

May 22, 2020

SUMITOMO LIFE INSURANCE COMPANY

Disclosure of European Embedded Value (summary) as of March 31, 2020

This is the summarized translation of disclosure of the European Embedded Value (“EEV”) of Sumitomo Life Insurance Company (hereinafter “Sumitomo Life”), Medicare Life Insurance Co. (hereinafter “Medicare Life”) and Symetra Financial Corporation (hereinafter “Symetra”) (collectively, the “Group”) as of March 31, 2020.

We calculate EV based on European Embedded Value Principles. In the calculation of EEV, the Group has mainly adopted a market-consistent approach. More specifically, the EEV for Sumitomo Life and Medicare Life are calculated based on a market-consistent approach, while the EEV for Symetra is calculated based on a top-down approach. Both approaches are permitted under the EEV Principles.

As a mutual life insurance company, Sumitomo Life regarded the surplus after policyholder dividends as the value attributable to the company in calculating its EEV. Also, foundation funds, classified as net assets in the statutory financial report, were classified as liabilities in the calculation of EEV.

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1. Results

a. EEV Results of the Group

(1) EEV Results

(billions of yen)

	March 31, 2019	March 31, 2020	increase (decrease)
EEV	3,699.0	3,584.1	(114.8)
Adjusted net worth	4,156.5	4,005.4	(151.0)
Value of in-force business	(457.5)	(421.3)	36.1

	Year ended March 31, 2019	Year ended March 31, 2020	increase (decrease)
Value of new business	167.7	113.9	(53.7)

(Note1) The Group EEV is calculated as follows: Sumitomo Life's EEV plus Medicare Life's EEV and Symetra's EEV less Sumitomo Life's carrying amount of equity of Medicare Life and Symetra.

(Note2) Sumitomo Life's carrying amount of Medicare Life's equity was ¥80.0 billion as of March 31, 2019 and as of March 31, 2020. Sumitomo Life's carrying amount of Symetra's equity was ¥466.5 billion as of March 31, 2019 and as of March 31, 2020.

(Note3) The Group EEV as of March 31, 2019 and as of March 31, 2020 includes Symetra's EEV as of December 31, 2018 and as of December 31, 2019, respectively, in accordance with Symetra's closing date for the Group's consolidated financial statements.
The Group's value of new business for the year ended March 31, 2019 and the year ended March 31, 2020 includes Symetra's value of new business for the year ended December 31, 2018 and the year ended December 31, 2019, respectively.

(Reference)

As life insurance products are long term liabilities, Sumitomo Life is investing primarily in yen-denominated interest-bearing assets such as long-term bonds and loans in our ALM strategy.

When interest rates reduce, value of in-force business is decreased reflecting lower expected future prospects of investment return. On the other hand, adjusted net worth is increased by unrealized gains on assets.

The sum of unrealized gains and value of in-force business represents expected future profits from in-force business.

Breakdown of Group EEV based on this idea is as follows.

(billions of yen)

	March 31, 2019	March 31, 2020	increase (decrease)
EEV	3,699.0	3,584.1	(114.8)
Total net asset on the balance sheet +Retained earnings liabilities (Note1)	1,251.3	1,316.6	65.2
Value of in-force business +Unrealized gains (losses) on Yen-denominated interest-bearing assets and others (Note2)	1,585.9	1,597.8	11.8
Unrealized gains (losses) of assets other than Yen-denominated interest-bearing assets and others (Note3)	861.7	669.7	(192.0)

(Note1) The sum of the total net assets on balance sheet, the retained earnings in liabilities (after tax) of Group, consolidation adjustment regarding Medicare Life and Symetra and deferred tax assets of Symetra is reported.

(Note2) The sum of value of in-force business of Group and unrealized gains (losses) on yen-denominated interest-bearing assets and others (after tax) of Sumitomo Life and Medicare Life is reported. Yen-denominated interest-bearing assets and others (after tax) include yen-denominated bonds, loans and hedged foreign bonds corresponding to yen-denominated insurance, and foreign currency-denominated bonds corresponding to foreign currency-denominated insurance.

(Note3) The sum of unrealized gains (losses) on securities and loans (after tax) (excluding yen-denominated interest-bearing assets and others), unrealized gains (losses) on estate and liabilities (after tax), unfunded retirement benefit obligations (after tax) is reported.

(2) Adjusted Net Worth

(billions of yen)

	March 31, 2019	March 31, 2020	increase (decrease)
Adjusted net worth	4,156.5	4,005.4	(151.0)
Total net asset on the balance sheet (Note1)	971.6	955.1	(16.5)
Retained earnings in liabilities (after tax)	829.3	911.3	81.9
Unrealized gains (losses) on securities and miscellaneous items (after tax)	2,767.6	2,568.1	(199.4)
Unrealized gains (losses) on loans (after tax)	56.9	33.0	(23.8)
Unrealized gains (losses) on real estate (after tax)	70.3	82.1	11.8
Unrealized gains (losses) on liabilities (after tax)	(9.6)	10.2	19.8
Unfunded retirement benefit obligation (after tax)	19.9	(4.7)	(24.7)
Consolidation adjustment regarding Medicare Life (Note2)	(80.0)	(80.0)	0.0
Adjustment for deferred tax assets in Symetra and miscellaneous items	(3.1)	(3.3)	(0.1)
Consolidation adjustment regarding Symetra (Note2)	(466.5)	(466.5)	0.0

(Note1) Figures do not include foundation funds, net unrealized gains (losses) on available-for-sale securities and expected disbursements from capital outside the company. In addition, this item includes an adjustment for shareholder dividends Symetra paid to Sumitomo Life on March 2020.

(Note2) Deduction consists of the carrying amounts of the equity of Medicare Life and Symetra held by Sumitomo Life, which are recorded under "Total net assets on the balance sheets" in the table above.

(3) Reconciliation of total net assets to adjusted net worth

(billions of yen)

	March 31, 2019	March 31, 2020	increase (decrease)
Total Net Assets of consolidated base (Note1)	609.3	673.9	64.5
PLUS Retained earnings in liabilities (after tax)	829.3	911.3	81.9
PLUS Unrealized gains/losses (after tax)	2,894.9	2,708.7	(186.2)
PLUS Adjustment for deferred tax assets in Symetra and miscellaneous items	(3.1)	(3.3)	(0.1)
PLUS Difference between Symetra's net assets based on its statutory accounting and US-GAAP (Note2)	(173.9)	(285.1)	(111.1)
LESS Book value of businesses not covered	-	-	-
Adjusted net worth	4,156.5	4,005.4	(151.0)

(Note1) Figures do not include foundation funds, net unrealized gains (losses) on available-for-sale securities and expected disbursements from capital outside the company.

(Note2) The difference between net assets based on statutory accounting and US-GAAP is shown because Symetra's EEV is calculated based on its statutory accounting while the Group's consolidated balance sheet is prepared based on Symetra's US-GAAP balance sheet.

(4) Value of In-force Business (VIF)

(billions of yen)

	March 31, 2019	March 31, 2020	increase (decrease)
Value of in-force business	(457.5)	(421.3)	36.1
Present value of future profits (Note1)	69.7	98.0	28.2
Time value of financial options and guarantees	(116.9)	(109.8)	7.0
Cost of holding required capital (Note2)	(96.4)	(90.8)	5.5
Cost of non-hedgeable risks	(313.9)	(318.6)	(4.7)

(Note1) Includes the certainty equivalent present value of future profits for business valued using a market-consistent approach and present value of future profits for business valued using a top-down approach.

(Note2) Includes the cost of holding required capital for business valued using a market-consistent approach and the cost of capital for business valued using a top-down approach.

(5) Value of New Business (VNB)

(billions of yen)

	Year ended March 31,2019	Year ended March 31,2020	increase (decrease)
Value of new business	167.7	113.9	(53.7)
Present value of future profits	203.7	144.5	(59.2)
Time value of financial options and guarantees	(3.3)	(4.0)	(0.7)
Cost of holding required capital	(12.2)	(9.1)	3.0
Cost of non-hedgeable risks	(20.4)	(17.3)	3.1

The new business margin (the ratio of the value of new business to the present value of premium income) is as follows:

(billions of yen)

	Year ended March 31,2019	Year ended March 31,2020	increase (decrease)
Value of new business (a)	167.7	113.9	(53.7)
Present value of premium income (b) (Note)	2,552.1	2,277.7	(274.4)
New business Margin (a) ÷ (b)	6.6 %	5.0 %	(1.6) points

(Note) Future premium income (as for Symetra, based on the statutory accounting) is discounted by the risk-free rate or the risk discount rate used for the calculation of the value of new business.

(Reference)

The VNB is calculated based on a market consistent method using risk neutral valuation techniques, where the expected excess return of investments over risk free rates is offset by allowing for the price that market participants require for taking on the investment risks. This is achieved by assuming the investment return for all assets will be equal to the risk free rates.

However, Sumitomo Life actually invests in corporate bonds, foreign bonds, and equities, in addition to Japanese government bonds, and expects to achieve investment returns in excess of risk-free returns. If Sumitomo Life achieves investment returns in excess of risk-free returns, its embedded value will increase over the term of the policy.

When Sumitomo Life assumes excess returns on investments over risk-free rates, Group's VNB, on the reference basis, will be as set out in the following table. In order to reflect some uncertainty of realizing the expected excess return, discount rates are assumed to be the same as the return on investments.

Please note that this reference basis differs from the risk neutral valuation which is used for Sumitomo Life's EEV and VNB. Further, the VNB in following table is not the VNB which forms part of Sumitomo Life's EEV.

(billions of yen)

	Year ended March 31,2020
Value of new business assuming excess return, on the reference basis (Note)	163.7

(Note) Sumitomo Life's expected investment return in FY2019 is 1.4%. Sumitomo Life assumes the excess return on investments over risk-free rates is 1.1%.

b. EEV Results by company

(1) Sumitomo Life

(billions of yen)

	March 31, 2019	March 31, 2020	increase (decrease)
EEV (Note)	3,882.0	3,742.4	(139.6)
Adjusted net worth	4,441.3	4,295.1	(146.1)
Total net asset on the balance sheet	750.7	750.1	(0.6)
Retained earnings in liabilities (after tax)	800.5	869.5	69.0
Unrealized gains (losses) on securities and miscellaneous items (after tax)	2,752.4	2,554.8	(197.6)
Unrealized gains (losses) on loans (after tax)	56.9	33.0	(23.8)
Unrealized gains (losses) on real estate (after tax)	70.3	82.1	11.8
Unrealized gains (losses) on liabilities (after tax)	(9.6)	10.2	19.8
Unfunded retirement benefit obligation (after tax)	19.9	(4.7)	(24.7)
Value of in-force business	(559.2)	(552.7)	6.4
Certainty equivalent present value of future profits	(131.7)	(135.9)	(4.1)
Time value of financial options and guarantees	(103.6)	(95.0)	8.6
Cost of holding required capital	(48.9)	(46.1)	2.8
Cost of non-hedgeable risks	(274.7)	(275.6)	(0.8)

(billions of yen)

	Year ended March 31, 2019	Year ended March 31, 2020	increase (decrease)
Value of new business	165.7	112.6	(53.0)
Certainty equivalent present value of future profits	186.2	130.2	(56.0)
Time value of financial options and guarantees	(1.6)	(1.8)	(0.1)
Cost of holding required capital	(3.4)	(2.1)	1.2
Cost of non-hedgeable risks	(15.4)	(13.5)	1.8

(Note) The shares of Medicare Life and Symetra held by Sumitomo Life are valued on a book value basis for purposes of calculating the embedded value of Sumitomo Life on a stand-alone basis. For purposes of calculating the embedded value of the Group, consolidation adjustments are required.

The new business margin (the ratio of the value of new business to the present value of premium income) is as follows:

(billions of yen)

	Year ended March 31, 2019	Year ended March 31, 2020	increase (decrease)
Value of new business (a)	165.7	112.6	(53.0)
Present value of premium income (b)	1,860.7	1,608.9	(251.7)
New business Margin (a) ÷ (b)	8.9 %	7.0 %	(1.9) points

(2) Medicare Life

(billions of yen)

	March 31, 2019	March 31, 2020	increase (decrease)
EEV	136.9	146.6	9.6
Adjusted net worth	42.8	35.2	(7.5)
Total net asset on the balance sheet	26.0	20.2	(5.8)
Retained earnings in liabilities (after tax)	1.5	1.6	0.1
Unrealized gains (losses) on securities and miscellaneous items (after tax)	15.1	13.3	(1.8)
Unrealized gains (losses) on loans (after tax)	-	-	-
Unrealized gains (losses) on real estate (after tax)	-	-	-
Unrealized gains (losses) on liabilities (after tax)	-	-	-
Unfunded retirement benefit obligation (after tax)	-	-	-
Value of in-force business	94.1	111.3	17.1
Certainty equivalent present value of future profits	134.4	155.3	20.9
Time value of financial options and guarantees	(0.2)	(0.1)	0.1
Cost of holding required capital	(0.8)	(0.8)	(0.0)
Cost of non-hedgeable risks	(39.1)	(43.0)	(3.8)

(billions of yen)

	Year ended March 31,2019	Year ended March 31,2020	increase (decrease)
Value of new business	7.3	5.3	(2.0)
Certainty equivalent present value of future profits	12.5	9.1	(3.3)
Time value of financial options and guarantees	-	-	-
Cost of holding required capital	(0.1)	(0.0)	0.0
Cost of non-hedgeable risks	(5.0)	(3.7)	1.2

The new business margin (the ratio of the value of new business to the present value of premium income) is as follows:

(billions of yen)

	Year ended March 31,2019	Year ended March 31,2020	increase (decrease)
Value of new business (a)	7.3	5.3	(2.0)
Present value of premium income (b)	104.4	87.1	(17.2)
New business Margin (a) ÷ (b)	7.0 %	6.1 %	(0.9) points

(3) Symetra

(billions of yen)

	December 31, 2018	December 31, 2019	increase (decrease)
EEV	226.4	246.4	19.9
Adjusted net worth	218.9	226.3	7.4
Total net asset on the balance sheet (Note)	194.8	189.5	(5.2)
Retained earnings in liabilities (after tax)	27.3	40.1	12.8
Adjustment for deferred tax assets and miscellaneous items	(3.1)	(3.3)	(0.1)
Value of in-force business	7.5	20.0	12.5
Present value of future profits	67.1	78.5	11.4
Time value of financial options and guarantees	(12.9)	(14.6)	(1.6)
Cost of capital	(46.6)	(43.8)	2.7

(billions of yen)

	Year ended December 31,2018	Year ended December 31,2019	increase (decrease)
Value of new business	(5.3)	(4.0)	1.3
Present value of future profits	5.0	5.1	0.1
Time value of financial options and guarantees	(1.6)	(2.2)	(0.5)
Cost of capital	(8.6)	(6.9)	1.7

(Note) The sum of net assets based on statutory capital and surplus, value of non-life entities and holding company's equity.

The new business margin (the ratio of the value of new business to the present value of premium income) is as follows:

(billions of yen)

	Year ended December 31,2018	Year ended December 31,2019	increase (decrease)
Value of new business (a)	(5.3)	(4.0)	1.3
Present value of premium income (b)	586.9	581.6	(5.3)
New business Margin (a) ÷ (b)	(0.9)%	(0.7)%	0.2 points

(Reference) Symetra's EEV in US Dollar

(millions of USD)

	December 31, 2018	December 31, 2019	increase (decrease)
EEV	2,040	2,249	208
Adjusted net worth	1,972	2,066	93
Total net asset on the balance sheet	1,755	1,730	(25)
Retained earnings in liabilities (after tax)	245	366	120
Adjustment for deferred tax assets and miscellaneous items	(28)	(30)	(1)
Value of in-force business	67	182	115
Present value of future profits	605	717	112
Time value of financial options and guarantees	(116)	(133)	(16)
Cost of capital	(420)	(400)	20

(millions of USD)

	Year ended December 31,2018	Year ended December 31,2019	increase (decrease)
Value of new business	(48)	(36)	11
Present value of future profits	45	47	2
Time value of financial options and guarantees	(15)	(20)	(5)
Cost of capital	(78)	(63)	14

2. Statement of changes in EEV

a. Statement of changes in EEV of the Group

(billions of yen)

	Adjusted net worth	Value of in-force business	EEV
Values as of March 31, 2019	4,156.5	(457.5)	3,699.0
Adjustments to the values as of March 31, 2019 (Note)	(2.8)	(0.0)	(2.9)
Adjusted values as of March 31, 2019	4,153.7	(457.6)	3,696.1
Value of new business	-	113.9	113.9
Expected existing business contribution (market-consistent approach)	45.3	292.6	337.9
Risk-free rate	(5.7)	20.0	14.2
In excess of risk-free rate	51.1	272.6	323.7
Expected existing business contribution (top-down approach)	(0.4)	17.4	16.9
Expected transfer from VIF to adjusted net worth	52.7	(52.7)	-
on in-force at beginning of year	210.9	(210.9)	-
on new business	(158.1)	158.1	-
Non-economic experience variances	(45.8)	3.8	(42.0)
Non-economic assumptions changes	-	(38.9)	(38.9)
Economic variances	(200.0)	(299.8)	(499.8)
Values as of March 31, 2020	4,005.4	(421.3)	3,584.1

(Note) This item represents the effects of the foreign exchange variance, because the EEV of Symetra is converted into yen.

b. Statement of changes in EEV by company

(1) Sumitomo Life

(billions of yen)

	Adjusted net worth	Value of in-force business	EEV
Values as of March 31, 2019	4,441.3	(559.2)	3,882.0
Value of new business	-	112.6	112.6
Expected existing business contribution (market-consistent approach)	45.0	289.5	334.5
Risk-free rate	(5.7)	18.3	12.6
In excess of risk-free rate	50.7	271.1	321.9
Expected transfer from VIF to adjusted net worth	53.3	(53.3)	-
on in-force at beginning of year	193.0	(193.0)	-
on new business	(139.7)	139.7	-
Non-economic experience variances	(45.0)	(8.3)	(53.3)
Non-economic assumptions changes	-	(30.2)	(30.2)
Economic variances	(199.4)	(303.8)	(503.2)
Values as of March 31, 2020	4,295.1	(552.7)	3,742.4

(2) Medicare Life

(billions of yen)

	Adjusted net worth	Value of in-force business	EEV
Values as of March 31, 2019	42.8	94.1	136.9
Value of new business	-	5.3	5.3
Expected existing business contribution (market-consistent approach)	0.2	3.1	3.4
Risk-free rate	(0.0)	1.6	1.6
In excess of risk-free rate	0.3	1.4	1.8
Expected transfer from VIF to adjusted net worth	(5.3)	5.3	-
on in-force at beginning of year	2.9	(2.9)	-
on new business	(8.2)	8.2	-
Non-economic experience variances	(0.8)	0.6	(0.1)
Non-economic assumptions changes	-	12.6	12.6
Economic variances	(1.6)	(9.8)	(11.5)
Values as of March 31, 2020	35.2	111.3	146.6

(3) Symetra

(billions of yen)

	Adjusted net worth	Value of in-force business	EEV
Values as of December 31, 2018	218.9	7.5	226.4
Adjustments to the values as of December 31, 2018	(2.8)	(0.0)	(2.9)
Adjusted values as of December 31, 2018	216.1	7.4	223.5
Value of new business	-	(4.0)	(4.0)
Expected existing business contribution (top-down approach)	(0.4)	17.4	16.9
Expected transfer from VIF to adjusted net worth	4.8	(4.8)	-
on in-force as of December 31, 2018	14.9	(14.9)	-
on new business	(10.1)	10.1	-
Non-economic experience variances	(0.0)	11.4	11.4
Non-economic assumptions changes	-	(21.2)	(21.2)
Economic variances	5.9	13.8	19.7
Values as of December 31, 2019	226.3	20.0	246.4

3. Sensitivity Analysis

a. Sensitivity Analysis of EEV of the Group and the Group's value of new business

(1) Sensitivity analysis of EEV of the Group

(billions of yen)

	EEV	increase (decrease)
EEV as of March 31, 2020	3,584.1	-
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	4,010.5	426.3
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	3,188.4	(395.7)
Sensitivity 3: 10% decline in equity and real estate values	3,392.9	(191.2)
Sensitivity 4: 10% decline in maintenance expenses	3,707.8	123.7
Sensitivity 5: 10% decline in surrender and lapse rate	3,705.7	121.5
Sensitivity 6: 5% decline in mortality and morbidity rates for life insurance products	3,833.3	249.2
Sensitivity 7: 5% decline in mortality and morbidity rates for annuities	3,576.1	(7.9)
Sensitivity 8: Setting required capital at statutory minimum level	3,648.9	64.7
Sensitivity 9: 25% increase in implied volatilities of equity and real estate values	3,583.7	(0.4)
Sensitivity 10: 25% increase in implied volatilities of swaptions	3,546.8	(37.2)

The following table shows the effect of sensitivities 1 through 3 and 8 on adjusted net worth.

Only the value of in-force business is affected in sensitivities 4 through 7, 9 and 10 in the above table.

(billions of yen)

	increase (decrease)
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	(1,007.8)
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	525.0
Sensitivity 3: 10% decline in equity and real estate values	(186.6)
Sensitivity 8: Setting required capital at statutory minimum level	4.9

(2) Sensitivity analysis of the Group's value of new business

(billions of yen)

	Value of new business	increase (decrease)
Value of new business for the fiscal year ended March 31,2020	113.9	-
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	131.3	17.3
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	97.2	(16.7)
Sensitivity 3: 10% decline in equity and real estate values	113.6	(0.3)
Sensitivity 4: 10% decline in maintenance expenses	120.9	7.0
Sensitivity 5: 10% decline in surrender and lapse rate	128.5	14.5
Sensitivity 6: 5% decline in mortality and morbidity rates for life insurance products	128.8	14.8
Sensitivity 7: 5% decline in mortality and morbidity rates for annuities	114.0	0.0
Sensitivity 8: Setting required capital at statutory minimum level	120.2	6.2
Sensitivity 9: 25% increase in implied volatilities of equity and real estate values	113.9	(0.0)
Sensitivity 10: 25% increase in implied volatilities of swaptions	113.0	(0.8)

b. Sensitivity Analysis by company

(1) Sumitomo Life

i . Sensitivity Analysis of EEV

		(billions of yen)	
		EEV	increase (decrease)
EEV as of March 31, 2020		3,742.4	-
Sensitivity 1:	50bp upward parallel shift in risk-free yield curve	4,147.5	405.0
Sensitivity 2:	50bp downward parallel shift in risk-free yield curve	3,360.1	(382.2)
Sensitivity 3:	10% decline in equity and real estate values	3,554.0	(188.4)
Sensitivity 4:	10% decline in maintenance expenses	3,846.9	104.4
Sensitivity 5:	10% decline in surrender and lapse rate	3,859.2	116.8
Sensitivity 6:	5% decline in mortality and morbidity rates for life insurance products	3,968.4	225.9
Sensitivity 7:	5% decline in mortality and morbidity rates for annuities	3,734.5	(7.9)
Sensitivity 8:	Setting required capital at statutory minimum level	3,769.9	27.4
Sensitivity 9:	25% increase in implied volatilities of equity and real estate values	3,742.0	(0.4)
Sensitivity 10:	25% increase in implied volatilities of swaptions	3,705.2	(37.1)

The following table shows the effect of sensitivities 1 through 3 on adjusted net worth. Only the value of in-force business is affected in sensitivities 4 through 10 in the above table.

		(billions of yen)
		increase (decrease)
Sensitivity 1:	50bp upward parallel shift in risk-free yield curve	(999.4)
Sensitivity 2:	50bp downward parallel shift in risk-free yield curve	521.5
Sensitivity 3:	10% decline in equity and real estate values	(186.6)

ii . Sensitivity analysis of the value of new business

(billions of yen)

	Value of new business	increase (decrease)
Value of new business for the fiscal year ended March 31,2020	112.6	-
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	128.6	16.0
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	96.9	(15.7)
Sensitivity 3: 10% decline in equity and real estate values	112.6	-
Sensitivity 4: 10% decline in maintenance expenses	116.9	4.3
Sensitivity 5: 10% decline in surrender and lapse rate	125.6	12.9
Sensitivity 6: 5% decline in mortality and morbidity rates for life insurance products	123.5	10.8
Sensitivity 7: 5% decline in mortality and morbidity rates for annuities	112.6	0.0
Sensitivity 8: Setting required capital at statutory minimum level	113.9	1.2
Sensitivity 9: 25% increase in implied volatilities of equity and real estate values	112.6	(0.0)
Sensitivity 10: 25% increase in implied volatilities of swaptions	111.7	(0.8)

(2) Medicare Life

i . Sensitivity Analysis of EEV

		(billions of yen)	
		EEV	increase (decrease)
EEV as of March 31, 2020		146.6	-
Sensitivity 1:	50bp upward parallel shift in risk-free yield curve	151.8	5.2
Sensitivity 2:	50bp downward parallel shift in risk-free yield curve	136.7	(9.8)
Sensitivity 3:	10% decline in equity and real estate values	146.6	-
Sensitivity 4:	10% decline in maintenance expenses	151.9	5.3
Sensitivity 5:	10% decline in surrender and lapse rate	142.5	(4.0)
Sensitivity 6:	5% decline in mortality and morbidity rates for life insurance products	158.1	11.4
Sensitivity 7:	5% decline in mortality and morbidity rates for annuities	146.6	-
Sensitivity 8:	Setting required capital at statutory minimum level	147.1	0.4
Sensitivity 9:	25% increase in implied volatilities of equity and real estate values	146.6	-
Sensitivity 10:	25% increase in implied volatilities of swaptions	146.5	(0.0)

The following table shows the effect of sensitivities 1 through 3 on adjusted net worth. Only the value of in-force business is affected in sensitivities 4 through 10 in the above table.

		(billions of yen)
		increase (decrease)
Sensitivity 1:	50bp upward parallel shift in risk-free yield curve	(9.2)
Sensitivity 2:	50bp downward parallel shift in risk-free yield curve	4.2
Sensitivity 3:	10% decline in equity and real estate values	-

ii . Sensitivity analysis of the value of new business

(billions of yen)

	Value of new business	increase (decrease)
Value of new business for the fiscal year ended March 31,2020	5.3	-
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	5.5	0.2
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	4.5	(0.7)
Sensitivity 3: 10% decline in equity and real estate values	5.3	-
Sensitivity 4: 10% decline in maintenance expenses	5.9	0.6
Sensitivity 5: 10% decline in surrender and lapse rate	5.3	0.0
Sensitivity 6: 5% decline in mortality and morbidity rates for life insurance products	6.6	1.3
Sensitivity 7: 5% decline in mortality and morbidity rates for annuities	5.3	-
Sensitivity 8: Setting required capital at statutory minimum level	5.3	0.0
Sensitivity 9: 25% increase in implied volatilities of equity and real estate values	5.3	-
Sensitivity 10: 25% increase in implied volatilities of swaptions	5.3	-

(3) Symetra

i . Sensitivity Analysis of EEV

(billions of yen)

	EEV	increase (decrease)
EEV as of December 31, 2019	246.4	-
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	262.4	16.0
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	242.8	(3.5)
Sensitivity 3: 10% decline in equity and real estate values	243.6	(2.7)
Sensitivity 4: 10% decline in maintenance expenses	260.3	13.9
Sensitivity 5: 10% decline in surrender and lapse rate	255.2	8.7
Sensitivity 6: 5% decline in mortality and morbidity rates for life insurance products	258.2	11.7
Sensitivity 7: 5% decline in mortality and morbidity rates for annuities	246.3	(0.0)
Sensitivity 8: Setting required capital at statutory minimum level	283.2	36.7
Sensitivity 9: 1% increase in equity and real estate yield	252.2	5.8
Sensitivity 10: 50bp upward shift in risk discount rate	238.8	(7.6)
Sensitivity 11: 50bp downward shift in risk discount rate	254.2	7.8

The following table shows the effect on the adjusted net worth of sensitivities 1, 2 and 8. Only the value of in-force business is affected in sensitivities 3 through 7 and 9 through 11 in the above table.

(billions of yen)

	increase (decrease)
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	0.8
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	(0.8)
Sensitivity 8: Setting required capital at statutory minimum level	4.9

ii . Sensitivity analysis of the value of new business

(billions of yen)

	Value of new business	increase (decrease)
Value of new business for the year ended December 31,2019	(4.0)	-
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	(2.9)	1.0
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	(4.2)	(0.2)
Sensitivity 3: 10% decline in equity and real estate values	(4.3)	(0.3)
Sensitivity 4: 10% decline in maintenance expenses	(1.9)	2.0
Sensitivity 5: 10% decline in surrender and lapse rate	(2.5)	1.5
Sensitivity 6: 5% decline in mortality and morbidity rates for life insurance products	(1.2)	2.7
Sensitivity 7: 5% decline in mortality and morbidity rates for annuities	(3.9)	0.0
Sensitivity 8: Setting required capital at statutory minimum level	0.8	4.9
Sensitivity 9: 1% increase in equity and real estate yield	(3.7)	0.2
Sensitivity 10: 50bp upward shift in risk discount rate	(5.2)	(1.1)
Sensitivity 11: 50bp downward shift in risk discount rate	(2.7)	1.2

For the business valued using a top-down approach, sensitivity 1 and 2 are calculated based on simultaneous upward/downward parallel shift of 50bp in both the investment yields of the future reinvestment and the risk discount rate.

Sensitivity 10 and 11 represent the effect on EEV of an upward/downward shift of 50bp of the risk discount rate for a top-down approach.

4. Note

The calculation of EEV requires numerous assumptions regarding future projections that are subject to risks and uncertainties. Future results may differ from those assumptions used in the calculation of EEV.

Appendix A: Principal EEV Assumptions (Sumitomo Life and Medicare Life)

1. Economic assumptions

a. Risk-free rate

In the certainty equivalent calculation and the interest rate model calibration, the Japanese, U.S. and Australian Government Bond are used as proxies for risk-free rates.

As the term of life insurance policies is generally longer than financial instruments in the market, the ultra-long term rate data which is not available in the market should be set. Because of low liquidity of long-term Japanese, U.S. and Australian Government Bond in the market, we extrapolated the risk-free rates.

In the extrapolation method using an ultimate forward rate, interest rate, which is not available in the market, converges to an ultimate forward rate which is future forward rate based on macro-economic analysis. The extrapolation method using an ultimate forward rate is permitted in the MCEV Principles, and is used in EU Solvency II and in the Insurance Capital Standard (ICS) being developed by the International Association of Insurance Supervisors.

For risk-free rates (forward rates) of each currency, the ultimate forward rate, last point of liquidity and convergence point are set as below in consideration of the ICS discussions. We extrapolate the yield curve to the ultimate forward rate by using the Smith-Wilson method.

	JPY		USD		AUD	
	March 31, 2019	March 31, 2020	March 31, 2019	March 31, 2020	March 31, 2019	March 31, 2020
ultimate forward rate	3.5%	3.5%	3.5%	3.5%	4.0%	4.0%
last point of liquidity	30 years	30 years	30 years	30 years	30 years	30 years
convergence point	60 years	60 years	60 years	60 years	60 years	60 years

The table below shows, for selected terms, the risk-free rates (spot rates) which are used in the calculations.

Term	JPY		USD		AUD	
	March 31, 2019	March 31, 2020	March 31, 2019	March 31, 2020	March 31, 2019	March 31, 2020
1 year	(0.178)%	(0.150)%	2.388%	0.162%	1.546%	0.197%
2 year	(0.183)%	(0.130)%	2.263%	0.237%	1.456%	0.247%
3 year	(0.195)%	(0.148)%	2.205%	0.286%	1.387%	0.265%
4 year	(0.211)%	(0.119)%	2.213%	0.333%	1.378%	0.337%
5 year	(0.202)%	(0.115)%	2.235%	0.391%	1.430%	0.424%
10 year	(0.081)%	0.032%	2.416%	0.699%	1.798%	0.778%
15 year	0.165%	0.286%	2.544%	0.907%	2.044%	1.191%
20 year	0.358%	0.319%	2.682%	1.197%	2.304%	1.613%
25 year	0.492%	0.405%	2.806%	1.349%	2.470%	1.773%
30 year	0.538%	0.427%	2.906%	1.420%	2.573%	1.807%
35 year	0.719%	0.603%	2.982%	1.557%	2.688%	1.932%
40 year	0.985%	0.878%	3.042%	1.741%	2.816%	2.125%
45 year	1.235%	1.138%	3.091%	1.914%	2.932%	2.309%
50 year	1.450%	1.362%	3.130%	2.064%	3.033%	2.468%

(Source : Ministry of Finance(JPY) and bloomberg(the other) (after interpolation/extrapolation))

b. Principal dynamic assumption

(1) Interest rate model

As an interest rate model, Sumitomo Life has adopted a single-factor Hull-White model, in which interest rates associated with Japanese yen, U.S. dollars, Euros, British pounds and Australian dollars are calculated. The model has been adjusted to be in line with a risk-neutral approach in which Japanese yen is set as a base currency, and correlations between the interest rates have also been taken into account. The interest rate model has been calibrated to be consistent with the market environment as of each reporting date, and parameters used are estimated from the yield curve and implied volatilities of interest rate swaptions with various maturities. 5,000 scenarios are used in calculating the time value of financial options and guarantees through the stochastic method.

A summary of implied volatilities of interest rate swaptions used to calibrate the scenarios is as follows:

Interest rate swaptions

(bp)

		March 31,2019					March 31,2020				
Option Term	Swap Term	JPY	USD	EUR	GBP	AUD	JPY	USD	EUR	GBP	AUD
5 year	10 year	23.6	63.7	48.5	60.0	60.7	23.5	64.7	59.3	61.5	48.3
7 year	10 year	25.9	63.4	51.3	60.1	58.2	24.6	63.1	58.9	61.2	46.2
10 year	10 year	29.1	62.8	53.6	59.9	54.2	26.6	59.7	58.8	60.5	42.4
15 year	10 year	31.7	58.7	52.9	57.6	-	28.1	56.1	56.7	59.0	-
20 year	10 year	34.4	56.0	51.0	54.5	-	29.5	52.2	54.7	56.5	-

(Source: Bloomberg (adjusted))

(2) Implied volatilities of equities and currencies

Volatilities of major equity indices and currencies are calibrated based on implied volatilities of options traded in the market. Implied volatilities used to calibrate the scenarios are as follows:

Stock options

Currency	Underlying Asset	Option Term	Volatility	
			March 31, 2019	March 31, 2020
JPY	Nikkei225	3 year	17.8%	21.5%
		4 year	17.9%	20.9%
		5 year	17.9%	20.6%
USD	S&P 500	3 year	17.4%	23.2%
		4 year	18.0%	22.9%
		5 year	18.5%	23.1%
EUR	Euro Stoxx50	3 year	15.4%	21.9%
		4 year	15.7%	21.2%
		5 year	15.8%	21.0%
GBP	FTSE 100	3 year	14.4%	20.6%
		4 year	14.5%	19.8%
		5 year	14.6%	19.1%

(Source : Markit (after interpolation/extrapolation))

Currency options

Currency	Option Term	Volatility	
		March 31, 2019	March 31, 2020
USD	5 year	8.3%	7.9%
EUR	5 year	9.1%	8.2%
GBP	5 year	11.3%	12.0%
AUD	5 year	12.9%	13.9%

(Source : Bloomberg)

(3) Correlations

In addition to the implied volatilities described above, each company has calculated implied volatilities reflecting its asset portfolio and correlation factors. The share of each asset is assumed to be unchanged over the projection periods.

With regard to correlation factors, market-consistent data from exotic options with sufficient liquidity have not been observed in the market. Therefore, Sumitomo Life estimated correlation factors based on historical market data. Specifically, the monthly data from March 31, 2010 to March 31, 2020 have been used. The following table shows correlation factors between major variables.

	1year Rate /JPY	1year Rate /USD	1year Rate /EUR	1year Rate /GBP	1year Rate /AUD	USD/JPY	EUR/JPY	GBP/JPY	AUD/JPY	NIKKEI 225	S&P500	EuroStoxx 50	FTSE100
1year Rate /JPY	1.00	0.48	0.53	0.48	0.26	0.43	0.33	0.40	0.22	0.40	0.17	0.16	0.04
1year Rate /USD	0.48	1.00	0.60	0.72	0.53	0.45	0.42	0.48	0.38	0.49	0.41	0.34	0.27
1year Rate /EUR	0.53	0.60	1.00	0.76	0.50	0.26	0.58	0.44	0.39	0.34	0.32	0.29	0.20
1year Rate /GBP	0.48	0.72	0.76	1.00	0.57	0.32	0.50	0.52	0.36	0.44	0.32	0.28	0.10
1year Rate /AUD	0.26	0.53	0.50	0.57	1.00	0.32	0.53	0.44	0.65	0.48	0.44	0.40	0.37
USD/JPY	0.43	0.45	0.26	0.32	0.32	1.00	0.64	0.72	0.48	0.62	0.24	0.30	0.14
EUR/JPY	0.33	0.42	0.58	0.50	0.53	0.64	1.00	0.80	0.75	0.61	0.51	0.44	0.36
GBP/JPY	0.40	0.48	0.44	0.52	0.44	0.72	0.80	1.00	0.67	0.72	0.51	0.50	0.24
AUD/JPY	0.22	0.38	0.39	0.36	0.65	0.48	0.75	0.67	1.00	0.68	0.69	0.55	0.56
NIKKEI 225	0.40	0.49	0.34	0.44	0.48	0.62	0.61	0.72	0.68	1.00	0.70	0.68	0.54
S&P500	0.17	0.41	0.32	0.32	0.44	0.24	0.51	0.51	0.69	0.70	1.00	0.77	0.78
EuroStoxx 50	0.16	0.34	0.29	0.28	0.40	0.30	0.44	0.50	0.55	0.68	0.77	1.00	0.78
FTSE100	0.04	0.27	0.20	0.10	0.37	0.14	0.36	0.24	0.56	0.54	0.78	0.78	1.00

(Source: Ministry of Finance (1year Rate/JPY) and bloomberg(the others))

c. Assumed investment yield used for the calculation of expected returns

Assumed investment yields on major asset categories used for the calculation of “Expected existing business contribution (the sum of risk-free rate and excess of risk-free rate)” in “2. Statement of changes in EEV” are as follows. The Weighted-average assumed investment yield (annual rate) is based on the asset portfolio at the beginning of the year. The yield for Sumitomo Life is 1.4% and, for Medicare Life, is 0.9%.

	Assumed investment yield (annual rate)
Fixed income assets (excl. Super long-term bonds)	0.5%
Super long-term bonds	1.3%
Foreign bonds (excl. Currency-hedged foreign bonds)	2.7%
Currency-hedged foreign bonds	1.1%
Stocks	5.8%

2. Non-economic assumptions

All cash flows (premiums, operating expenses, benefits and claims, cash surrender value, tax, etc.) are projected applying the best estimate assumptions, by product, referring to past, current and expected future experience.

a. Operating expenses

Operating expenses are set based on the experience of each company. The look-through basis is applied in terms of operating expenses of insurance business.

Future inflation rates are assumed to be zero.

b. Policyholder dividends

(1) Sumitomo Life

Policyholder dividend rates are based on the current dividend policy, and set according to market-consistent, risk-neutral scenarios.

(2) Medicare Life

No assumption of policyholder dividend rate is set, as it sells only non-participating policies.

c. Effective tax rate

In the projection of future profits, effective tax rate is set at the following rates, based on the recent corporate tax rates.

Sumitomo Life: 27.96%

Medicare Life : 28.00%

Appendix B: Principal EEV Assumptions (Symetra)

1. Economic Assumptions and Risk Discount Rate

a. Economic assumptions

Investment cash flows for the top-down approach are based on current and expected asset allocations and the economic environment on the reporting date. Key economic assumptions include the level of government bond rates, credit spreads, default rates and investment expenses. Government bond rates and credit spreads were set equal to the levels of the reporting date.

Existing yields are as follows:

	Current yield (%)	
	December 31,2018	December 31,2019
Corporate Bonds	3.76%	3.66%
Grand Total	3.92%	3.83%

(Note) Statutory basis, before default, excluding investment costs

Reinvestment yields vary by liability group, in accordance with the characteristics of the liabilities and actual practice, and are determined based on the current and expected future reinvestment strategy.

Reinvestment rates by main liability group are as follows:

Main Products	Reinvestment rates (Note3,4)	
	December 31,2018	December 31,2019
Life	3.88-4.46%	3.44-3.93%
Annuities (Note1)	3.84-4.28%	3.00-3.57%
Benefits	3.63%	3.13%
VA (Note2)	7.50%	7.50%

- (Note1) VA is not included
- (Note2) Separate account
- (Note3) Before default, excluding investment costs
- (Note4) Rates vary by product type

Default rates, which apply to existing assets and reinvestments, are determined by asset type and rating, where applicable, based on historical studies.

Expected default cost net of recovery are as follows:

	Default cost (bp)	
	December 31,2018	December 31,2019
Existing Assets		
AAA-A	7	7
BBB	16	16
Reinvestment Assets		
AAA-A	11	10
BBB	19	17

b. Risk discount rates

Risk discount rates are set using a weighted average cost of capital approach (WACC) taking into account the cost of equity and cost of debt.

Risk discount rates are as follows:

	In-force business	
	December 31,2018	December 31,2019
Risk discount rate	7.00%	6.00%
Risk-free rate (Note)	2.69%	1.92%
Risk margin	4.31%	4.08%

	New business			
	Six months ended June 30, 2018	Six months ended December 31, 2018	Six months ended June 30, 2019	Six months ended December 31, 2019
Risk discount rate	8.25%	7.00%	6.25%	6.00%
Risk-free rate (Note)	2.85%	2.69%	2.00%	1.92%
Risk margin	5.40%	4.31%	4.25%	4.08%

(Note)10 year U.S. government bond yield

2. Non-economic assumptions

All cash flows (premium, operating expense, benefits and claims, cash surrender value, tax, etc.) are projected each insurance, applying the best estimate assumptions into the future, by product, referring to past, current and expected future experience.

For interest sensitive business, future credited rates are based on current credited rate setting methods and are consistent with the projected economic assumptions. Dynamic policyholder behavior is applied where appropriate.

The future inflation rate is assumed to be 2.15% p.a..
The tax rate applied to the projected taxable income is 21.00%.

3. Exchange rate

The EEV of Symetra is calculated in local currency and converted into JPY using the following rate:

	December 31,2018	December 31,2019
USD1.00	JPY111.00	JPY109.56