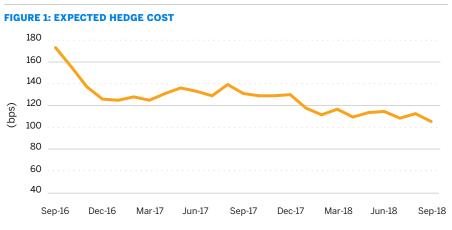
Milliman reports 7 basis points decrease in Hedge Cost Index for VA guarantees in September

Index stands at 104 basis points

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The expected hedge cost for a hypothetical lifetime GMWB block (see Index Methodology¹) is estimated to be 104 bps as of the end of September 2018, down 7 basis points from the previous month, driven by an increase in long-term interest rates. The Index Methodology provides additional details about the assumptions and methodologies underlying the Milliman Hedge Cost Index.



ABOUT THE MILLIMAN HEDGE COST INDEX

The Milliman Hedge Cost Index[™] (MHCI) provides the estimated hedging cost for a hypothetical lifetime guaranteed minimum withdrawal benefit (lifetime GMWB) block, based on product specifications and modeling assumptions as described in the MHCI Methodology Document. The expected hedge costs are calculated using product features for a generic lifetime GMWB in line with product designs common in the market. Likewise, the modeling assumptions are based on typical actuarial and behavioral assumptions widely used by VA writers in the marketplace.

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

The Milliman Hedge Cost Index is calculated based on a fixed target volatility assumption and end-of-month swap interest rates as described in the MHCI Methodology Document. As a result, monthly changes in the index are primarily driven by movements in swap interest rates.

1 To view the Milliman Hedge Cost Index Methodology, go to: milliman.com/mhci-methodology/

FIGURE 2: EXPECTED HEDGE COST (bps of Guaranteed Withdrawal Base)

9/29/1617010/28/16153(17)11/29/16135(18)12/29/16124(11)1/30/17123(1)2/27/1712633/30/17123(3)4/27/1712965/30/1713456/29/17131(3)7/28/17127(4)8/30/17137109/28/17129(8)10/30/17127(2)11/29/17127012/28/1712811/30/18116(12)2/27/18100(6)3/28/1811554/27/18108(7)5/30/1811246/28/181131	DATE	EXPECTED HEDGE COST	CHANGE FROM PRIOR MONTH
11/29/16113(1)11/29/16135(18)12/29/16124(11)1/30/17123(1)2/27/1712633/30/17123(3)4/27/1712965/30/1713456/29/17131(3)7/28/17127(4)8/30/17137109/28/17129(8)10/30/17127(2)11/29/17127012/28/1712811/30/18116(12)2/27/18110(6)3/28/1811554/27/18108(7)5/30/181124	9/29/16	170	
12/29/16 124 (11) 1/30/17 123 (1) 2/27/17 126 3 3/30/17 123 (3) 4/27/17 129 6 5/30/17 134 5 6/29/17 131 (3) 7/28/17 127 (4) 8/30/17 137 10 9/28/17 129 (8) 10/30/17 127 (2) 11/29/17 127 0 12/28/17 128 1 1/30/18 116 (12) 2/27/18 110 (6) 3/28/18 115 5 4/27/18 108 (7)	10/28/16	153	(17)
1/30/17123(1)1/30/17123(1)2/27/1712633/30/17123(3)4/27/1712965/30/1713456/29/17131(3)7/28/17127(4)8/30/17137109/28/17129(8)10/30/17127(2)11/29/17127012/28/1712811/30/18116(12)2/27/18110(6)3/28/1811554/27/18108(7)5/30/181124	11/29/16	135	(18)
2/27/1712633/30/17123(3)4/27/1712965/30/1713456/29/17131(3)7/28/17127(4)8/30/17137109/28/17129(8)10/30/17127(2)11/29/17127012/28/1712811/30/18116(12)2/27/18100(6)3/28/1811554/27/18108(7)5/30/181124	12/29/16	124	(11)
3/30/17123(3)4/27/1712965/30/1713456/29/17131(3)7/28/17127(4)8/30/17137109/28/17129(8)10/30/17127(2)11/29/17127012/28/1712811/30/18116(12)2/27/18110(6)3/28/1811554/27/18108(7)5/30/181124	1/30/17	123	(1)
4/27/17 129 6 5/30/17 134 5 6/29/17 131 (3) 7/28/17 127 (4) 8/30/17 137 10 9/28/17 129 (8) 10/30/17 127 (2) 11/29/17 127 0 12/28/17 128 1 1/30/18 116 (12) 2/27/18 110 (6) 3/28/18 115 5 4/27/18 108 (7) 5/30/18 112 4	2/27/17	126	3
1111135/30/1713456/29/17131(3)7/28/17127(4)8/30/17137109/28/17129(8)10/30/17127(2)11/29/17127012/28/1712811/30/18116(12)2/27/18110(6)3/28/1811554/27/18108(7)5/30/181124	3/30/17	123	(3)
6/29/17131(3)7/28/17127(4)8/30/17137109/28/17129(8)10/30/17127(2)11/29/17127012/28/1712811/30/18116(12)2/27/18110(6)3/28/1811554/27/18108(7)5/30/181124	4/27/17	129	6
7/28/17127(4)8/30/17137109/28/17129(8)10/30/17127(2)11/29/17127012/28/1712811/30/18116(12)2/27/18110(6)3/28/1811554/27/18108(7)5/30/181124	5/30/17	134	5
8/30/17 137 10 9/28/17 129 (8) 10/30/17 127 (2) 11/29/17 127 0 12/28/17 128 1 1/30/18 116 (12) 2/27/18 110 (6) 3/28/18 115 5 4/27/18 108 (7) 5/30/18 112 4	6/29/17	131	(3)
9/28/17 129 (8) 10/30/17 127 (2) 11/29/17 127 0 12/28/17 128 1 1/30/18 116 (12) 2/27/18 110 (6) 3/28/18 115 5 4/27/18 108 (7) 5/30/18 112 4	7/28/17	127	(4)
10/30/17 127 (2) 11/29/17 127 0 12/28/17 128 1 1/30/18 116 (12) 2/27/18 110 (6) 3/28/18 115 5 4/27/18 108 (7) 5/30/18 112 4	8/30/17	137	10
11/29/17127012/28/1712811/30/18116(12)2/27/18110(6)3/28/1811554/27/18108(7)5/30/181124	9/28/17	129	(8)
12/28/17 128 1 1/30/18 116 (12) 2/27/18 110 (6) 3/28/18 115 5 4/27/18 108 (7) 5/30/18 112 4	10/30/17	127	(2)
1/30/18 116 (12) 2/27/18 110 (6) 3/28/18 115 5 4/27/18 108 (7) 5/30/18 112 4	11/29/17	127	0
2/27/18 110 (6) 3/28/18 115 5 4/27/18 108 (7) 5/30/18 112 4	12/28/17	128	1
3/28/18 115 5 4/27/18 108 (7) 5/30/18 112 4	1/30/18	116	(12)
4/27/18 108 (7) 5/30/18 112 4	2/27/18	110	(6)
5/30/18 112 4	3/28/18	115	5
	4/27/18	108	(7)
6/28/18 113 1	5/30/18	112	4
	6/28/18	113	1
7/30/18 107 (6)	7/30/18	107	(6)
8/30/18 111 4	8/30/18	111	4
9/27/18 104 (7)	9/27/18	104	(7)

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