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# OTHER COMPREHENSIVE INCOME FOR INSURANCE CONTRACTS

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In June, the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) released exposure drafts of their proposed accounting rules for insurance contracts, which would be effective under U.S. GAAP and IFRS, respectively. For the IASB, this was their second exposure draft, having released an earlier exposure draft in 2010. For FASB, this was their first exposure draft, but they had published a discussion paper in 2010 describing their views at that time. One of the key changes in both boards' positions since 2010 was the introduction of the use of other comprehensive income (OCI) to report certain changes in the value of insurance contracts.

OCI is currently used to present the change in value of certain financial assets backing insurance liabilities to the extent those assets are designated as available-for-sale. For such assets, the fair value of the assets is held on the balance sheet, but any unrealized gains and losses caused by changes in interest rates is shown in OCI rather than net income. Net income thus is based on the amortized cost of the asset, and reflects accrued interest and certain other events, such as impairment, until the asset is sold and any gains or losses are realized. As a result, net income is generally less volatile, since the impact of unrealized gains and losses from changes in market interest rates is excluded.

The introduction of OCI was in response to concerns expressed by both the insurance industry and financial statement users. Under the proposed insurance accounting model, the long duration insurance contracts would be valued under a building block approach, whereby the valuation would be based on the present value of

expected future cash flows, using current assumptions and current discount rates, in addition to a margin to eliminate any gain at issue. The concern was that by using current discount rates that are updated each reporting period, changes in the liability would be dominated by changes in market rates, obscuring the impact of underwriting results and management actions.

In addition, in order to maintain any degree of matching between the asset and liability accounting, insurers would be forced to hold assets backing insurance contracts at fair value with all changes in fair value flowing through net income, rather than OCI. This would differ from accounting for other financial institutions, which would be able to use OCI for their assets. To the extent that insurance liabilities and the assets backing them were not perfectly matched in terms of duration, convexity, any key rate duration, or other such measure, substantial net income volatility would result from any market interest rate changes.

Some duration mismatches are unavoidable, since in many jurisdictions there are no assets that are long enough to perfectly match the liability durations. Even if the asset and liability cash flows are perfectly matched, the durations would still have some mismatch due to the fact that the insurance accounting proposal generally prevents the liability discount rate from being the same as the implied asset yield.<sup>1</sup> In order to address these concerns, the boards agreed that while the insurance liability should be measured using current discount rates, the impact of changes in the discount rates should be shown in OCI rather than net income. This way, net income would reflect the impact of underwriting results and management actions and would not be obscured by the impact of changes in market interest rates.

## OCI FOR NON-PARTICIPATING INSURANCE CONTRACTS

The boards have come to consistent positions on the use of OCI for insurance contracts whose cash flows do not change when interest rates change. This would include many contracts currently accounted for under FAS 60 or FAS 97 limited pay guidance, such as term

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insurance, non-participating whole life and single premium immediate annuities. For these contracts, the liability would essentially be valued twice. For the balance sheet, the expected cash flows would be discounted using a current yield curve. For determining net income, the expected cash flows would be discounted using locked-in interest accretion rates, which would be based on the yield curve that was in effect when the contract was issued.

This approach is similar to the way the amortized cost of a fixed interest rate bond is calculated. The amortized cost for a bond is determined by discounting future cash flows using an effective yield locked in when the bond is acquired. This approach should produce a reasonable match between these liabilities and available-for-sale assets.

There are some potential issues to consider. For one thing, rather than using a single effective yield discount rate for net income purposes, the liability would be discounted using a full yield curve. Also, in many cases the assets backing the liability are not all financial instruments classified as available-for-sale, so there could be a mismatch between a liability that reports changes in OCI and assets that do not. Moreover, the impact of interest rate changes on cash flows would be excluded from OCI. So if a change in interest rates caused projected interest sensitive lapses to change, the effect of the change in lapses would be reflected in net income, not OCI.

### OCI FOR CONTRACTS WHOSE RETURNS ARE CONTRACTUALLY LINKED TO ASSET RETURNS

For contracts whose returns are contractually linked to asset returns, IASB and FASB have agreed to a concept of “mirroring” for the liability, although some details differ as to how each board would implement mirroring. Basically, mirroring would mean that to the extent the liability cash flows are contractually linked to asset returns, the liability value would mirror the asset value. This would avoid accounting mismatches on this portion of the assets and liabilities. So if the assets were



held at amortized cost, the liability would equal the amortized cost of the assets. If the assets were held at fair value, the liability would equal the amortized cost of the assets, and to the extent asset fair value changes were reflected in OCI, the change in liability would also be reflected in OCI. Insurance contracts that would likely qualify for mirroring on at least a portion of the liability include variable and unit linked contracts, European 90-10 contracts, and participating contracts held in a closed block.

Even for contracts that qualify for mirroring, any cash flows that do not meet the criteria for mirroring would be accounted for separately.<sup>2</sup> This would include items such as variable life death benefits, M&E charges and variable annuity guarantees.

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## OCI FOR PAR AND UL CONTRACTS THAT DO NOT QUALIFY FOR MIRRORING

Late in 2012, the boards agreed to an approach to OCI for participating and UL contracts that do not qualify for mirroring. But in early 2013 FASB revised its approach, so that the boards' exposure drafts differ as to how they would treat OCI for such contracts.

Under the IASB approach, cash flows of such contracts would be bifurcated between fixed cash flows and asset dependent cash flows.<sup>3</sup> Asset dependent cash flows would include cash flows that depend on interest credits, such as surrender benefits. Fixed cash flows would be the cash flows that do not depend on asset returns. Unfortunately, it is not always clear what the board has in mind for fixed cash flows. For example, on many UL contracts the death benefit is a fixed amount, which might suggest that it is a fixed cash flow; however, if the credited rate is low enough, the account balance may run out, leaving a death benefit of zero. That would suggest it may be an asset dependent cash flow. Similarly, it is not clear how premiums would be allocated (if at all) between fixed and asset dependent cash flows.

However defined, for purposes of determining net income (i.e., income excluding OCI) the fixed cash flows would be discounted using a locked-in yield curve as of the inception of the contract. Asset dependent cash flows would generally be discounted using a current yield curve; thus there would generally be no OCI associated with those cash flows.<sup>4</sup>

FASB's approach would not split the cash flows. Under FASB's approach, the initial discount rate curve at contract inception would be converted to a single effective yield, which would be the interest accretion rate used for net income purposes. Each reporting period, this interest accretion rate would be updated based on any change in credited rates on the contract.

The update process would be somewhat complex. Basically, the contract's projected cash flows would need to be updated just for the change in credited rates. A projection of future cash flows would be needed reflecting updated credited rates but not updating any other assumption. The interest accretion rate would be updated such that the present value of cash flows using the revised credited rates and updated interest accretion rate equals the present value of the cash flows using the prior credited rates and interest accretion rate. In other words, let:

$i_t$  be the interest accretion rate at time  $t$

$c_t$  be the vector of projected future credited rates as of time  $t$

$PVCF(i_t, c_t)$  be the present value of future cash flows given  $i_t$  and  $c_t$ .

$i_t$  is determined such that  $PVCF(i_t, c_t) = PVCF(i_{t-1}, c_{t-1})$ , where the only difference in the projected future cash flows from time  $t-1$  to time  $t$  is due to the change in credited rates.

## WHAT ARE THE IMPACTS OF THE BOARDS' POSITIONS ON OCI FOR PAR AND UL CONTRACTS?

In order to see how the boards' differing proposals for OCI on par and UL contracts compare, I developed a relatively simple example using a single-premium 10-year UL contract. I wanted to see the extent to which the boards' positions accomplished the boards' intention to reflect the impact of duration and similar mismatches in OCI, but not in net income. The key assumptions are described in Table 1.

All experience except interest rates is assumed to emerge exactly as expected, and there are no future changes to assumptions. I assumed assets backing the liabilities were classified as available-for-sale, using fair value through OCI accounting. I assumed an initial flat yield curve of 5 percent, dropping to 3 percent at the end of year one. I looked at two investment strategies:

TABLE 1: KEY ASSUMPTIONS

Premium	Single premium of \$1000
Face amount	\$100,000 fixed amount
Mortality	0.1% per year
Surrenders	5% per year in the first 9 years, 100% in year 10
Expenses	\$0
Credited rate	Asset book yield less 100 bp; initially 4.00%
COI charges	0.11% per year, taken at beginning of the year
Benefit cash flows	Payable at end of year, death claims before lapse
Liability discount rate	Top down approach, with zero spread for expected and unexpected default (e.g., liability discount rate equals asset yield)

a. A laddered investment strategy, in which initial cash was invested equally in one, two, three and four-year zero coupon bonds, and future reinvestments were in four-year bonds. This generated a close duration match at inception with the liability.

b. A short investment strategy, in which all cash flows are invested and reinvested in one year bonds. This produced an asset duration shorter than the liability duration.

Because of the ambiguity about which cash flows the IASB considers fixed versus asset dependent, I looked at two approaches to splitting the cash flows:

1. Treat all cash flows as asset dependent.
2. Treat death benefit cash flows as fixed and surrender benefit cash flows as asset dependent.

For simplicity, I assumed an IASB risk adjustment of zero in all years. I also assumed a margin (FASB)/contractual service margin (IASB) release pattern that produced projected earnings at inception consistent with current US GAAP: \$24.18 in year one, declining slowly to \$20.18 in year 10 (shown in Table 2 on page 14).

**Results under duration matched investment strategy:**

Using the duration matched investment strategy and applying the FASB OCI approach, the results seemed to conform to the boards' intentions. After the drop in interest rates at the end of year one, the projected credited rate dropped from 4 percent to 2 percent over the next four years as the assets get reinvested at 3 percent. As a result, projected surrender benefit cash flows declined and so the interest accretion rate dropped from 5 percent to 3.95 percent. The revised cash flows are shown in Table 3 (page 15).

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TABLE 2: INITIAL PROJECTED CASH FLOWS &amp; NET INCOME

Year	Projected Death Claims	Projected Surrender Benefits	Projected Cash Flow	Projected Net Income/ Total Comprehensive Income
1	\$100	\$46	\$146	\$24.18
2	95	40	135	23.47
3	90	35	125	22.83
4	85	29	115	22.26
5	81	24	106	21.75
6	77	20	97	21.31
7	73	15	88	20.94
8	69	11	81	20.62
9	66	7	73	20.37
10	62	72	135	20.18

Net income remained at the originally expected level of \$24.18. Since the interest rate change occurred at the very end of the year, and since there were no experience adjustments or assumption changes, this seems to be the appropriate result, since any impact from the interest rate change is intended to be reflected in OCI. Net OCI was small—asset OCI of \$30.98 was mostly offset by liability OCI of \$30.95, leaving net OCI of \$0.03. This too seems appropriate, since there was very little duration mismatch. And total comprehensive income was \$24.21, slightly different from the original expectation of \$24.18 due to the impact reflected in OCI.

One effect of the FASB approach is that the pattern of future net income changes from the original slowly declining pattern. After the change to the interest ac-

tion rate, the expected net income in year two increases from \$23.47 to \$29.14, as the asset yield in year two is expected to be higher than the revised interest accretion rate. As the assets roll over and are reinvested at the new rates, earnings decline more rapidly than originally expected, such that in year five, when the assets are all earning 3 percent, below the 3.95 percent interest accretion rate, expected net income is \$14.20 compared to an original expectation of \$21.75.

The IASB approach produced very different results, regardless of how and whether the liability cash flows were split. If all cash flows were considered asset dependent, there was no liability impact reflected in OCI at the end of the first year. As in the FASB approach, there was a slight impact to total comprehen-

TABLE 3: DURATION MATCHED STRATEGY

Year	Projected Credited Rate (Actual for Year One)	Projected Death Claims (Actual for Year One)	Projected Surrender Benefits (Actual for Year One)	Projected Cash Flow (Actual for Year One)
1	4.00%	\$100	\$46	\$146
2	3.74%	95	40	135
3	3.36%	90	34	124
4	2.80%	85	29	114
5	2.00%	81	23	104
6	2.00%	77	18	95
7	2.00%	73	14	87
8	2.00%	69	9	79
9	2.00%	66	5	71
10	2.00%	62	33	96

sive income from the interest rate change, from \$24.18 to \$24.21, appropriately reflecting the slight duration mismatch between assets and liabilities. However, the asset OCI of \$30.98 was not offset by any liability OCI. Thus net income turned to a loss of \$6.77. This result does not appear consistent with the boards' intentions, since the OCI amount of \$30.98 is not consistent with the small impact of the duration mismatch, and the net loss is the result of an accounting mismatch between the assets and liabilities. In theory, this accounting mismatch could have been avoided in this scenario if assets were held at fair value through net income, but that would negate the boards' intention that duration mismatches should be reflected in OCI rather than net income.

The result of the IASB approach was no better if death benefit cash flows are considered fixed and surrender benefit cash flows considered asset dependent. In that case, total comprehensive income once again changes appropriately from \$24.18 to \$24.21. And in this case there is some liability OCI. In this case the liability OCI is \$49.56, greater than the asset OCI of \$30.98. The fact that the liability OCI is greater than asset OCI, despite the fact that not all liability cash flows qualify for OCI, appears to be the result of the fact that the liability cash flows which do qualify for OCI have a much longer duration than the asset dependent liability cash flows. As a result, the net OCI of -\$18.58 does not reflect the true impact of the duration mismatch. And the impact to net income, from an expectation of \$24.18 to \$42.79 does not seem to have any intuitive meaning.

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TABLE 4: SHORT INVESTMENT STRATEGY

Year	Projected Credited Rate (Actual for Year One)	Projected Death Claims (Actual for Year One)	Projected Surrender Benefits (Actual for Year One)	Projected Cash Flow (Actual for Year One)
1	4.00%	\$100	\$46	\$146
2	2.00%	95	40	134
3	2.00%	90	33	123
4	2.00%	85	27	113
5	2.00%	81	22	103
6	2.00%	77	17	94
7	2.00%	73	12	86
8	2.00%	69	8	78
9	2.00%	66	4	70
10	2.00%	62	12	74

**Results under short investment strategy:**

Using a short investment strategy, the FASB approach to OCI again appears to conform to the boards' intentions. After the drop in interest rates at the end of year one, projected credited rates drop immediately to 2 percent, reflecting the fact that all assets are expected to be reinvested immediately at 3 percent. The revised liability cash flows are shown in Table 4 above.

This causes the interest accretion rate to drop from 5 percent to 3.21 percent. Net income is again unaffected, remaining at \$24.18. This is again appropriate, since there are no experience updates or assumption changes. However, OCI is -\$6.64,<sup>5</sup> showing a loss consistent with the fact that the assets are shorter than the liabili-

ties and interest rates declined. Total comprehensive income drops from an expectation of \$21.18 to \$17.54, consistent with the duration mismatch. In this case, the expected future pattern of net income drops immediately from \$23.47 in year two to \$19.05, since even in year two the interest accretion rate of 3.21 percent is higher than the expected asset yields of 3 percent.

Under the IASB approach to OCI, if all cash flows are considered asset dependent, year one total comprehensive income again decreases from the originally expected amount of \$24.18 to \$17.54, appropriately reflecting the duration mismatch. No amounts flow to OCI, however,<sup>6</sup> and thus the entire impact of the duration mismatch flow through net income. This appears



to contradict the boards' intention that the impact of duration mismatches be reflected in OCI.

If under the IASB approach to OCI the death benefit cash flows are considered fixed and the surrender benefits considered asset dependent, the results are harder to interpret. Year one total comprehensive income again decreases from \$24.18 to \$17.54. But under this method, there is liability OCI of \$49.56. Asset OCI is zero, since all assets mature at the end of the first year, leaving net OCI of -\$49.56. While the direction of the OCI appropriately reflects the fact that the assets are shorter than liabilities and interest rates declined, the magnitude of the OCI amount is incommensurate with the degree of duration mismatch. And this causes net income to increase from \$24.18 to \$67.10, which is a counterintuitive direction and magnitude given the underlying economics.

## ISSUES WITH THE IASB AND FASB OCI APPROACHES FOR PAR AND UL CONTRACTS

I believe that the problems with the IASB OCI approach stem from two key issues:

1. Splitting cash flows, and
2. Discount rate change incommensurate with the credited rate change.

These issues can be illuminated by analogy to calculating amortized cost for floating rate assets. When the amortized cost is calculated for a bond with an indexed interest rate, the cash flows representing interest payments change as a result of the change in the index, but the cash flows representing principal repayment are not impacted. However, when calculating the amortized cost of an indexed bond, an updated discount rate is applied to both the interest sensitive interest payment cash flows AND to the fixed principal repayment cash flows. While splitting the liability cash flows between fixed and asset dependent may appear to make intuitive sense, doing so creates an incoherent valuation.



Similarly, when the discount rate on an indexed bond is adjusted in an amortized cost calculation, the change in the discount rate is commensurate with the change in the credited rate. However, in the IASB OCI calculation, to the extent that cash flows are deemed asset dependent the discount rate is adjusted all the way to current market rates. That is inconsistent with the fact that the change in insurance liability credited rate is typically less than the full magnitude of change in market rates. This mismatch also generates an incoherent valuation.

The FASB approach has the effect of changing the pattern of future earnings, because the single interest accretion rate does not necessarily reflect the pattern of future changes to interest credits. It may be desirable to mitigate this effect by using a set of interest accretion rates in the pattern of projected future interest credits or asset book yields, although this would likely increase the complexity.

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Ideally, the boards will be able to agree on a converged solution, which reflects the economics of these contracts. ...

### OTHER POTENTIAL OCI ISSUES

There are some other issues around the implementation of OCI for insurance contracts that may be worth considering.

One such issue is the classification of assets backing insurance contracts. Currently, assets backing long duration insurance contracts are often classified as available-for-sale and are accounted for at fair value, with certain changes in fair value in OCI rather than net income. Concurrently with the insurance contracts project, FASB and IASB are undertaking a project to update accounting for financial instruments. Certain proposals under this project may prevent the use of OCI for certain assets, including equities, bonds that contain an embedded derivative, and lower tranches of structured securities. Eliminating OCI from some assets backing insurance contracts may create accounting mismatches if insurance liabilities are required to use OCI.

The requirement to use OCI for insurance liabilities has other implications as well. If the liabilities are backed heavily by derivatives or other assets for which OCI is unavailable, mandatory OCI for insurance liabilities can create more accounting mismatches than it resolves. And in some circumstances, OCI for insurance liabilities may be more effort than it's worth. This may be the case particularly for IBNR and for P&C

claim liabilities. This appears to be a particular concern for P&C actuaries.

Another possible issue is the interaction between OCI and a floating margin. Under the IASB proposal, the contractual service margin would be updated to offset certain changes in projected cash flows. If the margin is adjusted to offset effects that are already reflected in OCI, that could result in double counting the offset and further distort the financial results. If a floating margin is used, it is important that it be coordinated with the OCI approach in order to produce meaningful results.

### CONCLUSIONS

The IASB and FASB both were responsive to industry and investor concerns by implementing OCI for insurance contracts. For contracts whose cash flows are not sensitive to interest rates and for cash flows that qualify for mirroring, the boards' approaches seem to appropriately reflect the economics of the contracts, although there may be issues worth addressing before a final standard is issued.

With respect to par whole life and UL contracts, I believe there is more significant work needed to make the process operational. Although FASB's approach may not be consistent with some industry proposals, it does seem to reflect the economics of the contracts, though it may be desirable to adjust the methodology to avoid the impact to future earnings. The IASB approach, while well intentioned, needs some revisions in order to reflect the economics of the underlying contracts.

Ideally, the boards will be able to agree on a converged solution, which reflects the economics of these contracts before the final standard is issued. Whatever is decided, it is likely that the modeling and accounting for OCI will be a challenge to implement for both actuaries and accountants. ■

## END NOTES

- <sup>1</sup> For example, assume we had a liability that paid \$100 per year for 20 years, backed by an asset paying \$100 per year for 20 years. Assume that the asset yield is 5% and the liability discount rate is 4.6%. The asset would have a Macaulay duration of 8.61 years and the liability would have a Macaulay duration of 8.72 years, thus producing mismatched changes in value as interest rates change.
- <sup>2</sup> The accounting for such cash flows would be similar, though in the case of the IASB not necessarily identical, to the accounting for par and UL contracts that do not qualify for mirroring.
- <sup>3</sup> Paragraph 60(h) of the IASB exposure draft states that for contracts that do not qualify for mirroring, the discount rate for net income should be locked in except for cash flows that are “expected to vary directly with returns on underlying items.” Arguably, UL and par whole life cash flows vary only indirectly with the returns on the assets backing those contracts. I am assuming that the board considers such contracts as having cash flows, which vary directly based on my understanding of board discussions on the topic, and the fact that it would clearly be nonsensical to discount cash flows which vary with interest rates at a locked in rate.
- <sup>4</sup> The exception would be if a contract’s projected credited rates did not change at all during the reporting period. Then the discount rate curve for net income would remain locked in as of the prior reporting period, and so there would be some amount in OCI.
- <sup>5</sup> In this case, the OCI amount is generated entirely by the liabilities, since all assets are assumed to mature at the end of year one, leaving asset OCI of zero at the end of year one regardless of how interest rates move.
- <sup>6</sup> Asset OCI is zero due to the fact that all assets mature at the end of the first year, and liability OCI is zero due to the methodology.