



SOCIETY OF ACTUARIES

Article from:

# Product Matters!

October 2012 – Issue 84

# Report on Premium Persistency Assumptions of Flexible Premium Universal Life Products

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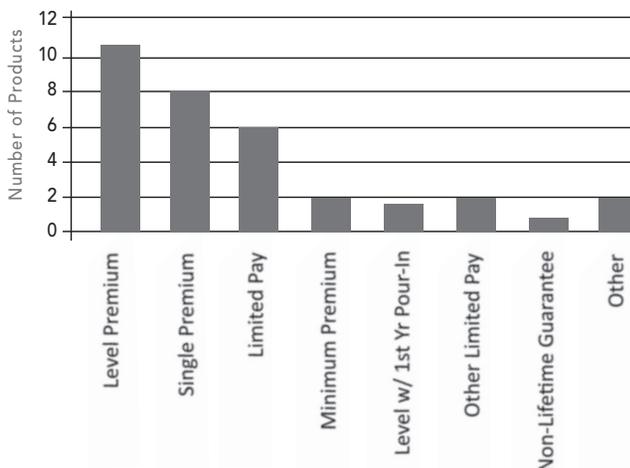
Premium persistency assumptions were the focus of a Society of Actuaries report published in May 2012. This particular assumption was of interest to many since industry data is relatively scarce and with principle-based reserves requirements, studies related to this topic are desirable to validate and weigh against company data.

The 88-page report details assumptions for products including universal life with secondary guarantees (ULSG), cash accumulation universal life (CashAccum), current assumption universal life (CAUL), indexed universal life (IUL) and variable universal life (VUL). The 29 companies and 83 products represented in the report allow for an interesting perspective on premium persistency assumptions used in pricing, cash flow testing (CFT) and generally accepted accounting principals (GAAP)/international financial reporting standards (IFRS) functions. This article will cover some general results and ULSG-specific results. Details on other products covered in report can be found at <http://www.soa.org/Research/Research-Projects/Life-Insurance/research-premium-persist-assumptions.aspx>.

## Highlighted Findings

Many participants assume 100 percent premium persistency, but it is applied across different premium

**Figure 1**  
**Funding Patterns Assumed in ULSG Pricing**



payment patterns. For example, various patterns would include 10-pay, 20-pay and lifetime pay and each of those patterns would have 100 percent premium persistency. This is noted as interesting since the report writers did not believe that all funding patterns actually result in 100 percent premium persistency. However, even if that assumption is valid, with the various funding scenarios recognized, the overall premium pattern for the product would be a declining premium.

Almost half of the ULSG participants indicated they adjust premium persistency assumptions to keep the policy in force in pricing but not much is done in CFT or GAAP/IFRS. It appears that for CFT purposes or for GAAP/IFRS purposes, a simplified approach is preferable. CFT and GAAP/IFRS tend to have few premium payment patterns and less modification of premium persistency assumptions.

The major modification area for premium persistency assumptions was duration. Other areas such as distribution channel, age, gender and inclusion of rolling target commissions did not affect the premium persistency assumption materially, if at all.

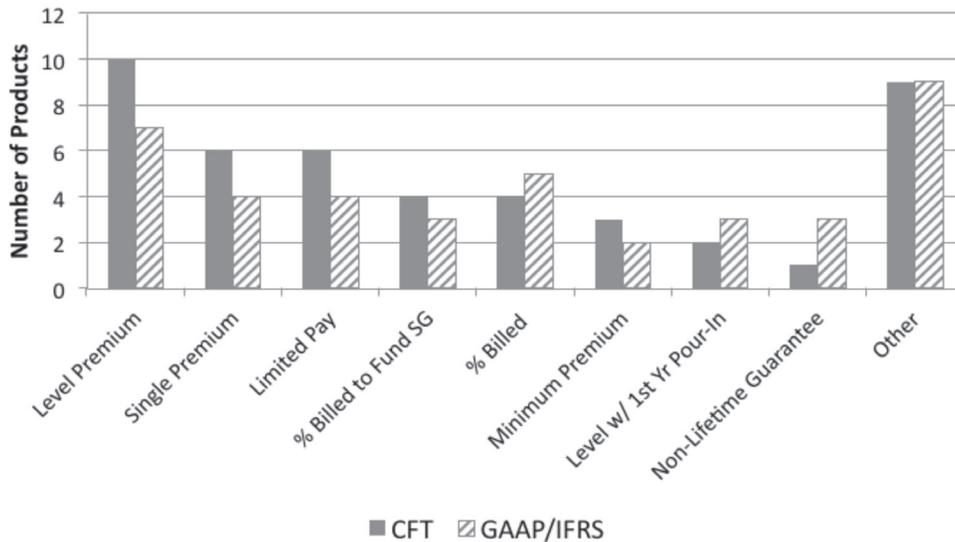
Sensitivity testing of premium persistency assumptions and dynamic premium persistency assumptions were rarely used by the participants of the survey. Those that did sensitivity test this assumption reported seeing variation in profit. Changes in premium persistency would likely impact profitability and may need to be considered when analyzing risks for flexible premium products. If the assumption is being handled through other testing, this exercise may not be as important.

## ULSG-Specific Results

Figure 1 (left) shows the funding patterns assumed in ULSG pricing and Figure 2 (page 14, top) shows funding patterns assumed in CFT and GAAP/IFRS. More diversity is reported for CFT and GAAP/IFRS than for pricing, but that could be explained by the fact that more information is available to companies then, including premium histories and planned premiums for each policy.

Many companies reported pricing assumptions were not the same as used in CFT or GAAP/IFRS. Only

**Figure 2**  
**Funding Patterns Assumed in ULSG CFT and GAAP/IFRS**



three responses indicated that pricing, CFT and GAAP/IFRS were equal as shown in Figure 3 (right).

The average premium persistency assumption for pricing for those companies not reporting 100 percent persistency is summarized in Figure 4 (pg. 16, top).

In noting the large first-year numbers relative to the number in duration 2 and later from Figure 4, these factors would include single pay and roll-over business. Notable drops in duration 11 would reflect the inclusion of limited 10-pay business.

Much lower average factors were reported when looking at CFT and GAAP/IFRS. Figures 5 (pg. 16, bottom) and 6 (pg. 17) show the average premium persistency factors for ULSG CFT and GAAP/IFRS respectively.

FIGURE 3	
Comparison	Number of ULSG Products
Pricing ≠ CFT = GAAP/IFRS	12
All different	6
All equal	3
Pricing = GAAP/IFRS ≠ CFT	2
Other	2

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**FIGURE 4**

Average Premium Persistency Factors for ULSG Pricing

Duration	Issue Age Range							
	<20	20-29	30-39	40-49	50-59	60-69	70-79	80+
1	153%	240%	348%	456%	456%	510%	770%	770%
2	81	85	85	85	85	85	76	76
3-5	80	84	84	85	85	85	76	76
6 - 10	80	84	85	85	85	85	76	76
11-15	77	81	82	82	80	80	70	68
16 - 20	77	81	82	82	80	80	68	68

**FIGURE 5**

Average Premium Persistency Factors for ULSG CFT

Duration	Issue Age Range							
	<20	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80+
1	136%	136%	136%	136%	136%	136%	136%	136%
2	66	66	66	66	67	66	66	66
3	64	64	64	64	64	64	64	64
4	63	63	63	63	64	64	63	63
5	62	62	63	63	63	63	63	63
6	62	62	62	62	63	63	62	62
7	62	62	62	62	62	62	62	62
8	61	61	62	62	62	62	62	62
9	61	61	61	62	62	62	61	62
10	61	61	61	61	62	62	61	61
11	61	61	61	61	60	60	59	57
12	61	61	61	61	60	60	59	57
13	60	61	61	61	60	60	59	57
14	60	60	61	61	60	60	59	57
15	60	60	60	61	60	60	59	57
16	60	60	60	61	59	59	57	57
17 - 20	60	60	60	60	59	59	57	57



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**FIGURE 6**

Average Premium Persistency Factors for ULSG GAAP/IFRS Purposes

Duration	Issue Age Range							
	<20	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69	70 – 79	80+
1	163%	163%	172%	181%	181%	185%	201%	201%
2	67	71	71	72	72	72	66	66
3	65	69	69	69	70	70	64	64
4	64	68	68	68	69	69	63	63
5	62	67	67	67	68	68	62	62
6	62	66	66	67	67	67	61	61
7	61	66	66	66	66	66	60	60
8	60	65	65	65	66	66	60	60
9	60	65	65	65	65	65	59	59
10	59	64	64	65	65	65	59	59
11	59	64	64	64	63	63	57	55
12	58	63	64	64	63	63	56	55
13	58	63	63	63	62	62	56	55
14	57	63	63	63	62	62	56	54
15	57	62	63	63	62	62	55	54
16	57	62	62	62	62	62	54	54
17	57	62	62	62	61	61	54	54
18	57	62	62	62	61	61	54	54
19	56	62	62	62	61	61	53	53
20	56	61	61	61	61	61	53	53



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## Conclusion

The report and addendum material is extensive and valuable. Although assumptions used in pricing, CFT and GAAP/IFRS are not always the same, there are some good reasons for them not to be. Premium persistency assumptions tend to be detailed when used in pricing (as opposed to valuation). We believe that is appropriate and is warranted to identify and mitigate risks in the products. CFT and GAAP/IFRS can use actual premium

persistency data that may not vary as much as pricing. The report results imply simpler patterns and scenarios are often used when working with larger models such as CFT and GAAP/IFRS. There may be reason to include more premium persistency assumption stress testing in pricing, as often variation in premium persistency will impact profit results, potentially materially. □