Synthetic GIC Reserve Proposal – Supplement to November 2012 Proposal

Deposit Fund Subgroup of the

Annuity Reserves Work Group (ARWG)

Presented to the National Association of Insurance Commissioners'
Life Actuarial Task Force

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Background

At the November 2012 National Association of Insurance Commissioners' Life Actuarial Task Force (LATF) meeting, the Deposit Fund Subgroup of the American Academy of Actuaries Annuity Reserves Work Group (Subgroup) presented an initial proposal to modify the existing model statutory valuation methodology for Synthetic Guaranteed Investment Contracts (Synthetic GICs). In the November 2012 proposal, the Subgroup recommended changes to the Synthetic Guaranteed Investment Contracts Model Regulation (#695) applicable to in-force Synthetic GIC business regarding the determination of the discount rate and, for certain types of contracts, to the deduction from the market value of assets. Specifically, the proposed changes included:

- determining the present value of guaranteed contract liabilities by substituting spot rates derived from a blend of U.S. Treasury-based spot rates and spot rates derived from the Barclays Short Term Corporate Index and U.S. Corporate Investment Grade Bond Index rates for 105 percent of the Treasury-based spot rate in Paragraph (6) of Section 10A of the NAIC Model, and
- eliminating the deduction from the market value of assets required by Paragraph (2) of Section 10A of the NAIC Model provided that under the Synthetic GIC the asset default risk is borne by the policyholder.

Subsequent to the meeting and at LATF's request, the Subgroup provided a marked-up Synthetic GIC Model Regulation reflecting the November 2012 proposal. On a March 4, 2013 LATF conference call, there was further discussion of the proposal and LATF requested that the Subgroup provide reserve requirements for similar type products issued by banks. In addition, LATF was interested in feedback regarding the prevalence of two practices at the time the Model Regulation was written—(1) the use of derivatives in segregated portfolios for replication purposes and (2) plan sponsor book value put options in pooled fund contracts—to assess whether recognition of either or both is appropriate in the Model Regulation in light of the proposed changes under consideration. A pooled fund is an arrangement in which multiple, unaffiliated employer sponsored plans invest in a shared trust. Plan sponsor book value withdrawals in pooled fund contracts are subject to advance notification requirements, typically ranging from 6 to 24 months.

At the April 4, 2013 LATF meeting at the Spring NAIC national meeting, the Subgroup provided verbal feedback on the specific topics requested on the March 2013 LATF conference call. As a result of the feedback, LATF requested that the Subgroup expand the proposal to update the valuation requirements on Synthetic GICs issued to pooled funds, within the existing deterministic valuation framework, and to provide more transparency in the *Plan of Operation*.

In November 2013, the Subgroup provided LATF with a report, *Guiding Principles for Synthetic GIC Model Regulation,* intended to be used by the Subgroup to expand the proposed changes to the Synthetic GIC Model Regulation. LATF requested on a December 2, 2013 call that the Subgroup proceed with expanding the proposal to strengthen the valuation requirements on Synthetic GICs issued to pooled funds based on the guiding principles.

Recommendation

The Subgroup continues to recommend its November 2012 proposal and proposes three enhancements applicable to in-force Synthetic GIC business. The proposed changes to the Subgroup's November 2012 proposal are as follows:

- Expand the requirements in the *Plan of Operation* to include the following:
    - A description of the criteria used by the insurer in approving for contract issuance a pooled fund representing multiple employer-sponsored plans and in approving the investment manager for the segregated portfolio of assets associated with the pooled fund contract; and
    - A description of risk-mitigation techniques used by the insurer for contracts issued to pooled funds representing multiple employer-sponsored plans.

- Modify the valuation requirements for Synthetic GICs issued to pooled funds as follows:

  In the minimum value guaranteed contract benefits, reflect the known cash flows associated with the plan sponsor book value put option as of the valuation date and a prudent estimate of projected future cash flows associated with the plan sponsor book value put option reflecting the applicable contractual advance notification requirements. The prudent estimate shall be based on experience and other relevant information. In projecting the future cash flows associated with the plan sponsor book value put option, determine a single valuation rate equal to the lesser of (a) the expected return from the segregated portfolio of assets, and (b) the blended spot rate based on the duration of the segregated portfolio of assets. In computing the minimum value of guaranteed contract benefits, the single valuation rate shall be used to determine:
    - Future market values of the segregated portfolio of assets;
    - Future credited interest rates based on the contractually defined crediting rate formula; and
    - Discounted value of future modeled withdrawals and terminal payments.

- Expand the actuarial memorandum requirements related to withdrawal risks to include the following:

  Describe how the valuation actuary has reflected withdrawal risks, if applicable, including:
    - The impact of any dynamic lapse assumption; and
    - The results of sensitivity testing of the prudent estimate of future plan sponsor book value put withdrawals.

The enhancements to the proposed valuation methodology provide for a pooled fund contract reserve that reflects explicit recognition of known and projected future cash flows associated with the plan sponsor book value put option and bears a reasonable relationship to the present value of expected future claims. The proposed methodology does not reflect a minimum future projected annual plan sponsor book value put option exercise rate as there is no readily available industry experience data to establish this type of assumption. In addition, the proposed enhancements in the *Plan of Operation* increase transparency in the management of pooled fund contracts while the enhancements in the actuarial memorandum provide insight into the impact of experience if it emerges differently from the base assumption. The enhancements reflected in this recommendation supplement the November 2012 proposal and address the LATF feedback expressed following the initial proposal.

The Subgroup recommends that LATF modify the existing statutory requirements for Synthetic GICs to be consistent with the proposed valuation methodology, proposed changes in the *Plan of Operation*, and proposed changes in the actuarial memorandum requirements as described in this document and in the November 2012 proposal. The proposed valuation methodology for Synthetic GICs reflects asset segregation, recognizes the default risk retention by the policyholder, appropriately aligns the liability relationship to the underlying assets, reduces the asset and liability valuation mismatch, and explicitly recognizes cash flows associated with the plan sponsor put option in contracts issued to a pooled fund providing for a statutory reserve that more appropriately reflects the risk profile of the underlying contract.

Illustrative Results

To demonstrate that the proposed valuation methodology for Synthetic GICs provides for a statutory reserve that more appropriately reflects the risk profile of the contract, the Subgroup computed illustrative reserves according to NAIC A-695 and the proposed methodology under a variety of economic conditions, initial market to book value ratios, and plan sponsor book value put cash flow assumptions. The results show that the proposed reserve for pooled fund contracts:

- Increases as MV/BV decreases;
- Increases as the plan sponsor book value put cash flow assumption increases;
- Equals or exceeds the reserve for non-pooled fund contracts; and
- Increases or decreases relative to the A-695 reserve based on market yields, where, market yields are defined by the blended spot rate equal to 50% of the U.S. Treasury-based spot rate and 50% of the Index spot rate (November 2012 proposal) based on the duration of the segregated portfolio of assets.

To illustrate Synthetic GIC reserves, the Subgroup assumed that the Synthetic GIC is a participating evergreen (no fixed maturity) contract that provides for quarterly rate resets subject to a floor of 0%, is designed to pass most investment and plan cash flow experience and default risk to the policyholder, is benefit responsive with respect to most participant-initiated payouts, and provides a market value payout at termination or a delayed book value payout at the election of the policyholder if book value exceeds market value at termination. Refer to *Attachment 1* of this report for specifications of the sample Synthetic GIC used to illustrate the reserve requirements.

The Subgroup calculated illustrative reserves for a typical pooled fund contract and for a non-pooled fund contract using four historical valuation dates and reflected the following assumptions as of the valuation date:

- For all contracts:
    - Contract value of $100 million
    - Market value of the segregated portfolio of assets
        - $85 million, for an MV/BV ratio of 85%
        - $90 million, for an MV/BV ratio of 90%
        - $95 million, for an MV/BV ratio of 95%
    - Current crediting rate of 2%
    - Three (3) year duration of the segregated portfolio of assets
    - Projected future participant annual withdrawal payment assumption of zero
    - Maximum maturity extension assumption of 3 years unless otherwise stated
    - Asset deduction of 0.23% for the NAIC A-695 reserve
- Additionally, for pooled fund contracts:

- Known plan sponsor put queue on the valuation date of 5% of the contract value
- Projected annual future plan sponsor book value put option exercise rate of 10% of the contract value

The Subgroup calculated A-695 illustrative reserves for contracts with and without a maturity extension provision. The typical maturity extension provision, developed post-financial crisis of 2008, provides for one or more automatic extensions of the amortization period if the book value exceeds the market value at the end of the amortization period under a book value termination. This risk-mitigating contractual provision was designed by insurance companies following the 2008 financial crisis and is a common feature in contracts currently in-force.

Attachment 2 illustrates the reserve requirements for the above sample contract under NAIC A-695 (with and without maturity extension) and the Subgroup proposal, as well as the impact of the proposal on the NAIC A-695 reserve with maturity extension. The illustrative NAIC A-695 reserves make no distinction between pooled and non-pooled fund Synthetic GICs and demonstrate the risk mitigation in the reserve provided by the contractual maturity extension provision. The illustrative proposed reserves are provided for pooled fund and non-pooled fund Synthetic GICs with maturity extension provisions. The impact of the proposed change on reserves for contracts with maturity extension provisions is also quantified.

As expected, the impact on the proposed pooled fund contract reserve varies by market yields on the valuation date and the MV/BV ratio. The proposed reserve for a pooled fund contract increases relative to the NAIC A-695 reserve (with maturity extension) when market yields are low (e.g., below 1.5%) and when MV/BV ratios are below 95%, as shown for the 2013 valuation date. However, the proposed reserve for a pooled fund contract, regardless of MV/BV ratio, decreases relative to the NAIC A-695 reserve (with maturity extension) when market yields are higher as there is sufficient time for the segregated portfolio of assets to recover to provide for guaranteed contract obligations at book value.

The results also demonstrate that once the proposed pooled fund contract reserve is positive, any further deterioration in the MV/BV ratio increases the proposed pooled fund contract reserve. Further, the proposed pooled fund contract reserve equals or exceeds the non-pooled fund contract reserve for the valuation dates shown.

Attachment 3 illustrates the proposed reserve and the present value of expected claims for a pooled fund contract for MV/BV ratios ranging from 85% to 95% using 4 different projected future plan sponsor annual put option exercise rate assumptions with a valuation date of December 31, 2013. The annual plan sponsor put option exercise rate assumptions include 5%, 7.5%, 10% and 15%. The discount rate used to determine the present value of expected claims is the same single valuation rate used to determine the minimum value guaranteed contract benefits for pooled fund contracts. As expected, the proposed reserve increases as the plan sponsor put option exercise rate increases. In addition, the proposed reserve is equivalent to the present value of the expected future claims using the scenario assumptions.

In conclusion, the November 2012 proposal and the enhancements described in this document:

- Recognize that guaranteed contract liabilities are supported by the underlying segregated assets;
- Provide for liability valuation that is more consistent with a market value asset valuation;

- Recognize the default risk retention by the policyholder;
- Reflect plan sponsor contract value withdrawal options available to plans in a pooled fund; and
- Provide added transparency in the *Plan of Operation*.

The proposed methodology retains consistency with the solvency focus of statutory regulation, provides balance sheet stability, produces reasonable reserves reflecting contract risks across economic environments, and addresses the LATF concerns expressed to the Subgroup.

Attachment 1 - Illustrative Synthetic GIC

Investment Manager	Insurance Company Subsidiary
Interest - for Crediting Rate	CR = {(1 +Y) * (MV/BV)$^{(1/D)}$} - 1 - F, where CR = the Crediting Rate, the effective annual rate of interest, Y = the dollar weighted average yield of the securities in the Custodial Account as of the Calculation Date, MV = the Market Value of the Custodial Account as of the Calculation Date, BV = the Book Value Account as of the Calculation Date, D = the effective Duration of the securities in the Custodial Account as of the Calculation Date and F= the effective annual rate of the Fees that may include the following: (1) Administration and Risk Fee (2) Investment Management Fee In the event (MV/BV) falls within any of the following ranges as of any Rate Reset Date, the Company has the right to adjust D in the Crediting Rate formula, as follows: MV/BV — Permitted Adjustment of D 95% < MV/BV ≤ 97.5% — 90% or more of D 92.5% < MV/BV ≤ 95% — 85% or more of D 90% < MV/BV ≤ 92.5% — 75% or more of D MV/BV ≤ 90% — 50% or more of D Rate Reset Date - 1st day of each quarter The Crediting Rate is subject to a 0% floor.
Risk / Administrative	… by applying an annual effective rate of 0.25% to the balance in the Book Value Account as of the end of the prior day.
Investment Management	… by applying an annual effective rate to the balance in the Book Value Account as of the end of the prior day in accordance with the following schedule: 0.18% of the first $100 million, plus 0.13% of the next $100 million, plus 0.10% of the excess over $200 million

Termination Provisions	by policyholder - 10 days notice, option of: 1. Lump sum at MV 2. Lump sum at BV at end of the duration if MV>BV, or during a 3-year extension period if needed. If, as of any Rate Reset Date on or after the first Maturity Date and prior to the end of the extension period, the MV equals or exceeds the BV Account, the contract terminates with no payment by the insurance company. Investment Guidelines will change during the winding down period. 3. Transfer to GIC by the Company - 90 days notice, lump sum equal to greater of MV and BV at end of duration plus 3-year extension period, if needed
Defaults	The policyholder will absorb credit losses through the crediting rate reset mechanism, subject to the 0% floor and/or an impaired security provision.
Benefit Responsive Payments	For Plan participants upon death, retirement, disability, termination of employment, or for providing in-service and hardship withdrawals or loans to active participants in accordance with the provisions of the Trust. The contract allows transfers to competing options, but any transfers must first go through a non-competing plan option and reside there for at least 90 days. For contracts issued to pooled funds representing multiple employer-sponsored plans, plan sponsor withdrawals from the pool in accordance with the put option in the contract with 12 months advance notice. The following order of withdrawal from the Stable Value Fund must be adhered to by the Policyholder; (i) first, from the current cash flow to the extent sufficient; (ii) second, from the Cash Buffer Assets, if any; and (iii) third, from the Book Value Account on a pro-rata basis.

Attachment 2 – Illustrative Synthetic GIC Reserve Requirements
Comparison of NAIC A-695 Reserve to Subgroup Proposed Reserve
($ millions)

Valuation			NAIC A-695 Reserve		Proposed Reserve		Impact to Reserve for Contracts with Extension	
Date	Duration	MV/BV	No Extension	With Extension	Pooled Fund	Non-Pooled Fund	Pooled Fund	Non-Pooled Fund
12/31/2006	3	85%	2.0	-	-	-	-	-
	3	90%	-	-	-	-	-	-
	3	95%	-	-	-	-	-	-
12/31/2008	3	85%	12.7	5.5	-	-	(5.5)	(5.5)
	3	90%	7.7	0.5	-	-	(0.5)	(0.5)
	3	95%	2.7	-	-	-	-	-
12/31/2011	3	85%	14.6	9.0	8.6	1.5	(0.4)	(7.5)
	3	90%	9.6	4.0	3.6	-	(0.4)	(4.0)
	3	95%	4.6	-	-	-	-	-
12/31/2013	3	85%	13.2	2.9	9.7	0.5	6.8	(2.4)
	3	90%	8.2	-	4.7	-	4.7	-
	3	95%	3.2	-	-	-	-	-

Assumptions:

For all contracts, contract value of $100 million.
For all contracts, current crediting rate assumption of 2%.
For all contracts, duration assumption of 3 years.
For all contracts, projected future participant annual withdrawal payment assumption of zero.
For all contracts, maximum maturity extension assumption of 3 years unless otherwise stated.
For all contracts, asset deduction assumption of 0.23% in NAIC A-695 reserve.
For pooled fund contracts, known plan sponsor put queue assumption on valuation date equal to 5% of book value.
For pooled fund contracts, projected future plan sponsor put option exercise rate assumption of 10% of book value.

Attachment 3 – Illustrative Synthetic GIC Pooled Fund Reserves and Present Value of Expected Claims
Comparison of Proposed Reserves and Expected Claims
December 31, 2013 Valuation Date
($ millions)

	Projected Plan Sponsor Put Option Exercise Rate Assumption							
	5.0%		7.5%		10.0%		15.0%	
MV/BV	Proposed Reserve	PV Expected Claims	Proposed Reserve	PV Expected Claims	Proposed Reserve	PV Expected Claims	Proposed Reserve	PV Expected Claims
95%	-	-	-	-	-	-	0.2	0.2
94%	0.2	0.2	0.5	0.5	0.7	0.7	1.2	1.2
93%	1.2	1.2	1.5	1.5	1.7	1.7	2.2	2.2
92%	2.2	2.2	2.5	2.5	2.7	2.7	3.2	3.2
91%	3.2	3.2	3.5	3.5	3.7	3.7	4.2	4.2
90%	4.2	4.2	4.5	4.5	4.7	4.7	5.2	5.2
89%	5.2	5.2	5.5	5.5	5.7	5.7	6.2	6.2
88%	6.2	6.2	6.5	6.5	6.7	6.7	7.2	7.2
87%	7.2	7.2	7.5	7.5	7.7	7.7	8.2	8.2
86%	8.2	8.2	8.5	8.5	8.7	8.7	9.2	9.2
85%	9.2	9.2	9.5	9.5	9.7	9.7	10.2	10.2

Assumptions:

- Contract value of $100 million.
- Current crediting rate assumption of 2%.
- Duration assumption of 3 years.
- Projected future participant annual withdrawal payment assumption of zero.
- Maximum maturity extension assumption of 3 years unless otherwise stated.
- Known plan sponsor put queue assumption on valuation date equal to 5% of book value.
- Projected future plan sponsor put option exercise rate assumption as percent of book value.

Appendix

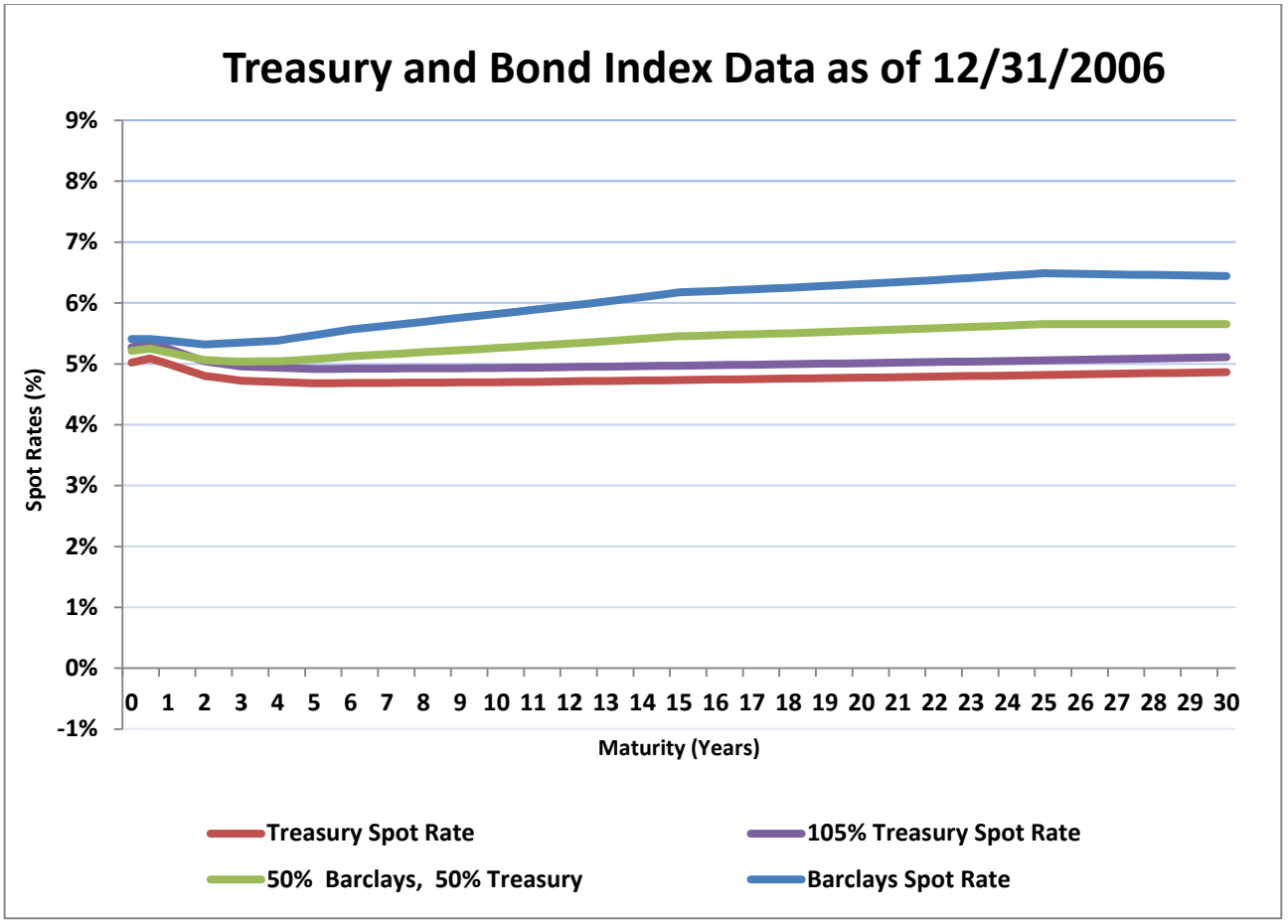
Yield Curve Graphs for Multiple Historical Dates

Graphs of Treasury and Barclays spot rates, 105% of the Treasury spot rate and the 50% Treasury/50% Barclays rate are provided for multiple historical dates. These dates were selected to capture a variety of market environments including the level of the Treasury rates, the shape of the Treasury yield curve, and the level of credit spreads. The historical dates include the following:

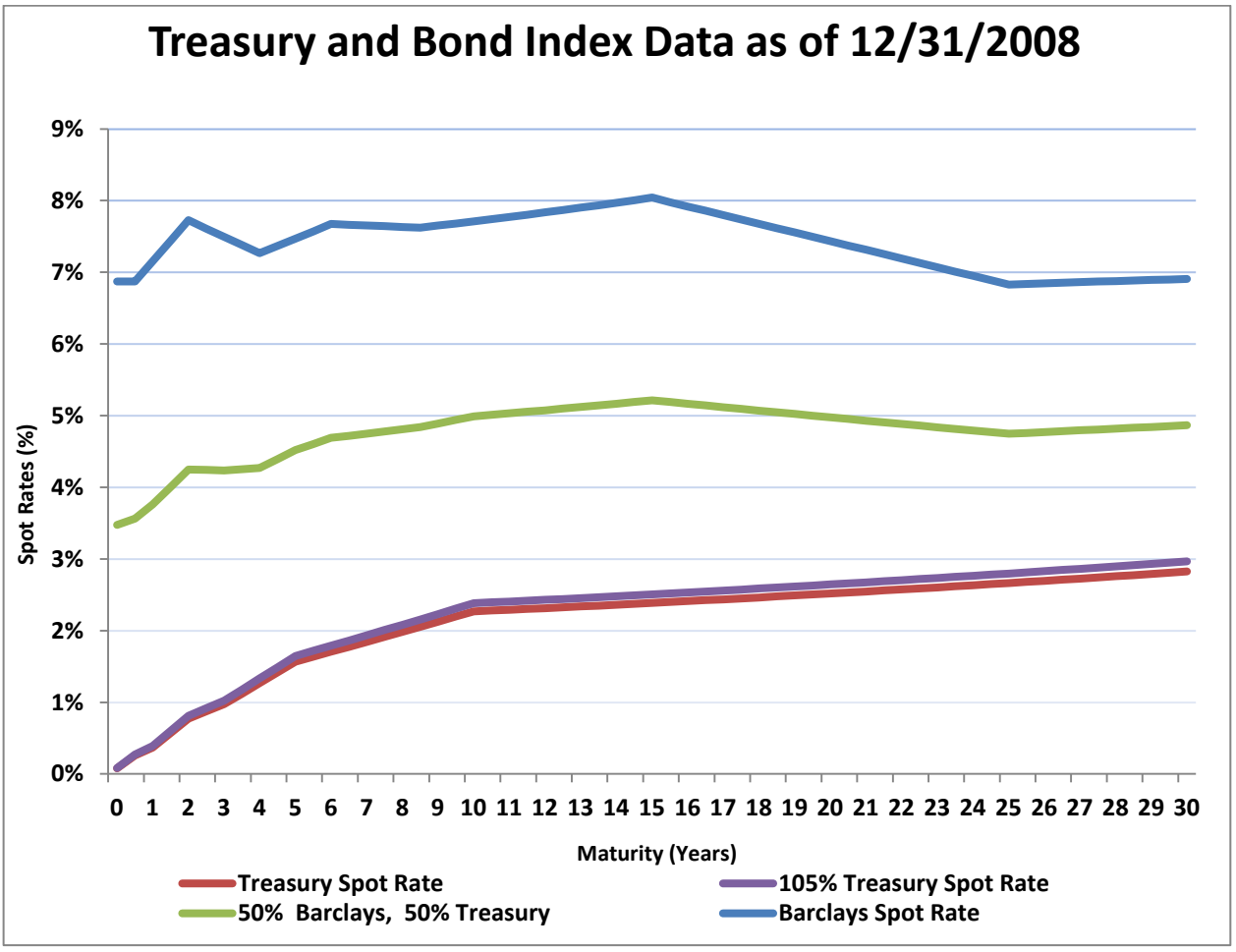
- December 31, 2006
- December 31, 2008
- December 31, 2011
- December 31, 2013

The Treasury and Barclays data sources and derivation of the spot rates shown in this appendix are described in the Deposit Fund Subgroup's November 2012 proposal (Appendix A). Data sources include Bloomberg and BarclaysLive.

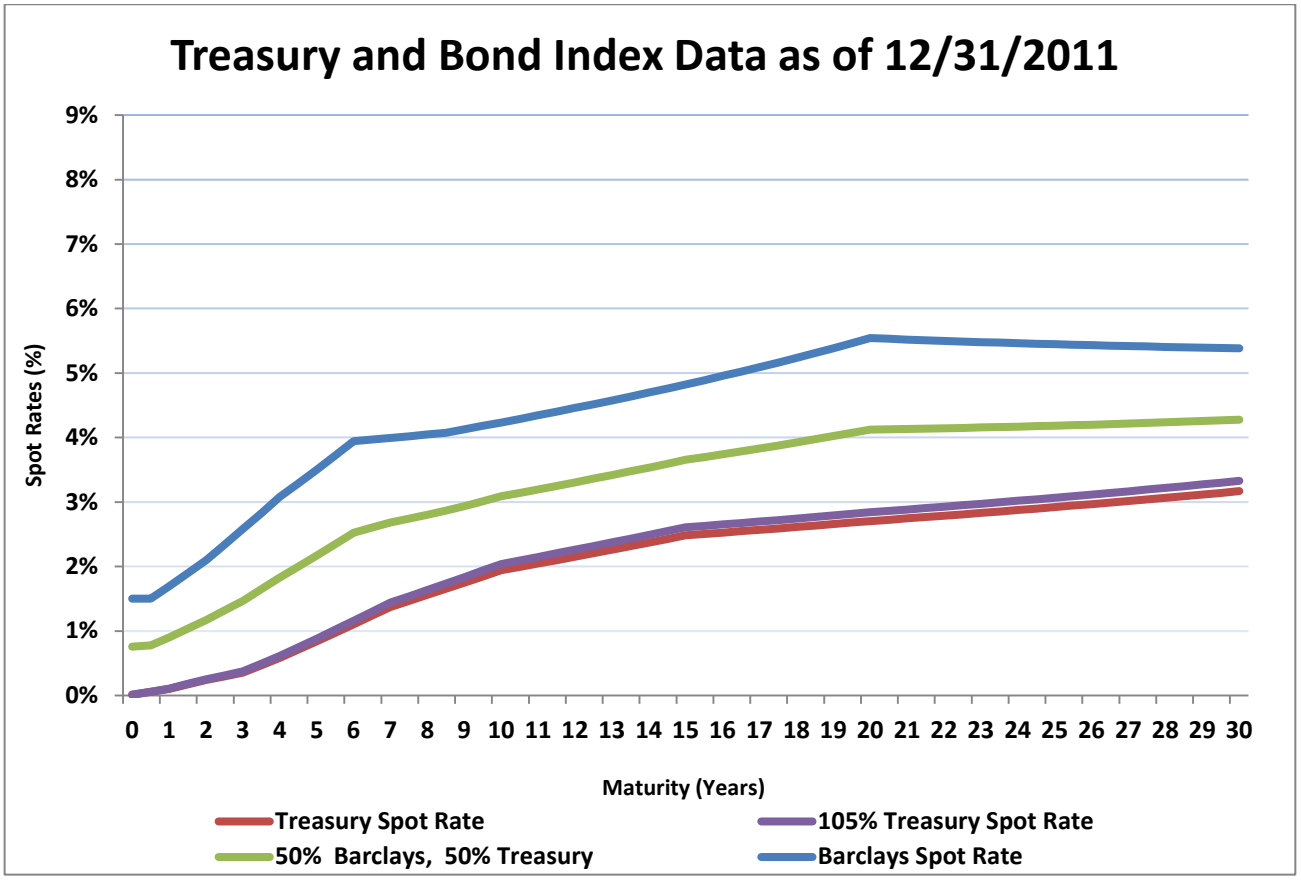
December 31, 2006 was selected due to the shape of the yield curve. The 90-day rate of 5.06% exceeded the 30-year rate of 4.80%. In addition, the intermediate and long-end of the Treasury curve were flat. Credit spreads based on the Barclays U.S. Corporate Investment Grade Bond Index ranged from approximately 0.50% to 1.60%.



December 31, 2008 was selected as Treasury rates continued to hit new lows, the yield curve remained upward sloping, and credit spreads continued to widen from their September 30, 2008 levels. The Treasury curve ranged from a 90-day rate of 0.12% to a 30-year rate of 2.66%. Credit spreads based on the Barclays U.S. Corporate Investment Grade Bond Index ranged from approximately 7.0% at the short-end of the curve to approximately 4.0% at the long-end of the curve.



December 31, 2011 was selected as Treasury rates remained low with the 30-year rate dropping below 3%, the yield curve remained upward sloping, and credit spreads widened from the June 30, 2011 levels. The Treasury curve ranged from a 90-day rate of 0.02% to a 30-year rate of 2.89%. Credit spreads based on the Barclays U.S. Corporate Investment Grade Bond Index ranged from approximately 1.9% at the short-end of the curve to approximately 2.2% at the long-end of the curve.



December 31, 2013 was included to have the most recent year-end interest rate environment. The Treasury curve ranged from a 90-day rate of 0.07% to a 30-year rate of 3.97%. Credit spreads based on the Barclays U.S. Corporate Investment Grade Bond Index ranged from approximately 0.7% at the short-end of the curve to approximately 1.2% at the long-end of the curve.