

The Milliman Hedge Cost Index™ (MHCI) provides the estimated hedging cost for hypothetical guaranteed lifetime withdrawal benefit (GLWB) blocks, based on product specifications and modeling assumptions as described below. The expected hedge cost is calculated using product features for generic GLWBs in line with product designs common in the market. Likewise, the modeling assumptions are based on typical actuarial and behavioral assumptions widely used by annuity writers in the marketplace.

The MHCI includes two variations of product design: GLWB rider on variable annuity (VA) and GLWB rider on registered index-linked annuity (RILA).

Key product features

1. INVESTMENT OPTIONS

VA writers offer a wide range of investment options, including managed risk strategies and traditional asset allocation programs. The MHCI for VA GLWB assumes that half of the underlying investments are in a volatility-controlled fund with a volatility target of 10% and the other half in a mix of three traditional asset allocation classes, i.e., aggressive, moderate, and conservative. The three asset allocation classes in combination represent an overall equity allocation of around 60%.

RILA writers also offer a variety of indexing features for the base contract. The MHCI for RILA GLWB assumes a one-year index term, annual point-to-point design on the S&P 500 index, with a 10% buffer and 100% participation rate.

2. GLWB RIDER FEE AND OTHER CHARGES

Both the VA and RILA GLWBs assume a rider fee of 150 bps of GLWB base, in line with current fee levels observed in the market.

In addition, the VA GLWB assumes 2.25% of account value for the combined total of mortality and expense (M&E) fees and investment fees.

3. LIFETIME WITHDRAWAL RATE

Prevailing designs in the marketplace typically vary withdrawal percentage by the age at the first withdrawal. Accordingly, the MHCI assumes age-banded lifetime withdrawal rates as follows:

AGE AT FIRST WITHDRAWAL	VA GLWB	RILA GLWB
<65	4.00%	5.00%
65-69	5.00%	5.50%
70-74	5.00%	6.00%
75-79	6.00%	6.50%
>79	6.00%	7.00%

4. BONUS

The VA GLWB product includes an annual compound interest 5.5% bonus. The bonus amount is calculated as 5.5% of the previous year's guaranteed withdrawal base (GWB).

The RILA GLWB features an annual simple interest 6% bonus based on the initial premium.

For both the VA and RILA GLWB designs, the bonus benefit is available for up to 10 years while policyholders are not withdrawing.

5. RESETS

Both VA GLWB and RILA GLWB include an annual reset for the greater of 10 years and until age 80. The GWB may step up to the account value on the policy anniversary if the account value is greater than the GWB.

Key modeling assumptions

The MHCI is calculated using modeling assumptions for actuarial and policyholder behavior in line with standard industry practice.

1. LAPSE RATE

Milliman uses data from industry surveys of base lapse assumptions for a B-Share product. In addition, a dynamic lapse function is overlaid as a multiplicative factor, which will reduce lapses when the guarantee is in-the-money and increase lapses when the guarantee is out-of-the-money. It is assumed that people utilizing the withdrawal benefit have higher persistency than those not withdrawing. Milliman also refers to an industry study of VA surrender experience to ensure that the assumption stays reasonable in light of recent experience.

2. WITHDRAWAL UTILIZATION

In practice, a GLWB policyholder decides when to start withdrawing. For modeling purposes, it is assumed that a percentage of policyholders will withdraw immediately while others will wait for a few years before taking out any GLWB payment. In addition, we assume that a small percentage of the people will never withdraw.

The MHCI also models a 5% withdrawal amount inefficiency. For policies utilizing the GLWB benefit, the annual withdrawal amount is assumed to be 95% of the annual maximum allowable withdrawal amount.

3. MORTALITY

The mortality assumption is based on an industry-standard mortality table, with future mortality improvement modeled using a standard age-based projection scale. The MHCI assumes a 50/50 split between male and female policyholders.

4. PROJECTION PERIOD

The projection continues until the end of the mortality table.

5. INTEREST RATES

MHCI calculations are based on end-of-month U.S. SOFR interest rates plus a fallback spread of 26 bps.

6. VOLATILITY ASSUMPTION FOR FUND GROWTH

For the volatility-controlled fund, a volatility of 10% is assumed. For the equity and fixed-income indices, the underlying volatility assumption is based on the risk-adjusted Milliman Guaranteed Index® (MGI).

7. RILA CAP RATE SETTING

A two-factor Hull-White stochastic interest rate model is calibrated to historical data. The option budget calculation assumes the General Account targets a 5-year duration, earning an assumed BBB spread with a target spread expense

The time-zero cap rate is calibrated to the S&P 500 one-year implied volatility as of the valuation date. Future renewal cap rate setting assumes a historical, long-term equilibrium view of the S&P 500 one-year implied volatility surface.

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Appendix: Methodology updates to the existing VA GLWB MHCI

Milliman conducts annual reviews of the product features and assumptions underlying the Milliman Hedge Cost Index and will implement updates to the assumptions as and when appropriate to keep pace with market trends and industry practice.

Changes to the VA GLWB Index effective March 2024:

Product assumptions

- The VA GLWB rider fee has been increased from 125 bps to 150 bps to maintain consistency with the common charges in recent new product designs.

Modeling assumptions

- Companies' lapse experience and assumptions have decreased in recent years. To reflect this trend, the MHCI base lapses after the surrender charge period have been reduced, and the dynamic lapse factor has also been reduced slightly. In addition, consistent with industry experience and companies' practice, the MHCI assumes that lapse rates for people utilizing the withdrawal benefit are 70% of those for people not withdrawing.

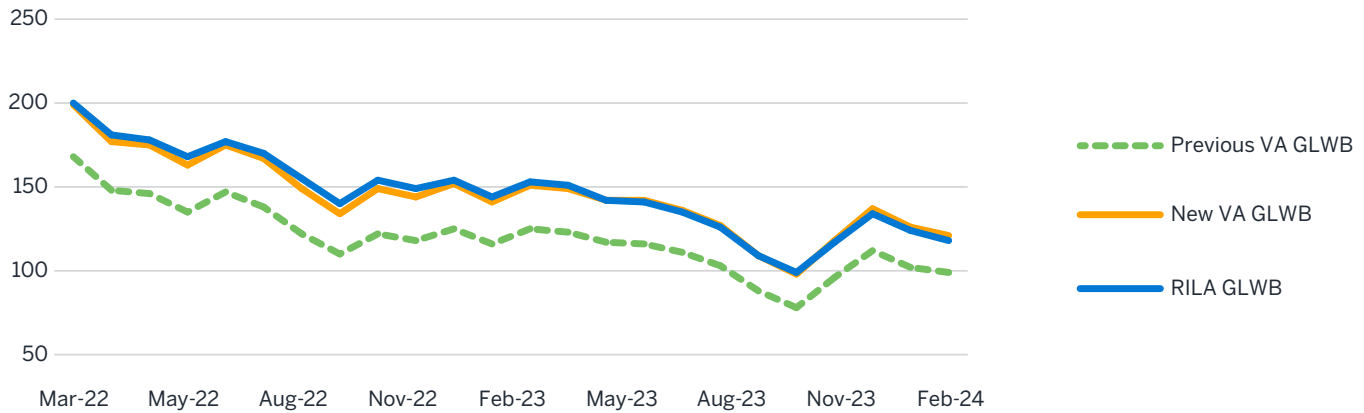
Impact analysis

The table and graph below provide historical monthly MHCI comparisons between the new and the previous VA GLWB designs. In addition, the new RILA GLWB hedge cost is also included for reference. In the 24-month period from 3/30/2022 to 2/28/2024, the difference between the new and previous designs of the VA GLWB index ranges from 19 to 31 bps. The new VA index and the RILA index closely track each other over time.

The monthly changes in the MHCI are driven by movements in both the interest rate and the risk-adjusted MGI volatility, with interest rate being the predominant driver.

EXPECTED HEDGE COST (BPS OF BENEFIT BASE)				
DATE	PREVIOUS VA GLWB	NEW VA GLWB	CHANGE	RILA GLWB
3/30/2022	168	199	31	200
4/29/2022	148	177	29	181
5/27/2022	146	175	29	178
6/29/2022	135	163	28	168
7/28/2022	147	175	28	177
8/30/2022	138	167	29	170
9/29/2022	122	149	27	155
10/28/2022	110	134	24	140
11/29/2022	122	149	27	154
12/29/2022	118	144	26	149
1/30/2023	125	152	27	154
2/27/2023	116	141	25	144
3/30/2023	125	151	26	153
4/27/2023	123	149	26	151
5/30/2023	117	142	25	142
6/29/2023	116	142	26	141
7/28/2023	111	136	25	135
8/30/2023	103	127	24	126
9/28/2023	88	109	21	109
10/30/2023	78	98	20	99
11/30/2023	96	118	22	117
12/28/2023	112	137	25	134
1/30/2024	102	126	24	124
2/28/2024	99	121	22	118

MHCI (BPS)



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