Standard Projection Amount

Base Surrender Rates for Fixed Indexed Annuities

Data Source: 2019/2020 LIMRA Fixed Indexed Annuity Study

Based surrender rates are developed the following types of FIA policies:

- FIA with no GLB
- FIA with exercised GLB
- FIA with not yet exercised GLB

Within each policy type, the base surrender rates are categorized by the following attributes:

- Attained Age Group (0-59, 60-64, 65-69, 70-74, 75-79, 80+)
- Qualified versus Non-Qualified
- Years before the end, at the end, and after the end of the surrender charge period
- In-the-moneyness (0-99%, 100-124%, 125%+)

As there are many possible combinations, we combine or graduate the base surrender rate for some cells with neighboring cells if there are no material differences among them or when the volumes are not credible.

All base surrender rates are rounded to the nearest 0.50%.

FIA, NO GLWB	Under 60		60-69		70-79		80 and over	
	Surr Rate	XPO_AV	Surr Rate	XPO_AV	Surr Rate	XPO_AV	Surr Rate	XPO_AV
5 or more yrs after expiry	6.5%	362,439,974	7.0%	872,825,158	6.0%	1,559,973,113	5.0%	2,340,007,393
4 yrs after expiry	8.0%	99,004,108	8.5%	246,956,865	6.5%	489,325,310	5.0%	860,771,030
3 yrs after expiry	8.5%	169,071,566	9.5%	411,626,455	7.0%	847,903,742	5.5%	1,457,596,664
2 yrs after expiry	11.0%	265,595,461	12.0%	631,722,030	9.0%	1,313,595,688	7.0%	2,104,219,836
1 yrs after expiry	15.0%	407,046,549	17.5%	978,416,104	13.5%	2,000,926,373	9.0%	2,641,343,425
Yr SC Expires	33.5%	759,132,968	41.5%	2,318,136,057	37.0%	4,162,997,269	23.5%	3,595,604,698
1 yrs to expiry	4.5%	995,033,715	3.5%	3,144,391,095	4.0%	5,080,691,511	4.0%	3,582,846,441
2 yrs to expiry	4.0%	1,265,675,665	3.5%	4,000,947,636	3.0%	5,882,400,721	3.0%	3,693,425,414
3 yrs to expiry	3.0%	1,879,265,259	3.0%	5,677,923,198	3.0%	7,485,708,831	2.5%	4,281,189,408
4 yrs to expiry	2.5%	2,729,096,608	2.5%	7,754,645,406	2.5%	8,934,521,480	2.0%	4,656,360,188
5 yrs or more to expiry	2.0%	23,241,306,391	2.0%	60,089,390,966	2.0%	46,626,860,517	2.0%	14,409,332,402

FIA, with GLWB, under Election, IMF (in the money factor)	Under 60		60-69		70-79		80 and over	
	Surr Rate	XPO_AV	Surr Rate	XPO_AV	Surr Rate	XPO_AV	Surr Rate	XPO_AV
yrs after SC expiry								
125% and over	1.5%	630,954,157	1.5%	402,890,394	1.0%	1,397,503,656	1.0%	3,392,933
100-124%	1.5%	152,641,122	1.5%	50,580,570	1.5%	284,074,292	1.5%	378,008
Under 100%	3.5%	275,861,301	3.5%	8,296,745	4.5%	208,761,127	4.5%	155,465
Yr SC Expires								
125% and over	1.5%	529,957,319	1.5%	434,899,984	1.0%	1,283,913,770	1.0%	4,702,281
100-124%	2.5%	89,181,339	2.5%	36,759,595	2.5%	199,885,926	2.5%	684,087
Under 100%	10.5%	105,236,356	10.5%	6,123,022	14.0%	98,356,102	14.0%	60,789
prior to expiry								
125% and over	1.0%	4,676,773,692	1.0%	6,149,528,447	1.0%	14,307,818,333	1.0%	61,005,062
100-124%	1.0%	1,730,600,030	1.0%	5,289,677,487	1.0%	8,335,076,617	1.0%	101,603,008
Under 100%	1.0%	501,720,201	1.0%	972,486,678	1.5%	1,417,061,147	1.5%	18,813,144

FIA, with GLWB, No Election, IMF (in the money factor)	Under 60		60-69		70-79		80 and over	
	Surr Rate	XPO_AV	Surr Rate	XPO_AV	Surr Rate	XPO_AV	Surr Rate	XPO_AV
yrs after SC expiry								
125% and over	3.5%	276,875,423	3.5%	1,061,462,156	4.0%	1,367,627,485	4.0%	1,034,837,154
100-124%	8.5%	54,368,043	8.5%	195,923,250	6.0%	446,934,521	6.0%	467,164,213
Under 100%	68.5%	8,159,453	68.5%	34,971,531	50.5%	63,961,566	50.5%	84,575,510
Yr SC Expires								
125% and over	6.0%	403,489,838	6.0%	1,368,282,819	7.5%	1,549,590,971	7.5%	870,131,375
100-124%	16.5%	73,362,908	16.5%	201,431,286	13.5%	420,179,736	13.5%	385,710,160
Under 100%	92.0%	29,567,553	92.0%	108,047,465	86.5%	178,685,007	86.5%	113,832,010
prior to expiry								
125% and over	1.0%	7,472,524,670	1.0%	32,045,809,434	1.5%	25,853,378,194	1.5%	7,232,790,419
100-124%	1.5%	13,044,250,434	1.5%	44,064,092,199	1.5%	26,831,653,607	1.5%	7,470,127,280
Under 100%	1.5%	4,341,759,020	1.5%	11,099,461,190	4.0%	4,781,589,407	4.0%	837,554,667

Withdrawal Rates for Fixed Indexed Annuities

Partial Withdrawal rates are developed the following types of FIA policies:

- FIA without GLB
- FIA with not yet exercised GLB

In addition, we are proposing to replace the Withdrawal Delay Cohort Method with an SPA guardrail around benefit election.

Data Source: 2019/2020 LIMRA Fixed Indexed Annuity Study

Experience data was reviewed based on available granularity, which included:

- Attained Age group (0-59, 60-64, 65-69, 70-74, 75-79, 80+)
- Qualified vs. Non-Qualified Tax Status
- Moneyness levels (for contracts with GLB)
- GLB utilization efficiency (withdrawal amount as %age of GLB limit)
- Calendar year, to make sure inclusion of 2020 data (pandemic era) did not unduly influence assumption

Methodology: Data was grouped for assumption setting when experience was clearly similar. Some rounding was applied based on magnitude of raw experience. (i.e., nearest 5 to 50bps)

Partial Withdrawal Rates for non-GLB FIA contracts, expressed as % of Account Value:

	without GLB; % of AV	
Qualified	ATT_AGE	Qualified
	Under 60	**1.70%**
	60-64	**2.05%**
	65-69	**2.25%**
	70-74	**3.40%**
	75-79	**4.55%**
	80 and over	**6.00%**
Non - Qualified	ATT_AGE	Non - Qualified
	All ages	**1.65%**

➔ While qualified rates are experience based, they broadly align to RMD rates although not set equal to RMD rates as RMD requirements are set at the taxpayer level, not individual contract level.

Partial Withdrawal Rates for FIA contracts with GLB, but GLB not yet elected (% of AV):

	with GLB (GLB_Wd_Ind = 0)	
Qualified	ATT_AGE	Qualified
	Under 60	**0.95%**
	60-64	**1.15%**
	65-69	**1.40%**
	70-74	**2.70%**
	75-79	**4.30%**
	80 and over	**5.80%**
Non - Qualified	ATT_AGE	Non - Qualified
	Under 70	**1.15%**
	70 and over	**1.65%**

➔ Experience is similar to non-GLB, but slightly lower as presumably partial withdrawal utilization will pick-up upon GLB election.

Partial Withdrawal Rates for FIA contracts with GLB elected:

Similar to VM-21 SPA, for these contracts we assume clients will efficiently utilize the GLB and take 100% of allowable rate for lifetime GLB's (VM-21 used 90%) and 70% for non-lifetime GLB's (VM-21 used 70%) once withdrawals have commenced. We are open to feedback but do believe a high level of efficiency should be assumed.

For contracts not yet withdrawing, we utilized the LIMRA data to benchmark cumulative GLB benefit election rates, to serve as guardrails to the company assumption in place of a Withdrawal Delay Cohort Methodology type approach. The cumulative benefit utilization rates (% of total GLB contracts currently withdrawing) are proposed to be a floor applied to the Company utilization Assumption, and were drafted as follows:

Benefit utilization rate	<= 125% ITM		> 125% ITM	
ATT_AGE	*Qualified*	*Non - Qualified*	*Qualified*	*Non - Qualified*
Under 60	**0.75%**	**1.00%**	**0.75%**	**1.25%**
60-64	**5.00%**	**5.25%**	**8.25%**	**9.25%**
65-69	**14.50%**	**13.25%**	**21.50%**	**20.50%**
70-74	**25.00%**	**20.00%**	**36.75%**	**28.75%**
75 and over	**29.50%**	**22.50%**	**43.50%**	**34.50%**

Dynamic Lapse Rates for Fixed Indexed Annuities

Dynamic Lapse rates are developed the following types of FIA policies:

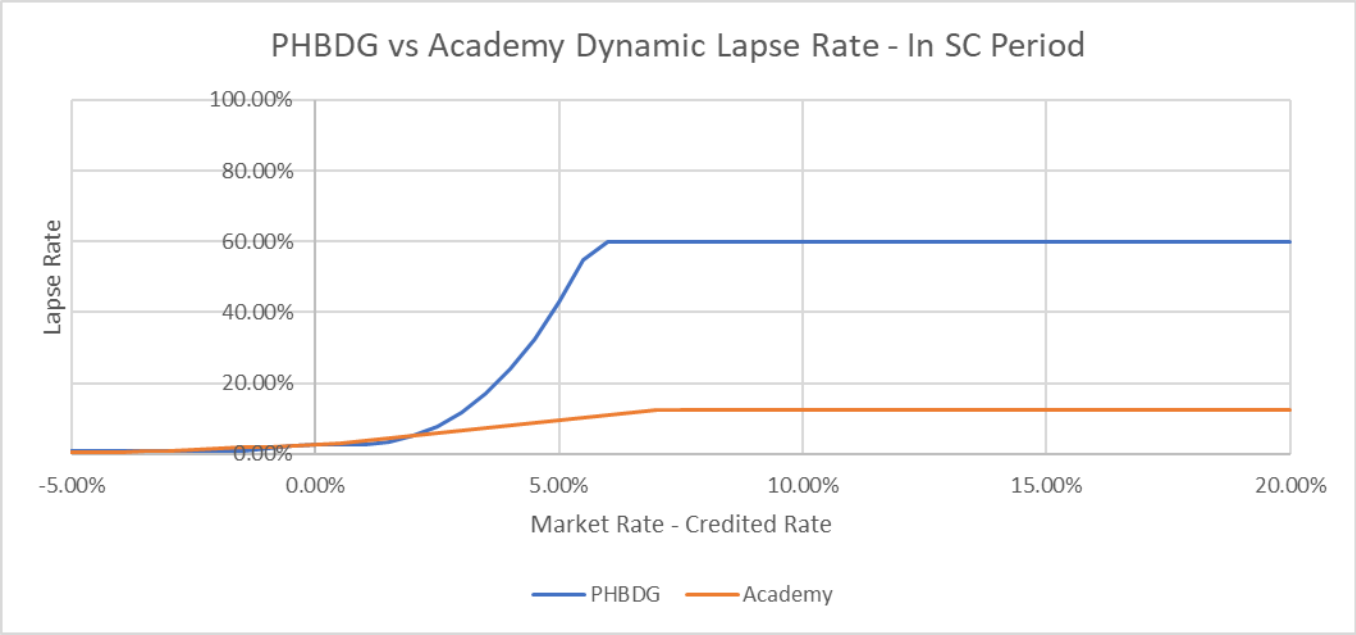
- FIA without GLB
- FIA with GLB

The PHBDG originally proposed the framework in the left column, which featured a multiple of 1.25 and exponent of 2.5 for the Credited Rate – Market Rate adjustment. The Academy responded to the proposal and recommended using a linear formula (exponent 1), with multiples varying by In SC Period/Shock/Post-Shock. The Academy also recommended changes to market rate, minimum/maximum lapse rates, and the buffer factor (the buffer factor defines the minimum difference in rates before dynamic lapse occurs). The Academy also recommended a factor for the ratio of the contract GMIR to the current SNFL rate, but further clarification is needed on how this is intended to function.

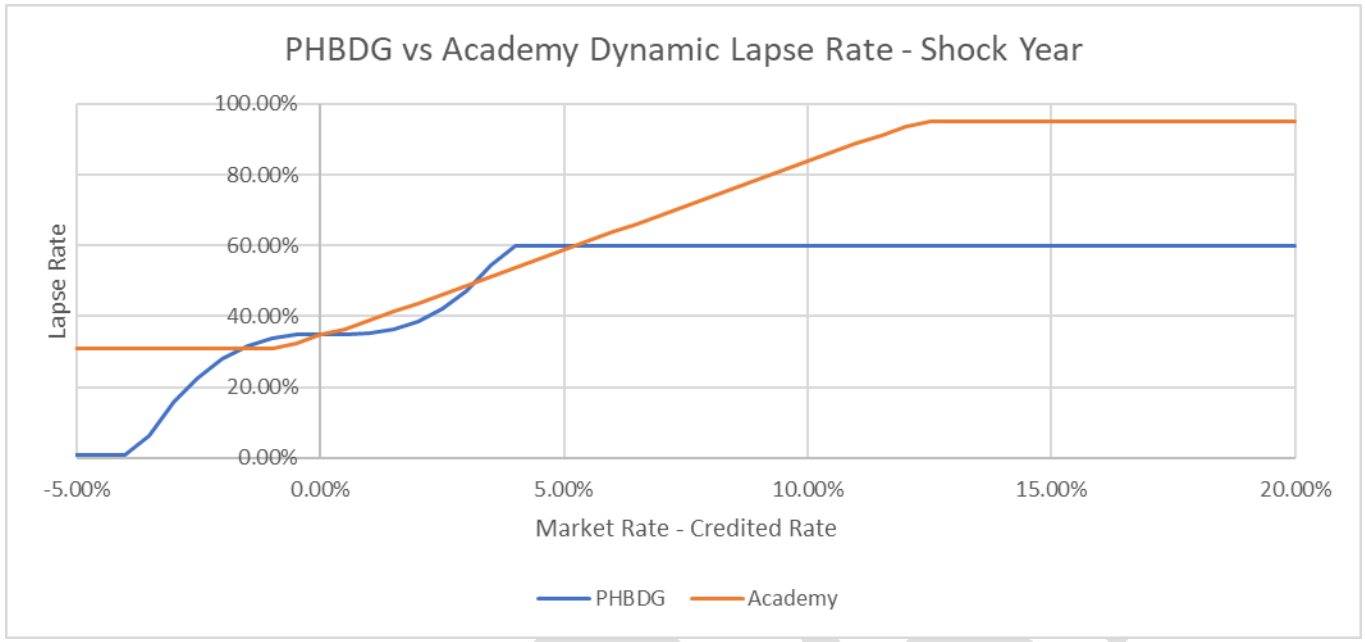
PHBDG	Academy
Total Lapse = (Base Lapse + Rate Factor) * ITM Factor	Total Lapse = (Base Lapse + Rate Factor) * ITM Factor
ITM = PVGMWB/AV	ITM = PVGMWB/AV
ITM Factor = 1 if ITM=<1.25 = $(1.25/ITM)^2$ if ITM>1.25	ITM Factor = 1 if ITM=<1.25 = $(1.25/ITM)^2$ if ITM>1.25 = 0 if AV = 0
Rate Factor = Market Factor × Max [0, 1–5*(SC percentage - MVA)]/100	Rate Factor = Market Factor × Max [0,1–10*(1-CSV/AV)]*GMIR/SNFL Era Factor
Market Factor = $-1.25 * (CR-MR)^{2.5}$ if CR>=MR = 0 if MR>CR>=(MR-BF) = $1.25 * (MR-BF-CR)^{2.5}$ if CR<= (MR-BF)	Market Factor = X * (CR-MR) if CR>=MR = 0 if MR>CR>=(MR-BF) = Y * (MR-BF-CR) if CR<= (MR-BF)

	X = 1 during the SC period; 5 at shock; 3 thereafter Y = 3 during the SC period; 5 at shock; 6 thereafter
MVA = $[(A/B)^{t}-1]$ A = [1 + the closing effective yield of the "MVA Index" on the issue date] B = [1 + the closing effective yield of the "MVA Index" two days before the withdrawal, *surrender*, or annuitization] t = the number of days from the date of withdrawal, *surrender*, or annuitization to the next contract anniversary divided by 365, plus the number of whole years from the next anniversary to the end of the surrender charge period.	MVA = Embedded in CSV
CR = crediting rate at the time of projection	CR = crediting rate, or the option budget, at the time of projection
MR = market rate at the time of projection	MR = 10 Year UST + 60%BBB/40% A spread
Min Total Lapse = 1%	Min Rate Factor = -2%; -4% at shock
Max Total Lapse = 60%	Max Rate Factor = 10% during SC period, 60% at shock; 35% thereafter
GMIR/SNFL Era Factor = None; N/A	GMIR/SNFL Era Factor = TBD
Buffer (BF) = 0.50%	Buffer (BF) = 0.25%

Examples:



Assumes 2.5% base lapse rate, 5% surrender charge.



Assumes 35% base lapse rate.