



VM-22: Statutory Maximum Valuation Interest Rates for Income Annuities

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VM-22 was first introduced into the Valuation Manual in 2018. A number of changes have been made since its introduction, with more expected on the way.

In its current state, VM-22 defines the statutory maximum valuation interest rate used in conjunction with CARVM for immediate, payout annuities and other similar contracts issued after Dec. 31, 2017.

The maximum valuation interest rates under VM-22 supersede those prescribed in Actuarial Guideline IX (AG 9) for products under the scope of VM-22.

Key differences between pre- and post-VM-22 requirements are summarized in Figure 1.

Figure 1
Differences Between Pre- and Post-VM-22 Requirements

	Pre-VM-22	Post-VM-22
Scope	Issued prior to Jan. 1, 2018	Issued on or after Jan. 1, 2018
By duration	Guarantee duration and plan types (A, B and C)	Reference period and rate buckets (A, B, C and D)
Update frequency	Annual	Jumbo: daily Non-jumbo: quarterly
Rounding	Nearest 25 basis points (bps)	Jumbo: nearest 1 bp Non-jumbo: nearest 25 bps
Reference rate	Moody's seasoned corporate bond index	Treasury rates
Valuation rate derivation	Does not vary by jumbo vs non-jumbo contracts; based on the reference rate and pre-defined weighting factor	Varies by jumbo vs non-jumbo; based on reference rate and prescribed spreads, defaults and portfolio credit quality distribution



TECHNICAL AND IMPLEMENTATION IMPLICATIONS

Valuation Rate Buckets: A, B, C and D

Contracts in scope for VM-22 are assigned to one of four valuation rate buckets—as shown in Figure 2—based on the following criteria:

1. Whether the contract is life contingent
2. The length of the reference period (RP)
3. Initial age of the annuitant

Figure 2

Determination of Valuation Rate Buckets

		Length of RP (in years)			
Contracts without life contingencies					
		0 - 5	6 - 10	11 - 15	16 +
Buckets		A	B	C	D
Contracts with life contingencies					
Initial Age		0 - 5	6 - 10	11 - 15	16 +
Buckets	90+	A	B	C	D
	80-89	B	B	C	D
	70-79	C	C	C	D
	<70	D	D	D	D

The increase in granularity with respect to length of reference period and initial age of annuitant allows for more robust duration matching. However, some implementation effort is expected in order to set up the above bucket assignment in the models. After the initial model implementation, no recurring efforts are needed other than the periodic updates of valuation interest rates.

Jumbo Vs. Non-jumbo Contracts

A new distinction introduced by VM-22 is the size of the initial consideration. A contract with initial consideration equal to or greater than \$250 million is referred to as a jumbo contract. A contract with less than \$250 million is referred to as a non-jumbo contract. VM-22 requires jumbo contract valuation rates to be updated daily and non-jumbo contracts to be updated quarterly.

Jumbo contracts mostly consist of pension risk transfers. Also, despite the daily update frequency, the calculations and applications of these rates are only performed at each valuation. Therefore, the requirement for daily updates is not expected to have a significant impact for most companies.

Rate Derivation

For each valuation rate bucket (A, B, C or D), the quarterly non-jumbo valuation rate is defined as

$$I_q = R + S - D - E \text{ where:}$$

- R is the reference rate;
- S is the spread;
- D is the default cost; and
- E is the spread deduction (defined as 0.25 percent).

For non-jumbo contracts, the quarterly statutory maximum valuation interest rate is the quarterly rate I_q rounded to the nearest one-fourth of 1 percent.

For jumbo policies, the daily valuation rate is defined as $I_d = I_q + C_{d-1} - C_q$ where:

- I_q is the quarterly valuation rate defined above for the quarter preceding the premium determination date;¹
- C_{d-1} is the daily corporate rate for the business day immediately preceding the premium determination date; and
- C_q is the average daily corporate rate corresponding to the same period used to develop I_q .

For jumbo contracts, the daily statutory maximum valuation rate is the daily valuation rate I_d rounded to the nearest one-hundredth of 1 percent.

Each component of the above calculations as well as the final valuation rates are posted on the NAIC website, quarterly for non-jumbo rates and daily for jumbo rates. In general, the implementation is relatively straightforward and can simply use a “plug and play” approach based on issue age and reference period. Robust automated external tools can often be utilized to ease the recurring update.

Reference Period

The reference period is the length of time used in assigning the valuation rate buckets. Its determination is one of the more challenging aspects of VM-22. The reference period is determined and locked in at issue for both jumbo and non-jumbo contracts.

The reference period is determined as follows and rounded to the nearest integer year, based on whether a contract is life contingent and if the underlying payments are substantially similar.

1. For life-contingent contracts, the reference period is calculated from the premium determination date to the earlier of the date of the last non-life-contingent payment and the date of the first life-contingent payment.
2. For non-life-contingent contracts, the reference period is calculated from the premium determination date to the date

of the last non-life-contingent payment, which would be the last payment under the contract.

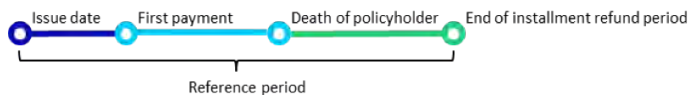
- The above two approaches are intended for payments that are substantially similar. If this is not the case, Macaulay duration of the series of payments is used as the reference period. Actuaries are required to apply prudent judgment in its determination.

There are a few important details to note with regard to reference period. Reference period must be calculated at a contract level. For group annuities this means the reference period should be calculated separately at the certificate level under the group contract. Reference period is rounded to the nearest year before being used in rate bucket assignments.

The determination of reference period is further illustrated in the two examples shown in Figure 3. In Example 1, the reference period is calculated from the issue date to the last payment of the installment refunds. In Example 2, the reference period is the same as the deferral period since all cash flows are life contingent.

Figure 3
Examples Illustrating Determination of Reference Period

Example 1: An income annuity contract with installment refund feature



Example 2: An income annuity contract with premium refund upon death



Determining the correct reference period is a crucial aspect of VM-22. If the company’s existing valuation system is not capable of performing such a calculation, it may be worthwhile to explore data processing options outside of the model to ensure correct implementation.

New York Regulation 213

New York has adopted Insurance Regulation 213 (NY Reg-213), Principle-Based Reserving, which includes the requirements for valuation of payout annuity reserves (as well as valuation requirements for term life and variable annuity contracts) for companies domiciled in New York.

For payout annuities, NY Reg-213 has similar requirements to VM-22 but has several differences as summarized in Figure 4.

Figure 4
NY Reg-213 vs. VM-22—Non-jumbo contracts

Feature	VM-22	NY Reg-213
Scope	Issued on or after Jan. 1, 2018	Issued on or after Jan. 1, 2019 Policies issued in 2019 have the option to apply either NY Reg-213 or existing requirements, or a modified version of existing requirements
Cap on spread	None	Table X spreads defined in Section 2.F of VM-22 shall each be capped at 200 basis points
Portfolio distribution	<ul style="list-style-type: none"> 5% Treasuries 15% Aa bonds (5% Aa1, 5% Aa2, 5% Aa3) 40% A bonds (13.33% A1, 13.33% A2, 13.33% A3) 40% Baa bonds (13.33% Baa1, 13.33% Baa2, 13.33% Baa3) 	<ul style="list-style-type: none"> 5% Treasuries 45% Aa bonds (15% Aa1, 15% Aa2, 15% Aa3) 50% A bonds (16.67% A1, 16.67% A2, 16.67% A3)

After taking spread cap and portfolio distribution into consideration, the difference between rates calculated from VM-22 and NY Reg-213 is rounded down to the nearest 0.25 percent, floored at zero, and finally subtracted from the rounded VM-22 rate. This results in a lower or equal valuation interest rate under NY Reg-213 compared to VM-22.

For jumbo contracts, the difference in daily maximum valuation interest rates is summarized in Figure 5.

Figure 5
NY Reg-213 vs. VM-22—Jumbo contracts

Feature	VM-22	NY Reg-213
Daily maximum valuation rate	I_d^2	I_q^2 less $(R_{d-1} + 1.90\% - D - E)$ where: <ul style="list-style-type: none"> R is the daily reference rate³ for the business day immediately preceding the premium determination date D is the default cost² E is the spread deduction²

Implementation of NY Reg-213 is expected to be more challenging than VM-22. Unlike VM-22, the maximum

valuation interest rates under NY Reg-213 are not published online at the time of this writing and require the development of a tool to calculate.

THE ROAD AHEAD

Insurance regulations are constantly evolving. There are already ongoing discussions within the NAIC subgroup to materially revise VM-22 in the near future. Some revisions are expected to define the minimum reserve requirements by incorporating aspects of the existing AG 9 methodology and mortality requirements. It is reasonable to expect that the final requirements under VM-22 will be much more granular and robust than what they currently are under AG 9.

Additionally, with life insurance principle-based reserving (PBR) and variable annuity PBR already in effect, the regulators have turned more attention to non-variable annuity PBR which will potentially be incorporated as part of VM-22. If so, it is expected that more complex products such as fixed indexed annuities and fixed annuities with guaranteed lifetime withdrawal benefit (GLWB) riders may also be included as part of VM-22.

As regulatory requirements continue to evolve, it will be important to stay close to emerging regulatory discussions. Creating optionality in modeling and product cycle will allow companies to remain agile and be able to react swiftly to potential changes in regulations. ■



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ENDNOTES

- 1 The premium determination date is generally the issue date. For supplementary contracts and annuitizations, it would be the date of election of the supplementary features.
- 2 As defined in rate derivation section above.
- 3 Calculated as the weighted average of the daily Treasury rates immediately preceding the premium determination date for two-year, five-year, 10-year and 30-year U.S. Treasuries.