

C1 Work Group (C1WG) Presentation to the Risk-Based Capital Investment Risk and Evaluation Working Group (RBCIRE WG) on Collateralized Loan Obligations (CLOs)— Status Update

December 14, 2022

Scope of this update

2

- At the request of the NAIC's RBCIRE WG, the Academy's C1WG has been investigating CLOs to understand the risk they pose to life insurers' statutory capital and considerations for establishing capital requirements.
- Our discussions are ongoing and this report is a status update representing our current thinking.
- Parts of this report are provided as commentary on the Investment Analysis Office ("IAO") letter proposing a new approach to CLO, including modeling by the Structured Securities Group ("SSG") and the introduction of new sub-categories of NAIG6 having 30%, 75%, and 100% factors
- Our observations in this update focus on statutory capital requirements in principle, without regard to materiality or practical considerations, both of which are important but not the focus of this status update.

Agenda

3

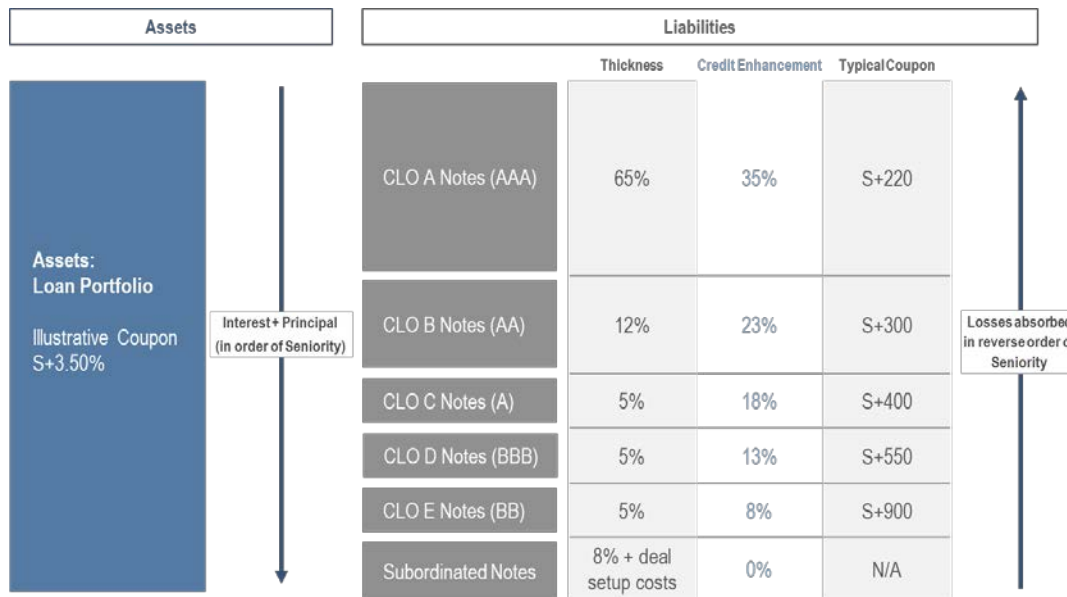
1. CLO Basics
2. U.S. Life Insurers' Exposure to CLOs
3. Relevant Risk-Based Capital ("RBC") Concepts
4. Residual Tranches
5. Key Questions for Regulators to Consider
6. Next steps for C1WG

1.

CLO Basics

- A CLO is a tranching security issued by a Special Purpose Vehicle (“SPV”) holding a large, diversified portfolio predominantly made up of bank loans.
- Bank loans are typically below investment grade (most are rated BB and B) and issued as senior, secured, floating rate corporate credit.
- Two main types of collateral: broadly syndicated loans (“BSL”) and middle market loans (“MML”)
- A CLO typically contains mostly BSL or mostly MML but not both

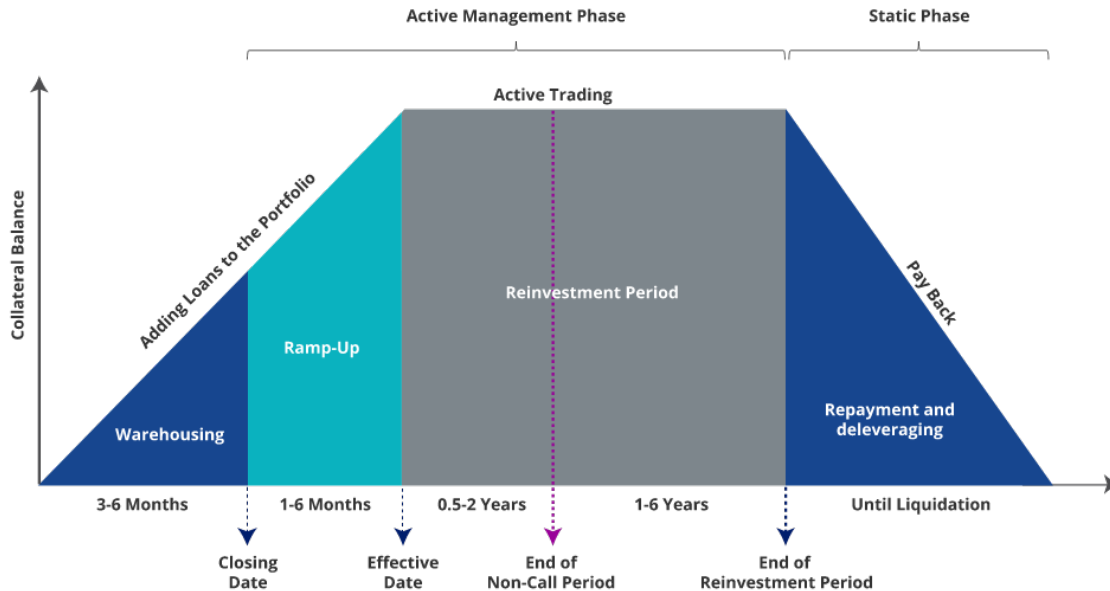
Typical capital structure at issue



In this hypothetical structure, weighted average coupon on CLO tranches is S+272, compared to collateral coupon of S+350. Lacking defaults, the excess spread accrues to the subordinated notes, but as defaults occur the excess spread provides credit enhancement in addition to the subordination of principal.

Source: Neuberger Berman. Capital structure and indicative portfolio are presented for illustrative purposes only and may not represent the final capital structure and portfolio of any particular CLO.

CLO lifecycle



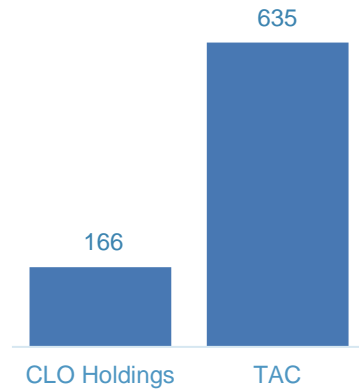
Source: VanEck. This is not an offer to buy or sell, or recommendation to buy or sell any of the securities mentioned herein.

2.

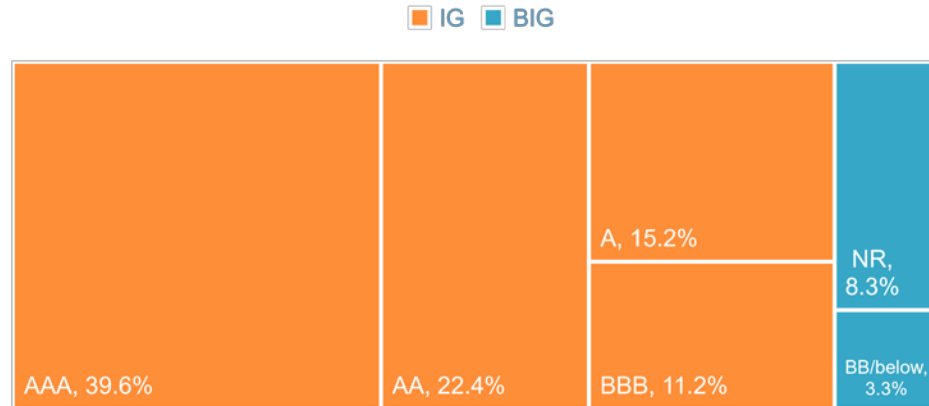
U.S. Life Insurers' Exposure

Current U.S. life insurance CLO holdings

U.S. Life Insurance Totals (\$bn)



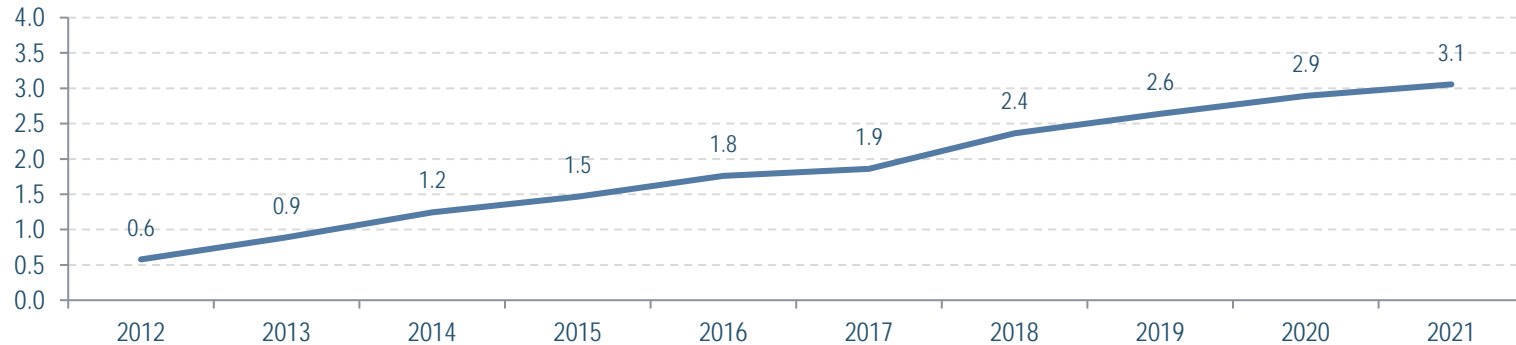
U.S. Insurance CLO Holdings by Rating



Sources: NAIC Capital Markets Bureau for CLO holdings and ratings, NAIC Center for Insurance Policy and Research for TAC. CLO holdings and ratings as of 2021, TAC as of 2020.

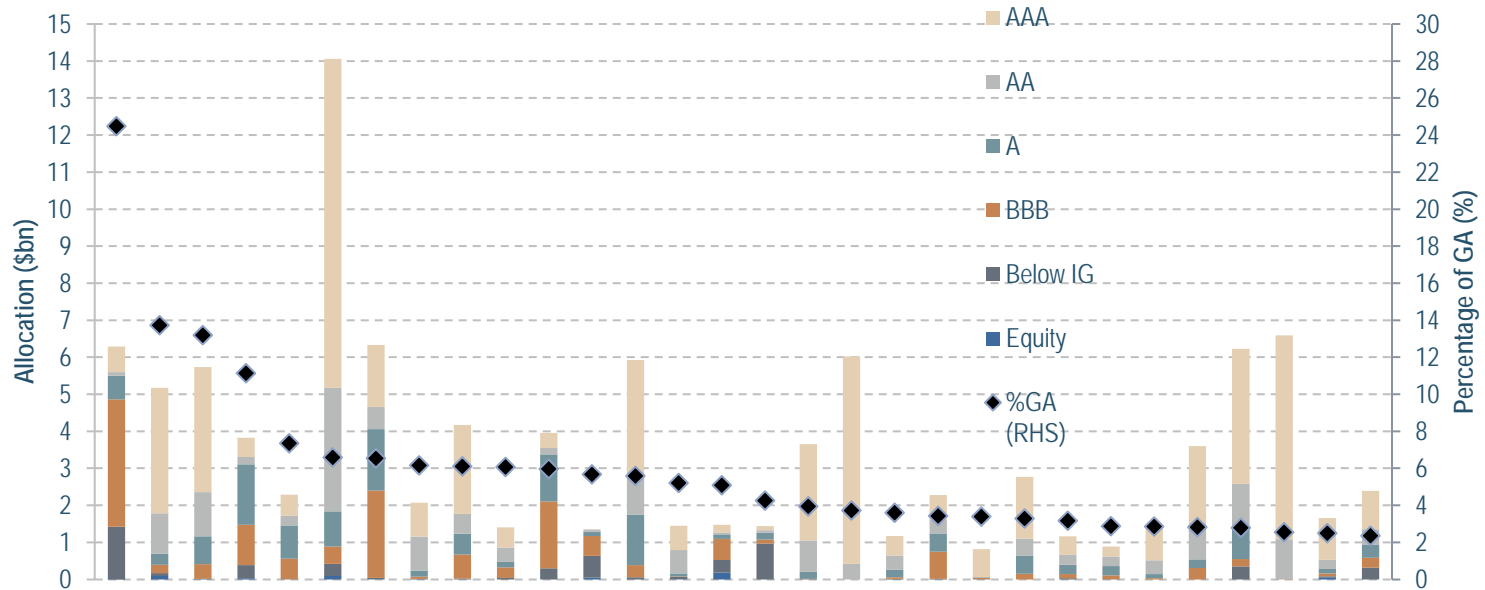
Life insurance CLO holdings over time (% of general account assets)

10



Sources: S&P Global, Neuberger Berman

Individual life insurers with largest CLO allocations, anonymized



Sources: S&P Global, Neuberger Berman

In the C1WG's view, CLOs do not present a material risk to the aggregate solvency of the life insurance industry currently.

Our view recognizes the limitations in identifying CLO holdings and that industry exposure to CLOs may increase in the future. Further, it is important to remember that RBC is a blunt measure based on industry averages that should not be relied upon as the sole indicator of risk; there may be individual life insurers with more material exposures.

Note: The remainder of this presentation sets aside materiality and practical considerations and will focus on what may be necessary to identify appropriate RBC treatment.

3.

Relevant RBC Concepts

In our review of CLOs and capital requirements, several RBC concepts came up repeatedly. Our observations/questions are based on these concepts and how these concepts should be applied to CLOs:

1. Statistical safety level—risk measure and time horizon
2. Comparability of G1 factors for corporate bonds and common stock to CLOs
3. Application of a new concept of RBC arbitrage

Statistical safety level—Risk measure and time horizon

15

- Bond factors use 96 percentile of greatest loss over 10 years
- Equity factors use 95 percentile of the max drawdown in the S&P500 index over 2 years
- C-3 Phase 2 uses $(1/4) \times \text{CTE}$ (Conditional Tail Expectation or CTE is also used for reserves in V-20)
- CLO losses tend to be binary events for the debt tranches other than AAA, with losses often equal to 0% or 100%. This results in a loss distribution that is both “fat-tailed” and resembles a step function. Risks for fat-tailed distributions are better measured using a CTE metric vs. a percentile metric.
 - Using the capital structure from slide 6 of this presentation as an example a collateral loss of up to 8% results in zero losses to the BB tranche but a collateral loss of at least 13% results in a 100% loss.

1. 8% equity, 5% BB, 5% BBB, 5% A, 12% AA, 65% AAA

Statistical safety level— Risk measure and time horizon (cont.)

16

- The 10-year time horizon for the σ Bond factors is based on an average credit cycle for corporate bonds
- The two-year time horizon for common stocks is based on an observation that equity market drawdowns typically play out fully within about two years
- What should be assumed to be the risk cycle for CLO debt tranches?
- What should be assumed to be the risk cycle for the CLO residual tranches?

A CTE would better represent tail risk for CLO debt tranches than would a percentile. CTE is better suited to the cliff issue associated with binary loss distributions and would reflect differentiation of risk across all debt tranches.

Comparability of C-1 factors for corporate bonds and common stock to CLOs

18

- In the higher CLO debt tranches, the bond charges are probably too high
- For the lower CLO debt tranches, the bond charges are probably too low
- Unsure of the precise crossover point between higher and lower debt tranches
- Primary reason: Securitization leads each tranche to have a more precise statistical safety level than corporate bonds have. Senior tranches are highly unlikely to experience losses at the statistical safety level defined for C, whereas junior tranches are much more likely to experience losses at that same statistical safety level

1. It's worth specifying that "loss" here refers to the amount of loss, not merely whether a loss occurs. Differences in loss given default are perhaps the most important distinguishing factor separating the respective loss distributions of CLOs, bank loans, and corporate bonds.

- IAO Issue Paper dated May 25, 2022, recommends that total C requirement for all debt and equity issued by a CLO (“vertical slice”) should equal the total C1 requirement for all the underlying collateral if an insurer owns the vertical slice
- In a typical CLO, total C for the underlying collateral is approximately 3 times larger than C1 for a CLO vertical slice
- IAO recommends modeling constraint that eliminates RBC arbitrage

At any one point in time, the *total risk* in a portfolio of loans is equal to the total risk of all CLO tranches that are collateralized by these same loans.

CIWG observation—Disagreement with the ‘No RBC Arbitrage’ principle

21

1. While a CLO’s total collateral and a vertical slice of its tranches have the ~~same~~ a point in time, it does not follow that they must have the same total C-1 requirement.
 - a. Each of corporate bonds, bank loans, and CLOs have unique structures and risk profiles.
 - b. C-1 corporate bond factors are not appropriate for bank loans or for CLOs due to different assumptions and models (e.g., secured vs. unsecured, time horizon, etc.)
 - c. It would not be appropriate to force equivalence using the current C-1 corporate bond factors.
2. While structure does not reduce aggregate risk at any given moment, it does transform risk. The CLO structure introduces a kind of callability and extension risk that resembles C-3 risk. Active trading, which is an element of CLOs but not of other modeled securities (residential mortgage-backed securities [“RMBS”], commercial mortgage-back securities [“CMBS”]), can reduce or increase risk over time.

CIWG observation—Broader application of ‘No RBC Arbitrage’ principle

22

The concept of sum of the parts equaling the whole is not applied elsewhere in C1. Should it also be applied to RMBS & CMBS? Or should it be applied to funds (a version of this is applied to exchange traded funds (“ETFs”), but not to other fund types)? Or to asset backed securities (“ABS”), where most of the underlying loans are typically unrated and would thus be NAIC (highest risk, near or at default)? It’s not clear to us what the limiting principle is for enforcing a “No RBC Arbitrage” concept.

4.

Residual Tranches

- With residual tranches being reported on Schedule BA, a 30% pre-tax G1 factor applies (which can come in through ~~10~~ or G1cs depending on how it is recorded).
- The 30% factor is derived from a study on unaffiliated common stock. Thirty percent is equal to the ~~95~~ 95th percentile of the maximum loss over a ~~2~~ year horizon.
- The 30% factor was not derived based on anything resembling the loss experience of a CLO residual tranche.

We are unaware of any quantitative analysis on the loss experience for the residual tranches of CLOs. As such, we haven't seen specific evidence that would support the use of a 30% capital charge for residual tranches. In addition, we have not concluded that subcategories of NAIC are needed, as have been proposed by the IAO. The justification of a CLO residual tranche charge or new subcategories of NAIC will require substantial analysis.

5.

Key Questions for Regulators to Consider

- Is the allocation to CLOs sufficiently material within insurer portfolios or expected to increase beyond a materiality threshold to warrant the significant investment of time and focus to assess appropriate capital requirements?
- Should the “No RBC Arbitrage” principle be applied to CLOs? If so, should it also be applied to other asset classes where it isn’t currently enforced?
- What statistical safety level is desirable for CLOs? Should the time horizon be consistent with other assets?

Summary Observations and Next Steps for CIWG

Summary of CIWG observations

29

1. In aggregate, CLOs are not a major risk to the life insurance industry capital & surplus currently.
2. Great care should be exercised in using existing factors for CLOs due to a lack of equivalence between the risk models for corporate bonds, equities, and structured securities. While using existing factors is expedient, current factors were not developed using assumptions and models that would be appropriate for CLOs or the bank loans that serve as CLO collateral.
3. CLOs (and other structured securities) are complex. CLOs contain risks that differ from risks contained in other assets. Accurately capturing the risks posed to an insurer's surplus requires complex models. Regulators need to balance the need for measurement of complex risks with the cost of measuring those risks.

1. Obtain RBCIRE WG feedback
2. Continue review of IAO proposal on residual tranches
3. Continue discussion of CLO risks, particularly in relation to the risks of other assets
4. Continue discussion of possible methods for calculating capital requirements for CLOs, including a comparison to other structured securities, fixed income assets, and equity investments.



Q&A

Amanda BarryMoilanen
barrymoilanen@actuary.org