Capital redundancy in indexed annuities

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Fixed-indexed annuities (FIAs), previously known as equity-indexed annuities, have been around for a few decades and continue robust sales. Starting as a vehicle that provided policyholders an equity participation while preserving the principal, FIAs have evolved to offer income protection via guaranteed lifetime withdrawal benefits and to allow policyholders more equity participation by relaxing the principal preservation in what became known as registered index-linked annuities (RILAs).

In our recent paper[1] we examined the implications of the accounting for assets and liabilities for FIAs that, under the current National Association of Insurance Commissioners (NAIC) rules, create a noneconomic surplus volatility, which is not present for other products with similar risk characteristics. In this paper we explore the capital requirements for FIAs that set them apart from other products.

From an insurer's point of view, FIAs are practically indistinguishable from fixed deferred annuities, as the entire equity risk associated with index credits can be hedged away, and what remains is a fixed deferred annuity (FDA).[2]

Even though the insurer risks inherent in FIAs are like those in traditional FDAs, capital requirements in the United States treat them differently. The required capital structure penalizes insurers with FIAs compared to those with the fixed deferred annuities. The former was excluded from the scope of an inaugural principle-based capital framework known as C-3 Phase I. As such, companies with profitable well-matched business may be required to hold twice as much capital on simple fixed-indexed annuities as on otherwise comparable FDAs.

The move toward principle-based reserving and capital (PBRC) for non-variable annuities (VM-22) may alleviate the burden associated with the required capital issues, when soon adopted. The upcoming NAIC and American Academy of Actuaries field tests of an economic scenario generator and VM-22 should help insurers understand the impact of required capital under a principle-based framework versus the current factor-based methods. We encourage insurers to participate in these field tests and keep a close eye on PBRC development. However, there will still likely be situations where complete resolution of the matters described in this paper on existing FIA blocks is not possible.

In this paper we describe the existing rules to measure the C-3 component of the standard NAIC Risk-Based Capital (RBC) framework for different annuity products. Using the results of a survey, we illustrate how much excess required capital could be released if FIAs were treated like FDAs.

NAIC RBC C-3 factor

RISK-BASED CAPITAL

The RBC formula produces the statutory minimum capital that a company is required to maintain to avoid regulatory action.

RBC requirements in life insurance are based on four categories of risk:[3]

- **C-1 or asset risk**. This is the risk of assets' default of principal and interest or fluctuation in fair value.
- **C-2 or insurance risk**. This is the risk of underestimating liabilities from business already written or inadequately pricing business to be written in the coming year.

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[1] Fridman, Y. & Yadatore, K. (July 2022). Indexed Annuities: U.S. Statutory Accounting. Milliman Report. Retrieved August 25, 2022, from https://www.milliman.com/en/insight/indexed-annuities-US-statutory-accounting.
[2] We assume here that there are no riders attached to this policy. Small differences may still exist from the fixed deferred annuities.
[3] Risk-Based Capital Forecasting and Instructions – Life/Fraternal 2021, page iv.

- **C-3 or interest rate risk, health credit risk, and market risk**. This is the risk of losses due to changes in interest rate levels, the risk that health benefits prepaid to providers become the obligation of the health insurer once again, and risk of losses due to changes in market levels associated with variable products with guarantees.

- **C-4 or business risk**. This is the risk of general business.

In this article, we discuss the current method for calculating the C-3 requirement for FIAs[4] and explore the excess C-3 requirements for FIAs compared to other products with similar risk profiles.

THE C-3 REQUIREMENT

As explained above, the C-3 requirement measures the contribution to the insurer's RBC due to interest rate and market risks that the insurer's assets and liabilities are exposed to. There are three methods to calculate the C-3 requirement for annuities, depending on the insurance product type.

A. **Factor-based method** where the insurer's C-3 pretax requirement is the sum of three components, assuming that the associated reserves were cash flow tested for asset adequacy:

   - Statutory reserves for annuities with market value adjustment (MVA) feature multiplied by a factor of 0.0063.
   - Statutory reserves for contracts without MVA and with surrender charge (SC) greater than or equal to 5% of the account value multiplied by a factor of 0.0127.
   - Statutory reserves for contracts without MVA and with SC less than 5% of account value multiplied by a factor of 0.0253.

   The details of the factor-based method to determine the C-3 requirement are available in "LR027" of the NAIC's RBC instructions. FIAs are subject to the factor-based method for determining the insurer's C-3 requirement.

B. **C-3 Phase I method**: A cash flow testing exercise where the C-3 requirement is broadly equal to the weighted average of worst present value of negative surplus amounts calculated for a prescribed set of scenarios. The initial assets are equal to the company's statutory liability. The scenarios are interest rate-only scenarios, and the discount rate is 105% of the scenario-specific after-tax 1-year Treasury rate. The C-3 Phase I amount is subject to a floor of 50% of the amount calculated using the factor-based method (the floor is enforced at the legal entity level). The chief products that the C-3 Phase I method is applicable to are FDAs, immediate annuities, and structured settlements. The detailed specifications for the C-3 Phase I calculations are available in "Appendix 1 – Cash Flow Modeling for C-3 RBC" of the RBC instructions.

C. **C-3 Phase II method**: A cash flow testing exercise where the insurer projects surplus using prescribed stochastic and equity scenarios (1,000 scenarios are typically used) and the company's prudent estimate assumptions and calculates the worst present value of negative surplus for each of the 1,000 scenarios. Broadly, the insurer uses scenario-specific projected asset earned rates as the discount rates. Using a macro tax adjustment method, the insurer then calculates a pretax CTE 98 and CTE 70 of the worst present value of negative surplus amounts and uses these CTEs to calculate the C-3 requirement, which is approximately equal to:[5]

$$25\% * [(\text{CTE } 98 - \text{CTE } 70) * (1 - \text{Tax Rate}) - (\text{Statutory Reserve} - \text{Tax Reserve}) * \text{Tax Rate}^6]$$

   We have provided a simplistic explanation of the C-3 Phase II calculation. The detailed specifications for the C-3 Phase II, the statutory, and tax reserve are available in the NAIC RBC instructions. The chief products that C-3 Phase II is applicable to are variable deferred annuities (VAs) and variable immediate annuities.

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[4] FIAs are also commonly referred to as equity-indexed annuities among practitioner actuaries.
[5] The formula provided ignores the Additional Standard Projection Amount for simplicity.
[6] The "(Stat Reserve – Tax Reserve) x Tax Rate" portion is capped at the company's non-admitted deferred tax asset (DTA) attributable to the same portfolio of assets that VM-21/C3P2 applies to. Said another way, if a company has zero non-admitted DTA for this line of business, then the (Stat Reserve – Tax Reserve) x Tax Rate is set to 0.

FIA POLICIES ARE EXCLUDED FROM C-3 PHASE I

C-3 Phase II is intended to be used in tandem with VM-21 for VAs, and, as such, is not applicable to FIAs. (C-3 Phase II, however, is applicable to RILAs if these products are valued using a VM-21 methodology as opposed to Actuarial Guideline [AG] 35.)

The NAIC's RBC calculation instructions for C-3 Phase I, "Appendix 1 – Cash Flow Modeling for C-3 RBC," state that:

(a) *For Certain Annuities or Single Life Insurance products **other than equity-indexed products** whether written directly or assumed through reinsurance, that the company tests for asset adequacy analysis using cash flow testing, an actuary should calculate the C-3 requirement based on the same cash flow model and assumptions used and the same "as of" date as for asset adequacy analysis, but with a different set of interest scenarios and a different measurement of results.*

(b) *Equity-indexed products are to use the existing C-3 RBC factors, not the results of cash flow testing*

As such, neither C-3 Phase I nor II can be applied to FIAs. Instead, the factor-based method must be used.

SHOULD C-3 PHASE I SCOPE BE EXTENDED TO FIAS?

Like FDAs and VAs, FIA contracts can have guaranteed minimum living or death benefit (GMxB) riders. However, in our experience, and evidenced from our survey results, a significant number of FIA contracts do not have a GMxB.

Insurers can argue that FIA contracts without GMxB and fixed accounts in FIA contracts with GMxBs should be subject to C-3 Phase I instead of the current factor-based method for the following reasons:

- The primary driver of risks, profits, and revenues in such FIAs is the interest spread between the asset earned rate and the option budget.
- The option budget used by the insurers to declare a cap, participation, and other index-based interest crediting parameters is very similar to the declared credited rate for FDAs.
- As with FDAs, there is no loss in the account value, irrespective of a downturn in the market.
- Almost all insurers use either or a combination of static and dynamic hedge programs to hedge the index-based interest credited for their FIA contracts. While one can argue the possibility of a mismatch or a slippage between the index-based interest credited versus the hedge payoff, in our experience such a mismatch is minimal and is not a concern to most insurers.
- As evidenced from our survey results, FIA contracts typically have a non-negligible amount of account value in fixed accounts where the interest is credited based on a declared credited rate that is subject to minimum guarantees.

Hence, an insurer can argue that there is very limited equity risk in FIA contracts without a GMxB and in the fixed account of FIA contracts that have a GMxB, and these contracts should be treated in a manner similar to FDAs for purposes of calculating the C-3 requirement.

Indexed accounts in FIA contracts that have a GMxB typically can produce some equity risk to the insurer. While the equity risk in FIA contracts with GMxB may not be as large as the equity risk in VA contracts due to GMxBs, one can argue that FIAs with GMxB should be subject to a C-3 requirement based on methods similar to the C-3 Phase II method that is currently applicable to VAs.

COST OF C-3 RBC FOR FIA

We surveyed a total of seven significant FIA carriers on their current C-3 calculation methods. The average FIA account value and statutory reserves across the seven carriers are approximately $25.3 billion and $23.4 billion, respectively, as of December 2021. For these seven companies, on an average, 11.9% of the FIA account value is in the fixed account where interest is credited based on a declared credited rate but subject to minimum guarantees, and 88.1% of account value is in accounts that have an index-based crediting strategy.

Six out of the seven companies apply the factor-based method to calculate the C-3 RBC amount. One company said that it subjected the fixed account portion of its FIA contracts to C-3 Phase I testing along with other fixed deferred annuities, immediate annuities, structured settlements, and pension risk transfer agreements.

As of December 2021, on an average, the seven FIA carriers' statutory reserves for their FIA contracts can be broadly classified into the following categories:

- 59.1% of statutory reserves can be categorized as low-risk reserves, which are reserves due to FIA contracts with MVAs. As per the RBC instructions, a multiple of 0.0063 is applied to the reserve amount to calculate the pretax C-3 amount for these FIA contracts.

- 14.1% of statutory reserves can be categorized as medium-risk reserves, which are reserves due to FIA contracts without MVAs and with the SC greater than 5% of account value. As per the RBC instructions, a multiple of 0.0127 is applied to the reserve amount to calculate the pretax C-3 amount for these FIA contracts.

- 26.8% of can be categorized as high-risk reserves, which are reserves due to FIA contracts without MVAs and with the SC greater than 5% of account value. As per the RBC instructions, a multiple of 0.0253 is applied to the reserve amount to calculate the pretax C-3 amount for these FIA contracts.

Based on S&P Global data, the total FIA statutory reserves, net of reinsurance, as of December 2021 for 154 legal entities owned by 72 companies were approximately $485.9 billion. For purposes of brevity, we will refer to these 72 companies/154 legal entities as "the Industry." We can extrapolate our survey results to calculate the approximate cost of using the factor-based method to determine the C-3 requirement for FIAs.

- LIMRA data shows that 49.6% of FIA assets for the Industry as of December 2021 is for FIAs without GMxBs. By applying this allocation to the Industry, we estimate that $240.8 billion in reserves is for FIA contracts without a GMxB and $245.1 billion is due to FIA contracts with a GMxB.

- 11.9% of the survey participants' FIA contracts' account value (AV) is in fixed account. Applying this percentage to our estimate of the Industry reserves on FIA contracts without GMxB, we estimate that $29.1 billion in reserves could be allocated to the fixed account portion in FIA contracts with a GMxB.

- Based on results above, the FIA carriers can make an argument to use the C-3 Phase I testing for $269.8 billion reserves as of December 2021 to determine the C-3 amount.

- Using the survey results of 59.1%, 14.1%, and 26.8% of low-risk, medium-risk, and high-risk reserves, respectively, for the $269.8 billion in reserves and multiplying them by the C-3 factors results in a factor-based pretax capital amount, we obtain approximately $3.3 billion pretax, or $2.6 billion after-tax, of capital on a company action level basis.

- Finally, using a multiple of 350% of the RBC amount and 75% covariance factor to calculate the C-3 contribution to the RBC amount, we estimate the Industry held approximately $6.9 billion as capital for FIA contracts using the factor-based method.

Using the information above, we estimate that, if the Industry used the C-3 Phase I method, then up to approximately $3.4 billion (50% of the factor-based amount) of capital could have been released in December 2021.

We note that the insurers should review classification of FIA policies with GMxB after the account values of such policies have been exhausted. While new contracts may or may not be issued for ensuing immediate annuities after the account value depletion, their characteristics may allow the insurers to classify them as immediate annuities and make them eligible for C-3 Phase I testing.

Statutory reserves for FIA contracts are calculated using AG 33/35. AG 33/35 requires the insurer to project policyholder elective and nonelective benefits using prescribed mortality and without any assumption for policy lapse or surrenders under several (theoretically all) policyholder behavior scenarios. The reserve is equal to the greatest present value of the integrated benefits, and the discount rates are prescribed. Due to the prescriptive and conservative nature of AG 33/35 reserves, that AG 33/35 methodology represents the "worst case scenario." Hence using C-3 Phase I testing for these FIA contracts where the initial asset is equal to the conservative AG 33/35 reserves will often result in a C-3 requirement of 50% of the C-3 requirement using the factor-based method.

Furthermore, insurers can argue that a floor of 50% of the factor-based amount is arbitrary, and the results of cash flow testing are actuarially sound and need not be floored using prescribed factors. On the other hand, the C-3 amount can be greater than the floor of 50% of the factor-based amount for FIA contracts if there is a significant mismatch between the insurer's assets and liabilities, or disintermediation risk in the insurer's FIA contracts.

PRINCIPLE-BASED C-3 FOR FIA

The Annuity Reserve and Capital Working Group (ARCWG), a subcommittee of the American Academy of Actuaries (AAA), is in charge of developing and proposing to the NAIC a PBRC framework for non-variable annuities (non-VA), including FIAs.

Many actuaries expect the NAIC to adopt the PBRC—both the reserving and the capital components—for non-VA as a model regulation in 2025. The PBRC framework may result in a C-3 calculation for non-VA using a method similar to the C-3 Phase II method used for VAs. While such a framework may significantly alleviate the capital redundancy and inefficiency that the Industry currently experiences, practitioner actuaries should note that:

1. The adoption date of the PBRC framework is still at least two years away.
2. The PBRC framework may apply to only new business issued after the adoption date.
3. It is unclear how the capital framework will apply in case an insurer passes the PBRC exclusion testing and will continue using the pre-PBRC methodology to calculate the reserve.

Hence, we encourage actuaries and insurers to discuss the capital redundancy associated with their FIAs with their state regulators and potentially seek permission from them to use methods that will reduce the capital redundancy, thereby benefiting all stakeholders, including the policyholders and insurers.

Conclusion

For certain FIA contracts, insurers are likely to hold more capital compared to other products with similar risk profiles such as FDAs. While the PBRC requirements may reduce capital redundancy in FIAs for business issued after the adoption date, insurers may wish to approach regulators to seek permission to use methods that would reduce excess capital for FIAs that are not subject to the PBRC requirements, thereby reducing costs to all stakeholders.

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