Project	**Insurance Contracts**
Topic	**Residual/Composite- current vs. locked-in discount rates**

[This paper provides an example on interest accretion for residual/composite margins supporting agenda paper 1F, FASB Memorandum 51F]

1. Peter and I disagreed about whether to use current or locked in discount rates when accounting for residual margin. As usual when the two of us disagree, it was because we were describing different things. We still might disagree, but now we understand why.

2. Peter compares the residual margin to a deposit made in advance of a future sale. In the revenue recognition project, such a deposit would accrue interest between the point of deposit and the point of delivery. I'll call this the "years remaining" approach. The "delivery" each period is based on the balance after accretion. So the amortization is:

    (a) Beginning balance, plus

    (b) Interest accretion, equals

    (c) Balance to be amortized

    (d) Divided by the number of periods **remaining** at the beginning of this period, equals

    (e) Amortization for this period.

3. I've prepared a simple example to illustrate both of our methods. Consider a 5-year contract with the following expected flows. Assume, for purposes of

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illustration, that the risk margin (for IASB) is already incorporated in the cash outflows. Assume also that the pattern of service delivery is the same as the net.

Year	Inflow	Outflow	net
1	250	225	25
2	250	225	25
3	250	225	25
4	250	225	25
5	250	225	25
PV @		6.00%	$105.31

4. The years-remaining approach would work like this, assuming the interest rate does not change over the 5 years:

Approach based on periods remaining

Year	Beginning	rate	Interest	Amort	Ending
1	$105.31	6.00%	$6.32	22.33	$89.30
2	$89.30	6.00%	$5.36	23.67	$71.00
3	$71.00	6.00%	$4.26	25.08	$50.17
4	$50.17	6.00%	$3.01	26.59	$26.59
5	$26.59	6.00%	$1.60	28.19	$0.00

5. For those who like to recompute, the amortization in year 3, for example, is $(71.00 + 4.26)/3 = 25.08$ (ignoring rounding).

6. The approach I envisioned is a traditional interest-method amortization, as illustrated below.

Interest-Method Amortization

Year	Beginning	interest @ 6.00%	Amort	Ending
1	$105.31	$6.32	25	$86.63
2	$86.63	$5.20	25	$66.83
3	$66.83	$4.01	25	$45.83
4	$45.83	$2.75	25	$23.58
5	$23.58	$1.42	25	$0.00

7. The two approaches do not produce the same amounts, even when interest rates do not change. They are not designed to do so. It's always dangerous to describe amortization methods, but I would characterise them this way:

(a)   The "years-remaining" method portrays the amount of margin delivered in the current period, based on a fraction of the amount remaining to be delivered.

(b)   The "interest-method" portrays the ending balance as the present value of the future margins that were determined in the original computation.

8.   What happens if interest rates change? The years-remaining approach looks like this:

Approach based on periods remaining

Year	Beginning	rate	Interest	Amort	Ending
1	$105.31	6.00%	$6.32	22.33	$89.30
2	$89.30	6.50%	$5.80	23.78	$71.33
3	$71.33	7.00%	$4.99	25.44	$50.88
4	$50.88	6.50%	$3.31	27.09	$27.09
5	$27.09	6.00%	$1.63	28.72	$0.00

9.   The interest method cannot handle a change in rates without unlocking something else. Trying to apply an unlocked interest rate without unlocking something else leads to a computational nervous breakdown:

Interest-Method Amortization

Year	Beginning	rate	Interest	Amort	Ending
1	$105.31	6.00%	$6.32	25	$86.63
2	$86.63	6.50%	$5.63	25	$67.26
3	$67.26	7.00%	$4.71	25	$46.97
4	$46.97	6.50%	$3.05	25	$25.02
5	$25.02	6.00%	$1.50	25	$1.52

10.   The nervous breakdown here is the unamortized balance. If an interest method is going to incorporate changing rates, it must also change either the amount being amortized or the amounts of pseudo cash flows that are the basis of the amortization. The easy approach is to adjust the opening present value with each change in discount rates, as follows:

Alternative approach based on remeasured residual

	Beginning	Change in Pres Val	Revised beginning	rate	Interest	Amort	Ending
1	$105.31		105.31	6.00%	$6.32	25.00	$86.63
2	$86.63	-£0.98	85.64	6.50%	$5.57	25.00	$66.21
3	$66.21	-£0.60	65.61	7.00%	$4.59	25.00	$45.20
4	$45.20	£0.32	45.52	6.50%	$2.96	25.00	$23.47
5	$23.47	£0.11	23.58	6.00%	$1.42	25.00	$0.00

11. Which approach is better? They are both allocations and all allocations are arbitrary to some degree. I didn't see something like the years-remaining approach as a candidate, but then my reason for accreting interest comes from my view of the entire insurance measurement as a system of present values. Stated differently, if everything worked out as estimated, the amount of unamortized residual margin should have the same relation to the other liability measurements as it had on inception.