

**Projected 2023 Valuation Interest Rates for Deferred Annuities
Based on Data Through June 2023**

Basis: Issue Year
Cash Settlement: Yes
Future Interest Rate Guarantees: Yes

Year	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
2013	4.00%	3.75%	3.75%	3.50%	3.75%	3.75%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
2014	4.50%	4.25%	4.00%	3.75%	4.00%	4.00%	3.75%	3.50%	3.75%	3.75%	3.75%	3.50%
2015	4.00%	4.00%	3.75%	3.50%	3.75%	3.75%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
2016	4.00%	4.00%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%	3.75%	3.75%	3.75%	3.50%
2017	3.75%	3.75%	3.75%	3.50%	3.75%	3.75%	3.50%	3.25%	3.50%	3.50%	3.50%	3.25%
2018	3.75%	3.75%	3.75%	3.50%	3.75%	3.75%	3.50%	3.25%	3.50%	3.50%	3.50%	3.25%
2019	4.00%	4.00%	3.75%	3.50%	3.75%	3.75%	3.50%	3.50%	3.75%	3.75%	3.50%	3.50%
2020	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.00%	3.25%	3.25%	3.25%	3.00%
2021	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
2022	3.50%	3.50%	3.25%	3.00%	3.25%	3.25%	3.25%	3.00%	3.25%	3.25%	3.00%	3.00%
2023	4.75%	4.50%	3.50%	3.50%	4.25%	4.25%	3.50%	3.25%	4.00%	4.00%	3.50%	3.25%
2024*	4.75%	4.75%	4.00%	3.75%	4.25%	4.25%	3.75%	3.50%	4.25%	4.25%	3.75%	3.50%

* Projected values assuming the average monthly bond yield is equal to the June 2023 rate (5.28%) for the remaining measurement period.

Increase Breakpoints

	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
Rate	5.35%	5.50%	5.53%	6.17%	5.30%	5.30%	5.59%	5.70%	5.75%	5.75%	6.17%	5.70%
Change	0.07%	0.22%	0.25%	0.89%	0.02%	0.02%	0.31%	0.42%	0.47%	0.47%	0.89%	0.42%
Val. Rate	5.00%	5.00%	4.25%	4.00%	4.50%	4.50%	4.00%	3.75%	4.50%	4.50%	4.00%	3.75%

Decrease Breakpoints

	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
Rate	5.03%	5.16%	4.37%	4.50%	4.87%	4.87%	4.25%	4.07%	5.24%	5.24%	4.50%	4.07%
Change	-0.25%	-0.12%	-0.91%	-0.78%	-0.41%	-0.41%	-1.03%	-1.21%	-0.04%	-0.04%	-0.78%	-1.21%
Val. Rate	4.50%	4.50%	3.75%	3.50%	4.00%	4.00%	3.50%	3.25%	4.00%	4.00%	3.50%	3.25%

Breakpoints are based on an immediate change in the monthly average bond yield.

**Projected 2023 Valuation Interest Rates for Deferred Annuities
Based on Data Through June 2023**

Basis: Issue Year
Cash Settlement: Yes
Future Interest Rate Guarantees: No

Year	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
2013	4.00%	4.00%	3.75%	3.50%	3.75%	3.75%	3.75%	3.50%	3.75%	3.75%	3.50%	3.50%
2014	4.50%	4.50%	4.00%	3.75%	4.00%	4.00%	3.75%	3.50%	4.00%	4.00%	3.75%	3.50%
2015	4.00%	4.00%	3.75%	3.50%	3.75%	3.75%	3.75%	3.50%	3.75%	3.75%	3.50%	3.50%
2016	4.25%	4.00%	4.00%	3.75%	4.00%	4.00%	3.75%	3.50%	3.75%	3.75%	3.75%	3.50%
2017	4.00%	3.75%	3.75%	3.50%	3.75%	3.75%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
2018	4.00%	3.75%	3.75%	3.50%	3.75%	3.75%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
2019	4.00%	4.00%	3.75%	3.50%	3.75%	3.75%	3.75%	3.50%	3.75%	3.75%	3.50%	3.50%
2020	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
2021	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
2022	3.50%	3.50%	3.25%	3.25%	3.25%	3.25%	3.25%	3.00%	3.25%	3.25%	3.25%	3.00%
2023	4.75%	4.75%	3.50%	3.50%	4.50%	4.50%	3.50%	3.25%	4.25%	4.25%	3.50%	3.25%
2024*	5.00%	4.75%	4.25%	3.75%	4.50%	4.50%	4.00%	3.75%	4.25%	4.25%	3.75%	3.75%

* Projected values assuming the average monthly bond yield is equal to the June 2023 rate (5.28%) for the remaining measurement period.

Increase Breakpoints

	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
Rate	5.50%	5.35%	6.23%	5.59%	5.50%	5.50%	6.48%	6.90%	5.50%	5.50%	5.59%	6.90%
Change	0.22%	0.07%	0.95%	0.31%	0.22%	0.22%	1.20%	1.62%	0.22%	0.22%	0.31%	1.62%
Val. Rate	5.25%	5.00%	4.50%	4.00%	4.75%	4.75%	4.25%	4.00%	4.50%	4.50%	4.00%	4.00%

Decrease Breakpoints

	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
Rate	5.20%	5.03%	5.15%	4.25%	5.11%	5.11%	5.10%	5.02%	5.04%	5.04%	4.25%	5.02%
Change	-0.08%	-0.25%	-0.13%	-1.03%	-0.17%	-0.17%	-0.18%	-0.26%	-0.24%	-0.24%	-1.03%	-0.26%
Val. Rate	4.75%	4.50%	4.00%	3.50%	4.25%	4.25%	3.75%	3.50%	4.00%	4.00%	3.50%	3.50%

Breakpoints are based on an immediate change in the monthly average bond yield.

**Projected 2023 Valuation Interest Rates for Deferred Annuities
Based on Data Through June 2023**

Basis: Change in Fund
Cash Settlement: Yes
Future Interest Rate Guarantees: Yes

Year	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
2013	4.00%	4.00%	4.00%	3.75%	4.00%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%	3.50%
2014	4.75%	4.50%	4.50%	4.00%	4.50%	4.50%	4.25%	4.00%	4.00%	4.00%	3.75%	3.75%
2015	4.25%	4.00%	4.00%	3.75%	4.00%	4.00%	4.00%	3.75%	3.75%	3.75%	3.50%	3.50%
2016	4.25%	4.25%	4.00%	3.75%	4.25%	4.25%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%
2017	4.00%	4.00%	3.75%	3.75%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%	3.50%	3.50%
2018	4.00%	4.00%	3.75%	3.75%	4.00%	4.00%	3.75%	3.75%	3.50%	3.50%	3.50%	3.50%
2019	4.25%	4.25%	4.00%	3.75%	4.00%	4.00%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%
2020	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
2021	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
2022	3.50%	3.50%	3.50%	3.25%	3.50%	3.50%	3.50%	3.25%	3.25%	3.25%	3.25%	3.25%
2023	5.00%	5.00%	4.75%	4.25%	4.75%	4.75%	4.50%	4.25%	4.25%	4.25%	4.00%	3.75%
2024*	5.25%	5.00%	4.75%	4.25%	5.00%	5.00%	4.75%	4.25%	4.25%	4.25%	4.25%	4.00%

* Projected values assuming the average monthly bond yield is equal to the June 2023 rate (5.28%) for the remaining measurement period.

Increase Breakpoints

	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
Rate	5.50%	5.37%	5.35%	5.30%	5.50%	5.50%	5.50%	5.30%	5.50%	5.50%	5.75%	5.82%
Change	0.22%	0.09%	0.07%	0.02%	0.22%	0.22%	0.22%	0.02%	0.22%	0.22%	0.47%	0.54%
Val. Rate	5.50%	5.25%	5.00%	4.50%	5.25%	5.25%	5.00%	4.50%	4.50%	4.50%	4.50%	4.25%

Decrease Breakpoints

	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
Rate	5.23%	5.08%	5.03%	4.87%	5.20%	5.20%	5.16%	4.87%	5.04%	5.04%	5.24%	5.18%
Change	-0.05%	-0.20%	-0.25%	-0.41%	-0.08%	-0.08%	-0.12%	-0.41%	-0.24%	-0.24%	-0.04%	-0.10%
Val. Rate	5.00%	4.75%	4.50%	4.00%	4.75%	4.75%	4.50%	4.00%	4.00%	4.00%	4.00%	3.75%

Breakpoints are based on an immediate change in the monthly average bond yield.

**Projected 2023 Valuation Interest Rates for Deferred Annuities
Based on Data Through June 2023**

Basis: Change in Fund
Cash Settlement: Yes
Future Interest Rate Guarantees: No

Year	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
2013	4.25%	4.00%	4.00%	3.75%	4.00%	4.00%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%
2014	4.75%	4.75%	4.50%	4.00%	4.50%	4.50%	4.50%	4.00%	4.00%	4.00%	4.00%	3.75%
2015	4.25%	4.25%	4.00%	3.75%	4.00%	4.00%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%
2016	4.50%	4.25%	4.25%	4.00%	4.25%	4.25%	4.00%	4.00%	3.75%	3.75%	3.75%	3.75%
2017	4.00%	4.00%	4.00%	3.75%	4.00%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%	3.50%
2018	4.00%	4.00%	4.00%	3.75%	4.00%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%	3.50%
2019	4.25%	4.25%	4.00%	3.75%	4.25%	4.25%	4.00%	3.75%	3.75%	3.75%	3.75%	3.50%
2020	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
2021	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
2022	3.50%	3.50%	3.50%	3.25%	3.50%	3.50%	3.50%	3.25%	3.25%	3.25%	3.25%	3.25%
2023	5.25%	5.00%	4.75%	4.50%	5.00%	5.00%	4.75%	4.50%	4.25%	4.25%	4.25%	4.00%
2024*	5.25%	5.25%	5.00%	4.50%	5.00%	5.00%	4.75%	4.50%	4.25%	4.25%	4.25%	4.00%

* Projected values assuming the average monthly bond yield is equal to the June 2023 rate (5.28%) for the remaining measurement period.

Increase Breakpoints

	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
Rate	5.38%	5.50%	5.50%	5.50%	5.37%	5.37%	5.35%	5.50%	5.30%	5.30%	5.50%	5.50%
Change	0.10%	0.22%	0.22%	0.22%	0.09%	0.09%	0.07%	0.22%	0.02%	0.02%	0.22%	0.22%
Val. Rate	5.50%	5.50%	5.25%	4.75%	5.25%	5.25%	5.00%	4.75%	4.50%	4.50%	4.50%	4.25%

Decrease Breakpoints

	Plan Type A				Plan Type B				Plan Type C			
	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20	X≤5	5<X≤10	10<X≤20	X>20
Rate	5.12%	5.23%	5.20%	5.11%	5.08%	5.08%	5.03%	5.11%	4.87%	4.87%	5.04%	4.94%
Change	-0.16%	-0.05%	-0.08%	-0.17%	-0.20%	-0.20%	-0.25%	-0.17%	-0.41%	-0.41%	-0.24%	-0.34%
Val. Rate	5.00%	5.00%	4.75%	4.25%	4.75%	4.75%	4.50%	4.25%	4.00%	4.00%	4.00%	3.75%

Breakpoints are based on an immediate change in the monthly average bond yield.

**Projected 2023 Valuation Interest Rates for Deferred Annuities
Based on Data Through June 2023**

Observations:

With the publication of the June average bond yield by Moody's Investors Service, the final valuation rates for 2023 have been established. There has been a significant increase in the valuation interest rates (between 25 and 175 bp) for 2023 relative to 2022 in most cases. A more modest increase (between 0 and 75bp) is expected for 2024 assuming no change in the reference rate over the next year.

A 25bp increase relative to the current projected values would be triggered by the following increases in the monthly average bond yield:

Issue Year Basis	Type A	Guarantee Durations \leq 10 Years	7 to 22 bp increase
		Guarantee Durations $>$ 10 Years	25 to 95 bp increase
Change in Fund Basis	Type B & C	Guarantee Durations \leq 10 Years	2 to 47 bp increase
		Guarantee Durations $>$ 10 Years	31 to 162 bp increase
	Type A	Guarantee Durations \leq 10 Years	9 to 22 bp increase
		Guarantee Durations $>$ 10 Years	2 to 22 bp increase
	Type B & C	Guarantee Durations \leq 10 Years	2 to 22 bp increase
		Guarantee Durations $>$ 10 Years	2 to 54 bp increase

A 25bp decrease relative to the current projected values would be triggered by the following decreases in the monthly average bond yield:

Issue Year Basis	Type A	Guarantee Durations \leq 10 Years	25 to 8 bp decrease
		Guarantee Durations $>$ 10 Years	103 to 13 bp decrease
Change in Fund Basis	Type B & C	Guarantee Durations \leq 10 Years	41 to 4 bp decrease
		Guarantee Durations $>$ 10 Years	121 to 18 bp decrease
	Type A	Guarantee Durations \leq 10 Years	20 to 5 bp decrease
		Guarantee Durations $>$ 10 Years	41 to 8 bp decrease
	Type B & C	Guarantee Durations \leq 10 Years	41 to 24 bp decrease
		Guarantee Durations $>$ 10 Years	41 to 12 bp decrease