A PUBLIC POLICY PRACTICE NOTE

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

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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

This practice note is not intended to give accounting advice. Any accounting questions should be directed to those qualified to give accounting advice.

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This practice note was prepared by the Life Financial Reporting Committee of the American Academy of Actuaries. Please address all communications to LifeAnalyst@actuary.org.

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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 is an evolving area of financial reporting and a relatively new area for actuaries. The information contained in the practice note, 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 accounting guidance becomes effective. In addition, this note was largely drafted prior to the introduction of USGAAP accounting standards codification. Therefore, the references to relevant literature follow the pre-codification set of FASB guidance. The codification of these various FASB pronouncements can be found primarily in sections 815-15, Embedded Derivatives, and 820, Fair Value Measurements and Disclosures of the Accounting Standards Codification Manual.

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:

"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 that embodies both the embedded derivative instrument and the host contract is not remeasured at fair value…with changes in fair value reported in [GAAP] earnings as they occur.
(c) A separate instrument with the same terms as the embedded derivative instrument would, pursuant to paragraphs 6-11 [of FAS 133] 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 indicates 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) exempts certain insurance contracts from the requirements of FAS 133, and specifically states that "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." In addition, FAS 133 states that for traditional life insurance, "The payment of death benefits is the result of an identifiable insurable event (death of the insured) instead of changes in a variable." .

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 an embedded guarantee does not meet the definition of a derivative instrument if it does not meet the "net settlement" criteria of FAS 133. For a GMIB, a common view is that settlement of the option can only be accomplished by investment of the account balance in a payout annuity, and therefore 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 all or a portion of the guaranteed account balance during the payout (annuitization) period, or the payout (annuitization) period is set to an unrealistically short period such as one year, this is equivalent to net settlement, and the guarantee (or the portion of the guarantee that is withdrawable, if applicable) is an embedded derivative only during the accumulation period"

This conclusion has also been applied 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 typically makes a payment to the direct company equal to the GMIB net-amount-risk at (or near) the time of annuitization and in these circumstances these contracts appear to meet the net settlement criteria of FAS 133. In addition, to the extent they are settled at annuitization, the reinsurer may not assume significant mortality risk and the insurance exemption of FAS 133 may 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 "if the policyholder is able to withdraw all or a portion of the guaranteed account balance during the payout (annuitization) period, or the payout (annuitization) period is set to an unrealistically short period such as one year, this is equivalent to net settlement, and the guarantee (or the portion of the guarantee that is withdrawable, if applicable) is an embedded derivative only during the accumulation period.".

If the contract requires an irrevocable election by the policyholder to "invest" the 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 zero, 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 under USGAAP?

There are examples of both embedded derivatives and insurance liabilities that 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. In these situations, insurance liabilities generally use management's best estimate and/or contractually-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 derivative valuations typically use market-consistent

assumptions for market-related inputs, best estimate assumptions for non-market related inputs, and risk margins that market participants would assume.

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 zero inception value. However, there are DIG issues that provide guidance for equity indexed annuities and for non-option embedded derivatives that generally require a zero inception value. While that guidance may not be authoritative in this instance, some companies do use a zero 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 zero inception value is required, and use the actual fee charged in determining the inception value of the embedded derivative. If this produces a gain or loss at issue, that gain or loss may be recognized, or in some cases the gain is deferred and brought into income over time.

DIG B20 and DIG B22 contain additional guidance on the value at inception of embedded derivatives. Note that the practice of setting the value of the derivative to zero only applies to embedded derivatives, and not to free standing derivatives. Thus, a reinsurance contract of a variable annuity guarantee that is considered a free standing derivative would typically have a value at inception equal to the present value of future claims covered by the contract less the present value of the future reinsurance premiums collected, computed on a market-consistent basis.

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

Examples of two methods used in practice for calibration at inception are summarized below:

Method 1

Under this method the fee charged for the variable annuity guarantee rider is split into an ascribed fee, or benefit cost fee, and any fee amount not required to cover future benefit costs. The ascribed fee will consist of the fee needed, under a stochastically-generated set of risk neutral scenarios, so that the mean present value of claims, including any risk charge, is equal to the mean present value of the projected ascribed fees. Post issue, the value of the derivative is the present value of future benefits, less the present value of future ascribed fees.

If the ascribed fee is less than the rider fee actually charged, the remainder of the charged rider fee is considered part of the host annuity contract, and would typically be included in net income and in the estimated gross profits used to amortize DAC. If the ascribed fee is greater than the rider fee actually charged , the excess is typically "borrowed" from the fees in the host annuity contract, reducing the amount of fees from the host annuity that would be included in net income or in the estimated gross profits

used to amortize DAC.

For example, assume that an annuity contract has a GMWB embedded derivative rider. The fees in the host are 100 basis points and the rider fee is 50 basis points. Assume that the ascribed fee at issue is calculated to be 40 basis points. Each future reporting period, 40 basis points would be used to determine the present value of future fees in the GMWB liability calculation. 110 basis points (100 from the host plus 10 excess basis points from the rider) would be income to the company, and would also impact the estimated gross profits used to amortize DAC.

Assume that the ascribed fee at issue is calculated to be 70 basis points. Each future reporting period, 70 basis points would be used to determine the present value of future fees in the GMWB liability calculation. 80 basis points (100 from the host less 20 basis points "borrowed" from the host to fund the rider) would be income to the company, and would also impact the estimated gross profits used to amortize DAC.

Method 2

Under this method the derivative would be a total return swap, where the company agrees to swap a series of benefit payments (the "pay leg") in return for a series of asset cash flows equal to the premiums (the "receive leg"). The method would find the spread on the asset cash flows whereby the present value of the two legs would be 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 spread calculated at issue.

Under the interest spread method, the total yield is typically floored at zero, which can produce a loss at issue.

The ascribed fee is typically locked in at issue, as part of the definition of the embedded derivative. Similarly, the spread calculated at issue under the interest spread method is typically locked in at issue.

10. What policyholder behavior assumptions are generally used?

Assumptions generally 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 guaranteed 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.

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

Fair value assumptions differ from assumptions used in calculating DAC and SOP 03-1 liabilities. DAC and SOP 03-1 liability assumptions are based on management's own best estimate of future expectations, while fair value assumptions should be based on the best estimate of the assumption another market participant would use. Under paragraph 30 of FAS 157 (*Fair Value Measurement*), an assumption that is not based on an observable price in an active market should "reflect the reporting entity's own assumptions about the assumptions that market participants would use in pricing the asset or liability." The actuary would therefore typically 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 typically 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 (see Question 10).

The Academy's *Practice Note on FAS 157 & FAS 159*, released in February 2009, contains additional details about practices used to determine actuarial assumptions for a fair value calculation.

12. How are expenses reflected in the valuation?

Administration expenses specifically related to the embedded derivative would generally be included in the fair valuation based on a market participant view of those expenses. Practically speaking, companies may exclude such expenses based on materiality considerations. Some actuaries believe that items that are unique to a company, such as a tax position, cost of doing business, or cost of managing the business, should generally not be included in a fair value estimate, since these items represent company-specific assumptions, not market participant assumptions. Items such as sales commissions would typically not be included in fair value estimates unless they are considered comparable to a bid/ask spread.

13. What assumptions should be used for market parameters?

FAS 157 specifically states that "valuation techniques used to measure fair value shall maximize the use of observable inputs and minimize the use of unobservable inputs." Typically, risk neutral economic assumptions, consistent with those used in the derivatives markets, are used. Risk neutral economic assumptions are the market's view as to returns and volatility of returns. Returns would typically be based on observable risk free rates (i.e.., treasury rates or swap rates). Volatility varies by a number of factors including asset class and tenor (term) and can be obtained from the market prices of both exchange-traded and over-the-counter derivatives.

Some actuaries use a single volatility assumption across all tenors, and some use a volatility

assumption that varies by tenor. In addition, some actuaries use a volatility assumption that varies by how much the underlying option is in the money. Items for consideration when using a single volatility assumption across all tenors and/or levels of "moneyness" are to ensure that the result is consistent with observable market prices and that the requirements of FAS 157 are met.

14. What are some of the different methods for determining implied volatility?

Implied volatilities on major equity indices up to about 5, or in some cases 10, years are generally available and may be reliable if based on substantial volumes of trades of options that extend for such periods.[1] But trades in options longer than 5 or 10 years tend to be very thin, and thus the resulting implied volatilities may be unreliable or even unavailable. Also, even short term volatilities on smaller indices may need to be estimated if there is insufficient market activity to generate reliable implied volatility values.

Different approaches can be used to estimate the longer term volatilities. In determining the approach to use, the approach that a market participant would use may be taken into account. If the entity for which the valuation is being performed is a market participant, its own approach may be appropriate.

One approach would be to extrapolate the long term volatilities from the observable implied volatilities at shorter durations. Since the observable short duration implied volatilities would incorporate the market's risk margin already, it may not be necessary to add a separate risk margin to the extrapolated values, depending on how the extrapolation is performed.

Another approach would be to use actual historical long term volatilities to estimate the projected long term volatilities for the fair value calculations. If the average historical volatility is used, there may be a need for a separate risk margin since the observed average historical volatility would not include any risk margin.

FASB Staff Position 157-4 (FSP 157-4), "Determining Fair Value When the Volume and Level of Activity for the Asset or Liability Have Significantly Decreased and Identifying Transactions That Are Not Orderly," provided guidance indicating that a previously appropriate observable input may no longer be appropriate if the volume and level of activity associated with that input has decreased significantly. It also provides guidance on identifying whether a transaction is "orderly," one of the requirements in FAS 157 related to determining whether market prices are considered fair value. The guidance in this FSP may affect the assessment of whether previously used market inputs continue to be relevant.

15. Are risk margins needed?

Paragraph B2 of FAS 157 notes that one element of a fair value calculation using present value techniques is "the price for bearing the uncertainty inherent in the cash flows (risk premium)." Thus, if there is significant uncertainty in the cash flows a risk margin should be

[1] Volatilities up to 5 to 10 years were generally available at the time this practice note was written. Subsequent events may cause additional or fewer durations to become available.

considered. This risk margin is not a "provision for adverse deviation" to introduce conservatism into the fair value calculation, but represents the best estimate of the price a market participant would require for bearing such risk.

Since not all actuarial inputs can be calibrated to observable market prices, a risk margin should be considered for these items if they could significantly impact the present value of cash flows. The Academy's *Practice Note on FAS 157 & FAS 159* contains additional information on practices being used to calculate risk margins for a fair value calculation.

16. Does the insurer's own credit risk impact the embedded derivative valuation?

FAS 157 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 – when determining the fair value of liabilities. Therefore, a reporting entity will be required to consider the effect of its own credit standing in determining fair value under 157. Per paragraph 15 of FAS 157, "the reporting entity shall consider the effect of its credit risk (credit standing) on the fair value of the liability…"

Furthermore, in a letter sent by the Securities Exchange Commission to Chief Financial Officers in September 2008 (known as the "Dear CFO Letter") it states that, if material, companies should consider explaining "how your credit risk affected your valuation of derivative liabilities and the resulting gain or loss that you included in earnings related to the change in credit risk…" for items carried at fair value.

Although FAS 157 and the 2008 Dear CFO Letter require consideration of own credit risk when calculating liability fair values, they do not explicitly require consideration of own credit risk when calculating asset fair values (although counter-party risk on, say, a reinsurance contract would be considered). Under certain circumstances, the fair value of a variable annuity guarantee may be an asset to the company. Based on the lack of specific guidance related to nonperformance risk on assets, and the fact that the fee leg is a payment from the policyholder, not the insurer (and therefore not subject to the claims paying ability of the insurer), some actuaries believe that the adjustment for nonperformance risk would be applied to the claim leg of the embedded derivative only. Other actuaries believe that the credit risk adjustment should be applied to both the claim leg and the fee leg, but only if the resulting embedded derivative is in a liability position. Finally, there are some actuaries who believe in applying the adjustment to both the claim leg and fee leg regardless of whether the embedded derivative is an asset or a liability, based on the premise that policyholders would no longer pay fees if the insurer were to default on the claim payments. Regardless of the method used, there is generally consistency between the methodology applied in determining the ascribed fee upon issuance of the contract and the methodology applied for subsequent valuations.

17. What are some possible sources of information on the credit rating impact?

Several sources may be available to determine the appropriate spreads. All have advantages and disadvantages. In determining which source to use, the principal market that the instrument being fair valued would be transferred to should be considered.

Possible sources of information on the credit rating impact to be used might be a company's debt, or credit default swaps, or Institutional products, such as GICs, retail notes and term notes that are traded in secondary markets. If credit spreads from company debt, credit default swaps or institutional products are not available or deemed not to be appropriate, it may be possible to estimate credit spreads from other market sources. For example, a company could base a credit spread estimate on credit default swaps or debt of similar companies or industry averages. Another potential method is to base credit spreads on historical data on rates of claim payment default for similarly rated companies.

Some considerations in using company debt, credit default swaps or Institutional products as a source for the credit rating impact are that claims on the embedded derivative being valued may have a higher priority than the company debt, which is also the basis for the credit default swap price. The embedded derivative may also have credit enhancements (for example, guarantee fund protection) not reflected in the prices for debt, credit default swaps or Institutional products. Also, the debt or Institutional products may be issued from a different legal entity, with different credit standing, than the embedded derivative. A consideration in using historical data on rates of claim payment default is that these rates may not reflect current market prices.

The Academy's *Practice Note on FAS 157 & FAS 159* contains additional information on practices being used to incorporate own credit risk into fair value calculations.

18. Can the value of the variable annuity guarantee embedded 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 variable annuity guarantee embedded derivatives because they believe these embedded derivatives are "swap like" in nature, and not viewed as options.

Some actuaries believe that FAS 157 eliminated any ambiguity about whether a variable annuity guarantee embedded derivative can be an asset, and confirmed that the value of such an embedded derivative can be an asset. An important consideration in determining whether a variable annuity guarantee embedded derivative can have an asset value is whether a market participant would actually be willing to pay to acquire such an item. This may be the case if the present value of attributed fees exceed the present value of expected benefits (including any risk margin) **and** if there are restrictions on or disadvantages to the policyholder lapsing the embedded derivative (for example, the embedded derivative could only be lapsed if the entire host annuity contract is lapsed as well).

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

The actuary may wish to consider whether contracts 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. It may make sense to consider reviewing any such grouping on each valuation date in order to confirm that the grouping would not result in a material difference, even if there were a seriatim calculation.