Project **Insurance contracts**

Topic **Discount rate - comments on a proposal to use an 'ALR' rate**

Purpose of this paper

1 This paper provides some initial thoughts on one approach to the discount rate. The approach ("ALR") was developed by the French insurer CNP, with assistance by Deloitte. We have invited CNP and Deloitte to present this approach to the boards.

2 Although we have had some limited discussion of this approach within the staff, the thoughts in this paper are primarily those of one individual (Peter Clark). They are based on a presentation by CNP, a follow up phone call with CNP and a subsequent discussion at the French standard setter (ANC).

Background

3 The approach is intended to address concerns that:

(a) locked in discount rates do not result in a faithful representation of duration mismatches, and of embedded options and guarantees.

(b) when current discount rates are used for insurance liabilities, and for the assets that back them, changes in credit spreads cause volatility that is not particularly useful to users and obscures more important information.

4 The Boards have tentatively decided not to permit or require a locked in discount rate for insurance contracts. However, it is worth remembering that the main factor driving that decision is the view that it is important to account for all duration mismatches and

embedded options and guarantees, ideally on a basis consistent with current market prices. The ALR approach is the only proposal I have seen that combines that feature together with a lock-in of duration matched cash flows.

5 It is also worth remembering why many commentators have been so concerned about credit spreads. Suppose an insurer issues insurance contracts, invests the proceeds in bonds and loans that generate cash flows with an expected duration equal to the expected duration of the liabilities and expects to hold the assets to collect principal and interest. Provided that the actual defaults on the bonds and loans are not materially greater than expected, the insurer is largely indifferent to fluctuations in credit spreads on those loans and bonds.

6 Said differently, fluctuations on asset spreads undoubtedly arise from an economic mismatch, not an accounting mismatch: nevertheless, most commentators – including almost everyone I have talked to – view those fluctuations as being of minor importance for interest-bearing assets that are held to generate cash flows to fulfil liabilities with the same expected duration.

Brief overview of the approach

7 ALR stands for Asset Liability rate. The approach is grounded in asset liability management (ALM) systems. It identifies those liability cash flows that are matched in duration with the cash flows from the insurer's existing asset portfolio, considers the reinvestment needs for cash flows that are not matched in duration, and considers the effect of options and guarantees embedded in the liabilities. It uses this information to derive a yield curve (ALR curve) that is used to discount all cash flows expected at a given duration.

8 The approach is intended to be used when some assets backing the insurance liabilities are carried at amortised cost. I comment further on this point in paragraph 15.

9 The ALR approach was originally presented to us an approach specifically for participating contracts. However, I have not seen any reason why it could not be equally applicable to non-participating contracts.

Alternative description of the approach

10 The presenters will describe the approach in more detail. However, I believe from my discussions with the originators of the approach that the following alternative description is broadly accurate and I have found this to be a more helpful way to analyse the approach. In effect, the approach divides all the cash flows from the insurance liabilities into three buckets:

(a) Those cash flows for which the insurer currently holds assets that are expected to generate cash flows that match them in duration (the duration-matched cash flows)

(b) Those cash flows that are mismatched in duration with the cash flows of the assets.

(c) The effect of embedded options and guarantees, such as minimum interest rate guarantees.

11 For the duration-matched cash flows, the model, in effect, uses a discount rate that is locked in at inception (if the related assets are carried at amortised cost) or current (if the related assets are at fair value). The rate is the risk-free rate plus a liquidity premium.

12 For the cash flows that are mismatched in duration, the approach assumes reinvestment or divestment at rates consistent with the current market forward curve for risk-free investments (and a liquidity premium is added). For example, if a liability has a cash flow in 15 years and the insurer has only 10 year assets, the model assumes reinvestment at the rate given by today's 10 year forward rate for a 5 year risk free investment. As a result, the liability is discounted at a risk free rate (plus illiquidity):

(a) from years 15 to 10 using a current market (forward) rate

(b) from years 9 to 0 using a locked in rate (if the assets are at amortised cost. If the assets are at fair value, a current rate is used).

13 The model addresses embedded options and guarantees by using stochastic simulation. In other words, a number of scenarios are run and the average is taken, to capture both the intrinsic value and time value of embedded options and guarantees. I understand that these models are set up in a way that is intended to be consistent with current market prices and with techniques that are often used to determine the fair value of options and guarantees.

So what is the practical effect of this model?

14 I believe this approach has the following important features:

(a) It accounts for all duration mismatches and all embedded options and guarantees, on a basis that is broadly consistent with how they would be reflected if insurance liabilities were measured applying the proposals in the exposure draft and if all the assets backing those contracts were measured at fair value.

(b) It locks in the discount rate for the duration matched cash flows. Thus, if the insurer uses amortised cost to measure the assets backing those liabilities, fluctuations in asset credit spreads will not affect profit or loss or equity.

(c) The model assumes that the assets that back the duration matched cash flows generate no more than the risk-free rate. (An illiquidity adjustment is added as a second stage.) Thus, the measurement of the liability is not reduced by a decision to invest in more risky assets. (Indeed, if some of the investment returns are passed on to the policyholder, the inclusion of riskier investments will increase the liability measurement because of the treatment of options and guarantees).

15 As stated above, the model is designed to be used in cases where some or all of the assets backing the insurance contracts are carried at amortised cost. However, in principle there is no reason why it could not also be used if all the assets are carried at

fair value. As I understand the model, I believe it should give broadly (perhaps even exactly) the same result as applying the proposals in the ED. The originators have told me informally they believe my conclusion to be correct (though I have one or two unanswered questions in my mind).

16 Said differently, I believe that the main (perhaps only) difference between the model proposed in the ED and the ALR proposal is that the ALR proposal uses a locked in discount rate for those liability cash flows whose durations are matched by cash flows from the assets held by the insurer.