

May 19, 2023

## **Mitsui Sumitomo Aioi Life Insurance Co., Ltd**

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### **Disclosure of European Embedded Value as of March 31, 2023**

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Mitsui Sumitomo Aioi Life Insurance Co, Ltd. (hereinafter “MSI Aioi Life” or “the Company”; President: Shiro Kaji), a member of the MS&AD Insurance Group, hereby discloses the European Embedded Value (“EEV”) as of March 31, 2023.

#### **【Executive Summary】**

The Company’s EEV at March 31, 2023 was Yen 908.0 billion, a decrease of Yen 15.5 billion (-1.7%) from the EEV at March 31, 2022. Despite the additional value generated by the acquisition of new contracts (Yen 51.2 billion increase), value decrease is primarily due to the change in non-economic assumptions (Yen 48.2 billion decrease) and change in the economic environment (Yen 13.3 billion decrease).

**【Attachments】 March 31, 2023 EEV**

**March 31, 2023 EEV**

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## **1. Overview**

### **1-1. Embedded Value**

Embedded value (“EV”) is calculated by adding the value of net assets at the valuation date to the discounted present value of future profits arising from the in-force business at the valuation date (“Value of In-Force”).

Business performance can be difficult to interpret using current statutory accounting which applies initial costs at the time of an insurance contract sale, with profits emerging in later years. By considering the present value of future profits of in-force business, the EV can be considered to be a useful supplement to statutory accounting measures regarding business performance and company value.

### **1-2. EEV**

The EEV Principles and related guidance were published in May 2004 by the CFO Forum, an organization comprising the chief financial officers of Europe's leading life insurers, in order to improve consistency and transparency in EV reporting. In October 2005, further guidance on minimum required disclosures of sensitivities and other items was provided by the CFO Forum. In May 2016, an amended version of the EEV Principles was published by the CFO Forum which permits the use of projection methods and assumptions aligned with those applied for the European Solvency II regime, which came into effect in January 2016, and equivalent market consistent solvency regimes. EEV is the EV calculated following the EEV Principles and related guidance, and the calculation of EEV has been adopted by a significant number of life insurers in Europe and Japan.

### **1-3. The Company's EEV**

The EEV disclosed herein covers only the business of the Company. As a result, the EEV disclosed herein is not the consolidated EEV of MS&AD Insurance Group, and does not cover the business of other life insurers, non-life insurers, or reinsurers within the Group

In the calculation of EEV, the Company has adopted a market-consistent approach – an approach which values cash flows from both assets and liabilities of a company consistently with comparable financial instruments traded in the market. A market-consistent approach is currently being adopted within Europe's Solvency II regime and new regulations for adopting a similar approach for Japanese life insurers are currently being considered. We have chosen a market consistent approach to reduce the subjectivity of the valuation of risk in the EV, and also, through the adoption of the EEV Principles and associated guidance, to increase the transparency and comparability of the calculation of our results. Further, we consider that the use of a net worth based on market values enhances the EV as an indicator of business performance and company value.

We note that this EEV was not prepared on the basis of the European Insurance CFO Forum

#### **1-4. Use of EV**

In calculating the EV of the Company, numerous assumptions are required concerning the future, which is inherently uncertain. As a result, future conditions may differ, perhaps significantly, from those assumed in the calculation of the embedded value. Further, the EV is not the only indicator of the value of a company, and investors may incorporate other information into their views on the value of a company which may differ significantly from the EV. Sufficient caution should be exercised when using the EV, with the aforementioned considerations kept in mind.

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## 2. EEV Calculation Results

### 2-1. The Company's EEV

The Company's EEV at March 31, 2023 was Yen 908.0 billion, a decrease of Yen 15.5 billion from the EEV at March 31, 2022. The main reasons of the EEV decrease were the change in the non-economic assumptions and the economic environment, which exceeded the increase due the acquisition of new contracts, such that the value of net assets was Yen -3.8 billion, a decrease of Yen 227.9 billion, and the value of in-force business was Yen 911.9 billion, an increase of Yen 212.4 billion.

(Yen billions)

	March 31, 2022	March 31, 2023	Increase (decrease)
EEV	923.6	908.0	(15.5)
Value of net assets	224.1	(3.8)	(227.9)
Value of in-force business	699.4	911.9	212.4
Value of new business	54.5	51.2	(3.2)

### 2-2. Value of Net Assets

The value of net assets represents the market value of assets in excess of policyholder and other liabilities.

In other words, adjusted net worth is calculated by adjusting the total net assets on the balance sheet for the retained earnings in quasi-equity liabilities, the general reserve for possible loan losses, unrealized gains or losses in assets or liabilities not accounted for under the mark-to-market methodology, unfunded pension benefit obligations, and tax effect equivalents on the items above. The breakdown of the Company's adjusted net worth is as follows:

(Yen billions)

	March 31, 2022	March 31, 2023	Increase (decrease)
Value of net assets	224.1	(3.8)	(227.9)
Net assets (Note 1)	146.1	147.3	1.2
Contingency reserve	40.3	40.4	0.1
Price fluctuation reserve	11.1	12.4	1.2
Unallocated dividend reserves	0.4	0.4	(0.0)
General reserve for possible loan	0.0	0.0	(0.0)
Unrealized gains/losses on securities	54.0	(265.9)	(320.0)
Unrealized gains/losses on loans	2.6	2.6	0.0
Unfunded pension benefit obligations	(0.2)	(0.1)	0.1
Tax effects on the above	(30.3)	58.8	89.1

(Note 1): Excluding unrealized gains and losses on balance sheet.

### 2-3. Value of In-force Business

The value of in-force business corresponds to the present value of future profits arising from business in-force at the valuation date. The breakdown by item is as follows:

(Yen billions)

	March 31, 2022	March 31, 2023	Increase (decrease)
Value of in-force business	699.4	911.9	212.4
Certainty equivalent present value of future profits	907.9	1,153.3	245.4
Time value of financial options and guarantees	(87.0)	(93.6)	(6.6)
Cost of holding required capital	(9.6)	(13.0)	(3.4)
Allowance for non-financial risks	(111.8)	(134.7)	(22.9)

- The certainty equivalent present value of future profits is the discounted present value of after-tax profits. The assumed investment return and discount rate are both aligned at the risk free rate.
- The time value of financial options and guarantees is the value associated with the fluctuation of future cash flows, i.e. it is the value aside from the base value which is captured in the certainty equivalent present value of future profits.
- The cost of holding required capital arises from the taxation on investment returns on required capital assets and the investment expenses on the required capital assets.
- The allowance for non-financial risks covers costs not otherwise included in the certainty equivalent present value of future profits or the time value of financial options and guarantees, including operational risk and other risk.

## 2-4. Value of New Business

The value of new business is the value at the valuation date (the end of the reporting period), of new policies acquired during the reporting period. The method of calculating the value, and the assumptions employed, are the same as for the value of in-force business.

(Yen billions)

	March 31, 2022	March 31, 2023	Increase (decrease)
Value of new business	54.5	51.2	(3.2)
Value of net assets	(24.7)	(25.4)	(0.6)
Value of future profits	79.2	76.6	(2.5)
Certainty equivalent present value of future profits	89.5	86.3	(3.1)
Time value of financial options and guarantees	(0.0)	(0.0)	0.0
Cost of holding required capital	(0.2)	(0.2)	(0.0)
Allowance for non-financial risks	(9.9)	(9.3)	0.5

The new business margins are as follows:

(Yen billions)

	March 31, 2022	March 31, 2023	Increase (decrease)
Value of new business	54.5	51.2	(3.2)
Present value of future premium income	400.3	389.7	(10.6)
New business margin	13.6%	13.2%	(0.5%)

- The present value of future premium income is the future premium income discounted at the risk free rate.
- The new business margin is the value of new business divided by the present value of future premium income.

### 3. Movement Analysis of EEV

(Yen billions)

	Value of net assets	Value of in-force	EEV
EEV at March 31, 2022	224.1	699.4	923.6
(1) Opening adjustment	(11.0)	—	(11.0)
EEV at March 31, 2022 after adjustment	213.0	699.4	912.5
(2) New business in reporting year	(25.4)	76.6	51.2
(3) Expected existing business contribution at the risk free rate	(0.0)	9.9	9.9
(4) Expected existing business contribution above risk free rate	0.4	7.2	7.7
(5) Transfers from value of in-force to value of net assets	14.4	(14.4)	—
(6) Operating experience variances	(7.0)	(5.0)	(12.1)
(7) Changes in operating assumptions	—	(48.2)	(48.2)
(8) Economic variances and changes to economic assumptions	(199.3)	186.0	(13.3)
(9) Other operating movements	—	0.2	0.2
(10) Other non-operating movements	—	—	—
EEV at March 31, 2023	(3.8)	911.9	908.0

#### (1) Opening adjustment

Decrease of the value of net assets because of shareholders' dividends (excluding dividend of surplus) distributed in the fiscal year 2022.

#### (2) Value of new business

The value of new business represents the value, as at March 31, 2023, of the new business acquired during the year.

#### (3) Expected existing business contribution at the risk free rate

In the market consistent approach, future profits distributable to shareholders are discounted at the risk free rate to produce the value of in-force business. The expected existing business contribution at the risk free rate represents the unwinding of this discounting. This item includes the unwinding of the time value of options and guarantees, the cost of required capital, and the cost of non-financial risk.

#### (4) Expected existing business contribution above the risk free rate

The market consistent approach assumes all future investment returns are equal to the risk



free rate, but due to the actual risk characteristics of the assets held, a return in excess of the risk free rate is expected. This item represents the excess investment income expected over the risk free rate. For the expected return used, please refer to section 6-1-3.

(5) Transfers from value of in-force to the value of net assets

A part of the value of in-force business as of the end of the previous year (i.e. the profit associated with the current year) is transferred to the value of net assets. This item is the transferred value. The transfer does not increase or decrease the total EEV.

(6) Operating experience variances

This item is the result of differences between expected experience as at the end of the previous year, and realized experience. This item includes the impact of increased claim benefits due to COVID-19<sup>2</sup> for fiscal year 2022.

(7) Changes to operating assumptions

This item represents the impact on future profits of changes in operating assumptions since the end of the previous year. The decreased of value is primarily due to the lower surrender and lapse rates for low cash-value insurance products and the increase of maintenance expense due to higher future expense inflation rate.

(8) Economic variances and changes to economic assumptions

This is the variance due to differences between economic assumptions (market interest rates, implied volatilities, and other assumptions) as at the end of the previous year, actual realized experience, and changes in economic assumptions.

While the value of net assets has decreased due to increasing market interest rates, the value of in-force has increased.

(9) Other operating movements

This item represents the impact on future profits of operational changes, excluding changes in operating assumptions. Model changes are included in this item.

(10) Other non-operating movements

No changes are included in this item.

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<sup>2</sup> the coronavirus outbreak named as COVID-19 by the World Health Organization on 11 February 2020.

## 4. Sensitivity Analysis

### 4-1. Sensitivity Analysis of EEV

The following table shows an analysis of the sensitivity of the EEV to changes in assumptions.

(Yen billions)

Assumptions	EEV	Increase (decrease)
EEV at March 31, 2023	908.0	—
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	869.7	(38.2)
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	933.5	25.4
Sensitivity 3: 10% decline in equity and real estate values	904.5	(3.5)
Sensitivity 4: 10% decline in maintenance expenses	940.6	32.5
Sensitivity 5: 10% decline in surrender and lapse rates	917.9	9.9
Sensitivity 6: 5% decline in mortality and morbidity rates for life and medical insurance products	966.6	58.5
Sensitivity 7: 5% decline in mortality rates for annuity products	907.9	(0.1)
Sensitivity 8: Equity and property implied volatility increase of 25%	908.0	0.0
Sensitivity 9: Swaption implied volatility increase of 25%	874.7	(33.2)
Sensitivity 10: Required capital set at statutory minimum level	916.6	8.6
Sensitivity 11: Applying an Ultimate Forward Rate (UFR) to extrapolate long term interest rates	946.7	38.6

The following table shows the effect on the value of net assets of sensitivities 1 through 3 above. In sensitivities 4 through 11, only the value of in-force business is affected.

(Yen billions)

	Increase (decrease)
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	(251.0)
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	286.3
Sensitivity 3: 10% decline in equity and real estate values	(3.5)

#### - Sensitivity 1

The item represents the effect on EEV of an upward parallel shift of 50bp in the yield curve of risk-free forward rates. Changes in the prices of bonds and loans change the value of net assets. As future expected investment yields change, the value of in-force business changes.

#### - Sensitivity 2

The item represents the effect on EEV of a downward parallel shift of 50bp in the yield curve of

risk-free forward rates. The risk-free forward rates are reduced by 50bp without the lower limitation of zero.

- Sensitivity 3

This item shows the effect on EEV of a decline of 10% in equity and real estate values.

- Sensitivity 4

The item represents the effect on EEV of a decrease of 10% in estimated maintenance expenses associated with maintaining the in-force business.

- Sensitivity 5

The item represents the effect on EEV of a decrease of 10% in surrender and lapse rates.

- Sensitivity 6

The item represents the effect on EEV of a decrease of 5% in mortality and morbidity rates for life and medical insurance products.

- Sensitivity 7

The item represents the effect on EEV of a decrease of 5% in mortality rates for annuities.

- Sensitivity 8

The item represents the effect on EEV of an increase of 25% in the implied volatilities of equity and real estate values. This effect occurs because the value of in-force business changes as the time value of financial options and guarantees changes.

- Sensitivity 9

The item represents the effect on EEV of an increase of 25% in the implied volatilities of swaptions. This effect occurs because the value of in-force business changes as the time value of financial options and guarantees changes.

- Sensitivity 10

The item represents the effect on EEV in the event that required capital was changed to the statutory minimum level in Japan of a 200% solvency margin ratio.

- Sensitivity 11

The item represents the effect on EEV of changing the long-term interest rates extrapolation method using an Ultimate Forward Rate (UFR). Concretely, the forward rate is extrapolated from the 30-year maturity (the extrapolation starting year) such that it converges to the UFR level, set at 3.8%, in the next 30 years using the Smith-Wilson method.

#### 4-2. Sensitivity Analysis of the Value of New Business

(Yen billions)

Assumptions	Value of new business	Increase (decrease)
Value of new business at March 31, 2023	51.2	-
Sensitivity 1: 50bp upward parallel shift in risk-free yield curve	52.8	1.5
Sensitivity 2: 50bp downward parallel shift in risk-free yield curve	48.9	(2.3)
Sensitivity 3: 10% decline in equity and real estate values	51.2	0.0
Sensitivity 4: 10% decline in maintenance expenses	53.0	1.7
Sensitivity 5: 10% decline in surrender and lapse rates	54.1	2.8
Sensitivity 6: 5% decline in mortality and morbidity rates for life and medical insurance products	55.0	3.7
Sensitivity 7: 5% decline in mortality rates for annuity products	51.2	(0.0)
Sensitivity 8: Equity and property implied volatility increase of 25%	51.2	0.0
Sensitivity 9: Swaption implied volatility increase of 25%	51.2	(0.0)
Sensitivity 10: Required capital set at statutory minimum level	51.4	0.1
Sensitivity 11: Applying UFR to extrapolate long term interest rates	52.5	1.3

The calculation approach is the same as for the sensitivities of the value of in-force business shown in Section 4-1.

## **5. EEV Methodology**

The methodology and assumptions adopted by the Company to calculate EEV are market-consistent and in accordance with the EEV Principles and related guidance issued by the CFO Forum.

### **5-1. Covered business**

The covered business represents the life insurance business of the Company at the valuation date. No business or subsidiaries of the Company have been excluded. Any services provided by other companies in the MS&AD Insurance Group to the Company have been treated on an arms-length basis in these EEV results, as this EEV disclosure is from the Company's perspective and not the MS&AD Group.

### **5-2. Value of net assets**

The value of net assets is calculated by adjusting the total net assets on the company's balance sheet for the following:

- In order to mark to market, differences in market value and book value of assets and liabilities other than insurance contract liabilities have been reflected on an after-tax basis.
- Liabilities that are appropriate to be added to the value of net assets (the contingency reserve, reserve for price fluctuations, unallocated portion of reserve for policyholder dividends, and general reserve for possible loan losses) have been added on an after-tax basis.
- The value of net assets has been reduced for unfunded pension benefit obligations on an after-tax basis.

The value of net assets consists of required capital and free surplus. Please refer to the amount respectively in "5-6. Cost of holding required capital".

### **5-3. Value of in-force business**

The value of in-force business is calculated as the certainty equivalent present value of projected after-tax profits deducting the time value of financial options and guarantees, the cost of holding required capital and allowance for non financial risks. The value of new business is calculated in the same way.

### **5-4. Certainty equivalent present value of future profits**

The certainty equivalent present value of future profits is the present value of after-tax profits based on the projected cash flows, calculated on a deterministic basis. All cash flows are discounted at the risk-free rate, assuming the investment yield of all assets is equivalent to the risk-free rate. The intrinsic value of options and guarantees is included in this item.

### **5-5. Time value of financial options and guarantees**

The time value of financial options and guarantees is calculated as the difference between the certainty equivalent present value of future profits and the average of the present value of future

after-tax profits calculated by stochastic methods where economic assumptions are market consistent, as described in “6-1-2. Economic scenarios”.

The projected asset allocation is assumed to be the same as the asset allocation at the valuation date.

The following options and guarantees are considered in calculating the time value of financial options and guarantees.

- Participating policies

When investment returns exceed the expected interest rate for the policy, policyholder dividends in respect of the difference are distributed. On the other hand, when interest losses arise, the cost is not charged to the policyholders, resulting in asymmetries in the cash flows.

- Minimum accumulation interest-rate guarantee for interest-rate-sensitive products

When interest rates rise, higher accumulation interest rates are credited to interest rate-sensitive products. On the other hand, a minimum accumulation interest rate is guaranteed even when interest rates decline, resulting in asymmetric cash flows and a cost to the insurer.

- Policyholder behavior

Policyholders have the option to lapse at any time. We have considered the cost of selective lapse under increases in market interest rates.

#### **5-6. Cost of holding required capital**

In order to secure financial solidity, life insurance companies are required to hold additional assets in excess of the statutory liability. The cost of holding required capital is the cost incurred through the payment of taxes on the investment income of the assets backing the required capital and the related investment expenses incurred for the management of the assets.

The Company defined required capital as the capital level required to maintain 600% of the statutory requirement as a target solvency margin ratio. The required capital on the respective bases was Yen 103.6 billion at March 31, 2022 and Yen 104.2 billion at March 31, 2023. (Free surplus was Yen 120.4 billion and Yen -108.0 billion, respectively.)

The solvency margin basis permits the inclusion of the excess of policyholders' contract deposits up to a defined limit, and this inclusion was similarly reflected in this calculation.

#### **5-7. Allowance for non-financial risks**

EEV Principles define the EV to be the present value of distributable profits attributable to shareholders arising from assets allocated to the covered business, calculated taking into account all the risks of the covered business.

The majority of the uncertainty in future cash flow is captured in the certainty equivalent present value of future profits and the time value of options and guarantees. However, other risk factors should be considered, and we have included allowance for the cost of these risks in the EEV

based on the results of simple models. The items are as follows.

- Operational risks; and
- Non-recoverability of future tax losses.

In the future, if a loss arises, a tax loss is created, but may not be fully recoverable in subsequent years, in which case it cannot serve to reduce the future tax burden of the company. This risk is not included in the certainty equivalent value of future profits or in the time value of options and guarantees, so we have considered it separately.

#### **5-8. Value of new business**

The value of new business is shown as the value of business acquired during the year at the valuation date of March 31, 2023. The calculation approach and assumptions are the same as for the value of in-force business as at March 31, 2023. The value of new business is based on the definitions used for statutory reporting and includes new policies but does not include renewals of existing policies. With regard to corporate insurance, the increase in the company's share of co-managed policies in a group scheme and any increase of the sum insured are included as new business.

## 6. Principal EEV Assumptions

### 6-1. Economic assumptions

#### 6-1-1. Risk-free rate

In the certainty equivalent calculation, rates based on Japanese Government Bonds (JGBs) as at the valuation date are used, taking into account assets in the company's portfolio and the liquidity of the market. We have taken the forward rate beyond the last available year to be the same as the forward rate for the last available year (year 40). The table below shows, for selected terms, the risk-free reference rates (as spot rates) which we have used.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15
March 31, 2023	(0.115%)	(0.061%)	(0.052%)	0.024%	0.101%	0.396%	0.800%
March 31, 2022	(0.075%)	(0.030%)	(0.031%)	(0.002%)	0.036%	0.219%	0.473%
	Year 20	Year 25	Year 30	Year 35	Year 40	Year 45	Year 50
March 31, 2023	1.108%	1.235%	1.370%	1.437%	1.459%	1.473%	1.484%
March 31, 2022	0.715%	0.853%	0.941%	0.973%	0.978%	0.979%	0.981%

(Source: Analysis of Ministry of Finance data)

#### 6-1-2. Economic scenarios

##### (1) Interest rate model

We have adopted a Stochastic Alpha Beta Rho Libor Market Model, in which interest rates associated with Japanese yen (JPY), U.S. dollars (USD), and Euros (EUR) are calculated. The model follows a risk-neutral approach in which JPY is set as a base currency, and correlations between the interest rates are taken into account. The interest rate model has been calibrated considering the market environment as of each reporting date, and the parameters used are estimated from the yield curve and implied volatilities of interest rate swaptions with various maturities. A set of 5,000 simulated economic scenarios are used in calculating the time value of financial options and guarantees. These scenarios have been generated by Willis Towers Watson.

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



### Interest rate swaptions

Option Term (years)	Swap Term (years)	March 31, 2022			March 31, 2023		
		JPY	USD	EUR	JPY	USD	EUR
5	5	30.0bps	95.8bps	89.3bps	45.3bps	98.3bps	95.7bps
5	7	31.1bps	92.6bps	84.3bps	43.7bps	94.4bps	93.8bps
5	10	34.1bps	87.6bps	76.8bps	43.1bps	89.9bps	90.9bps
7	5	31.0bps	88.9bps	81.5bps	42.0bps	89.9bps	88.5bps
7	7	32.1bps	85.4bps	78.2bps	41.0bps	86.9bps	86.4bps
7	10	34.4bps	81.6bps	73.3bps	40.8bps	82.9bps	83.2bps
10	5	33.4bps	79.0bps	72.9bps	39.9bps	79.2bps	81.4bps
10	7	34.4bps	76.5bps	70.8bps	39.2bps	76.8bps	79.0bps
10	10	35.8bps	73.7bps	67.5bps	39.2bps	73.8bps	75.4bps

(Source: Analysis of Bloomberg data)

### (2) Implied volatilities of equities and exchange rates

Volatilities of traditional equity indices and exchange rates are calibrated based on the implied volatilities of relevant options traded in the market. Selected implied volatilities used to calibrate the economic scenarios are as follows:

#### Equity Options

Currency	Underlying	Option Term	Implied Volatility	
			March 31, 2022	March 31, 2023
JPY	Nikkei 225	3 Year	19.9%	18.3%
		4 Year	19.7%	18.4%
		5 Year	19.6%	18.5%
USD	S&P500	3 Year	21.4%	20.6%
		4 Year	21.3%	21.0%
		5 Year	21.3%	21.4%
EUR	Euro Stoxx50	3 Year	19.6%	18.5%
		4 Year	19.3%	18.6%
		5 Year	19.3%	19.0%

(Source: Markit (interpolated/extrapolated))

#### Foreign Exchange Options

Currency	Option Term	Implied Volatility	
		March 31, 2022	March 31, 2023
USD	5 Year	8.4%	8.3%
EUR	5 Year	8.9%	10.7%

(Source: Bloomberg)

### (3) Correlations

In addition to the use of the implied volatilities described above, we have calculated volatilities reflecting our asset portfolio composition and correlation factors among asset classes. The share of each asset in the portfolio is assumed to be unchanged over the projection period.

For correlation factors, we have not observed relevant market data from exotic options with sufficient liquidity. Therefore, we have estimated correlation factors based on the most recent 10 years of market data. The following table shows the correlation factors between the variables used at March 31, 2023.

	JPY Short Rate	USD Short Rate	EUR Short Rate	JPY/USD Exchange Rate	JPY/EUR Exchange Rate	JPY Equity Index	USD Equity Index	EUR Equity Index
JPY Short Rate	1.00	0.52	0.68	0.33	0.39	0.25	(0.05)	0.01
USD Short Rate	0.52	1.00	0.75	0.54	0.41	0.21	(0.04)	0.01
EUR Short Rate	0.68	0.75	1.00	0.32	0.44	0.07	(0.22)	(0.13)
JPY/USD Exchange Rate	0.33	0.54	0.32	1.00	0.65	0.42	0.01	0.14
JPY/EUR Exchange Rate	0.39	0.41	0.44	0.65	1.00	0.49	0.26	0.23
JPY Equity Index	0.25	0.21	0.07	0.42	0.49	1.00	0.68	0.71
USD Equity Index	(0.05)	(0.04)	(0.22)	0.01	0.26	0.68	1.00	0.78
EUR Equity Index	0.01	0.01	(0.13)	0.14	0.23	0.71	0.78	1.00

(Source: Ministry of Finance for JPY yields, Bloomberg for others)

### 6-1-3. Assumed investment yields on each asset class

The assumed investment yields on each asset class used in the calculation of the expected existing business contribution in excess of risk-free rate in the movement analysis are as follows:

Asset class	Assumed investment yield
Short term assets	(0.075%): one year risk-free rate
Domestic bonds (Japanese government)	(0.075%): one year risk-free rate
Domestic bonds (other than Japanese government)	0.187% : One year risk-free rate + credit spread (0.262%)
Domestic equity	4.925%: one year risk-free rate + risk premium (5.0%)
Foreign bonds	0.925%: one year risk-free rate + credit spread (1.0%)
Foreign equity	7.925%: one year risk-free rate + risk premium (8.0%)

In the calculation of the expected existing business contribution in excess of risk-free rate, the portfolio investment yield is calculated by taking a weighted average of the assumed investment yield of each asset class above, with the weights taken to be the share of each asset as of March 31, 2022.

### 6-2. Non-economic assumptions

All cash flows (including premiums, operating expenses, benefits and claims, payments of cash surrender value, taxes, and others) are projected applying best estimate assumptions, with the assumptions set by product with consideration to past, current and expected future experience.

#### 6-2-1. Expenses

Expense assumptions were set based on the actual experience in the latest year.

#### 6-2-2. Expense inflation rates

The future expense inflation rate is set based on the break-even inflation rate incorporated in recently issued inflation-linked government bond and historical consumer price index, while taking account of the impact on future expenses based on our operating cost structure. We have set the future expense inflation rate as 0.5%.

Nevertheless, for the value computation of the Sensitivity number 11 (Applying UFR to extrapolate long term interest rates), inflation rate was set to 0.5% until extrapolation starting year of the risk-free rate (30 years) and increases together with the forward rate such that it converges to 2% in the next years.

**6-2-3. Policyholder dividends**

Policyholder dividend rate assumptions were based on dividend practice.

**6-2-4. Corporate tax rates**

Corporate tax rates were set based on recent tax practice. In the EEV the corporate tax rate (including local tax) used is 28.00%.

## 7. Actuarial Opinion

The Company requested Willis Towers Watson, an independent actuarial firm, to review the calculation of the Company's EEV results and obtained the following opinion.

Willis Towers Watson has reviewed the methodology and assumptions used to determine the embedded value results as at March 31, 2023 for MSI Aioi Life. The review covered the embedded values as at March 31, 2023, the value of new business issued in fiscal year 2022, the analysis of movement in the embedded value during fiscal year 2022 and the sensitivities of the embedded value and new business value to changes in assumptions.

Willis Towers Watson has concluded that the methodology and assumptions used, together with the disclosure provided in this document, comply with the EEV Principles. In particular:

- The methodology makes allowance for the aggregate risks in the covered business through the Company's bottom-up methodology as described in this document, which includes a stochastic allowance for financial options and guarantees, and deductions to allow for the frictional cost of required capital and the impact of non-financial risks;
- The operating assumptions have been set with appropriate regard to past, current and expected future experience;
- The economic assumptions used are internally consistent and consistent with observable market data; and
- For participating business, the assumed policyholders' dividend rates, and the allocation of profit between policyholders and shareholders, are consistent with the projection assumptions, established company practice and local market practice.

Willis Towers Watson has also reviewed the results of the calculations, without however undertaking detailed checks of all the models, processes and calculations involved. On the basis of this review, Willis Towers Watson is satisfied that the disclosed results have been prepared, in all material respects, in accordance with the methodology and assumptions set out in this disclosure document.

In arriving at these conclusions, Willis Towers Watson has relied on data and information provided by the Company, including estimates for the market value of assets for which no market prices exist. This opinion is made solely to the Company in accordance with the terms of Towers Watson's engagement letter. To the fullest extent permitted by applicable law, Willis Towers Watson does not accept or assume any responsibility, duty of care or liability to anyone other than the Company for or in connection with its review work, the opinions it has formed, or for any statement set forth in this opinion.

## Glossary

Terminology	Description
Allowance for non-financial risks	<p>An allowance for risks that are not reflected in the certainty equivalent present value of future profits or the time value of financial options and guarantees. The Company determined the allowance in respect of the following risks:</p> <ul style="list-style-type: none"> <li>- Operational risks such as rapid increases of surrenders, whether due to reputational damage or natural disaster.</li> <li>- Non-recoverability of future tax loss carryforwards.</li> </ul>
Best estimate assumption	<p>An assumption which is developed based on experience data up to the present and expected future experience, and which represents the expected outcome from the range of possible outcomes for future experience.</p>
Calibration	<p>To set the parameters of a stochastic model in a manner that they are consistent with observable market prices of traded financial instruments.</p>
Certainty equivalent present value of future profits	<p>The present value of future after-tax profit discounted at the risk-free rate, calculated using a deterministic cash flow projection with investment yields for all assets equal to the risk-free rate.</p>
Financial options and guarantees	<p>Refers to the following features of insurance contracts:</p> <ul style="list-style-type: none"> <li>- The exercise of the contractual rights granted to policyholders which affect insurance contract cash flows. For example, the exercise of the right to surrender.</li> <li>- Guarantees on claim amounts, policy values, or other insurance contract amounts. For example, a minimum accumulation rate for interest-rate-sensitive products.</li> </ul>
Free surplus	<p>The amount of any excess of the value of net assets over the required capital.</p>
Implied volatility	<p>The implied volatility of an option contract is the market expectation for price fluctuation implied by the market price of the option.</p>
Interest rate swaption	<p>An option granting the right to enter an interest rate swap transaction with certain conditions at a certain time in the future.</p>
Intrinsic value and time value	<p>There are two components to the value of financial options and guarantees: intrinsic value and time value.</p> <ul style="list-style-type: none"> <li>- The intrinsic value is the value determined on a certainty equivalent basis. This is included in the certainty equivalent present value of future profits.</li> <li>- The time value is the value other than intrinsic value, and represents the value associated with the possibility of fluctuation of future cash flows. It is calculated as the difference between</li> </ul>

Terminology	Description
	the average of the present value of future profits calculated stochastically, and the certainty equivalent present value of future profits.
Market-consistent approach	A measurement method using economic assumptions that value the cash flows of assets / liabilities consistently with traded financial instruments.
Required capital	The required capital is defined in EEV Principles as capital to be maintained in excess of the amount to back liabilities whose distribution to shareholders is restricted, being at least the solvency capital required to maintain the regulatory minimum solvency level. Capital required to meet the standards set by the company or to obtain the company's desired credit rating may be included. The Company defined required capital as the capital amount corresponding to a 600% solvency margin ratio.
Risk-free rate	The expected future yield of assets considered to be without default or credit risk.
Risk-neutral	An assumption that on average market participants are neutral with respect to risk, i.e. are neither risk averse nor risk seeking.
Solvency II	The economic-value-based solvency regulation framework introduced in Europe from January 2016.
Ultimate Forward Rate	The long-term interest rate level to which forward rate converges in case a long-term equilibrium interest rate assumption is set. Setting is based on macro-economic methods.