



Approaches to setting the discount rate for valuation of insurance contracts: A discussion paper

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The building-block approach to valuation of insurance contracts requires projected cash flows to be discounted at interest to determine their present value. For long term contracts, the interest rate to be used for discounting is one of the most significant variables that affect the calculated value and its behavior over time.

Two fundamentally different conceptual approaches have been proposed for setting the discount rate. These are:

1. The current IASB / FASB approach. The discount rate is a current market yield curve, adjusted to reflect the risk and liquidity characteristics of the contract.
2. The Canadian approach. The discount rate is based on the projected book yield on the assets supporting the liabilities.

The main distinction between these two approaches for the liability discount rate is the way each achieves consistency between asset and liability valuation. The current IASB / FASB approach is consistent with “fair value” for assets. The Canadian approach is consistent with whatever valuation basis is used to determine the projected book yield. Each will be discussed much more fully in a section below.

The CFO Forum of major European Insurers has also proposed an approach, but its fundamentals are similar to those of the current IASB / FASB approach. The CFO Forum approach will be discussed at the end of this paper

The current IASB / FASB approach

Under the current IASB / FASB approach the discount rate is a current market yield curve, adjusted to reflect the risk and liquidity characteristics of the contract. Determination of the discount rate can be done using either a “bottom-up” or “top-down” approach. In either case, an observed market yield curve for investments with one set of risk and liquidity characteristics is adjusted upwards or downwards, as appropriate, to reflect the risk and liquidity characteristics of the insurance contracts.

- Under the “bottom-up” approach, one starts from the observed yield curve for US government securities and adds a spread to reflect the lower liquidity of the insurance

¹ The American Academy of Actuaries is a 17,000-member professional association whose mission is to serve the public and the U.S. actuarial profession. The Academy assists public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

contracts, and in some cases an additional spread to reflect any investment risk to which the policyholder may be exposed due to the characteristics of the contract.

- Under the “top-down” approach, one starts from the observed yield curve for corporate bonds, or for a market basket of securities representing the insurer’s investment portfolio, and subtracts an allowance for defaults and an allowance for other risks in the securities that are retained by the insurer and not passed on to the policyholder due to the characteristics of the contract.

Therefore, under either the “bottom-up” or “top-down” approaches, one starts from an observed market yield curve. Such a yield curve is derived based on market value or fair value of assets. Since risk and liquidity characteristics are also determinants of fair value, adjusting a yield curve based on fair value to reflect different risk and liquidity characteristics is consistent with fair valuation.

Of course insurance contracts are to be valued at fulfillment value rather than fair value. As far as the discount rate is concerned, the main difference between fair value and fulfillment value is the treatment of credit risk. The boards have indicated that the discount rate for use in fulfillment value shall not reflect credit risk, while the discount rate for use in fair value does reflect the credit risk that is characteristic of the item being valued. This difference in treatment of credit risk is the only fundamental difference in the discount rate between fulfillment value and fair value. However, this difference creates a mismatch in valuation basis between assets and liabilities, and this mismatch can lead to volatility in reported earnings.

Volatility in earnings and use of OCI under this approach

Insurers are concerned about volatility in financial results that can be created under this approach, and that concern arises for two reasons.

First, there is the rule that credit risk shall not be reflected in the discount rate for insurance contracts². This creates a mismatch with asset valuation because the market constantly changes its valuation of credit risk for assets. This is reflected by constantly changing credit spreads in the market yield curve for asset valuation. If these changes in credit spreads cannot be mirrored in the discount rate for liabilities, they create fluctuations in asset value that are not mirrored by fluctuations in liability value, even when the timing of asset and liability cash flows is very closely matched. Over the long term, credit spreads go up and down, but tend to stay within a range. Insurers are concerned with the spurious volatility in financial results that can be created by volatility in credit spreads within that range

The second reason for insurer concern about volatility arises with regard to insurance contracts where the expected cash flows extend beyond the timeframe of the longest fixed-interest assets. As a result, there is no observable yield curve on which to base the discount rate for cash flows more than perhaps 30 years into the future (or even less than that in some countries). A method that would base the discount rate for such long durations on day-to-day fluctuations in the observed market is felt by insurers not to reflect the long term nature of the business.

² Certain kinds of insurance contracts include non-guaranteed elements that add an element of credit risk to the characteristics of the contract through participation in returns on an investment portfolio. Determination of the discount rate for such contracts is still under discussion and is beyond the scope of this document.

As a means of dealing with these concerns, it has been proposed that changes in asset and liability valuation due to changes in interest rates be captured in OCI. If all invested assets are held at fair value and liabilities are at fulfillment value, this is called the “current-current through OCI” approach. Under this approach, net income can be expected to be much more stable, while the balance sheet still reflects valuation based on current interest rates.

The Canadian approach

The Canadian approach avoids a mismatch between asset and liability valuation, but does so by basing the discount rate for liabilities on the projected book yield on insurer’s assets. The liability discount rate for each future period is the projected book yield on invested assets, with a deduction for expected defaults and a deduction for a market risk spread.

Note that the projected book yield is essentially the average discount rate for all assets owned. The book yield can be expected to change over time as the composition of the portfolio changes, so the discount rate for liabilities is not a constant; it is based on the projected future path of the portfolio book yield over time.

When all assets are held at fair value, the projected book yield will be the current market yield, so this is similar to the “top-down” approach discussed earlier. However there is one important difference. The spread for market risk that is deducted from the projected book yield is a long-run average or stabilized value rather than the current market risk spread. Using a long-run average has the effect of eliminating the volatility in earnings due to volatile spreads that was discussed earlier in connection with the “top-down” approach. As a result, there is much less need to capture earnings volatility due to interest rate changes in OCI under the Canadian approach.

The Canadian approach has historically been applied in a context where fixed-income investments are held at amortized cost rather than fair value. Clearly, the projected book yield on an amortized cost basis is different from that on a fair value basis, and this leads to different liability discount rates and different liability values. But this difference in liability valuation is based on and therefore consistent with the difference in asset valuation between fair value and amortized cost.³

In connection with IFRS 9, some invested assets may be held at fair value and some at amortized cost. The Canadian approach effectively adjusts liability valuation to match this mixed valuation basis for invested assets. When some assets are held at fair value and some at amortized cost, the projected book yield will be a blended discount rate, reflecting the blend of valuation bases used for assets.

³ Note what happens when a fixed-income asset held at amortized cost is sold for a capital gain in this context. Typically the capital gain arises because interest rates have fallen, and the proceeds from the sale are invested in lower-yielding investments. Due to this re-investment at lower yields, the projected portfolio yield declines. The decline in projected portfolio yield leads to a decline in liability discount rate and an increase in reported liability value. The increase in liability value offsets the capital gain. As a result, trading of fixed income instruments does not create reportable net income under this method, even when assets are held at amortized cost.

The CFO Forum approach

In most respects, the CFO Forum approach is based on the “current-current through OCI” method discussed above. However, the CFO Forum has noted some kinds of insurance contracts where this methodology might not achieve its desired effect. These kinds of contracts are not issued in the US and this author is not familiar with them. However, the CFO Forum has suggested that appropriate alternate treatment of OCI might be used for such contracts.