

MILLIMAN RESEARCH REPORT

VM-21 – 2020 Survey of Industry Practices

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Executive Summary

In the third quarter of 2020, Milliman refreshed a survey that establishes currently held market practice in the application of “VM-21: Requirements for Principle-Based Reserves for Variable Annuities.” Written into the requirements are several decision points for the application of the standard that are at the discretion of the carrier. This survey summarizes responses from 19 variable annuity (VA) carriers surrounding these decision points. The carriers surveyed are diverse in terms of total in-force account value and material account value exposure to living and death benefits. In-force account values range from under \$1 billion to over \$100 billion, with material rider exposure as outlined in Figure 1.

FIGURE 1: MAJOR RIDER EXPOSURE BY CARRIER

EXPOSURE	GMDB	GMAB	GMIB	HYBRID GMIB	GMWB
Number of carriers	17	8	8	3	16

As part of the survey, we asked these carriers 28¹ questions regarding major decision points in the application of VM-21 and New York Regulation 213 for VAs. While a more detailed discussion of each of these questions is provided in the main body of this report, certain key observations from the survey are noted below.

- Participants have locked down VM-21 methodology decisions relative to the 2019 VM-21 survey that we carried out, with much fewer undecided responses than before. Notably, the main area where there are still some decisions to be made is with respect to New York Regulation 213, which applies to 89% of survey participants. This is likely due to companies still being in the process of implementing (and finalizing methodology for) this new regulation.
- Almost two thirds of participants intend to model a Clearly Defined Hedging Strategy (CDHS). Of those, 58% have decided on an error factor level between 10% and 30%, 33% have decided on an error factor level between 5% and 10%, and the remaining participant has indicated an error factor level between 30% and 50%.
- Of the participants that intend to model a CDHS, two thirds intend to model hedging cash flows explicitly in the cash flow model with the remaining third modeling hedging cash flows implicitly.
- Standard Projection Amount approach: In calculating the Standard Projection Amount, 89% of participants intend to use the conditional tail expectation (CTE) with prescribed assumptions approach (CTEPA). The remaining 11% intend to use the Company Specified Market Path Approach.
- For participants with rider exposure that falls under the scope of the Withdrawal Delay Cohort Method, almost two thirds of participants employ a random sampling technique to mitigate the computational burden associated with the prescribed approach.
- All participants use the Macro Tax Adjustment approach for determining the C-3 capital charge under the Risk Based Capital statutory framework.
- A majority (89%) does not intend to utilize a phase-in period and will opt for immediate application of VM-21.
- A majority (89%) uses 1,000 stochastic economic scenarios in their VM-21 calculations.

In addition to the above questions regarding decisions on the application of VM-21 and New York Regulation 213, we asked survey participants how prepared they are for the implementation of VM-21 on a scale of 1 to 10, and what they see as the biggest implementation challenges.

All participants rated themselves at or above a 6 with 84% rating themselves at an 8 or better. The overall average level of preparedness was 8.5. This is significantly higher than the overall 5.9 rating in the 2019 version of this survey.

¹ Note that the first 14 questions are the same as the earlier VM-21 Survey, and focus purely on VM-21. New questions have been added around both VM-21 and New York Regulation 213.

While responses were diverse about what challenges the participants are facing in the implementation of VM-21, a few stood out as being cited by several carriers. The most prevalent response was concern surrounding the implementation of the Withdrawal Delay Cohort Method (WDCM) and the significant model run time that can result. The second most commonly cited concern regarded the variable annuity specific VM-31 disclosure requirements. Other commonly cited concerns were resource availability and implementing the additional requirements in New York under New York Regulation 213.

Please note that Milliman does not endorse any specific answer to any of the survey questions nor any specific approach outlined in VM-21 and in New York Regulation 213. It is possible that different approaches may make sense for different companies based on any number of reasons, including (but not limited to) the book of business in question, operational constraints, and implementation considerations, all of which often vary across companies. In particular, any reliance on this survey in making methodology decisions is solely at the companies' own risk. Lastly, we note it is possible the companies that have participated in this survey have changed their approaches since responding, given that many companies are still analyzing the implications of the new statutory framework.

Survey results

Question 1: Scenario Reserve approach

In the determination of the Stochastic Scenario Reserve, the company has two alternatives in calculating the Scenario Reserve:

1. Derivation of Net Asset Earned Rate (NAER) approach: Derive an implied NAER on an additional portfolio of assets (outside of the Starting Assets) projected according to the company's investment policy. The additional asset amount is the amount of assets necessary, in addition to the starting asset amount, to equal or exceed the accumulated asset deficiencies at the end of each projection period. The projected accumulated asset deficiencies are discounted at the implied NAER to obtain the Greatest Present Value of Accumulated Asset Deficiency (GPVAD). This amount plus the Starting Asset portfolio is the Scenario Reserve.
2. Direct iteration approach: Iteratively solve for the amount of Starting Assets such that there are no accumulated asset deficiencies at the end of any projection year in the scenario. This amount is the Scenario Reserve. By construction, the amount of Starting Assets is likely to vary across scenarios.

FIGURE 2: SCENARIO RESERVE APPROACH

APPROACH	COUNT	%
DERIVATION OF NAER	13	68%
DIRECT ITERATION	6	32%
TOTAL RESPONSES	19	100%

All participants have decided on an approach with 13 reporting they intend to derive NAERs from the projected portfolio of additional assets and calculate the GPVAD, and the remaining six reporting they intend to use the direct iteration approach.

Question 2: Treatment of currently held hedges

The company has two alternatives regarding hedge assets held on the valuation date:

1. Liquidate hedges at time zero.
2. Run off hedge assets as static hedges.

FIGURE 3: TREATMENT OF CURRENTLY HELD HEDGES

APPROACH	COUNT	%
RUN OFF CURRENTLY HELD HEDGES	7	37%
LIQUIDATE CURRENTLY HELD HEDGES AT TIME ZERO	8	42%
NO HEDGES	4	21%
TOTAL RESPONSES	19	100%

All participants have decided on an approach with seven reporting they intend to run off currently held hedges, eight reporting they intend to assume liquidation of currently held hedges at time zero, and the remaining four reporting they have no currently held hedge assets.

Question 3: Minimum allowable error factor

For companies that model a CDHS, the company must specify an error factor (E) in the range of 5% to 100% to reflect the ineffectiveness of the hedge program. The error factor must reflect the level of sophistication of the cash flow model, its ability to capture the risks being covered by the hedge strategy (i.e., Greeks), and the associated costs, risks, and benefits of the program. The company must conduct a formal back-test to assess how well the model is able to replicate the hedging strategy in a way that supports the error factor chosen. We asked survey participants the range of E they intend to use.

FIGURE 4: MINIMUM ALLOWABLE ERROR FACTOR

ERROR FACTOR RANGE	COUNT	%
$5\% \leq E < 10\%$	4	21%
$10\% \leq E < 30\%$	7	37%
$30\% \leq E < 50\%$	1	5%
$E \geq 50\%$	0	0%
NO CDHS	7	37%
TOTAL RESPONSES	19	100%

Seven participants do not model a CDHS. Of the remaining 12 participants, four reported they intend to use an error factor between 5% and 10%. Seven participants reported that they intend to use an error factor between 10% and 30%. One participant reported that they intend to use an error factor between 30% and 50%.

Question 4: CDHS modeling approach

For companies that intend to model a CDHS, there are two modeling approaches:

1. Implicit Method (aka, Cost of Reinsurance method): The effectiveness of the hedging strategy on future cash flows is evaluated, in part or in whole, outside of the stochastic cash flow model (e.g., calculating cost and benefit of hedging using the fair value of the hedged item, commonly the present value of rider claims less rider fees). The impact on the Company CTE70 (Best Efforts) should be commensurate with the degree of effectiveness of the strategy at reducing accumulated asset deficiencies.
2. Explicit Method: The projected hedge cash flows generated by the hedging program are modeled directly as part of the stochastic cash flow model.

FIGURE 5: CDHS MODELING APPROACH

APPROACH	COUNT	%
IMPLICIT METHOD	4	21%
EXPLICIT METHOD	8	42%
NO CDHS	7	37%
TOTAL RESPONSES	19	100%

Seven participants do not model a CDHS. Of the remaining 12 participants, four reported that they intend to use the Implicit Method. Eight reported that they intend to use the Explicit Method.

Question 5: Standard Projection approach

For the Standard Projection calculation, companies can elect one of two alternatives:

1. Company Specific Market Path (CSMP) approach: This approach involves choosing scenarios from a set of at least 40 prescribed scenarios based on the Company CTE70 (Adjusted) according to a defined methodology. The Scenario Reserve for these paths is calculated by employing the same assumptions used in the calculation of the CTE70 (Adjusted) as well as a set of prescribed assumptions. These Scenario Reserves along with the CTE70 (Adjusted) are used to formulaically determine the Prescribed Projection Amount.
2. CTE with Prescribed Assumptions (CTEPA) approach. This approach involves calculating the CTE70 (Adjusted) using the same method as the Company CTE70 (Adjusted) but using prescribed assumptions in place of prudent estimate assumptions. As with the Company CTE70 (Best Efforts) and Company CTE70 (Adjusted) calculations, this approach also requires that the Scenario Reserve be equal to or in excess of the cash surrender value in aggregate on the valuation date.

FIGURE 6: PRESCRIBED PROJECTION AMOUNT APPROACH

APPROACH	COUNT	%
CSMP	2	11%
CTEPA	17	89%
TOTAL RESPONSES	19	100%

Seventeen participants reported that they intend to use the CTEPA approach. Two reported that they intend to use CSMP approach. The industry skew toward the CTEPA approach is likely attributable to the intuitive nature of the calculation, since it is the same as the Company calculation but uses prescribed mortality, policyholder behavior, and expense assumptions rather than the analogous company assumptions. (This allows for a more commensurate comparison to the Company CTE70 (Adjusted) result). The CSMP approach also requires knowing the Company result beforehand, and so a dependency is created in the valuation process that does not exist under the CTEPA approach. Furthermore, under the CTEPA approach, companies can leverage the existing process used for the Company calculation rather than having to construct the 40 prescribed scenarios under the CSMP approach.

Question 6: Withdrawal Delay Cohort Method simplification (WDCM)

To model the timing of initial withdrawal for certain Guaranteed Minimum Withdrawal Benefit (GMWB) and hybrid Guaranteed Minimum Income Benefit (GMIB) plans, it is required that the company model copies of each contract, with each copy assuming a different initial withdrawal period. The weight assigned to each copy is determined by a prescribed methodology ultimately based on the present value of future benefits associated with each potential withdrawal period, adjusted by an amount, depending on the product, to reflect a “never withdraw” cohort. To increase computational efficiency for the WDCM, two simplifications are specifically outlined in the requirements to reduce the number of modeled copies (though the carrier can choose another appropriate approach so long as results closely align with the full-blown prescribed approach):

1. Discard certain withdrawal ages: This simplification allows for the removal of certain withdrawal ages from the modeled set. These ages must be removed in such a manner that the remaining ages can be considered representative of the distribution.
2. Random sampling: This method involves using random sampling to assign only a small number of cohorts to each contract. This must also be done in a way that the cohorts modeled can be considered representative in aggregate.

FIGURE 7: WITHDRAWAL DELAY COHORT METHOD SIMPLIFICATION

SIMPLIFICATION	COUNT	%
DISCARD CERTAIN WITHDRAWAL AGES	5	26%
RANDOM SAMPLING METHOD	11	58%
UNDECIDED	1	5%
NOT APPLICABLE	1	5%
OTHER (PLEASE SPECIFY)	1	5%
TOTAL RESPONSES	19	100%

One participant reported that this does not apply as they have no GMWBs or hybrid GMIBs (noted as “not applicable” in Figure 7 above). Another participant is still undecided on what simplification method to implement. Of the remaining 17 participants, 11 reported that they intend to use the random sampling method. Five reported that they intend to discard certain withdrawal ages. One participant reported that they intend to use a different method, specifically grouping policies of similar, strategically selected attained ages.

Question 7: RBC C-3 calculation of tax approach

For the RBC C-3 calculation, companies can reflect the impact of taxes in one of two ways:

1. Macro Tax Adjustment: Under this method, taxes are incorporated as a top-side adjustment to the pretax distribution of results produced by the VM-21 reserve calculation (on a CTE 98 basis).
2. Specific Tax Recognition: Models taxes explicitly in the cash flow model.

FIGURE 8: RBC C-3 TAX APPROACH

APPROACH	COUNT	%
MACRO TAX ADJUSTMENT	19	100%
SPECIFIC TAX RECOGNITION ADJUSTMENT	0	0%
TOTAL RESPONSES	19	100%

All participants use the Macro Tax Adjustment approach. This is likely due to the Macro Tax Adjustment being operationally easier (i.e., leveraging already calculated VM-21 results) as well as allowing for the use of higher (i.e., pre-tax) discount rates relative to the Specific Tax Recognition Adjustment. This impact can be material depending on the duration of the company's liabilities. Given that the removal of the working reserve change under VM-21 has typically led to GPVAD occurring toward the end of the projection, the materiality of the discount impact is further compounded by this change.

Question 8: RBC C-3 charge smoothing

In calculating the RBC C-3 capital requirement, companies are permitted to use a smoothing method to minimize volatility in the capital requirement from period to period. We asked participants whether they intend to use smoothing for the RBC C-3 capital calculation.

FIGURE 9: RBC C3 SMOOTHING

APPROACH	COUNT	%
YES	6	32%
NO	11	58%
UNDECIDED	2	11%
TOTAL RESPONSES	19	100%

Two participants reported that they were undecided at the time of this survey. Of the remaining 17 participants, 11 reported that they do not intend to use smoothing. Six participants reported that they do intend to use smoothing in the capital calculation.

Question 9: VM-21 phase-in

Companies are allowed to phase in to the new VM-21 requirements over a period of up to 36 months, or up to seven years with permission of the domiciliary commissioner. We asked participants whether they intend to use the phase-in period, and for how long.

FIGURE 10: USE OF PHASE-IN

APPROACH	COUNT	%
PHASE-IN ≤ 36 MONTHS	2	11%
PHASE-IN > 36 MONTHS	0	0%
IMMEDIATE ELECTION	17	89%
TOTAL RESPONSES	19	100%

Two participants reported that they intend to use the allowable 36-month phase-in period, while 17 participants reported that they intend to move to the new requirements immediately upon the effective date. No participants reported that they intend to request longer than a 36-month phase-in period.

Question 10: Allocation of aggregate reserve to contract level

The requirements dictate that the aggregate reserve in excess of the cash surrender value be allocated to the contract level. The method used is at the discretion of the company. However, the method must use a risk-adjusted measure reflecting the risk of the product relative to the cash surrender value. The measure of risk must account for risk-mitigation programs, including hedge programs and reinsurance. We asked participants an open-ended question regarding the risk measure they intend to use to allocate aggregate reserves to the contract level.

Two participants reported that they were undecided at the time of this survey. Of the remaining 17, 11 of them reported using the net amount at risk with the remaining six using the following:

1. Benefit base.
2. AG-43 Standard Scenario Amount.
3. Present value of guaranteed benefit payments as of valuation date.
4. Reserves calculated with and without reinsurance are allocated to reinsurers based on seriatim risk-adjusted results.
5. New York Regulation 213 reserve.
6. Present value of accumulated cash flows over the cash value.

Question 11: Compliance demonstration for modeled investment strategy

Under VM-21, the modeled investment strategy and any non-prescribed asset spreads shall be adjusted as necessary such that the aggregate reserve produced is not less than that which would be generated by substituting an alternative strategy in which all fixed income assets are non-callable corporate bonds with a credit quality blend of 50% A-rated and 50% AA-rated. We asked participants how they plan to demonstrate compliance with this requirement.

FIGURE 11: INVESTMENT STRATEGY COMPLIANCE DEMONSTRATION

APPROACH	COUNT	%
Use a 50% AA/50% A reinvestment strategy as the baseline strategy.	9	47%
Full rerun using the 50% AA/50% A reinvestment strategy in place of the company's baseline reinvestment strategy.	3	16%
Compare the initial and ultimate net spreads in the baseline reinvestment strategy to the initial and ultimate spreads for the 50% AA/50% A reinvestment strategy.	2	11%
Undecided	3	16%
Other (Please Specify)	2	11%
TOTAL RESPONSES	19	100%

Three participants reported that they were undecided at the time of this survey. Of the remaining 16 participants, nine reported that they intend to align the calculated reserve with the floor by using 50%/50% A and AA reinvestment strategy as the baseline reinvestment strategy. Three participants reported that they intend to perform a full rerun with 50%/50% A and AA in place of the baseline reinvestment strategy. Two participants reported that they intend to compare initial and ultimate spreads in the baseline reinvestment strategy to initial and ultimate spreads for the 50%/50% A and AA reinvestment strategy. Two participants reported that they intend to use a different methodology that basically reduces to using the alternative reinvestment strategy as the baseline reinvestment strategy with an annual calibration to prove the alternative reinvestment strategy generates higher reserves than when using the company's reinvestment strategy.

Of the two that reported they intend to use a different strategy, one reported that it intends to use a 100% AA reinvestment strategy as the baseline reinvestment strategy. The other participant reported that they intend to perform a single run with a reinvestment strategy producing lower spreads, then annually rerun both strategies as of the same date to validate the approach.

It should be noted that regulators have indicated that companies perform both the alternative reinvestment strategy and the company baseline strategy.

Question 12: Adoption of SSAP 108 for interest rate hedges

Under the VM-21 framework, companies are permitted to reflect a deferred asset or liability for fair value fluctuations in interest rate hedges under SSAP 108. We asked participants if they intend to adopt this practice.

FIGURE 12: ADOPTION OF SSAP 108

APPROACH	COUNT	%
YES	5	26%
NO	11	58%
UNDECIDED	3	16%
TOTAL RESPONSES	19	100%

Three participants reported that they were undecided at the time of this survey. Of the remaining 16 participants, 11 reported that they do not intend to adopt SSAP 108 treatment for interest rate hedges. Five participants reported that they do intend to adopt SSAP 108 treatment.

Question 13: VM-21 preparedness

We asked survey participants to rank their preparedness to implement VM-21 on a scale of 1 (least prepared) to 10 (most prepared). Below is a summary of the responses.

FIGURE 13: PREPAREDNESS FOR VM-21

RANK*	COUNT	%
10	5	26%
9	7	37%
8	4	21%
7	1	5%
6	2	11%
TOTAL RESPONSES	19	100%

* Some participants elected half ranks between the integers of 1 to 10. These were rounded up for the purposes of this table.

All participants rated themselves at or above a 6 with 84% rating themselves at an 8 or better. The overall average level of preparedness was 8.5. This is significantly higher than the overall 5.9 rating in the 2019 version of this survey.

Question 14: VM-21 implementation challenges

We asked participants the open-ended question of what they view as the biggest challenges to implementation. While the responses were generally diverse, some concerns were more prevalent.

1. Of the participants, 42% explicitly cited concern surrounding the implementation of the WDCM. The WDCM was also the largest concern among participants in last year's study
 - a. Of those, 25% explicitly cited run time as the primary or secondary concern of the WDCM.
2. Of the participants, 21% explicitly cited concern surrounding the variable annuity specific VM-31 disclosure requirements.
3. Of the participants, 16% cited concern regarding the deviation from the standard in New York.
4. Of the participants, 26% cited concern surrounding resource constraints.

Other key issues cited included:

1. Implementing prescribed assumptions for Standard Projection Amount.
2. Some companies are in the midst of software conversions and/or have concerns about receiving VM-21-compliant models from software vendors.
3. Developing a risk-adjusted measure to allocate excess reserves to contract level.

Question 15: Flooring interest rates in sensitivities

We asked participants the open-ended question of whether they intend to floor interest rates when performing sensitivities involving immediate down shocks to starting interest rates due to the current low interest rate environment. Their responses are summarized below.

FIGURE 14: INITIAL YIELD CURVE FLOOR IN DOWN SHOCK INTEREST RATE SENSITIVITIES

FLOOR	COUNT	%
Undecided	1	5%
No floor	6	32%
Unspecified floor	4	21%
1 basis point floor	6	32%
0% floor	2	11%
TOTAL RESPONSES	19	100%

The limitations of the Academy Interest Rate Generator used for VM-21 (and other principles based reserving applications) in a low environment are a result of the inability to generate negative interest rates. This is an issue given that the 20-year Treasury rate is currently in the neighborhood of the default value for the soft floor on the long rate. This default value is equal to 1.15%. By way of comparison, over the third quarter of 2020 for example, the average 20-year Treasury rate equaled 1.14%.

So as actual interest rates fall towards the 1.15% default threshold, reserves will increase (which can be thought of as normal behavior) but as actual interest rates fall below 1.15%, the generated average rates at any tenor start to increase and so reserves will decrease (which does not follow the normal behavior).

Question 16: Age of RMD shock during the WDCM

The 2019 SECURE Act changed the required minimum distribution (RMD) age from 70 ½ to 72. VM-21 prescribed a shock at age 71 for qualified policies (in recognition of the fact that a qualified policyholder will have an increased likelihood of taking withdrawals once the RMD age is reached) but was written before the SECURE Act was passed in December 2019. We asked participants the age at which they intend to apply the prescribed RMD shock. Below is a summary of their responses.

FIGURE 15: AGE OF RMD SHOCK DURING WDCM

AGE	COUNT	%
70	1	6%
71	5	28%
72	6	33%
73	2	11%
Undecided	2	11%
Not modeling shock	1	6%
Not applicable	1	6%
TOTAL RESPONSES	18	100%

One participant (with business in scope) did not answer, another does not have business in scope of the WDCM, another is choosing not to model the RMD shock, and two others are still undecided. Of the remaining 14, most are intending to follow either VM-21 as written (and apply the shock at age 71) or move the shock to age 72 under the SECURE Act. Two participants are applying the shock at attained age 73 and another participant is applying the shock at age 70.

Question 17: Additional Invested Assets under the Indirect Method

We asked the 13 participants intending to derive the Net Asset Earned Rates under the Indirect Method the open-ended question of how they define the additional invested asset portfolio. Their answers are summarized below.

FIGURE 16: ADDITIONAL INVESTED ASSETS UNDER THE INDIRECT METHOD

AIA DEFINITION	COUNT	%
100% cash invested according to Company reinvestment strategy	6	46%
Similar portfolio mix as the General Account Assets supporting the VA block	4	31%
A mix of the two strategies above	2	15%
100% cash invested according to the prescribed A/AA corporate bond reinvestment strategy using a rolled earned rate method to approximate reinvestment yields	1	8%
TOTAL RESPONSES	13	100%

Question 18: Discount rate under the Direct Iteration Method

We asked the six participants intending to iteratively solve for the Starting Assets using the Direct Iteration Method the open-ended question of what discount rate they are using to discount VAGLB excess claims. (Since, under this approach Net Asset Earned Rates are not explicitly needed since no discounting of accumulated deficiencies is performed). Their answers are listed below.

FIGURE 17: DISCOUNT RATE UNDER THE DIRECT METHOD

DISCOUNT RATE	COUNT	%
No present value is calculated and/or the projection period is sufficiently long enough to capture all material risk	2	33%
NAERs are calculated separately for this purpose	2	33%
A single rate across all scenarios that is closely related to the average NAER reduced by a margin	1	17%
Reinvestment rate at the time of excess claims	1	17%
TOTAL RESPONSES	6	100%

Question 19: Adopting the Alternative Methodology

All but one participant do not intend to use the Alternative Methodology for any part of their VA business.

Question 20: VM-21 stochastic scenario count

We asked participants how many stochastic scenarios they intend to use for VM-21. Below is a summary of their responses.

FIGURE 18: VM-21 STOCHASTIC SCENARIO COUNT

SCENARIOS	COUNT	%
$X \leq 1000$	17	89%
$1000 < X \leq 2500$	1	5%
$2500 < X \leq 5000$	1	5%
TOTAL RESPONSES	19	100%

All but two participants intend to use 1,000 scenarios or less with one participant intending to use between 2,500 and 1,000, and another intending to use between 2,500 and 5,000.

Question 21: VM-21 stochastic scenario count versus AG-43 count

We asked participants how their VM-21 stochastic scenario count compares to their AG-43 stochastic scenario count. Below is a summary of their responses.

FIGURE 19: VM-21 STOCHASTIC SCENARIO COUNT VERSUS AG-43 COUNT

SCENARIOS	COUNT	%
The same	17	89%
VM-21 uses more scenarios	2	11%
VM-21 uses less scenarios	0	0%
TOTAL RESPONSES	19	100%

All participants that intend to use 1,000 or fewer VM-21 stochastic scenarios indicated the scenario count matches that used in AG-43. The two participants that reported they intend to use more than 1,000 scenarios indicate the VM-21 stochastic scenario count is higher than under AG-43.

Question 22: Applicability of New York Regulation 213

All but two participants are subject to New York Regulation 213. These two participants did not provide answers to the following questions as they all pertain to this regulation. An additional participant that is subject to the regulation did not provide responses. Accordingly, all subsequent questions only have 16 responses.

As noted earlier, many companies are still working through their New York Regulation 213 implementation.

Question 23: Factor for GMWB business in Systematic Withdrawal

For GMWB business under New York Regulation 213, no factor is explicitly stated to apply to the guaranteed annual withdrawal amount in the Minimum Reserve. This is in contrast to VM-21, which states that when the account value is positive, a factor of 90% will apply for Lifetime GMWBs and 70% for non-Lifetime GMWBs, while if the account value is depleted a factor of 100% will apply. We asked participants the open-ended question of which, if any, factor they intend to apply to the guaranteed annual withdrawal amount.

FIGURE 20: GMWB GUARANTEED ANNUAL WITHDRAWAL AMOUNT FACTOR IN THE MINIMUM RESERVE

FACTOR	COUNT	%
Not applicable	5	31%
Undecided	3	19%
100% at all times	4	25%
90% for lifetime, 70% for non-lifetime GMWBs while the AV is positive, switching to 100% at AV depletion	4	25%
TOTAL RESPONSES	16	100%

Question 24: WDCM Simplifications

Unlike VM-21, New York Regulation 213 does not explicitly state that simplifying methods for the WDCM are allowed. We asked participants the open-ended question on which, if any, simplification they intend to use for the WDCM under New York Regulation 213.

FIGURE 21: WDCM SIMPLIFICATIONS UNDER NY REG 213

SIMPLIFICATION	COUNT	%
No applicable business	6	38%
Undecided	2	13%
Same simplification used for VM-21	7	44%
No simplification	1	6%
TOTAL RESPONSES	16	100%

Question 25: Modeling policies with multiple guarantees

New York Regulation 213 states that “for annuity contracts with multiple guaranteed benefits, the minimum reserve shall be the greatest of the respective minimum reserves at the valuation date for each benefit disregarding all other guaranteed benefits.” We asked participants the open-ended question on how they intend to conform to this requirement.

FIGURE 22: MODELING POLICIES WITH MULTIPLE GUARANTEES

MODELING APPROACH	COUNT	%
No applicable business	4	25%
Model in exactly the same way as under VM-21	9	56%
Perform tests to assume the most valuable benefit to the policyholder and model reserves using this single most valuable guarantee	1	6%
Compute a separate reserve for each guarantee (with all other guarantees turned off) and take the maximum	1	6%
Use vendor approach	1	6%
TOTAL RESPONSES	16	100%

Question 26: Option Value Floor component of the Minimum Reserve

We asked participants the open-ended question on how they intend to apply the Option Value Floor component of the Minimum Reserve for business issued on or after January 1, 2020 under New York Regulation 213.

FIGURE 23: OPTION VALUE FLOOR COMPONENT OF THE MINIMUM RESERVE

MODELING APPROACH	COUNT	%
No applicable business	3	19%
Undecided	3	19%
Option value floor only applied to rider cash flows	5	31%
Option value floor applied to base contract cash flows in addition to rider cash flows	5	31%
TOTAL RESPONSES	16	100%

Responses where participants have decided on an approach to take are evenly split, with five companies applying the floor only to rider cash flows and five companies also including the base contract cash flows. Generally, when one thinks of an embedded option for a variable annuity in a U.S. GAAP context, the rider(s) are the key component. This focus lends itself to using a present value of excess rider claims over present value of rider fees approach to calculate the fair value. However, it can also be argued that since the Option Value Floor is being compared to the VM-21 reserve (and the latter is inclusive of both the base contract cash flows as well as the rider cash flows) then for reasons of consistency the Option Value Floor should similarly reflect all flows.

Question 27: Volatility for the Option Value Floor

We asked participants an open-ended question to describe their volatility assumption for the Option Value Floor component of the Minimum Reserve for business issued on or after January 1, 2020.

FIGURE 24: VOLATILITY FOR THE OPTION VALUE FLOOR

MODELING APPROACH	COUNT	%
No applicable business	4	25%
Undecided	4	25%
Implied volatility as of the valuation date grading to a long-term volatility assumption	5	31%
Implied volatility as of the valuation date	2	13%
Blend of the two approaches immediately above	1	6%
TOTAL RESPONSES	16	100%

Question 28: Own-credit spread and/or adjustment for non-performance risk in the Option Value Floor

We asked participants whether they intend to use an own-credit spread (OCS) and/or an adjustment for non-performance risk for the Option Value Floor component of the Minimum Reserve for business issued on or after January 1, 2020.

FIGURE 25: OCS AND/OR ADJUSTMENT FOR NON-PERFORMANCE RISK IN THE OPTION VALUE FLOOR

ANSWER	COUNT	%
Yes	6	38%
No	10	63%
TOTAL RESPONSES	16	100%

Interestingly, 38% of companies indicated that they will apply an OCS and/or adjustment for non-performance risk for the Option Value Floor component. The OCS is typically included in the discount rate for a fair value and/or U.S. GAAP SFAS 157 calculation (and whether it should apply in a statutory context is perhaps an open question).



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