

Update to LHATF on VM-20 Prescribed Default Costs for Existing Investments

Gary Falde, FSA, MAAA

Vice-Chair, American Academy of Actuaries Life Reserve Work Group
Chair, LRWG Asset Subgroup

Alan Routhenstein, FSA, MAAA

Member, LRWG Asset Subgroup
Chair, LRWG Asset Subgroup Hedging Team



Outline of Presentation

- Recap from summer LHATF meeting
- Illustration / assessment of an approach proposed by New York
- Illustration / assessment of revised LRWG methodology - changes to address concerns expressed in Minneapolis
- Suggested topics for Q4 interim calls
- Appendices



Recap of Summer LHATF Meeting

- LRWG illustrated the development of reserves through a four-year time period for a 10-year Funding Agreement (FA) issued 2/28/2005 with proceeds invested in a matching sample portfolio of 10-year bonds
- Illustration followed LRWG's proposed asset default methodology which was designed to meet several regulator and LRWG objectives and incorporated both historical and market price-sensitive elements
- The reserves exhibited unacceptable volatility especially in the 2007-2008 period (*detail on next slide*)
- LRWG explained that the volatility was the logical outcome of the set of constraints placed on the method
- LRWG agreed to devise refinements to cut volatility
- New York asked the LRWG to also explore a specific alternative
- LHATF Chair asked about surplus impact of portfolio turnover



Recap Summer LHATF Meeting (cont'd)

- The key display from that meeting is shown again below
- The average annual default cost over the remaining life of the portfolio rose substantially as market spreads widened, causing about a 10% increase in reserves over the period

	Average	Average	Average	Average	Approximate	Assets
Val Date	Coupon	Default Cost	Expenses	Net Yield	Det Reserve	MV
2/28/2005	5.829%	0.638%	0.145%	5.046%	99.6	100.00
12/31/2006	5.829%	0.751%	0.145%	4.932%	100.4	97.51
11/30/2007	5.829%	1.370%	0.145%	4.313%	104.2	94.12
10/31/2008	5.829%	2.410%	0.145%	3.274%	109.8	76.08

- The asset market values are shown for comparison only. Asset book values are 100 throughout



New York proposed approach: Fixed net spread at asset purchase

- At the summer LHATF meeting, New York proposed an approach whereby default costs are set at asset purchase such that the net spread over Treasuries (i.e., gross spread over Treasuries – default costs – investment expenses) would be the larger of 50 bps or 50% of the Aaa/AAA spread over Treasuries for a bond index asset with the same Weighted Average Life (WAL)



Illustration of NY approach

Same FA example

- In order to illustrate the impact of this proposal, the LRWG used the same FA example that was presented in June
 - We assumed that the FA was issued 2/28/2005 at a 5.00% coupon
 - We approximated the VM-20 Deterministic Reserve at issue using a bond price formula and assuming no insurance expenses (for simplicity)
 - We similarly approximated the VM-20 Deterministic Reserve at three additional valuation dates
- The net earned rate for every asset in the portfolio using the NY approach comes out to 4.93%
 - 10y Treasury was 4.43%, NY net spread was 0.50%
 - Benchmark Aaa spread from our bond index data was 0.59%, so 50% of that spread is about 0.29%, which is less than the 0.50% minimum
 - Default costs were backed into to achieve the 0.50% spread net of defaults and investment expenses



Illustration of NY approach

Sample portfolio default cost detail

- The weighted average annual default cost is 75 bps. Asset-by-asset detail is shown below. For comparison, the 70 CTE column shows the historical default component of the LRWG's revised methodology

Bond #	Asset Description	Weight	Coupon	70 CTE	Default Cost	Expenses	Net Yield	Net Spread
1	A3 Benchmark	10	5.364%	0.209%	0.334%	0.100%	4.930%	50.0
2	A3 utility	5	5.280%	0.209%	0.250%	0.100%	4.930%	50.0
3	Baa3 utility	30	5.530%	0.943%	0.500%	0.100%	4.930%	50.0
4	A3 industrial	5	5.080%	0.209%	0.050%	0.100%	4.930%	50.0
5	A3 private	5	5.630%	0.209%	0.500%	0.200%	4.930%	50.0
6	Ba2 sub debt	5	8.930%	2.391%	3.800%	0.200%	4.930%	50.0
7	Aa3 Benchmark	5	5.080%	0.046%	0.050%	0.100%	4.930%	50.0
8	Aa3 CDO tranche	20	6.730%	0.046%	1.550%	0.250%	4.930%	50.0
9	A1 Benchmark	5	5.141%	0.081%	0.111%	0.100%	4.930%	50.0
10	A1 financial	5	5.230%	0.081%	0.200%	0.100%	4.930%	50.0
11	A1 private sub debt	5	5.380%	0.081%	0.250%	0.200%	4.930%	50.0
Total		100						
Wtd Avg	2/28/2005		5.829%		0.754%	0.145%	4.930%	50.0



Illustration of NY approach

Results of 2005 issue date

- Reserves were stable for this cohort over the four valuation dates

Val Date	Approx DR
2/28/2005	100.55
12/31/2006	100.46
11/30/2007	100.41
10/31/2008	100.37

- Since default costs are fixed, stable reserves are expected
- However, since the NY default cost assumption will vary for the same asset depending on the gross spread at purchase, it is critical to test this approach for other cohorts with different asset spread and FA liability spread levels



Illustration of NY approach

Specs for Additional FA Issue Dates

- On each of the other three Val Dates a FA was issued to mature 2/28/2015
- Proceeds from each issuance were used to purchase essentially the same assets maturing 2/28/2015 as were purchased for the 2005 cohort. For ease of calculation, we assumed in each case that new bonds of the same issuers were available at par with coupons equal to the then-current market yields of the original 2005-issued assets
- The FA issuance spread and resulting coupon rate on each date were set at equivalent bond index spreads thought to represent Aa3/AA- insurers under actual market conditions (not based on actual FA data however)

<u>Issue Date</u>	<u>Term</u>	<u>Equiv Rating</u>	<u>Issuance Spread</u>	<u>Coupon</u>
02/28/2005	10.00	Aa2/AA	60 bps	5.000 %
12/31/2006	8.17	Aa2/AA	70 bps	5.375 %
11/30/2007	7.25	Baa1/BBB+	218 bps	6.000 %
10/31/2008	6.33	Baa1/BBB+	657 bps	10.000 %



Illustration of NY approach

Issue date/valuation date results grid

T=Aaa/AAA NY Proposal: Default Costs Set at Asset Purchase Date					
Funding	FA Iss Date:	2/28/2005	12/31/2006	11/30/2007	10/31/2008
Agreement:	FA Coupon:	5.000%	5.375%	6.000%	10.000%
	SpdOverTsy	60.4	69.8	217.7	656.8
Assets:	Gross Yield:	5.829%	6.222%	6.932%	11.290%
	Net Yield:	4.930%	5.200%	4.408%	5.568%
	SpdOverTsy	50.0	50.0	61.8	212.8
	Default Cost:	75.4	87.7	237.9	557.7
Val Date		Approximate Deterministic Reserve			
2/28/2005		100.55			
12/31/2006		100.46	101.1		
11/30/2007		100.41	101.0	109.8	
10/31/2008		100.37	100.9	108.7	123.4



Illustration of NY approach

Observations on FA results

- Reserves for each cohort are again stable through the valuation dates due to the fixed default cost
- In all four cases, there is reserve strain because the coupon rate for the FA (aka “cost of funds” or “credited rate”) is greater than the allowable net asset earned rate (negative interest spread)
- The strain is very pronounced for the 2007 and 2008 cohorts, since the illustrative issuance spreads widened substantially relative to the 50% of Aaa asset spread allowed by this approach
- The asset default costs vary substantially for the different cohorts even though each cohort portfolio is virtually identical



Illustration of NY approach

Surplus impact of portfolio turnover

- We also evaluated the surplus change if the entire asset portfolio is sold and then immediately repurchased on each Val Date

T=Aaa/AAA NY Proposal w/ Assets Sold&Repurchased on ValDate					
	FA Iss Date:	2/28/2005	12/31/2006	11/30/2007	10/31/2008
Val Date		Approximate Increase in Surplus			
2/28/2005		0.0			
12/31/2006		-0.8	0.0		
11/30/2007		-10.4	-9.5	0.0	
10/31/2008		-30.4	-29.3	-20.3	0.1

- This transaction would cause the insurer to lose surplus due to the substantial increase in assumed default costs when they are “reset” upon asset repurchase. For example, for the 2005 issue / 2008 valuation cell, the default costs are reset from 75 bps annually to 558 bps annually when the sale/repurchase occurs



Does LHATF wish to continue to consider the NY approach?

- Structural flaws
 - The resulting prescribed default costs would not be the same for the same or similar assets across companies, thus failing the primary objective expressed by LHATF at the winter 2008 meeting
 - Produces sudden surplus gains or losses when portfolio is liquidated, and same or similar assets are repurchased



Does LHATF wish to continue to consider the NY approach?

- High and variable surplus strain
 - A T+50 (or T+50% of AAA) standard is based on far more conservative investments than the life industry has purchased through history to establish and support its credited rates and dividends to policyholders and to recover its expenses
 - The degree of disconnect varies through market cycles and would result in varying and often substantial additional surplus strain
 - Arbitrary limitation goes beyond adjusting for risk
- Could lead to higher cost of life insurance



LRWG methodology - changes to address June concerns

- LRWG has made several changes to our June proposal to reduce volatility and simplify the approach:
 - The benchmark associated with each asset has the same rating as the asset
 - In June examples, assets below an A3 rating were mapped to the A3 benchmark
 - This means the default cost for each asset starts with the level 70 CTE historical default cost for the associated benchmark of the same rating
 - All adjustments to the benchmark historical default cost for an asset are now graded off by the end of N years from the valuation date (N = 3 in all our work thus far). Such adjustments are sensitive to market spreads on the valuation date. Previously the specific and constraint adjustments went until maturity, which was the primary cause of the previous volatility
 - The generic and specific adjustments have been combined into a one-step process (X% constant and Y% table from previous methodology)
 - The maximum net spread constraint is applied at the portfolio level rather than asset-by-asset



Illustration of refined LRWG approach

Specifications

- We applied the same asset and FA issuance spread assumptions as for the NY approach to illustrate the revised LRWG methodology over the same four issue dates and valuation dates
- N set equal to 3. This means all adjustments to historical 70 CTE benchmark default costs will grade to zero by the end of 3 years
- X% set equal to 25%. This means that in projection year 1 (grading to 0 by end of 3 years), there will be an adjustment to add to or subtract from the historical benchmark default cost an amount equal to 25% of:
 - Actual asset spread at valuation date minus
 - Historical mean asset spread for benchmark asset
- Threshold T = A3 rating. This means that in projection year 1 (grading to 0 by end of 3 years), an adjustment is made to limit the net current market spread at the portfolio level to that of a benchmark A3 asset



Illustration of refined LRWG approach

Results for 2005 issue date

- The table below compares the Sept. 21 and June 11 LRWG methodologies for the 2005 issue date cohort through the four valuation dates. Results shown are the average annual projected default costs and the approximate deterministic reserves

FA Issu Date	6/11/09 LRWG Proposal		9/21/09 LRWG Proposal	
2/28/2005	Average	Approximate	Average	Approximate
Val Date	Default Cost	Det Reserve	Default Cost	Det Reserve
2/28/2005	0.649%	99.7	0.462%	98.3
12/31/2006	0.751%	100.4	0.461%	98.5
11/30/2007	1.370%	104.2	0.568%	99.3
10/31/2008	2.411%	109.8	1.151%	102.5

- September 21 DR variability (rising about 1% from 2006 to 2007, and about 3% from 2007 to 2008) is substantially reduced vs. June 11



Illustration of refined LRWG approach

Issue date/valuation date results grid

T=A3	w/portfolio application of Max Net Spread Constraint				
Funding	FA Iss Date:	2/28/2005	12/31/2006	11/30/2007	10/31/2008
Agreement:	FA Coupon:	5.000%	5.375%	6.000%	10.000%
	SpdOverTsy	60.4	69.8	217.7	656.8
	Gross Yield:	5.829%	6.222%	6.932%	11.290%
Assets:	Invest Exp:	0.145%	0.145%	0.145%	0.145%
Val Date	Default Cost	Approximate Deterministic Reserve			
2/28/2005	46.2	98.3			
12/31/2006	46.1	98.5	98.4		
11/30/2007	56.8	99.3	99.2	98.7	
10/31/2008	115.1	102.5	102.4	101.9	100.0



Illustration of refined LRWG approach

Surplus impact of portfolio turnover

- Under the LRWG proposal with portfolio application of the Maximum Net Spread Constraint, the sale and repurchase of the portfolio on the Val Date does not affect the Deterministic Reserve or surplus

T=A3	LRWG Portfolio Proposal w/ Assets Sold&Repurchased on ValDate				
FA Iss Date:	2/28/2005	12/31/2006	11/30/2007	10/31/2008	
Val Date	Approximate Increase in Surplus				
2/28/2005	0.0				
12/31/2006	0.0	0.0			
11/30/2007	0.0	0.0	0.0		
10/31/2008	0.0	0.0	0.0	0.0	

- LRWG default costs are the same for the same assets regardless of purchase price. This assumes default costs will be expressed as a % of par value (not book value), a fine point we learned from this example



Assessment of LRWG Revisions vs. Stated Regulator and LRWG Objectives

- What objectives are better achieved by the revisions?
 - Produces less volatile, more reasonable results as market conditions vary
 - Greater simplicity
- What objectives had to give somewhat?
 - Will not always discourage riskier investments since spread-based adjustments are temporary rather than permanent
 - No longer attempts to specifically adjust for structural risk. Focused on assets with rating and default characteristics similar to corporate bonds
 - LRWG would like to present and discuss further insights on these two objectives on the next interim conference call



Next steps

Suggested topics for Q4 interim call

- Deterrents to risky investments
 - The historical 70 CTE default cost levels under consideration are higher than typically used in cash flow testing and already appear to deter below investment grade assets and the weakest investment grade assets in many spread environments
 - Consideration of additional C-1 RBC as a further deterrent
 - LRWG will be able to illustrate these disincentives both before and after consideration of C-1 charges
- Discuss possibility of leveraging other NAIC projects currently underway to revamp C-1 measurement on other asset classes
 - Valuation of Securities and Capital Adequacy task forces considering revamping of C-1 for residential mortgage backed securities
 - Capital Adequacy considering new approach to commercial mortgages



Appendix

Summary of regulator and LRWG objectives in a prescribed default cost framework



VM-20 Prescribed Default Costs

LHATF / Life PBR Subgroup Objectives

- Default costs for the same or similar asset should be the same across all companies. They should be prescribed
- Companies should not be able to lower reserves by investing in riskier assets beyond some threshold or “line in the sand”
- In the short run, default costs should reflect the current economic environment and can grade into long-term conditions
- The prescribed method should be relatively simple
- The method should produce reasonable results as market conditions vary over time



VM-20 Prescribed Default Costs

Additional LRWG Objectives

- Incorporate risk-based elements in the methodology to the extent possible, while still keeping it a prescribed method. For example:
 - Default risk measured as of valuation date rather than as of original asset purchase date
 - Should ultimately be based on key drivers of default risk for the most common industry asset types. Relevant indicators such as credit rating and/or market spread may be appropriate as proxies until more direct measurement methods are broadly available
- Methodology should be internally consistent in regard to:
 - Default costs on existing assets
 - Gross spreads and default costs on new investments
 - Market values on assets sold in the model

