



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 3:

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 3 (Separate Account), as of December 31, 2023, 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, 2023, the results of their operations and changes in their 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, 2023, 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 Separate Account's auditor since 2004.

Boston, Massachusetts
March 7, 2024

Appendix A

Massachusetts Mutual Variable Annuity Separate Account 3 was comprised of the following divisions as of December 31, 2023.

Divisions

Invesco V.I. Capital Appreciation Division
Invesco V.I. Conservative Balanced Division
Invesco V.I. Core Plus Bond Division*
Invesco V.I. Discovery Mid Cap Growth Division
Invesco V.I. Global Division
Invesco V.I. Global Strategic Income Division
Invesco V.I. Main Street Division
Invesco V.I. Main Street Small Cap Division
Invesco V.I. U.S. Government Money 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 3

STATEMENTS OF ASSETS AND LIABILITIES

December 31, 2023

	Invesco V.I. Capital Appreciation Division	Invesco V.I. Conservative Balanced Division	Invesco V.I. Core Plus Bond Division	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division	Invesco V.I. Global Strategic Income Division	Invesco V.I. Main Street Division
ASSETS							
Investments							
Number of shares	229,678	71,540	61,750	94,658	266,162	476,311	518,505
Identified cost	\$ 10,857,607	\$ 986,217	\$ 411,566	\$ 6,905,741	\$ 9,643,013	\$ 2,373,015	\$ 11,213,357
Value	\$ 10,810,948	\$ 1,098,853	\$ 354,447	\$ 5,945,479	\$ 9,730,898	\$ 2,043,373	\$ 9,447,158
Receivable from Massachusetts Mutual Life Insurance Company	68	-	-	48	222	-	-
Total assets	10,811,016	1,098,853	354,447	5,945,527	9,731,120	2,043,373	9,447,158
LIABILITIES							
Payable to Annuitant mortality fluctuation fund reserve	4,640	630	343	2,219	4,275	916	6,239
Payable to Massachusetts Mutual Life Insurance Company	-	23	8	-	-	27	78
Total liabilities	4,640	653	351	2,219	4,275	943	6,317
NET ASSETS	\$ 10,806,376	\$ 1,098,200	\$ 354,096	\$ 5,943,308	\$ 9,726,845	\$ 2,042,430	\$ 9,440,841
Net Assets:							
Accumulation units - value	\$ 10,651,697	\$ 1,077,189	\$ 342,671	\$ 5,869,346	\$ 9,584,343	\$ 2,011,898	\$ 9,232,868
Contracts in payout (annuitization) period	154,679	21,011	11,425	73,962	142,502	30,532	207,973
Net assets	\$ 10,806,376	\$ 1,098,200	\$ 354,096	\$ 5,943,308	\$ 9,726,845	\$ 2,042,430	\$ 9,440,841
Outstanding units							
Contract owners	993,525	320,607	216,171	848,120	1,070,756	750,639	1,163,456
UNIT VALUE							
LifeTrust	\$ 10.88	\$ 3.43	\$ 1.64	\$ 7.01	\$ 9.08	\$ 2.72	\$ 8.11

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 3

STATEMENTS OF ASSETS AND LIABILITIES (Continued)

December 31, 2023

	Invesco V.I. Main Street Small Cap Division	Invesco V.I. U.S. Government Money Division	MML Blend Division	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
ASSETS						
Investments						
Number of shares	42,503	215,098	50,600	54,487	49,875	792,214
Identified cost.....	\$ 1,020,546	\$ 215,098	\$ 1,057,881	\$ 1,410,429	\$ 620,770	\$ 792,214
Value.....	\$ 1,143,755	\$ 215,098	\$ 984,360	\$ 1,431,511	\$ 541,378	\$ 792,214
Receivable from Massachusetts Mutual Life Insurance Company.....	-	-	-	134	-	-
Total assets	1,143,755	215,098	984,360	1,431,645	541,378	792,214
LIABILITIES						
Payable to Annuitant mortality fluctuation fund reserve	384	155	184	1,816	-	-
Payable to Massachusetts Mutual Life Insurance Company.....	193	7	4	-	1	170
Total liabilities	577	162	188	1,816	1	170
NET ASSETS	\$ 1,143,178	\$ 214,936	\$ 984,172	\$ 1,429,829	\$ 541,377	\$ 792,044
Net Assets:						
Accumulation units - value	\$ 1,130,371	\$ 209,769	\$ 978,045	\$ 1,369,300	\$ 541,377	\$ 792,044
Contracts in payout (annuitization) period.....	12,807	5,167	6,127	60,529	-	-
Net assets	\$ 1,143,178	\$ 214,936	\$ 984,172	\$ 1,429,829	\$ 541,377	\$ 792,044
Outstanding units						
Contract owners.....	195,713	170,108	188,518	247,531	207,754	644,969
UNIT VALUE						
LifeTrust.....	\$ 5.84	\$ 1.26	\$ 5.22	\$ 5.78	\$ 2.61	\$ 1.23

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 3

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS

For The Year Ended December 31, 2023

	Invesco V.I. Capital Appreciation Division	Invesco V.I. Conservative Balanced Division	Invesco V.I. Core Plus Bond Division	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division	Invesco V.I. Global Strategic Income Division	Invesco V.I. Main Street Division
Investment Income							
Dividends	\$ -	\$ 20,113	\$ 8,969	\$ -	\$ 20,176	\$ -	\$ 74,555
Expenses							
Mortality and expense risk fees and administrative expense charges	134,391	15,158	4,820	80,877	121,771	29,733	124,912
Net investment income (loss)	(134,391)	4,955	4,149	(80,877)	(101,595)	(29,733)	(50,357)
Net realized and unrealized gain (loss) on investments							
Realized gain (loss) on sale of fund shares	(459,958)	50,518	(3,466)	59,773	401,866	(147,565)	(609,791)
Realized gain distribution	-	-	-	-	1,020,317	-	606,228
Realized gain (loss)	(459,958)	50,518	(3,466)	59,773	1,422,183	(147,565)	(3,563)
Change in net unrealized appreciation/depreciation of investments	3,364,483	59,132	15,371	656,667	1,122,401	325,043	1,797,760
Net gain (loss) on investments	2,904,525	109,650	11,905	716,440	2,544,584	177,478	1,794,197
Net increase (decrease) in net assets resulting from operations	2,770,134	114,605	16,054	635,563	2,442,989	147,745	1,743,840
Capital transactions:							
Transfers of net premiums	2,402	-	-	720	1,799	937	5,140
Transfers due to death benefits	(227,191)	(68,266)	(191)	(40,112)	(66,293)	(29,118)	(195,930)
Transfers due to annuity benefit payments	(17,901)	(3,551)	(1,382)	(10,622)	(16,538)	(4,465)	(28,310)
Transfers due to withdrawal of funds	(299,910)	(43,457)	(10,062)	(424,136)	(364,671)	(345,386)	(439,520)
Transfers due to annual administrative and contingent deferred sales charges	(2,486)	(337)	(192)	(1,494)	(1,995)	(587)	(2,326)
Transfers due to net charge (credit) to annuitant mortality fluctuation	(18,904)	(3,318)	(1,077)	(14,747)	(21,145)	(1,601)	(8,326)
Transfers between Divisions and to/from General Account	(65,851)	-	-	(213,055)	(13,539)	13,491	(178,382)
Net increase (decrease) in net assets resulting from capital transactions	(629,841)	(118,929)	(12,904)	(703,446)	(482,382)	(366,729)	(847,654)
Total increase (decrease)	2,140,293	(4,324)	3,150	(67,883)	1,960,607	(218,984)	896,186
NET ASSETS, at beginning of the year	8,666,083	1,102,524	350,946	6,011,191	7,766,238	2,261,414	8,544,655
NET ASSETS, at end of the year	\$ 10,806,376	\$ 1,098,200	\$ 354,096	\$ 5,943,308	\$ 9,726,845	\$ 2,042,430	\$ 9,440,841

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 3

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2023

	Invesco V.I. Main Street Small Cap Division	Invesco V.I. U.S. Government Money Division	MML Blend Division	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
Investment Income						
Dividends	\$ 12,431	\$ 9,485	\$ 16,563	\$ 29,690	\$ 20,752	\$ 38,530
Expenses						
Mortality and expense risk fees and administrative expense charges	15,107	2,987	13,525	19,862	7,489	11,805
Net investment income (loss)	(2,676)	6,498	3,038	9,828	13,263	26,725
Net realized and unrealized gain (loss) on investments						
Realized gain (loss) on sale of fund shares	4,443	-	(33,094)	(4,978)	(11,749)	-
Realized gain distribution	-	-	-	113,140	-	-
Realized gain (loss)	4,443	-	(33,094)	108,162	(11,749)	-
Change in net unrealized appreciation/depreciation of investments	165,567	-	171,391	(11,561)	25,844	-
Net gain (loss) on investments	170,010	-	138,297	96,601	14,095	-
Net increase (decrease) in net assets resulting from operations	167,334	6,498	141,335	106,429	27,358	26,725
Capital transactions:						
Transfers of net premiums	-	50,000	-	-	1,800	-
Transfers due to death benefits	(1,554)	-	(23,525)	(222)	(5,498)	(18,421)
Transfers due to annuity benefit payments	(1,653)	(605)	(542)	(7,436)	-	(716)
Transfers due to withdrawal of funds	(45,677)	(9,036)	(74,634)	(163,482)	(39,702)	(9,861)
Transfers due to annual administrative and contingent deferred sales charges	(265)	(309)	(303)	(558)	(91)	(187)
Transfers due to net charge (credit) to annuitant mortality fluctuation	(2,614)	94	(3,468)	(7,190)	-	(90)
Transfers between Divisions and to/from General Account	(116,485)	(23,779)	-	(10,154)	2,714	378,808
Net increase (decrease) in net assets resulting from capital transactions	(168,248)	16,365	(102,472)	(189,042)	(40,777)	349,533
Total increase (decrease)	(914)	22,863	38,863	(82,613)	(13,419)	376,258
NET ASSETS, at beginning of the year	1,144,092	192,073	945,309	1,512,442	554,796	415,786
NET ASSETS, at end of the year	\$ 1,143,178	\$ 214,936	\$ 984,172	\$ 1,429,829	\$ 541,377	\$ 792,044

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 3

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS

For The Year Ended December 31, 2022

	Invesco V.I. Capital Appreciation Division	Invesco V.I. Conservative Balanced Division	Invesco V.I. Core Plus Bond Division	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division	Invesco V.I. Global Strategic Income Division	Invesco V.I. Main Street Division
Investment Income							
Dividends	\$ -	\$ 16,292	\$ 14,725	\$ -	\$ -	\$ -	\$ 137,884
Expenses							
Mortality and expense risk fees and administrative expense charges	142,764	16,727	5,287	94,715	121,922	33,011	136,807
Net investment income (loss)	(142,764)	(435)	9,438	(94,715)	(121,922)	(33,011)	1,077
Net realized and unrealized gain (loss) on investments							
Realized gain (loss) on sale of fund shares	54,837	46,361	(3,260)	263,029	292,537	(57,384)	(38,484)
Realized gain distribution	3,509,554	88,777	228	1,847,181	1,495,906	-	3,553,992
Realized gain (loss)	3,564,391	135,138	(3,032)	2,110,210	1,788,443	(57,384)	3,515,508
Change in net unrealized appreciation/depreciation of investments	(7,617,954)	(385,128)	(71,702)	(4,980,261)	(5,544,330)	(250,432)	(6,037,155)
Net gain (loss) on investments	(4,053,563)	(249,990)	(74,734)	(2,870,051)	(3,755,887)	(307,816)	(2,521,647)
Net increase (decrease) in net assets resulting from operations	(4,196,327)	(250,425)	(65,296)	(2,964,766)	(3,877,809)	(340,827)	(2,520,570)
Capital transactions:							
Transfers of net premiums	2,400	-	-	720	2,063	1,378	5,140
Transfers due to death benefits	(220,647)	(34,283)	(20,800)	(201,241)	(77,996)	(39,292)	(396,301)
Transfers due to annuity benefit payments	(18,199)	(4,640)	(2,029)	(11,867)	(15,642)	(5,532)	(27,342)
Transfers due to withdrawal of funds	(375,600)	(42,260)	(20,981)	(273,659)	(248,062)	(68,711)	(848,209)
Transfers due to annual administrative and contingent deferred sales charges	(2,759)	(352)	(201)	(1,754)	(2,065)	(602)	(2,451)
Transfers due to net charge (credit) to annuitant mortality fluctuation	(2,930)	(682)	817	3,486	4,578	1,051	(20,706)
Transfers between Divisions and to/from General Account	25,187	-	-	19,770	14,264	205	(27,228)
Net increase (decrease) in net assets resulting from capital transactions	(592,548)	(82,217)	(43,194)	(464,545)	(322,860)	(111,503)	(1,317,097)
Total increase (decrease)	(4,788,875)	(332,642)	(108,490)	(3,429,311)	(4,200,669)	(452,330)	(3,837,667)
NET ASSETS, at beginning of the year	13,454,958	1,435,166	459,436	9,440,502	11,966,907	2,713,744	12,382,322
NET ASSETS, at end of the year	\$ 8,666,083	\$ 1,102,524	\$ 350,946	\$ 6,011,191	\$ 7,766,238	\$ 2,261,414	\$ 8,544,655

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 3

STATEMENTS OF OPERATIONS AND CHANGES IN NET ASSETS (Continued)

For The Year Ended December 31, 2022

	Invesco V.I. Main Street Small Cap Division	Invesco V.I. U.S. Government Money Division	MML Blend Division	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
Investment Income						
Dividends	\$ 6,534	\$ 2,445	\$ 13,817	\$ 25,173	\$ 18,446	\$ 5,245
Expenses						
Mortality and expense risk fees and administrative expense charges	17,559	2,697	14,442	22,092	8,606	6,539
Net investment income (loss)	(11,025)	(252)	(625)	3,081	9,840	(1,294)
Net realized and unrealized gain (loss) on investments						
Realized gain (loss) on sale of fund shares	18,436	-	(11,734)	66,056	(8,975)	-
Realized gain distribution	141,765	-	18,502	168,266	6,172	-
Realized gain (loss)	160,201	-	6,768	234,322	(2,803)	-
Change in net unrealized appreciation/depreciation of investments	(404,392)	-	(225,342)	(343,679)	(122,024)	-
Net gain (loss) on investments	(244,191)	-	(218,574)	(109,357)	(124,827)	-
Net increase (decrease) in net assets resulting from operations	(255,216)	(252)	(219,199)	(106,276)	(114,987)	(1,294)
Capital transactions:						
Transfers of net premiums	88	-	350	175	2,238	-
Transfers due to death benefits	(74,493)	-	(6,142)	(74,335)	-	(896)
Transfers due to annuity benefit payments	(1,938)	(620)	(1,871)	(8,554)	-	(1,098)
Transfers due to withdrawal of funds	(86,408)	(3,053)	(216,918)	(82,749)	(62,213)	(67,283)
Transfers due to annual administrative and contingent deferred sales charges	(249)	(323)	(314)	(570)	(169)	(219)
Transfers due to net charge (credit) to annuitant mortality fluctuation	314	99	865	1,687	-	169
Transfers between Divisions and to/from General Account	77	-	-	(24,058)	(552)	(50,000)
Net increase (decrease) in net assets resulting from capital transactions	(162,609)	(3,897)	(224,030)	(188,404)	(60,696)	(119,327)
Total increase (decrease)	(417,825)	(4,149)	(443,229)	(294,680)	(175,683)	(120,621)
NET ASSETS, at beginning of the year	1,561,917	196,222	1,388,538	1,807,122	730,479	536,407
NET ASSETS, at end of the year	1,144,092	192,073	945,309	1,512,442	554,796	415,786

See Notes to Financial Statements.

Massachusetts Mutual Variable Annuity Separate Account 3

Notes To Financial Statements

1. ORGANIZATION

Massachusetts Mutual Variable Annuity Separate Account 3 (“the Separate Account”) is a separate investment account of Massachusetts Mutual Life Insurance Company (“MassMutual”) established on January 12, 1994. 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’s assets are not chargeable with liabilities arising from any other MassMutual business.

2. INVESTMENT OF THE SEPARATE ACCOUNT’S ASSETS

As of December 31, 2023, the Separate Account consists of thirteen divisions which invest in the following mutual funds. All of the divisions may not be available to every contract owner.

Divisions	The division listed in the first column invests in the fund in this column
Invesco V.I. Capital Appreciation Division	Invesco V.I. Capital Appreciation Fund ¹
Invesco V.I. Conservative Balanced Division	Invesco V.I. Conservative Balanced Fund ¹
Invesco V.I. Core Plus Bond Division	Invesco V.I. Core Plus Bond Fund ^{1,3}
Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Discovery Mid Cap Growth Fund ¹
Invesco V.I. Global Division	Invesco V.I. Global Fund ¹
Invesco V.I. Global Strategic Income Division	Invesco V.I. Global Strategic Income Fund ¹
Invesco V.I. Main Street Division	Invesco V.I. Main Street Fund ^{®1}
Invesco V.I. Main Street Small Cap Division	Invesco V.I. Main Street Small Cap Fund ^{®1}
Invesco V.I. U.S. Government Money Division	Invesco V.I. U.S. Government Money Portfolio ¹
MML Blend Division	MML Blend Fund ²
MML Equity Division	MML Equity Fund ²
MML Managed Bond Division	MML Managed Bond Fund ²
MML U.S. Government Money Market Division	MML U.S. Government Money Market Fund ²

In addition to the thirteen 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.

¹Invesco Advisers, Inc. is the investment adviser to this Fund.

²MML Investment Advisers, LLC is the investment adviser to this Fund.

³After the close of business on April 29, 2022, Invesco V.I. Core Plus Bond Fund acquired all the net assets of Invesco V.I. Core Bond Fund pursuant to a plan of reorganization approved by the Board of Trustees of the Invesco V.I. Core Plus Bond Fund on December 1, 2021 and by the shareholders of the Invesco V.I. Core Bond Fund on March 31, 2022. The acquisition was accomplished by a tax-free exchange as of the close of business on April 29, 2022. Shares of Invesco V.I. Core Bond Fund were exchanged for the like class of shares of Invesco V.I. Core Plus Bond Fund, based on the relative net asset value of the two funds which resulted in Invesco V.I. Core Bond Fund receiving 1.15816327 shares of Invesco V.I. Core Plus Bond Fund in exchange of 1 share of Invesco V.I. Core Bond Fund. As a result of the underlying fund merger, the division name changed from Invesco V.I. Core Bond to Invesco V.I. Core Plus Bond.

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. Massachusetts Mutual Variable Annuity Separate Account 3 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 funds.

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 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 as of 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 contributes to an Annuitant Mortality Fluctuation Fund (AMFF) reserve maintained by MassMutual as required by regulatory authorities to provide for mortality losses incurred. The AMFF 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 AMFF reserve which is held in the Separate Account. Net transfers from Separate Account to the MassMutual totaled \$82,386 and \$11,252 for the years ended December 31, 2023 and 2022, respectively. The AMFF 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 AMFF 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 1994 MGDB table.

Notes To Financial Statements (Continued)

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, 2023. There have been no transfers between levels for the year ended December 31, 2023.

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 mortality and expense risk fees are charges paid between 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 of investments for each of the years in the two years ended December 31, 2023 were as follows:

	Invesco V.I. Capital Appreciation Division	Invesco V.I. Conservative Balanced Division	Invesco V.I. Core Plus Bond Division	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division
2023					
Cost of purchases	\$ 263,112	\$ 20,169	\$ 9,008	\$ 47,134	\$ 1,426,261
Proceeds from sales	(1,025,807)	(134,283)	(17,823)	(830,983)	(988,321)

	Invesco V.I. Global Strategic Income Division	Invesco V.I. Main Street Division	Invesco V.I. Main Street Small Cap Division	Invesco V.I. U.S. Government Money Division	MML Blend Division
2023 (continued)					
Cost of purchases	\$ 2,886	\$ 730,647	\$ 15,291	\$ 59,615	\$ 16,563
Proceeds from sales	(399,477)	(1,021,177)	(186,125)	(36,726)	(116,160)

	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
2023 (continued)			
Cost of purchases	\$ 160,819	\$ 23,910	\$ 917,139
Proceeds from sales	(227,010)	(51,425)	(540,916)

	Invesco V.I. Capital Appreciation Division	Invesco V.I. Conservative Balanced Division	Invesco V.I. Core Plus Bond Division	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division
2022					
Cost of purchases	\$ 3,561,450	\$ 113,581	\$ 15,004	\$ 1,860,570	\$ 1,501,887
Proceeds from sales	(790,009)	(107,552)	(48,652)	(573,800)	(452,434)

	Invesco V.I. Global Strategic Income Division	Invesco V.I. Main Street Division	Invesco V.I. Main Street Small Cap Division	Invesco V.I. U.S. Government Money Division	MML Blend Division
2022 (continued)					
Cost of purchases	\$ 7,673	\$ 3,706,388	\$ 148,764	\$ 2,484	\$ 32,880
Proceeds from sales	(152,453)	(1,473,311)	(180,791)	(6,683)	(239,151)

	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
2022 (continued)			
Cost of purchases	\$ 193,571	\$ 27,067	\$ 5,245
Proceeds from sales	(210,993)	(71,749)	(125,907)

Notes To Financial Statements (Continued)

7. NET INCREASE (DECREASE) IN OUTSTANDING UNITS

The changes in outstanding units for each of the years in the two-year period ended December 31, 2023 were as follows:

	Invesco V.I. Capital Appreciation Division	Invesco V.I. Conservative Balanced Division	Invesco V.I. Core Plus Bond Division	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division
2023					
Units purchased	6,551	168	325	5,991	9,041
Units withdrawn	(66,168)	(36,967)	(8,401)	(81,573)	(68,059)
Units transferred between Divisions and to/from General Account	(10,527)	-	-	(33,466)	(6,155)
Net increase (decrease)	<u>(70,144)</u>	<u>(36,799)</u>	<u>(8,076)</u>	<u>(109,048)</u>	<u>(65,173)</u>

	Invesco V.I. Global Strategic Income Division	Invesco V.I. Main Street Division	Invesco V.I. Main Street Small Cap Division	Invesco V.I. U.S. Government Money Division	MML Blend Division
2023 (continued)					
Units purchased	750	6,704	73	40,636	13
Units withdrawn	(147,586)	(96,219)	(9,628)	(8,045)	(21,514)
Units transferred between Divisions and to/from General Account	5,073	(26,547)	(22,904)	(19,169)	-
Net increase (decrease)	<u>(141,763)</u>	<u>(116,062)</u>	<u>(32,459)</u>	<u>13,422</u>	<u>(21,501)</u>

	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
2023 (continued)			
Units purchased	2,180	719	-
Units withdrawn	(35,070)	(18,064)	(24,202)
Units transferred between Divisions and to/from General Account	(1,857)	1,081	319,804
Net increase (decrease)	<u>(34,747)</u>	<u>(16,264)</u>	<u>295,602</u>

	Invesco V.I. Capital Appreciation Division	Invesco V.I. Conservative Balanced Division	Invesco V.I. Core Plus Bond Division	Invesco V.I. Discovery Mid Cap Growth Division	Invesco V.I. Global Division
2022					
Units purchased	533	2,274	444	484	710
Units withdrawn	(66,257)	(26,320)	(25,080)	(69,038)	(44,298)
Units transferred between Divisions and to/from General Account	2,182	-	-	2,643	1,769
Net increase (decrease)	<u>(63,542)</u>	<u>(24,046)</u>	<u>(24,636)</u>	<u>(65,911)</u>	<u>(41,819)</u>

	Invesco V.I. Global Strategic Income Division	Invesco V.I. Main Street Division	Invesco V.I. Main Street Small Cap Division	Invesco V.I. U.S. Government Money Division	MML Blend Division
2022 (continued)					
Units purchased	1,411	2,472	58	84	234
Units withdrawn	(43,805)	(179,662)	(30,442)	(3,274)	(43,954)
Units transferred between Divisions and to/from General Account	(216)	(3,615)	18	-	-
Net increase (decrease)	<u>(42,610)</u>	<u>(180,805)</u>	<u>(30,366)</u>	<u>(3,190)</u>	<u>(43,720)</u>

Notes To Financial Statements (Continued)

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

	MML Equity Division	MML Managed Bond Division	MML U.S. Government Money Market Division
2022 (continued)			
Units purchased.....	344	856	148
Units withdrawn	(30,829)	(23,818)	(58,541)
Units transferred between Divisions			
and to/from General Account	(4,383)	(226)	(42,110)
Net increase (decrease)	<u>(34,868)</u>	<u>(23,188)</u>	<u>(100,503)</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 years in the five-year period ended December 31, 2023 follows:

	At December 31,			For the Years Ended December 31,		
	Units	Net Assets		Investment Income Ratio ¹	Expense Ratio ²	Total Return ³
		Unit Value ³	Amount			
Invesco V.I. Capital Appreciation Division						
2023	993,525	\$ 10.88	\$ 10,806,376	- %	1.40 %	33.50 %
2022	1,063,670	8.15	8,666,083	-	1.40	(31.74)
2021	1,127,212	11.94	13,454,958	-	1.40	20.86
2020	1,215,308	9.88	12,002,248	-	1.40	34.69
2019	1,396,258	7.33	10,237,820	0.06	1.40	34.30
Invesco V.I. Conservative Balanced Division						
2023	320,607	3.43	1,098,200	1.85	1.40	11.04
2022	357,406	3.08	1,102,524	1.36	1.40	(18.01)
2021	381,452	3.76	1,435,166	1.48	1.40	9.10
2020	409,805	3.45	1,413,297	1.96	1.40	13.26
2019	472,291	3.04	1,438,099	2.30	1.40	15.88
Invesco V.I. Core Plus Bond Division⁴						
2023	216,171	1.64	354,096	2.60	1.40	4.67
2022	224,246	1.56	350,946	1.90	1.40	(15.22)
2021	248,882	1.85	459,436	2.09	1.40	(3.02)
2020	259,075	1.90	493,121	3.14	1.40	8.18
2019	288,607	1.76	507,776	3.29	1.40	8.00
Invesco V.I. Discovery Mid Cap Growth Division						
2023	848,120	7.01	5,943,308	-	1.40	11.58
2022	957,168	6.28	6,011,191	-	1.40	(31.94)
2021	1,023,079	9.23	9,440,502	-	1.40	17.44
2020	1,128,264	7.86	8,864,812	0.04	1.40	38.73
2019	1,251,738	5.66	7,089,097	-	1.40	37.43
Invesco V.I. Global Division						
2023	1,070,756	9.08	9,726,845	0.23	1.40	32.87
2022	1,135,928	6.84	7,766,238	-	1.40	(32.71)
2021	1,177,747	10.16	11,966,907	-	1.40	13.88
2020	1,257,460	8.92	11,219,164	0.69	1.40	25.86
2019	1,393,518	7.09	9,878,217	0.90	1.40	29.96
Invesco V.I. Global Strategic Income Division						
2023	750,639	2.72	2,042,430	-	1.40	7.37
2022	892,402	2.53	2,261,414	-	1.40	(12.69)
2021	935,012	2.90	2,713,744	4.43	1.40	(4.76)
2020	1,070,565	3.05	3,262,327	5.78	1.40	1.96
2019	1,223,560	2.99	3,656,758	3.78	1.40	9.26
Invesco V.I. Main Street Division						
2023	1,163,456	8.11	9,440,841	0.83	1.40	21.51
2022	1,279,517	6.68	8,544,655	1.41	1.40	(21.24)
2021	1,460,322	8.48	12,382,322	0.70	1.40	25.80
2020	1,583,586	6.74	10,673,939	1.47	1.40	12.36
2019	1,886,433	6.00	11,316,657	1.08	1.40	30.24
Invesco V.I. Main Street Small Cap Division						
2023	195,713	5.84	1,143,178	1.15	1.40	16.49
2022	228,172	5.01	1,144,092	0.52	1.40	(17.00)
2021	258,539	6.04	1,561,917	0.37	1.40	20.85
2020	294,492	5.00	1,472,174	0.64	1.40	18.26
2019	312,904	4.23	1,322,678	0.20	1.40	24.71

Notes To Financial Statements (Continued)

8. FINANCIAL HIGHLIGHTS (Continued)

	At December 31,			For the Years Ended December 31,		
	Units	Net Assets		Investment Income Ratio ¹	Expense Ratio ²	Total Return ³
		Unit Value ³	Amount			
Invesco V.I. U.S. Government Money Division						
2023	170,108	\$ 1.26	\$ 214,936	4.43 %	1.40 %	3.07 %
2022	156,686	1.23	192,073	1.27	1.40	(0.12)
2021	159,876	1.23	196,222	0.01	1.40	(1.38)
2020	180,954	1.24	225,205	0.22	1.40	(1.17)
2019	172,871	1.26	217,697	1.67	1.40	0.29
MML Blend Division						
2023	188,518	5.22	984,172	1.71	1.40	15.99
2022	210,019	4.50	945,309	1.34	1.40	(17.75)
2021	253,738	5.47	1,388,538	2.14	1.40	13.43
2020	259,206	4.82	1,250,561	-	1.40	11.30
2019	283,811	4.33	1,230,277	2.44	1.40	19.69
MML Equity Division						
2023	247,531	5.78	1,429,829	2.09	1.40	7.81
2022	282,278	5.36	1,512,442	1.59	1.40	(5.97)
2021	317,146	5.70	1,807,122	1.63	1.40	28.45
2020	350,708	4.44	1,555,744	2.21	1.40	1.59
2019	417,062	4.37	1,821,090	2.05	1.40	24.17
MML Managed Bond Division						
2023	207,754	2.61	541,377	3.87	1.40	5.22
2022	224,019	2.48	554,796	3.00	1.40	(16.19)
2021	247,207	2.95	730,479	3.02	1.40	(0.59)
2020	280,238	2.97	832,984	0.10	1.40	6.21
2019	286,139	2.80	800,762	3.71	1.40	8.28
MML U.S. Government Money Market Division						
2023	644,969	1.23	792,044	4.54	1.40	3.19
2022	349,366	1.19	415,786	1.12	1.40	(0.19)
2021	449,870	1.19	536,407	-	1.40	(1.39)
2020	195,725	1.21	236,662	0.15	1.40	(1.16)
2019	131,348	1.22	160,688	1.74	1.40	0.29

¹The 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.

²The expense ratios represent the annualized contract expense of the divisions 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.

³The 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.

⁴After the close of business on April 29, 2022, Invesco V.I. Core Plus Bond Fund acquired all the net assets of Invesco V.I. Core Bond Fund pursuant to a plan of reorganization approved by the Board of Trustees of the Invesco V.I. Core Plus Bond Fund on December 1, 2021 and by the shareholders of the Invesco V.I. Core Bond Fund on March 31, 2022. The acquisition was accomplished by a tax-free exchange as of the close of business on April 29, 2022. Shares of Invesco V.I. Core Bond Fund were exchanged for the like class of shares of Invesco V.I. Core Plus Bond Fund, based on the relative net asset value of the two funds which resulted in Invesco V.I. Core Bond Fund receiving 1,158,163,277 shares of Invesco V.I. Core Plus Bond Fund in exchange of 1 share of Invesco V.I. Core Bond Fund. As a result of the underlying fund merger, the division name changed from Invesco V.I. Core Bond to Invesco V.I. Core Plus Bond. Financial highlights for the years 2018-2021 correspond to the Invesco V.I. Core Bond Division.

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 1.15% of the daily value of the assets invested in each fund.</p>
<p>Administrative Expense Charge</p> <p>This charge is assessed through reduction of unit values.</p>	<p>This charge is equal, on an annual basis, to 0.15% of the daily value of the assets invested in each fund.</p>
<p>Death Benefit Charge</p> <p>This charge is assessed through reduction of unit values.</p>	<p>This charge is equal, on an annual basis, to 0.10% of the daily value of the assets invested in each fund.</p>
<p>Annual Administrative Charge**</p> <p>This charge is assessed through the redemption of units.</p>	<p>\$30 per contract, annually. These charges are not applicable to contracts with values of \$50,000 or more.</p>
<p>Contingent Deferred Sales Charge</p> <p>This charge is assessed through the redemption of units.</p>	<p>0% - 7%</p>

* Right reserved to increase to 1.25%.

** Right reserved to increase to \$50.

9. SUBSEQUENT EVENTS

The Separate Account's management has reviewed events occurring through March 7, 2024, the date the financial statements were issued, and no subsequent events occurred requiring accrual or disclosure.

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