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# The use of own credit in the valuation of liabilities

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Recent reporting trends have been moving toward fair value accounting.

Katie McCarthy, Nick Ranson, and Larry Rubin discuss how one area that has received a significant level of attention is the reflection of a company's own credit spread in the valuation of general account liabilities – specifically, whether the discount rate used to value liabilities should reflect the credit characteristics of the instrument being valued rather than using a risk-free rate.

#### THE USE OF OWN CREDIT IN THE VALUATION OF LIABILITIES

The FASB recently adopted FAS 157 'Fair Value Measurements' which states (in paragraph 15):

'A fair value measurement assumes that the liability is transferred to a market participant at the measurement date (the liability to the counterparty continues; it is not settled) and that the nonperformance risk relating to that liability is the same before and after its transfer. Nonperformance risk refers to the risk that the obligation will not be fulfilled and affects the value at which the liability is transferred. Therefore, the fair value of the liability shall reflect the nonperformance risk relating to that liability. Nonperformance risk includes but may not be limited to the reporting entity's own credit risk.'

Additionally proposed IFRS Guidance, as set out in paragraph 232 of the Insurance Contract Discussion Paper (the 'Discussion Paper') states:

'The current exit value of a liability is the price for a transfer that neither improves nor impairs its credit characteristics. The transferor would not willingly pay the price that a willing transferee would require for a transfer that improves those characteristics.

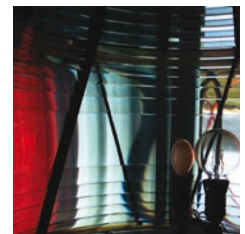
The policyholder (and regulator, if any) would not consent to a transfer that impairs those characteristics. If an insurer measures its insurance liabilities at current exit value, that measurement should reflect the liability's credit characteristics.'

Generally actuaries and the insurance industry have been opposed to the use of own credit spread in determining the value of liabilities. In its comment letter to IASB responding to the Discussion Paper,<sup>2</sup> the Group of North American Insurance Enterprises (GNAIE) wrote that 'the (Discussion Paper) inappropriately requires... consideration of own credit risk in measuring insurance liabilities,' expanding to note: 'we believe it is not true that the value of an insurance liability is the price for a transfer of that liability that neither improves nor impairs issuer credit characteristics. The measurement of an insurance liability should not reflect changes in credit characteristics.'

In our opinion, the issue of own credit spread in valuing liabilities receives so much attention due to a failure to recognize that own credit spread should, and in practice does, impact the level of benefits promised by the insurer.

When an adjustment is made to risk-free rates in order to consider own credit spread in the level of benefits for interest-sensitive liabilities (i.e., the crediting policy takes own credit spread into account) and own credit spread is reflected in the discount rate, then, for most insurance liabilities, a change in credit spread has minimal impact on the value of the liability. We will demonstrate this in two simple examples – an investment contract that guarantees a principal balance and periodically pays earned interest (in this case we will use a funding agreement that serves as the collateral for the issuance of a Medium Term Note (MTN) and then generalize for a Single Premium Deferred Annuity (SPDA).

The valuation of a GIC-backed MTN is identical to the valuation of a debt offering. At issue, the company promises to pay its cost of funds ( $COF_o$ ) and the value of the payment obligations are discounted at  $COF_t$ .  $COF_t$  is the sum of two items at the relevant term of the liability, namely the Risk-free Rate ( $R_f$ ) and the company's then current Credit Spread ( $CS_t$ ). As a consequence, the value of the liability at issue is equal to the proceeds received and there is no gain or loss. If the company is able to sell a contract



*FAS 157 and 159 have come into effect amidst growing globalization, uncertain economic times, declines in real estate values, and the convergence of liquidity and credit crunch concerns.*

1 Preliminary Views on Insurance Contracts issued by the IASB in May 2007.

2 Letter from GNAIE to IASB dated November 20, 2007.

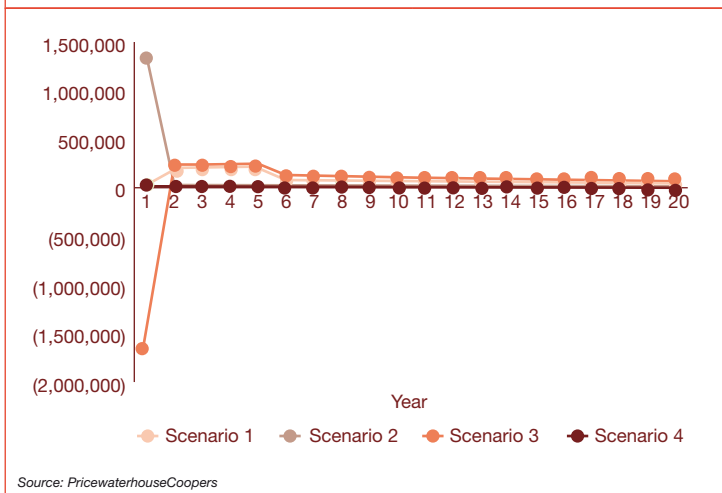
FIGURE 1 Projected net cashflows for a simple SPDA product, with no guaranteed crediting rates

Scenario	Crediting Rate	Discount Rate
1	Risk-free Rate	Risk-free Rate
2	Risk-free Rate	Risk-free + Spread
3	Risk-free + Spread	Risk-free Rate
4	Risk-free + Spread	Risk-free + Spread

The first illustration shows that when the crediting rate is greater than the discount rate (as is the case in scenario 3), there is a loss during the first year, and vice versa. In scenarios 1 and 4, where the crediting rate is equal to the discount rate, there is no gain or loss during the first year.

The second illustration (included within Appendix C) shows the effect of a change in the credit rating during the second year on scenarios 2 and 4. This graph shows that by including changes in credit spread in the interest-credited formula, the effect of a change in rating is offset by the same effect on the discount rate. The change in the cashflows when the credit spread is increased under scenario 2 creates a gain in earnings.

Cashflows under various discount rates



Source: PricewaterhouseCoopers

that offers a rate lower than the  $COF_o$  (i.e., somehow a company can convince an investor to

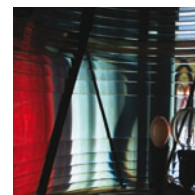
accept payments that are less than  $COF_o$ ), it would have a gain at issue. This is because the

company can use the proceeds from the spread between interest paid and interest earned to buy back its obligation in the open market. Conversely, if the company paid more than  $COF_o$ , it would experience a loss at issue.

In order to convince another party to accept the nonperformance risk on a liability, the insurance company must promise to pay a premium above the Risk-free Rate equal to  $CS_o$ . Post issue, the credit spread will typically change. One year after issue the Credit Spread is equal to  $CS_1$  and the obligations are now valued using a discount rate equal to  $R_1 + CS_1$ . The change in the value of the liability resulting from the change in the credit spread should be equal to the difference between the present value of the future obligation cashflows discounted at  $(R_1 + CS_1)$  and  $(R_1 + CS_o)$ . (In this example we are assuming that the liability is a floating rate obligation, if it were a fixed rate obligation, the benefit would be credited at  $R_o + CS_o$ , but discounted at  $R_1 + CS_1$ . The change in the the liability value is still equal to the difference between the present value of the future obligation cashflows discounted at  $(R_1 + CS_1)$  and  $(R_o + CS_o)$ .) Because the payment of the credit spread is locked in at issue and is not updated to reflect the change in credit spread, there will be a change in the liability value due to the difference between  $CS_1$  and  $CS_o$ . It is the recognition of this change in value through

earnings that has generally been opposed by actuaries and by the insurance industry.

Using the same principles as above, we can construct our example for an single premium deferred annuity (SPDA). Assume a company can sell an SPDA that promises payments to a retail policyholder similar to those of the GIC-backed MTN. As was the case with the GIC-backed MTN, the policyholder would have no option except to hold the contract to maturity. The SPDA differs from the GIC in two ways. First, the policyholder pays a fee to be educated on the merits of the contract (this represents the market-based acquisition costs of the policy, AcqCST. Note that this amount may differ from the actual acquisition expenses incurred by the company). This fee is either subtracted from the contract at issue as a front-end load or financed by the insurance company as a reduction in the interest credited (which we denote by ISA, the Interest Spread for Acquisition costs). The second difference is that, given the smaller size, policyholders typically pay a recordkeeping or service charge (SC). (In effect, these are not really genuine differences as they are captured in the bid-ask spread of a GIC-backed MTN. However, the relative size of the GIC-backed MTN versus the SPDA results in the two factors having a more significant influence in the SPDA example.) Assuming a market-based charge for both of these items, the net amount received at



issue (which is equal to the premium (PREM) less AcqCST) can also be valued as the present value at  $COF_0$  of the future SPDA benefits and maintenance expenses under the assumption that the account value earns a crediting rate equal to  $COF_0 - ISA - SC$ , which we refer to as the 'market value crediting rate'. To the extent a company is able to convince policyholders to receive less than this market value crediting rate, there is a gain at issue. Similarly, to the extent the company pays more than the market value crediting rate, there is a loss at issue (where the loss is a result of the company raising funds to invest a spread at a greater cost than the alternative of the GIC-backed MTN program).

A unique feature of the GIC-backed MTN and the SPDA described above compared to typical insurance liabilities is that the credit spread included in the crediting rate is determined at issue and does not change for the life of the typical insurance obligation. The owner of the Medium Term Note may be able to sell it to another investor but there is no obligation on the part of the insurance company to buy back the liability. However SPDAs in the market and most other insurance obligations typically contain an option that gives the policyholder the right to sell back the obligation to the company and receive all or a percentage of their funds (which is essentially a put option on the contract). In

addition there are often other guarantees, including minimum annuitization rates, interest rate floors etc. To cover the cost of these guarantees companies set aside capital and have a target of the amount to charge policyholders for their cost of capital (COC). Adding the value of guarantees, we determine that the market value crediting rate at issue is equal to  $COF_0 - ISA - SC - COC$ . Discounting benefits plus expenses that are determined based on this crediting rate at  $COF_0$  results in the fair value of the liability equal to  $PREM - AcqCST$ . Figure 1 demonstrates the effects of various discount/crediting rate scenarios.

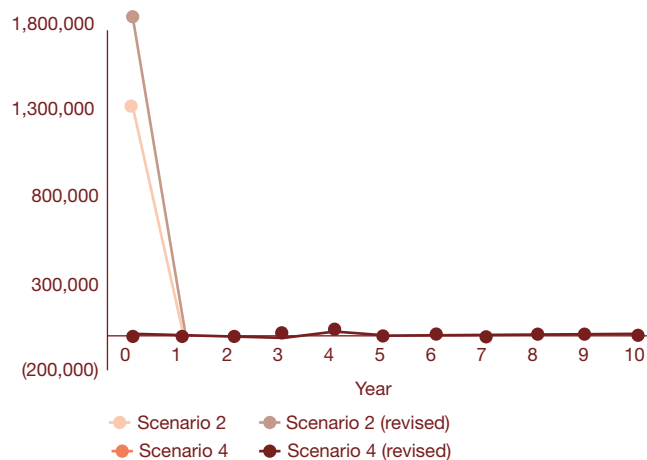
While the above paragraph discusses the options that are granted to the policyholder, it ignores the options that are granted by the policyholder to the company. In most insurance obligations the policyholder grants the insurance company the right to periodically re-price the obligation subject to the minimum guarantee. In an efficient market, if at time  $x$  the company was to re-price its obligations at a rate lower than  $COF_x$  then it should assume that more policyholders would exercise their put option as they can now get a higher yield for the same risk elsewhere. If the company were to re-price its obligation at a rate higher than  $COF_x$  it would be paying policyholders a greater rate in order to retain funds for investment than it would pay

FIGURE 2 Changes in the credit spread

One of the primary differences between a guaranteed investment contract and an insurance contract is that in the case of the insurance contract, the policyholder has the right to sell back the policy to the insurer. This 'sale' is performed by a cash surrender of the policy.

If there is a change in the risk associated with investing money in a policy with an insurer (e.g. there is a change in the insurer's credit rating), then the insurer will have to properly compensate the policyholder in order to minimize the number of policyholders that exercise the option of a cash surrender. Specifically, if the company's credit spread increases, the policyholder will be taking on more risk, and as such should be compensated. (On the other hand, if the company's credit spread decreases, the policyholder is taking on less risk and will not require as much compensation.)

If there is a change in the credit spread, there will be a change in the interest payments (through a change in the crediting rate given to policyholders). Since the discount rate is also a function of the credit spread this also will change. Because the payments are changed based on the change in credit spread, the obligation should move in a similar manner.



Source: PricewaterhouseCoopers

if it simply let the policy lapse and issued a new liability, thereby decreasing the funds that should otherwise be available to shareholders. Therefore at time  $x$ , the fair value of the liability is the present value of benefits less expenses at  $COF_x$  where the present value is determined assuming a market value crediting rate equal to  $COF_x - ISA - SC - COC$ . So for any insurance product where the company retains the option to re-price the liability, change in credit should have minimal impact on the value of the liability. This is further highlighted in Figure 2.

Figure 2 also shows that if the change in credit spread is reflected in both the change in crediting rate and the discounting rate, there will be a minimal effect on the value of the liability (Scenario 4 and Scenario 4 (Revised)).

Both the Group of North American Insurance Enterprises (GNAIE) and the European CRO Forum have stated the view that they do not support using own credit in the valuation of liabilities under IFRS. However there are areas where, under US GAAP, companies have historically used their own credit spread in the valuation of liabilities. If companies selling GIC-backed Medium Term Notes did not use their own credit spread at issue in valuing these contracts, then these contracts would incur a loss at issue. Generalizing the approach used to value GIC-backed Medium Term Notes results in not only recognizing own credit in discounting liabilities but also recognizing own credit in determining the fair value crediting rate. When both adjustments are made the value of the liability is equal to the value of premium received less market-based acquisition costs (i.e. the net deposit). □



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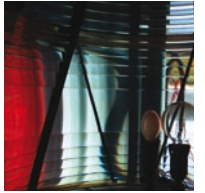
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