Discount Rates: Reconciling the Top-Down and Bottom-Up views

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American Academy of Actuaries

- Professional organization whose mission is to serve the public on behalf of the US actuarial profession

- Area of interest is financial reporting of risk transfer mechanisms such as insurance and pension contracts

Discount Rate Paper

- Developed in response to concerns regarding potential (mis)interpretation of specifically enumerated methods for measuring fair value

- Concerned that enumeration could be interpreted as prohibiting use of alternative methods

- Similar concerns raised in relation to IASB ED and FASB DP on Insurance Contracts

Some Key Points of Paper

- Discount rate and provision for risk are related

- A variety of methods can be used to produce theoretically sound measurements of insurance contracts, each using a different discount rate and provision for risk

Two Views of the Discount Rate

- The view proposed in the IASB ED:
  - Discount rate reflects characteristics of the contract, not the insurer
  - Leads to bottom-up approach (risk free rate + adj)

- A common insurer pricing view:
  - Pricing and valuation reflect expected investment returns and provision for risk
  - Leads to top-down approach (portfolio rate – adj)

A confusing factor – the risk margin

- A common insurer pricing view
  - risk margin reflects all risk of doing the business, including investment risk retained by the company

- Proposed definition
  - risk margin reflects only the insurance risk in the contract, excludes the insurer's retained investment risk

Need to agree on the risk margin

- Risk margin that includes the insurer's retained investment risk is consistent with discount rate equal to expected portfolio rate

- Proposed definition of risk margin is consistent with discount rate equal to portfolio rate less spread for retained investment risk

- For this discussion, we use the proposed definition

Reconciling the views – an example

- **Expected Portfolio Rate (net of defaults)**   5.50%

  - Spread for inv risk retained by insurer   0.80%
    - Cost of covering default variability
    - Cost of covering equity return fluctuations
    - Asset / liability timing mismatch risk

- **Discount Rate**   4.70%

  - Spread for inv risk passed to contract-holder   0.70%
    - Liquidity
    - Other risks

- **Risk-free Rate**   4.00%

Reconciling the views

- The discount rate is the same under both views (in theory)

- Differences of opinion arise when estimating the size of the spreads for various risks
  - Leads to the impression that the spreads do not reconcile the entire difference between the portfolio rate and risk free rate

- Either view requires estimates. Ideally practitioners should have flexibility to use the view that allows use of the most directly observable data when making estimates.

Understanding Investment Risk passed to the policyholder

- **Liquidity risk**
  - Policyholder loses access to cash between time of premium payment and claim payment

  - Where timing of cash flows is predictable, insurer can make illiquid investments without taking liquidity risk

Understanding Investment Risk passed to the policyholder

- Non-guaranteed elements

  - Policyholder gets extra benefits if experience is good, but not otherwise

  - Insurer reduces its risk by not guaranteeing the extra benefits, only guaranteeing some minimum

  - The policyholder accepts the risk that the extra benefits may not be paid

  - Result can be less investment risk retained by the insurer, more passed to the policyholder

Reconciling the views – an example
(Nonguaranteed benefit for the excess of inv. return over 3.0%)

- **Expected Portfolio Rate (net of defaults)**   5.50%

    - Spread for inv risk retained by insurer   0.30%
        - Cost of covering default variability
          only if worse than guarantee
        - Cost of covering equity return fluctuations
          only if worse than guarantee
        - Asset / liability timing mismatch risk

- **Discount Rate**   5.20%

    - Spread for inv risk passed to contract-holder   1.20%
        - Liquidity
        - Other risks (non-guaranteed elements)

- **Risk-free Rate**   4.00%

Which estimates are most reliable?

- Portfolio rate
  - Observable market data for gross return
  - Historical data for expected defaults

- Spread for retained investment risk
  - Can be based on cost of capital held for investment risk

- Spread for risk passed to policyholder
  - Not readily observable

- Risk-free rate
  - Not readily observable in all countries

A note on credit spread volatility

- Credit spreads are always reflected in asset prices and in the portfolio rate

- They are not reflected in liability discount rate under bottom-up method; leading to earnings volatility

- Under top-down method, spreads for expected defaults and for retained investment risk could be held stable for valuation purposes, allowing liability discount rate to move in parallel with asset discount rates and reducing this source of volatility in earnings

A note on EDAR

- The adjustment for defaults in EDAR is greater than expected defaults (high probability level)

- Resulting discount rate is lower than portfolio rate less expected defaults, and is in that respect consistent with accounting intent.

- However, EDAR is based on rules that restrict the practitioner's flexibility to deal with unique circumstances or employ alternative methods

Concluding points

- Before addressing the discount rate, one must agree on which risks the risk margin covers

- The bottom-up and top-down approaches produce the same discount rate in theory

- Top-down approach may be more reliable to estimate

- Allowing the practitioner flexibility as to methodology may lead to the most reliable estimates