Practice Note on Common Practices Relating to FASB Statement 133, Accounting for Derivative Instruments and Hedging Activities, As It Relates to Variable Annuities with Guaranteed Benefits

The American Academy of Actuaries is a national organization formed in 1965 to bring together, in a single entity, actuaries of all specializations within the United States. A major purpose of the Academy is to act as a public information organization for the profession. Academy committees, task forces and work groups regularly prepare testimony and provide information to Congress and senior federal policy-makers, comment on proposed federal and state regulations, and work closely with the National Association of Insurance Commissioners and state officials on issues related to insurance, pensions and other forms of risk financing. The Academy establishes qualification standards for the actuarial profession in the United States and supports two independent boards. The Actuarial Standards Board promulgates standards of practice for the profession, and the Actuarial Board for Counseling and Discipline helps to ensure high standards of professional conduct are met. The Academy also supports the Joint Committee for the Code of Professional Conduct, which develops standards of conduct for the U.S. actuarial profession.

This practice note was prepared by the Life Financial Reporting Committee of the American Academy of Actuaries. The Academy welcomes your comments and suggestions for additional questions to be addressed by this practice note. Please address all communications to Tina Getachew, Risk Management and Financial Reporting Policy Analyst at getachew@actuary.org.

The members of the work group who are responsible for this practice note are as follows:

Errol Cramer, FSA, MAAA
Patricia Matson, FSA, MAAA
Larry Rubin, FSA, MAAA

Introduction

The practices presented here represent the views of actuaries in industry, consulting and public accounting firms involved in implementation of FAS 133 with respect to Variable Annuities with Guaranteed Benefits. The purpose of this practice note is to assist actuaries with application of FAS 133. Embedded derivatives are an evolving area of financial reporting and a new area for actuaries. It should be recognized that the information contained in the practice note provides guidance, but is not a definitive statement as to what constitutes generally accepted practice in this area. Actuaries are usually prudent to consider the facts and circumstances specific to their situation, including the views of their independent auditors, in making a determination of appropriate practice. This note considers accounting guidance in place as of the issuance date, and is subject to change as new guidance becomes effective. In particular, certain responses may change significantly based on the adoption of FAS 157 (Fair Value Measurement).

This practice note has been divided into two sections:

Section A: Definition of Embedded Derivatives
Section B: Valuation Methodology

A) Definition of Embedded Derivatives

1. What applicable accounting guidance defines an embedded derivative and what are the characteristics of an embedded derivative?

   Financial Accounting Standard 133 (FAS 133) establishes accounting and reporting standards for derivatives.

   Paragraph 6 of FAS 133 defines a derivative as the following:

   > 6. A derivative instrument is a financial instrument or other contract with all three of the following characteristics:
   >
   > a. It has (1) one or more **underlyings** and (2) one or more **notional amounts** or payment provisions or both. Those terms determine the amount of the settlement or settlements, and, in some cases, whether or not a settlement is required.
   >
   > b. It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors.

c. Its terms require or permit net settlement, it can readily be settled net by a means outside the contract, or it provides for delivery of an asset that puts the recipient in a position not substantially different from net settlement.

Paragraph 10(c) of FAS 133 exempts certain insurance products from being derivatives:

> *"Certain insurance contracts*. Generally, contracts of the type that are within the scope of FASB Statements No. 60, *Accounting and Reporting by Insurance Enterprises*, No. 97, *Accounting and Reporting by Insurance Enterprises for Certain Long-Duration Contracts and for Realized Gains and Losses from the Sale of Investments*, and No. 113, *Accounting and Reporting for Reinsurance of Short-Duration and Long-Duration Contracts*, are not subject to the requirements of this Statement whether or not they are written by insurance enterprises. That is, a contract is not subject to the requirements of this Statement if it entitles the holder to be compensated only if, as a result of an identifiable insurable event (other than a change in price), the holder incurs a liability or there is an adverse change in the value of a specific asset or liability for which the holder is at risk. The following types of contracts written by insurance enterprises or held by the insureds are not subject to the requirements of this Statement for the reasons given:
>
> (1) *Traditional life insurance contracts.* The payment of death benefits is the result of an identifiable insurable event (death of the insured) instead of changes in a variable.
>
> (2) *Traditional property and casualty contracts.* The payment of benefits is the result of an identifiable insurable event (for example, theft or fire) instead of changes in a variable."

However, insurance enterprises enter into other types of contracts that may be subject to the provisions of this Statement. In addition, some contracts with insurance or other enterprises combine derivative instruments, as defined in this Statement, with other insurance products or nonderivative host contracts, for example, indexed annuity contracts, variable life insurance contracts, and property and casualty contracts that combine traditional coverages with foreign currency options or other potential embedded derivative features. Contracts that consist of both derivative and nonderivative elements are addressed in paragraph 12.

Paragraph 12 of FAS 133 specifies the conditions under which an embedded derivative must be separated from the host contract and accounted for under the provisions of FAS 133. The three criteria for this are:

(a) The economic characteristics and risks of the embedded derivative instrument are not clearly and closely related to the economic characteristics and risks of the host contract.
(b) The hybrid instrument (host contract + embedded derivative) is not otherwise carried at fair value through GAAP earnings.
(c) A "stand-alone" instrument with the same characteristics as the embedded derivative would, according to the definitions in FAS 133 Paragraph 6-11, be a derivative instrument subject to the requirements of FAS 133.

2. What types of derivatives are embedded in variable annuity contracts?

Derivatives Implementation Group ("DIG") Issue B7 says that traditional variable annuity contracts do not contain embedded derivatives. However, DIG Issue B8 makes it clear that variable annuities with non-traditional features, such as certain benefit guarantees, do contain embedded derivatives. The types of variable annuity guarantees most commonly classified as embedded derivatives under FAS 133 are Guaranteed Minimum Withdrawal Benefits (GMWB) and Guaranteed Minimum Accumulation Benefits (GMAB) for direct writers and Guaranteed Minimum Income Benefits (GMIB) for reinsurance companies. Generally, Guaranteed Minimum Death Benefits (GMDB) and GMIBs for direct writers are often not considered embedded derivatives as discussed in A3 and A4 below.

3. On what basis are GMDBs usually considered not to be embedded derivatives under FAS 133?

FAS 133 Paragraph 10(c) scopes out certain insurance contracts from FAS 133, and specifically gives the payment of a death benefit as an example of a benefit type that is not subject to the provisions of FAS 133.

4. On what basis are GMIBs usually considered not to be embedded derivatives under FAS 133 from the direct writer's perspective?

DIG Issue B25 specifically addresses these types of benefits in Question and Answer Number 2, and concludes that the embedded guarantee does not meet the definition of a derivative instrument because it does not meet the "net settlement" criteria of FAS 133. Because settlement of the option can only be accomplished by investment of the account balance in a payout annuity, DIG B25 indicates that the conclusion of DIG A13 Part 2 applies, which is that the net settlement criteria of FAS 133 Paragraph 9(a) are not met and the GMIB is not a FAS 133 embedded derivative. DIG A13 Part 2 answers "No" to the following question:

Does a contract meet the characteristic of net settlement in paragraph 9(a) (and related paragraph 57(c)(1)) of Statement 133 if the holder were required to invest funds in or borrow funds from the other party so that the party in a gain position under the contract can obtain the value of that gain only over time as an adjustment of either the yield on the amount invested or the interest element on the amount borrowed?

However, DIG B25 also states that if the policyholder is able to withdraw (commute) all or a portion of the guaranteed amount under a deferred variable annuity contract during the payout phase then the net settlement criteria are met and the commutable amount is considered an embedded derivative under FAS 133.

Note that this conclusion applies to both variable and fixed account immediate annuity guarantees within a deferred variable annuity contract.

5. Why are GMIBs usually considered embedded derivatives under FAS 133 from an assuming reinsurer's perspective?

Under many GMIB reinsurance contracts the reinsurer makes a payment to the direct company equal to the GMIB net-amount-risk at (or near) the time of annuitization and so these contracts normally meet the net settlement criteria of FAS 133. In addition, because they are settled at annuitization, the reinsurer does not assume mortality risk and the insurance exemption of FAS 133 does not apply.

6. Are "Lifetime WBs" or "GMWBs for Life" considered embedded derivatives under FAS 133?

Whether withdrawal benefits for life are considered embedded derivatives depends on the facts and circumstances of the benefit feature.

As described above, DIG B25 states that if the policyholder of a deferred variable annuity is able to withdraw (commute) all or a portion of the guaranteed amount during the payout phase then the net settlement criteria are met and the commutable amount is considered an embedded derivative under FAS 133.

If the contract requires an irrevocable election by the policyholder to "invest" their account value into a stream of benefit payments, some believe that this would be considered a reinvestment of the account value and therefore this would not meet the net settlement criteria of FAS 133, as outlined in question 4 above.

Others believe that because the "for Life" component of the benefit is only provided if the original investment (the account value) is 0, this would be viewed as exhaustion of the initial investment, not a reinvestment into a separate vehicle. Therefore, the benefit would be considered an embedded derivative. Those taking this view may also believe that the payout phase should be further bifurcated between the period certain and the life contingent period (assuming the life contingent component is

material), similar to the guidance for payout annuities in question 4 of DIG B25. DIG B25 question 4 states "for a period-certain-plus-life-contingent variable-payout annuity contact, the embedded derivative related only to the period-certain guaranteed minimum periodic payments would be required to be separated under paragraph 12 [of FAS 133]."

B) Valuation Methodology

7. What are the key differences between valuing an embedded derivative and valuing other insurance liabilities?

   Both embedded derivatives and most insurance liabilities are valued as the present value of future cash outflows, less the present value of future cash inflows, similar to gross premium reserves calculated for loss recognition testing. Insurance liabilities generally use management's best estimate and/or legally-defined assumptions to determine how benefits are defined, when benefit payments occur, what portion of inflows to use and what interest rate is used for discounting future cash flows (either at time of issue or a combination of historical and management's best estimate for the future under GAAP). Embedded derivatives use market consistent assumptions that estimate derivative cost based on option replication approaches determined at the date of valuation.

8. Does the value of a variable annuity guarantee need to produce a value of zero at inception?

   There is no explicit guidance as to whether a variable annuity guarantee needs to have a 0 inception value. However, there is guidance for EIAs that requires a 0 inception value, and therefore some companies do require a 0 inception value (this may also be based on the argument that because derivatives are assumed to be exchanged between a willing buyer and seller at a market clearing price, neither party should be expected to have a gain at the entering of the contract).

   Other companies that consider the embedded derivative an option do not believe that a 0 inception value is required, and use the actual fee charged in determining the inception value of the embedded derivative. If this produces a loss at issue, that loss is recognized. If it produces a gain, that gain is deferred recognized in accordance with GAAP requirements.

9. What policyholder behavior assumptions should be used?

   Assumptions should reflect that an option will impact policyholder behavior, and the degree to which it impacts policyholder behavior will be a function of how much the option is in the money. For example a policyholder is more likely to elect a minimum withdrawal benefit if the account value is below the protected value because the policyholder can reinvest this amount in a different contract.

Some actuaries believe that all policyholders should be expected to always act optimally and earnings only recognized when sub-optimal behavior occurs.

Because the valuation is typically done using risk-neutral assumed returns, some actuaries believe that it is appropriate to adjust the policyholder behavior assumptions to reflect policyholder decisions based on a "real-world" environment. Others believe that this approach is inconsistent with a risk neutral framework.

10. What assumptions should be used for market parameters?

    Risk neutral economic assumptions, consistent with those used in the derivatives markets. Risk neutral economic assumptions are the market's view as to returns and volatility of returns. Volatility varies by a number of factors including asset class and tenor and can be obtained from the market prices of both exchange traded and over- the -counter derivatives.

11. How are actuarial assumptions (mortality, lapse, election rate, persistency) determined?

    Fair value assumptions differ from GAAP benefit reserve assumptions, in that GAAP benefit reserve assumptions are based on management's best estimate, while Fair Value assumptions should be based on the market best estimate assumption. The actuary would therefore need to estimate what the market's best estimate assumptions are. The actuary will typically use a combination of experience and judgment to estimate market-based actuarial assumptions for the company underwriting the risk. Absent evidence to the contrary, actuaries will normally assume that the market assumptions would be based on the company's own experience. As a consequence, the actuary will typically use his/her best estimate actuarial assumptions as his/her estimate of the market-based actuarial assumptions. Consistent application of the method used for determining these estimates would ordinarily be advised.

    Some companies create two sets of scenarios running in tandem, one risk-neutral, one real-world, and set the policyholder behavior on corresponding real-world scenario. Others believe this is inconsistent with a risk-neutral framework.

12. What are the common methods for the calibration of the value of an embedded derivative to zero at inception?

    The two most common methods for calibration at inception are the Benefit Ratio method and the Interest Spread method.

    <u>Benefit Ratio Method</u>

Under the benefit ratio method the GMWB rider fee is split into a benefit cost fee and a risk charge. The benefit cost will consist of the average fee needed, under a stochastically-generated number of scenarios, so that the present value of claims is equal to the present value of the benefit cost fee. Post issue, the value of the derivative is the present value of benefits, less the present value of the benefit cost (unless market conditions indicate that the risk charge is no longer a market-based risk charge – see question 13 below).

Interest Spread Method

Under the interest spread method the derivative would be a total return swap, where the company agrees to swap a series of benefit payments in return for an asset equal to the premiums. The method would find the risk spread on the asset cash flows whereby the present value of the two legs would equal. Post issue, the value of the derivative is the present value of benefits, less the present value of premiums, where the interest rate used for computing the present value of premiums would include the risk spread set at issue (unless market conditions indicate that the risk spread is no longer a market-based risk spread – see question 13 below).

13. Is the risk charge/risk spread locked-in at issue?
Because all fair value assumptions in the valuation are forward-looking from the date of valuation, the actuary is usually prudent to determine whether the market's price for risk has changed subsequent to the most recent valuation. If the actuary determines the price has changed, the new charge for risk would ordinarily be included in the valuation. Some factors that may indicate a change in the market price for risk are:

    1. The company changes its price for new business
    2. Competitors change their prices
    3. The cost of hedging the guarantees increases, and is expected to remain at a higher cost level, and management decides that, rather than increasing their price, they will accept lower profits.

14. Does the insurer's credit rating impact the embedded derivative valuation?

Many actuaries do not take the insurer's credit rating into account. Some companies will use the insurer's credit spread in computing the present value of future benefits under the interest spread method. Recently adopted FAS 157 (Fair Value Measurement), effective January 1, 2008, defines fair value as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants," which effectively requires an exit value calculation. FASB 157 requires companies to take into account a company's own non-performance risk – the risk that the obligation will not be fulfilled. Therefore

a reporting entity will be required to consider the effect of its own credit standing in determining fair value under 157.

15. What happens if the risk charge is greater than the charged premium under the benefit ratio method, or the total yield on the asset is negative under the interest spread method?

    If a separately identifiable charge for the benefit is insufficient to fund the benefit at issue, then the present value of the deficiency is frequently taken as a loss at issue. Under the interest spread method, the total yield is typically floored at 0, which can produce a loss at issue.

    If the contract does not permit the policyholder to separately lapse the derivative, without also having to lapse the host, then a company could take the position to re-allocate some of the other contractual charges and assume the host is sold at a discount. In doing so, the company needs to recognize the reduced fees that are available for DAC recoverability testing.

16. How are expenses reflected in the valuation?

    Items that are unique to a firm, such as a tax position, cost of doing business, or cost of managing their business, should generally not be included in a "fair value estimate." Items such as commissions should generally not be included in fair value estimates unless they are considered comparable to a bid/ask spread.

17. Can the value of the derivative be negative (an asset)?

    In similar situations related primarily to mortgage options, the SEC has taken the position that a written option cannot be an asset. However, some companies are of the opinion that the SEC's view does not apply to insurance company swaps with their policyholders and is not consistent with the concept of fair value. A company wishing to hold an asset value for this derivative may want to consider the need to hold its position in light of the SEC statements on similar types of financial instruments.

18. Is each derivative valued separately or can like - contracts be grouped?

    Contracts generally can be grouped for practical purposes if it can be demonstrated that the results from a grouped calculation are not materially different than those of a seriatim calculation. Generally a company will review its grouping on each valuation date in order to re-assert that the grouping would not result in a material difference, even if there were a seriatim calculation. There typically should not be "cross-subsidization" between contracts.

19. What are some of the different methods for determining long-term volatility?

    Quotes can be obtained in the OTC market from most major banks for derivatives on major equity indices out to at least 10 years (and up to 20 years from several banks), and so a term structure of volatilities can be constructed based on implied volatilities from market prices out to this time period. For volatilities past this time point, where market data is less reliable, some other method may be used. However, the actuary is usually prudent to be aware that, in general, the longer the term, the more the volatility quote may be impacted by external factors such as supply/demand constraints and model risk.

    Some companies will get volatility from the market for the first "x" years and then grade into a long-term historical volatility rate. Others may extrapolate from the last year of market data for the longer-term volatility assumptions.