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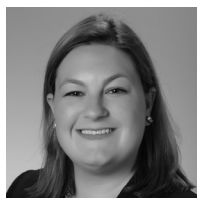
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# How Changes in U.S. Statutory Reserve Regulations Could Impact Term Insurance Pricing

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## Background

On March 27, 2014, Benjamin Lawskey, Superintendent of the New York State Department of Financial Services (NYDFS), sent a letter to the National Association of Insurance Commissioners (NAIC) stating that the NYDFS has been “working to update and rationalize [their] regulations and practices.” The NYDFS “have determined that [their] term life formula results in reserves that are high relative to actuarial experience and should be modernized.” The letter goes on to say that NYDFS would be issuing regulatory updates containing changes to the reserve methodology that would apply to new business written beginning Jan. 1, 2015. According to the letter, these changes are expected to prospectively reduce term insurance reserves by 30 percent to 35 percent. The department proposed to accomplish this by applying prospective mortality improvement factors and implementing a two-year full preliminary term period. What this letter did not say, but which has been communicated through other means, is that NYDFS is opposed to principle-based reserves (PBR) and does not intend to adopt VM-20 (the life insurance regulation for PBR). Instead it developed this alternative approach.

The NYDFS exposed preliminary versions of the Fifth Amendment to New York Regulation 147 (Valuation of Life Insurance Reserves) and the Third Amendment to New York Regulation 179 (Recognition of the 2001 CSO Mortality Table for Use in Determining Minimum Reserve Liabilities and Non-forfeiture Benefits and Recognition and Application of Preferred Mortality Tables for Use in Determining Minimum Reserve Liabilities) for two comment periods. The final amendments to the regulation are effective and apply to business issued Jan. 1, 2015 and later. NYDFS recently proposed a similar amendment to the regulation for universal life policies with secondary guarantees, but the impact of that proposal is beyond the scope of this paper.

In light of these developments, we undertook a research study to accomplish several aims:

- Determine whether the new methodology results in the 30 percent to 35 percent reduction in reserves cited by the NYDFS
- Compare the proposed NYDFS term reserves to other reserving regimes:

- XXX reserves, with and without reserve financing
- VM-20 reserves

- Measure the impact of both the NYDFS proposal and VM-20 on profitability (defined either as statutory internal rate of return [statutory IRR] or profit margin as a percentage of premium)
- Calculate how much premiums would need to change from today’s levels in order to achieve the same statutory IRR under the new reserve regimes as is achieved today when reserves are supported by less expensive sources of capital (“financed”)

We conducted this research using a model office for an illustrative term portfolio intended to be reasonably representative of products offered in the market today. Actual results will vary with specific product features, economic environment, and state premium tax, as well as emerging experience.

## Overview of Reserving Regimes

The XXX reserving methodology came into effect when the revised Valuation of Life Insurance Policies Model Regulation (XXX) was adopted by the NAIC in March 1999. Regulation XXX was adopted in order to eliminate perceived loopholes under the Standard Valuation Law, under which companies designed products that had extremely high late-duration guaranteed premiums, partly in an attempt to drive down reserves. Regulation XXX requires reserves to be calculated separately for each level-premium segment.

An outcome of this regulatory change is that many felt that XXX reserves were excessively conservative when compared to economic reserves. Carriers sought out solutions to finance their “redundant” reserves. Initially this took the form of heavy use of coinsurance, and then ultimately third party, market-based financing solutions facilitated by the use of captive insurers.

It is important to note that most or all competitive carriers in the term insurance market are pricing assuming some kind of reserve relief, be it coinsurance or use of a captive with financing. We decided to show typical profitability both with and without a financing solution (in this case, a letter of credit) in order to show just how sensitive profitability is to the level of reserves.

Many regulators have also come to acknowledge that XXX reserves are unduly conservative and have explored various solutions to this issue. The prevalent approach has been to move toward a principle-based approach to calculate reserves. The belief has been that by using more realistic assumptions in reserve calculations, there would no longer be redundant reserves and, therefore, no need for financing. The outcome of these conversations has been VM-20, which describes how principle-based reserves are to be calculated. As of this writing, the general sentiment is that VM-20 will not take effect until at least 2017.

NYDFS would prefer that reserve calculations remain formula-based, in the manner of XXX. It does concede that reserves are “high relative to actuarial experience” and so has adopted the following changes for business written beginning Jan. 1, 2015:

- Prospective mortality improvement factors are to be applied to 2001 CSO during the level premium period.
  - 1 percent per year from 2008-2047.
  - 0.5 percent per year thereafter.
- A two-year full preliminary term method will be implemented. This means that reserves are zero through the end of year two.

## Modeling Overview

For purposes of this analysis, we modeled a generic middle-of-the-pack term product suite: 10-year and 20-year term plans with level premiums for the length of the term followed by annually increasing premiums to attained age 95. We built a model office that included quinquennial issue ages 25 through 65, males and females, four nonsmoker classes and one smoker class. For simplicity, we modeled the single face amount of \$100,000 with no premium banding.

The base case level term premiums used were chosen so that they would achieve approximately a 10 percent adjusted after-tax statutory IRR under the XXX with reserve financing regime. Post level term, the premiums immediately jump to the maximum guaranteed rates, with shock lapses and mortality anti-selection set accordingly. Post-level-term profitability was included in the IRR calculation.

## Impact of Changes Reserve Levels

Chart 1 provides a comparison of the terminal reserve patterns under the different reserving regimes during the 10-year level period for the 10-year plan. Some interesting observations can be made from this chart:

- At peak reserve levels, the NYDFS reserve is 63 percent of the XXX reserve, but 126 percent of VM-20.
- The NYDFS reserve is zero until year two due to the two-year full preliminary term approach.
- The gross premium reserve remains materially below all the other regimes.

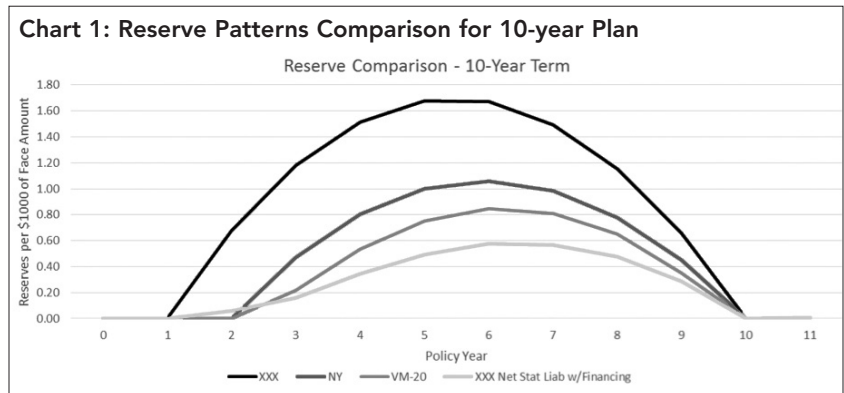
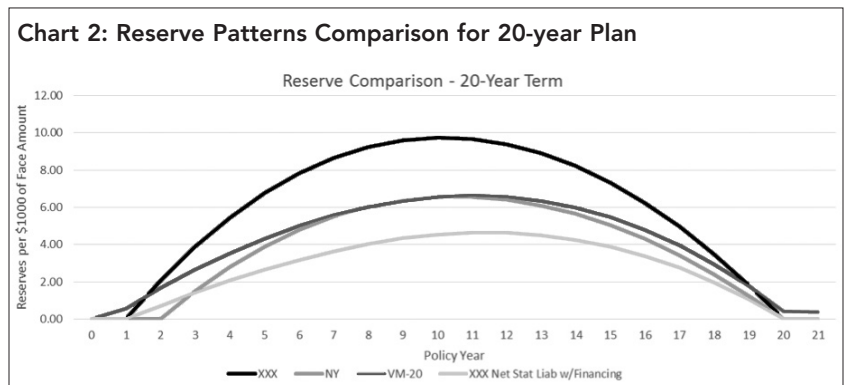


Chart 2 provides a similar comparison for the 20-year level period for the 20-year plan.

- In this case, the NYDFS reserve tracks closely with VM-20, and is in fact lower at the beginning and end of the period.
- At peak reserve levels, the NYDFS reserve is 68 percent of the XXX reserve.



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## Profitability

We looked at profitability on both pre-tax and adjusted after-tax bases.<sup>1</sup> There is a much bigger difference between the pre-tax and adjusted after-tax statutory IRRs on the 10-year product than on the 20-year product because initial required capital is a much larger percentage of first-year premium (129 percent on the 10-year vs. 94 percent on the 20-year).

To isolate the impact of the different statutory reserve methodologies, we set tax reserves for all regimes equal to XXX tax reserves, but still capped at statutory reserves. Effectively, this means that in most cases, tax reserves equal statutory reserves. We also set required capital equal to XXX levels for all regimes. One can argue that even though the current RBC formula calculates RBC by applying factors to the level of statutory reserves, the risk associated with the product has not changed even though the statutory reserves are now lower. It is unclear at this point where the regulations will land with respect to these issues.

On both products, the statutory IRRs align with the magnitude of reserves on both pre-tax and adjusted after-tax bases. XXX with financing has a lower pre-tax profit margin due to the impact of financing charges, but that reverses itself on an adjusted after-tax basis.

## Premiums

We assumed that the current gross premiums in this product were priced to achieve approximately a 10 percent adjusted after-tax statutory IRR using XXX reserves sup-

ported by less expensive sources of capital (“financed”). The premium changes below are the percentage change required in the level term gross premium in order to achieve the same statutory IRR under the different reserve regimes.

The premium changes required are correlated with the adjusted after-tax statutory IRRs in the previous section. Even though the adjusted after-tax statutory IRRs are close between the three reserve regimes other than the gross premium valuation, they have different patterns of profits due to different reserve streams, and so the premium increases required can vary significantly. Unsurprisingly, the largest premium increase would be needed if XXX reserve financing were no longer available. For both products, NYDFS would require a marginally higher increase than VM-20. The expected increase under NYDFS and VM-20 is 3 percent to 5 percent on 10-year term and 14 percent to 16 percent on 20-year term.

Reserve Regime	% Change in Premium	
	10-Year	20-Year
XXX	8.6%	29.4%
XXX w/Financing	0.0%	0.0%
NYDFS	4.7%	16.4%
VM-20	3.1%	14.4%

## Conclusion

The reduction in reserves cited by NYDFS does appear to be a reasonable estimate of actual reserve reduction. On the 10-year product, the NYDFS reserve for our model office is 63 percent of the XXX reserve at peak reserve levels. On the 20-year product, it is 68 percent of the XXX reserve.

The premium increase required for NYDFS is material, but less than that required for XXX without financing, and slightly more than that required for VM-20. Even though the adjusted after-tax statutory IRRs are close between the three reserve regimes other than the gross premium valuation, they have different patterns of profits due to different reserve streams, and so the premium increases required can vary significantly. Under both NYDFS and VM-20, 20-year term premiums are expected to be roughly 15 percent higher than under XXX with financing in order to maintain the same profitability. This is certainly a big change for the term market. ■

### 10-Year Term Profitability by Reserve Regime

Reserve Regime	Statutory IRR		Profit Margin*	
	Pre-Tax	Adj After-Tax	Pre-Tax	Adj After-Tax
XXX	22.8%	8.1%	11.7%	5.0%
XXX w/Financing	60.9%	10.2%	10.7%	5.5%
NYDFS	45.9%	8.6%	11.7%	5.0%
VM-20	58.0%	8.8%	11.7%	5.0%

\*Profit margin components are discounted at a net investment earnings rate (NIER) of 5 percent bond equivalent yield

### 20-Year Term Profitability by Reserve Regime

Reserve Regime	Statutory IRR		Profit Margin*	
	Pre-Tax	Adj After-Tax	Pre-Tax	Adj After-Tax
XXX	6.7%	5.3%	4.2%	0.6%
XXX w/Financing	7.1%	10.1%	0.5%	2.2%
NYDFS	9.9%	5.4%	4.2%	0.6%
VM-20	8.4%	5.4%	4.2%	0.6%

\*Profit margin components are discounted at a net investment earnings rate (NIER) of 5 percent bond equivalent yield

### ENDNOTE

<sup>1</sup> The adjusted after-tax results are calculated by applying a 35 percent tax rate as well as a 7.7 percent DAC tax to the pre-tax results, and then reflecting the impact of required capital.