Principles for Structured Securities RBC

Presentation to NAIC's RBCIRE

August 13, 2023

Steve Smith, MAAA, FSA, CFA

Academy C-1 Subcommittee, Chairperson

Executive Summary—C-1 Asset Modeling

- The American Academy of Actuaries proposes a flowchart to determine whether (a) an asset class needs to be modeled and (b) whether securities within an asset class need to be modeled individually to determine C-1 factors.

- Preference is given toward simpler solutions—if an existing factor can be used, it should be used. Individual security modeling for C-1 determination is a last resort.

Executive Summary—
Principles-Based Approach for Structured Securities

- If the result of the flowchart is that an asset class requires modeling, the Academy would support a principles-based approach to the derivation of C-1 factors
- A principles-based approach to RBC for structured securities will allow regulators flexibility in adapting to new structures as they emerge in the marketplace
- This presentation proposes several candidate-principles

    - The Academy supports each of these candidate-principles, but we believe reasonable and informed people may disagree and are seeking guidance from regulators
    - We request that regulators identify which candidate-principles accurately reflect their views—these can then be incorporated into a principles-based approach to structured securities RBC

Discussion Topics

I. C-1 Modeling Flowchart

II. Structured Securities C-1 Principles

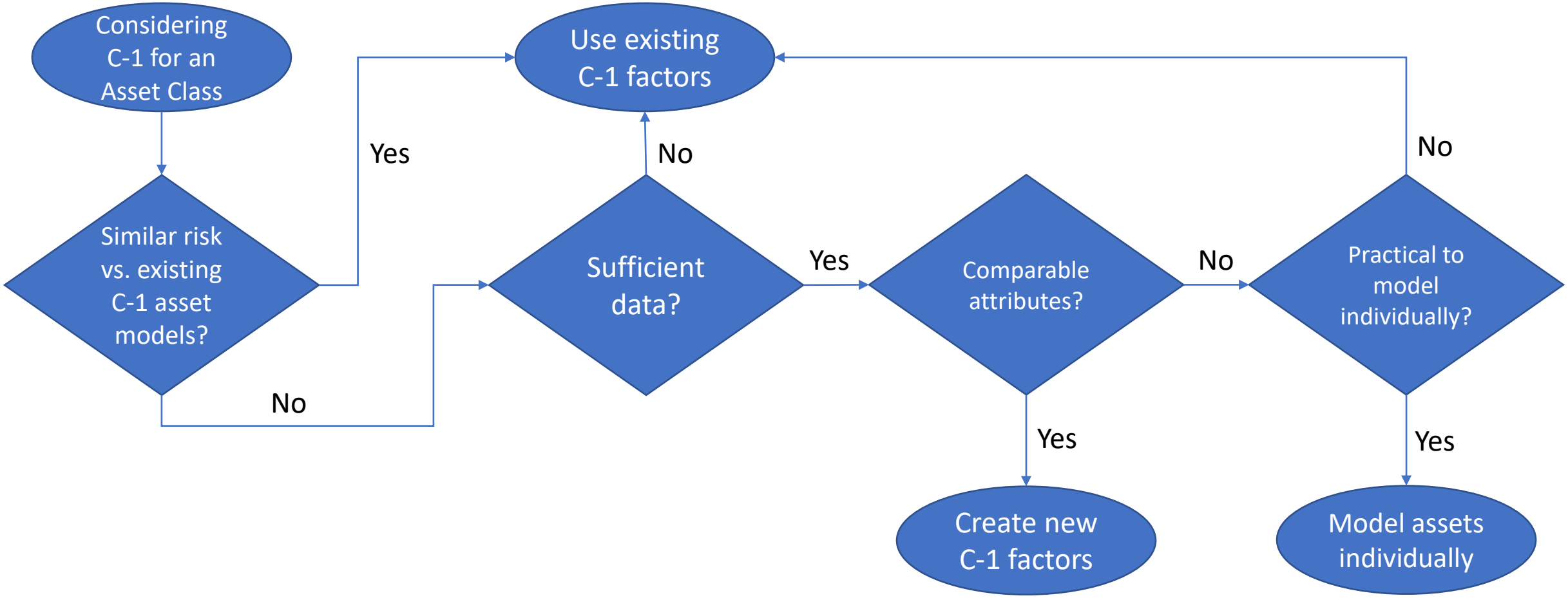
III. Appendices
   a) Appendix A—RBC Arbitrage
   b) Appendix B—Definitions of Terms

C-1 Modeling Flowchart

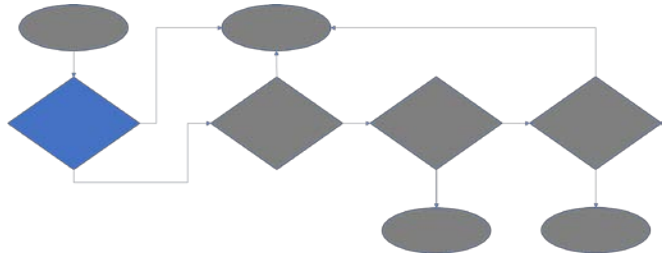
Threshold Questions

- For an asset class to be considered using this flowchart, it should first be verified as having all of the following attributes:
  1. Materiality or likely materiality in the future across the industry. Allocations from a small handful of companies would not justify changes to the RBC formula.
  2. The risk that would be modeled needs to be incorporated in C-1. For example, illiquidity alone would not be a sufficient justification because C-1 does not measure illiquidity risk.
  3. The expected benefits of a more precise calculation should outweigh the expected costs of building and using a new model. Costs include both time and energy spent to build the model as well as the negative effect of added complexity within the RBC formula.
- The burden to verify these attributes falls on the party asking for a more exact determination of RBC

C-1 Modeling Flowchart

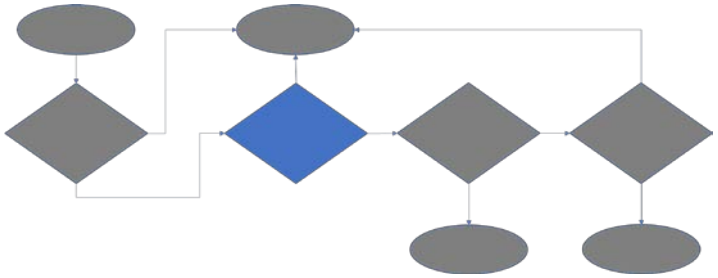


Decision: similar risk vs. existing C-1 asset models



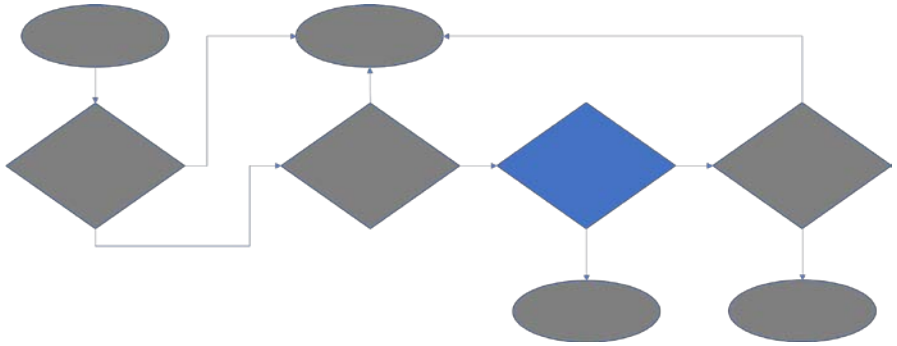
- Answer “yes” if the relative risk differences between risk categories (usually ratings or designations for fixed income) is similar to that of an existing set of C-1 factors.
- For example, municipal bonds and bank loans would each likely have an answer of “yes,” because relative increase in risk as ratings decrease is similar to that of corporate bonds.
- CLOs and some other structured securities would likely have an answer of “no,” because tail risk increases more quickly as the rating decreases compared to corporate bonds.

Decision: sufficient data



- Answer “yes” if data exist to enable risk modeling, and in particular tail risk modeling.
- For example, CLOs would likely have an answer of “yes,” because their bank loan collateral has ample historical loss data and the waterfall structure is well documented.
- Some esoteric ABS, especially residual tranches, may have an answer of “no” if insufficient data are available.

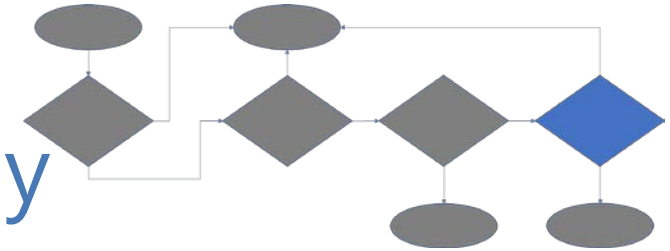
Decision: comparable attributes



- Answer “yes” if most individual assets within this asset class have an easily identifiable attribute that can be used to sort the assets into risk buckets.
- For example, CLOs would likely have an answer of “yes,” because most CLOs are rated by CRPs and those ratings can reasonably sort each individual CLO security into a risk bucket.
- Asset classes that are typically not rated by CRPs may have an answer of “no” here, but don’t automatically. For example, commercial mortgage loans are also a likely “yes” because DSCR and LTV substitute for CRP ratings as comparable attributes.

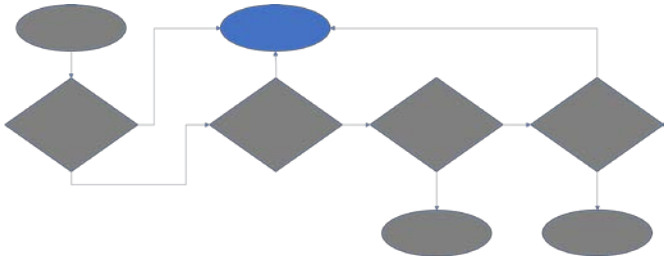
Initialism guide: CLO = collateralized loan obligation. CRP = credit rating provider. DSCR = debt service coverage ratio. LTV = loan-to-value

Decision: practical to model individually



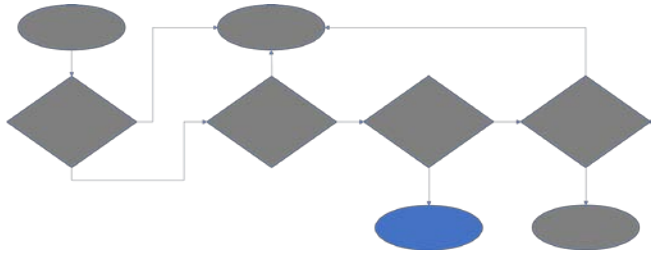
- Answer “yes” if individual assets within the asset class have several attributes that differentiate individual assets and can be used for risk modeling or if existing modeling software can be used.
- For example, CLOs would likely have an answer of “yes.” because off-the-shelf software exists that can model individual CLOs (however, CLOs may never have arrived at this decision point if they were deemed to have comparable attributes).
- If modeling cannot reasonably be done in a timely and cost-effective manner for RBC filing, then the answer here must be “no.”
- Some esoteric ABS may have an answer of “no” if the relevant risk is so specific to each deal that a common modeling framework does not apply across a reasonably large share of securities.

Outcome: use existing C-1 factors



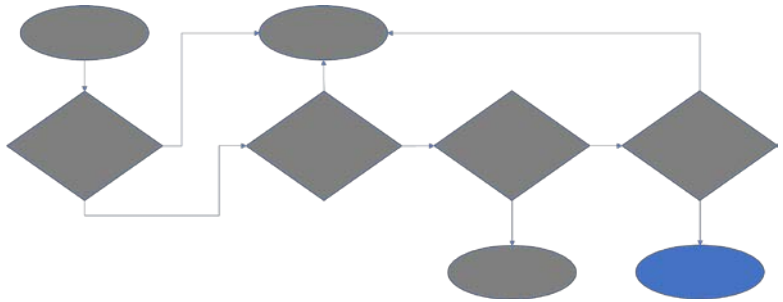
- This outcome can either mean to use existing C-1 factors directly, without adjustment, or it can mean to make slight adjustments to existing C-1 factors.
- For example, municipal bonds and bank loans currently use corporate bond C-1 factors without adjustment.
- Schedule BA real estate currently uses Schedule A real estate C-1 factors but with an upward adjustment resulting in a proportionately higher C-1 factor for BA real estate.

Outcome: create new C-1 factors



- This outcome means that a new set of C-1 factors should be developed for this asset class.
- For example, CLOs may retain the 20 possible designations that they are currently mapped into. But instead of those 20 designations corresponding to the 20 corporate bond C-1 factors, CLOs may instead have their own set of 20 C-1 factors.
- Instead of just a slight adjustment to existing C-1 factors, this outcome requires fundamental modeling work to derive new factors.

Outcome: model asset individually



- This outcome means that each asset within this asset class needs to be modeled individually in order to generate a C-1 factor.
- In practice, this is currently how non-agency RMBS and CMBS are treated. The modeling work is done by the Structured Securities Group to determine the NAIC designation, after which point corporate bond factors are used. This is functionally similar to modeling each RMBS and CMBS security individually to determine its C-1 factor.
- Because of the significant operational complexity involved, this outcome is a last resort.

Structured Securities C-1 Principles

Glossary of Terms

- **ABS**: bonds falling within the emerging definition of ABS in SSAP 26, most recently exposed November 16, 2022
- **Vertical Slice**: an investment in all tranches of an ABS in equal proportion to the total outstanding
- **RBC-transformative ABS**[1]: ABS where a vertical slice draws a lower aggregate C-1 requirement, considering only base factors (before portfolio adjustment and covariance adjustment), than its underlying collateral would draw if held directly by a life insurer
- **RBC Arbitrage (narrower)**: Holding a vertical slice of an RBC-transformative ABS
- **RBC Arbitrage (broad)**: Holding any part of an RBC-transformative ABS

1. Conversely, one could then define RBC-neutral ABS as ABS where a vertical slice draws aggregate C1 equal to that which would be drawn by its underlying collateral

Candidate-Principle #1.
The RBC Formula Is a Blunt Filtering Tool

- **The purpose of RBC is to help regulators identify weakly capitalized insurers, therefore small inaccuracies in RBC formulaic requirements will seldom justify a change to the RBC formula**
  - A structure that is close to RBC-neutral may not require a change in C-1 requirements.
  - Small allocations to RBC-transformative ABS may not require a change in C-1 requirements.
  - Small allocations to RBC-transformative ABS at the industry level will not avoid regulatory scrutiny.

Candidate-Principle #2.
RBC Is Based on Statutory Accounting

- **RBC measures the impact of risk on statutory surplus. Changes in accounting treatment will affect C-1 requirements**
    - All else equal, assets that are marked to market ("MTM") may have higher C-1 requirements because C-1 on MTM assets incorporates price fluctuations in addition to credit losses.

Candidate-Principle #3.
C-1 Established for Underlying Collateral

- **RBC arbitrage can only be measured for ABS where the underlying collateral has an established asset-class-specific C-1 requirement**
  - ABS collateral may include unrated debt securities that would be either NAIC-6 or non-admitted if held directly by insurers—NAIC-6 assets draw a 30% pre-tax C-1 factor regardless of risk.
  - This unrated collateral, often non-corporate, typically does not have an established asset-class-specific framework for assigning C-1 (e.g., auto loans or credit card receivables).
  - ABS including such collateral is very often RBC-transformative because it converts NAIC-6 or non-admitted assets into rated paper.
  - Because the underlying collateral does not have an established asset-class-specific C-1 requirement, forcing C-1 on the ABS to be RBC-neutral would likely result in a C-1 requirement that is more conservative than C-1 for comparable risk in other asset classes.

Candidate-Principle #4. Intentions Don't Matter For C-1 Requirements

- **The motivation behind creating an ABS structure should have no bearing on its C-1 requirements.** Even a structure designed with the explicit intent of reducing C-1 requirements should be treated like any other ABS. C-1 requirements represent a quantitative assessment of risk.
    - For many structures, it may be impractical or even impossible to objectively determine the intention of the design.
    - Even structures not designed to reduce C-1 may nevertheless lead to insufficient C-1 requirements.

Candidate-Principle #5.
C-1 Requirements Reflect Likely Future Trading Activity

- **C-1 requirements on ABS should treat the collateral as a dynamic pool of assets, incorporating future trading activity that is likely to occur based on historical data or mandated by the structure's legal documents.**
    - If C-1 requirements on ABS acknowledge the evolving nature of the collateral pool, the total C-1 of the structure may not equal the C-1 of a snapshot of the collateral pool at any one point in time.
    - Specific to CLOs, management of the collateral is a known factor impacting risk that can be modeled with reference to historical data.
    - While the Academy supports this candidate-principle, we acknowledge that the current C-1 framework generally does not incorporate likely future changes to a portfolio, except indirectly in cases where Credit Rating Providers have assigned a rating that incorporates assumptions about portfolio management.
    - The RBCIRE WG have expressed concerns with incorporating active management in C-1 requirements for CLOs.
    - This candidate-principle does not imply incorporating credit selection on the part of the ABS manager. In other words, this candidate-principle is separate from the concept of active management as commonly understood.

Candidate-Principle #6.
C-1 Requirement for Each Tranche Is Independent

- **RBC is based on the holdings of an insurer; assets not owned by an insurer should not impact its RBC**
  - This principle would imply RBC arbitrage depends on which tranche is held, even if an insurer holds a tranche issued by an RBC-transformative ABS.
  - This principle would imply that RBC arbitrage exists only in the tranches whose C-1 requirement is inadequate relative to the measured risk.
  - This principle would avoid tainting an entire structure with the label of RBC arbitrage in cases where C-1 is already sufficient for the particular tranche held by an insurer.
  - One practical drawback to this principle is it requires measuring risk at each tranche. The broad definition is simpler; showing that a structure is RBC-transformative is sufficient to identify RBC arbitrage per the broad definition. However, a C-1 requirement is still needed for each tranche held by an insurer, so the apparent simplicity under the broad definition is illusory.

Candidate-Principle #7. Different Risk Measures

- Each C-1 factor is based on the asset class's risk profile. However, the risk profile for at least some ABS is quite different from the risk profile for bonds. Therefore, **C-1 requirements for ABS** should be calibrated to **different risk measures** where appropriate.
    - In our December 2022 report to RBCIRE WG, the Academy recommended adopting a different risk measure for CLOs—Conditional Tail Expectation ("CTE")—because CTE may better capture tail risk inherent in CLOs.
    - While different risk *measures* are appropriate, each asset's C-1 factor aims for a similar *magnitude*. For example, because most bonds use a 96th percentile, a CTE-96 for CLOs would be overly conservative. CTE-90 would be more consistent with the 96th percentile.
    - It is impossible to simultaneously reject this candidate-principle and require that all ABS structures are RBC-neutral, because in this case the collateral and the ABS would have C-1 requirements set to different statistical safety levels.

Summary of Candidate-Principles

1. The purpose of RBC is to help regulators identify weakly capitalized insurers, therefore small inaccuracies in RBC requirements may not justify a change to the RBC formula.
2. RBC measures the impact of risk on statutory surplus. Changes in accounting treatment will affect C-1 requirements.
3. RBC arbitrage can only be measured for ABS where the underlying collateral has an established asset-class-specific C-1 requirement.
4. The motivation behind creating an ABS structure should have no bearing on its C-1 requirements.
5. C-1 requirements on ABS should treat the collateral as a dynamic pool of assets, incorporating future trading activity that is likely to occur based on historical data or mandated by the structure's legal documents.
6. RBC is based on the holdings of an insurer; assets not owned by an insurer should not impact its RBC.
7. C-1 requirements for ABS should be calibrated to different risk measures where appropriate.

Key Questions for Regulators

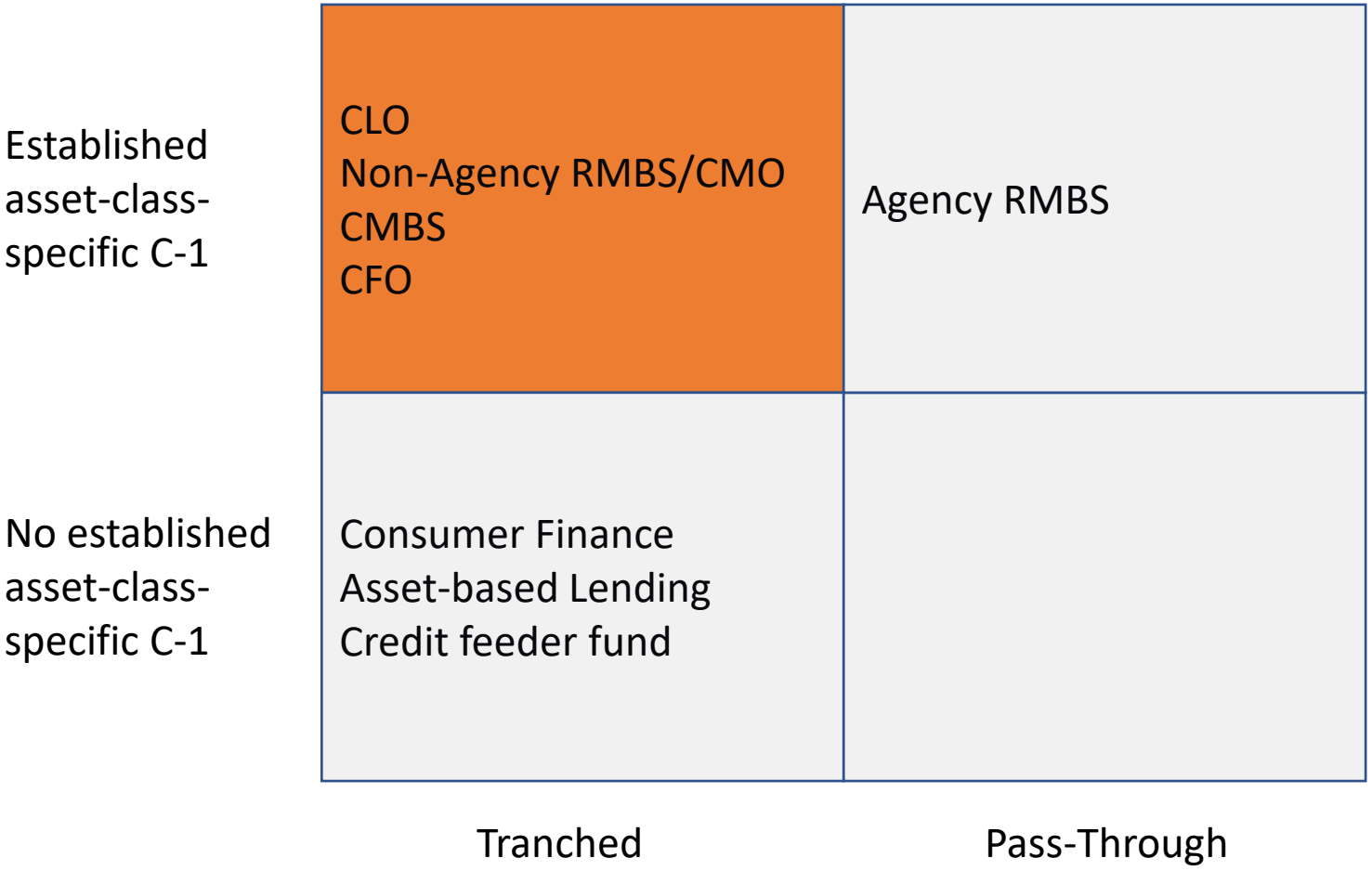
- Which candidate-principles do regulators support?
- Are there additional principles not outlined herein that also ought to be incorporated into RBC for ABS?

Appendix A—RBC Arbitrage

Impact of Principles on Definition of RBC Arbitrage

- By discussing broader principles, this presentation seeks to spark conversation on the definition of Risk-Based Capital (RBC) arbitrage in Asset Backed Securities (ABS) and clarify the implications of conflicting RBC arbitrage definitions.
- The NAIC's Investment Analysis Office (IAO) has proposed a constraint in the model used to determine designations, and therefore RBC requirements, for CLOs. This constraint would eliminate RBC arbitrage, as defined by the IAO, that the IAO believes is present in CLOs.
- Competing definitions among interested parties and regulators have been used in some formal and informal discussions, so far without a forum for being discussed directly.
- This presentation attributes differences in RBC arbitrage definitions to underlying principles of RBC. The C1WG is requesting guidance from regulators on which principles should be followed. Once the principles have been identified, RBC arbitrage can be more clearly defined and more effectively mitigated. These principles will also guide a broader effort around improving the C-1 framework for all ABS.

Asset Classes With Greatest Potential for RBC Arbitrage



- Quantifying RBC arbitrage is most direct when the underlying collateral has an explicit C-1 factor
- Tranched structures are more likely to produce RBC arbitrage than pass-through structures because tranching transforms risk
- RBC arbitrage discussions should focus on tranched structures with established asset-class-specific C-1

Definitions of RBC Arbitrage

- IAO has expressed its view that holding **any tranche** of a securitization whose vertical slice carries a different aggregate C-1 requirement compared to the underlying collateral constitutes RBC arbitrage—we term this the **broad**[1] definition of RBC arbitrage
- An alternative, **narrower**[1] definition of RBC arbitrage includes only instances where an insurer holds a **vertical slice**[1]
- Many other possible definitions lie somewhere in between

1. Please see Appendix B—Definitions of Terms for precise definitions of technical terms.

IAO Usage of the Term "RBC Arbitrage"

- A letter from IAO to VOSTF dated May 25, 2022, introduces the concept of RBC arbitrage within the context of CLOs: "The aggregate RBC factor for owning all of the CLO tranches should be the same as that required for owning all of the underlying loan collateral. If it is less, it means there is RBC arbitrage."
- SVO's Structured Equity & Funds Proposal dated November 28, 2022, also uses the term "RBC arbitrage" with effectively the same meaning but expanding the scope from CLOs to include certain feeder fund structures.

Academy Usage of "RBC Arbitrage"

- In our presentation to RBCIREWG dated December 14, 2022, the Academy disagreed with the concept that the existence of RBC arbitrage, as defined by IAO, necessarily implied an incorrect C-1 requirement
- The Academy believes dialogue among all parties will be improved if we first collectively agree on a definition of RBC arbitrage before discussing its implications for C-1 requirements

Related Regulatory Concerns

- IAO has also pointed out the possibility of RBC-transformative ABS being used to reclassify investments to technically comply with investment limits set forth in state insurance law, for example converting equity to debt for statutory purposes
- RBC-transformative ABS may also be used to reclassify investment returns or losses from an accounting perspective
- While we acknowledge these related potential issues, this presentation focuses only on C-1 implications of RBC-transformative ABS

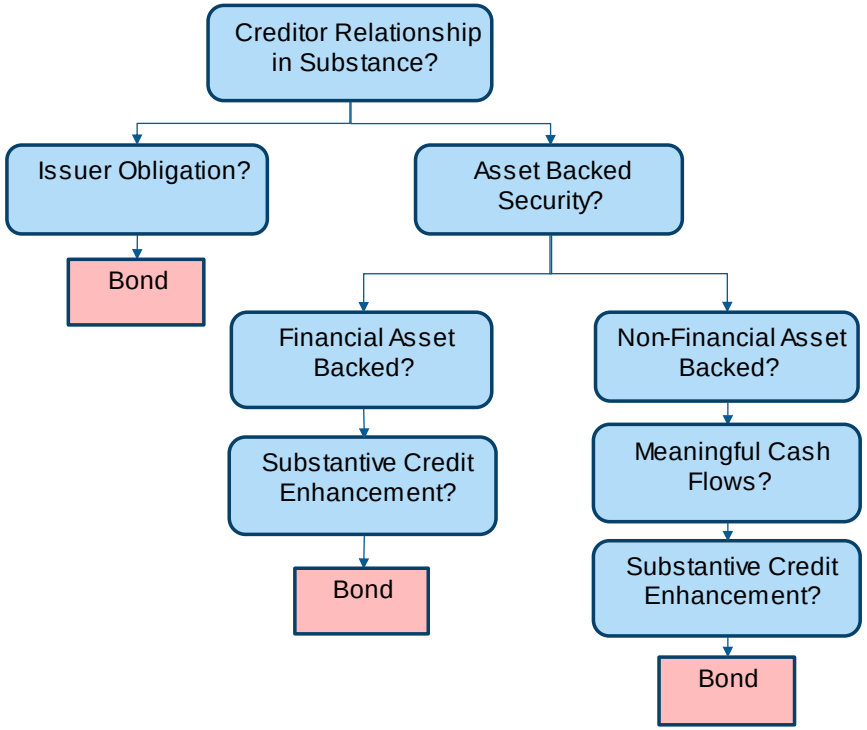
Appendix B—Definitions of Terms

ABS Definition

- RBC arbitrage discussions typically involve structured securities, for example CLOs and rated note feeder fund structures.
- Within this presentation, we refer to all such structured securities as **ABS**, and we intend for the definition of ABS to align with the emerging definition of ABS in **SSAP 26**, most recently exposed November 16, 2022. Under this definition, ABS has a primary purpose of raising debt capital backed by collateral that provides the cash flows to service the debt.

ABS Definition, Continued

Bond Principles Flowchart



- Exposed principles-based definition of ABS is illustrated here
- Image taken from "Assets: Regulatory Updates in Life Insurance" April 4, 2023, webinar by the American Academy of Actuaries

Vertical Slice Definition

A vertical slice is an investment in all tranches of an ABS in equal proportion to the total outstanding. A vertical slice is economically equivalent to a direct investment in the underlying collateral at any one point in time.

RBC-Transformative ABS Definition

An RBC-transformative ABS is any ABS where a vertical slice draws a lower aggregate C-1 requirement than its underlying collateral would draw if held directly by a life insurer.

Narrowly Defined RBC Arbitrage

- **Holding a vertical slice of an RBC-transformative ABS** constitutes RBC arbitrage under the narrow definition.
- In this case, it is unambiguously true that absent the structure of the ABS a life insurer would be required to hold a higher level of C-1 capital.
- Even under the narrow definition of RBC arbitrage, C-1 requirements for the collateral may be inappropriately high rather than the ABS C-1 requirements being inappropriately low. Also, C-1 for the ABS and its collateral may be calibrated precisely to the prescribed risk measures despite the ABS being RBC-transformative. Regardless, in such cases holding a vertical slice of an RBC-transformative ABS would still constitute RBC arbitrage.

Broadly Defined RBC Arbitrage

- **Holding any part of an RBC-transformative ABS** constitutes RBC arbitrage under the broad definition
- For example, any CLO holdings would constitute RBC arbitrage under this definition, because CLOs are an RBC-transformative ABS (as discussed in the Academy's December 2022 presentation to RBCIREWG)
- IAO letters written to VOSTF during 2022 employ the broad definition of RBC arbitrage

QUESTIONS

Contact:
Amanda Barry-Moilanen, Life Policy Analyst
barrymoilanen@actuary.org