to	1.30	8.39 to	9.01	
2018.....	4,246,858	4.37 to	9.76	19,268,935	3.43	0.73 to	1.30	(1.73) to	(1.17)	
2017.....	4,762,998	4.45 to	9.87	22,085,965	3.14	0.73 to	1.30	3.35 to	3.94	
<b>MML U.S. Government Money Market Division</b>										
2021.....	3,662,309	1.72 to	3.18	6,625,567	-	0.73 to	1.30	(1.29) to	(0.73)	
2020.....	3,919,070	1.74 to	3.20	7,164,559	0.22	0.73 to	1.30	(1.06) to	(0.50)	
2019.....	3,634,786	1.76 to	3.22	6,706,503	1.69	0.73 to	1.30	0.40 to	0.97	
2018.....	3,702,921	1.75 to	3.19	6,786,391	1.33	0.73 to	1.30	0.02 to	0.59	
2017.....	3,868,270	1.75 to	3.17	7,092,906	0.35	0.73 to	1.30	(0.93) to	(0.37)	

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

## Notes To Financial Statements (Continued)

- 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 owner 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. As the total return is presented as a range of minimum to maximum values, based on the product grouping representing the minimum and maximum expense ratio amounts, some individual contract total returns and unit values are not within the ranges presented.
- 4 See Note 2 to the financial statements for the previous name of this division.

- B.** The Separate Account assesses charges associated with the contract. These charges are either assessed as a direct reduction in unit values, a reduction in the number of units purchased, or through a redemption of units for all contracts contained within the Separate Account.

<p><b>Mortality and Expense Risk Charge</b></p> <p>This charge is assessed through reduction of unit values.</p>	<p>This charge is equal, on an annual basis, to 0.73%-1.25% of the daily value of the assets invested in each fund.</p>
<p><b>Administrative Expense Charge</b></p> <p>This charge is assessed through reduction of unit values.</p>	<p>This charge is equal, on an annual basis, to 0.00%-0.15% of the daily value of the assets invested in each fund.</p>
<p><b>Annual Administrative Charge</b></p> <p>This charge is assessed through the redemption of units.</p>	<p>\$30 - \$35 per contract year.</p>
<p><b>Contingent Deferred Sales Charge</b></p> <p>This charge is assessed through the redemption of units.</p>	<p>0.00% - 11.00%</p>
<p><b>Sales and Administrative Charges</b></p> <p>This charge is assessed through a reduction in the number of units purchased.</p>	<p>8.75% for single purchase payment 9.00% for periodic purchase payments</p>

### 9. SUBSEQUENT EVENTS

The Separate Account's management has reviewed events occurring through March 8, 2022, the date the financial statements were issued, and no subsequent events occurred requiring a accrual or disclosure.