Use of Rating Agency Ratings in State Insurance Regulation

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Use of Ratings in Insurance Industry

- Background on Risk Based Capital (RBC)
- Minimum Capital Requirements for Assets
- Determination of Capital (Total Adjusted Capital)
- Other Uses of Ratings
- Limitations of Ratings

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Background on RBC

- Purpose of RBC is to identify weakly capitalized companies.
 - Regulatory tool
 - Regulatory action is based on RBC ratios
 - RBC ratios are not designed to compare capital strength of companies
 - Three RBC formulas are used: life insurers, health insurers, casualty insurers. Asset requirements similar for all insurers.
 - Introduction of more sophisticated methods has sometimes met resistance from insurers due to the increased cost and time to implement.
- Generally, minimum capital requirements are expected to be sufficient to protect insurer solvency 95% of the time.

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Background on RBC (cont.)

RBC factors were established to capture risk levels above the levels captured in reserves.

Constraints

- Data sources are publicly available from statutory financial statements
- Factor-based for C-1, C-2 and C-4
- Model-based for C-3 for some liabilities (FAs, VAs, and SPL)
- Factors do not vary by company

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Minimum Capital Requirement for Assets

Asset risk- affiliate (C0)

- Risk of default of assets for affiliated investments (e.g., downstream insurance subsidiaries)
- Parent is required to hold an equivalent amount of risk-based capital to protect against financial downturns of affiliates.
- For life companies, off-balance sheet items are included in this risk component including non-controlled assets, derivative instruments, guarantees for affiliates and contingent liabilities.

Asset risk – common stock (C1-cs)

- Risk of market value loss for certain equity assets
- Unaffiliated Common Stock and Affiliated Non-Insurance Stock

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Minimum Capital Requirement for Assets (cont.)

Asset risk – other (C1-o)

- Risk of default for debt assets
- Fixed income assets include bonds, mortgages, short-term investments, etc.
- Equity assets include preferred stock, real estate, long-term assets, derivative transactions, etc.
- All insurance companies are subject to an asset concentration factor that reflects the additional risk of high concentrations in single exposures.

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Determination of C1-o Factors: Bond Factors

- Factors based on simulations of a bond portfolio of 1300 securities where future cash flows are projected assuming realistic economic cycles and interest rate changes. Simulations cover ten-year period.
- Simulations did not reflect:
 - The impact of large issuer concentrations in a bond portfolio
 - Different default experience for private placements
 - Loss recoverability from contract holders
- "Base" required capital = amount of initial funds (initial surplus plus interest) necessary to protect the bond portfolio from expected losses.
- RBC factors based on adjustment to the base factors adjusted for the number of issues in an insurer's portfolio, excluding government-backed issues.

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Determination of C1-o Factors: Bond Factors (cont.)

- Projected future defaults are based on Moody's Default Study
 - Study measured defaults based on current rating rather than the rating at issue.
 - Experience based on number of defaulted issues, rather than the par value of defaulted issues.
 - "Select and Ultimate" experience was available; therefore, ratings transitions are reflected in the development of RBC factors.
 - Expected loss severity assumes principal recovery for basic bonds based on Moody's experience. RMBS expected loss does not reflect loss severity.
 - Moody's rates were adjusted for the worst economic environment to reflect conservatism.
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Bond Factors (pre-tax)

SVO Bond		Book / Adjusted		RBC
Rating Category	Annual Statement Source	Carrying Value	Factor	Requirement
Long Term Bonds				
(1) Exempt Obligations	AVR Default Component Column 1 Line 1	\$0 X	0.000 =	\$0
(2) Asset Class 1	AVR Default Component Column 1 Line 2	\$0 X	0.004 =	\$0
(3) Asset Class 2	AVR Default Component Column 1 Line 3	\$0 X	0.013 =	\$0
(4) Asset Class 3	AVR Default Component Column 1 Line 4	\$0 X	0.046 =	\$0
(5) Asset Class 4	AVR Default Component Column 1 Line 5	\$0 X	0.100 =	\$0
(6) Asset Class 5	AVR Default Component Column 1 Line 6	\$0 X	0.230 =	\$0
(7) Asset Class 6	AVR Default Component Column 1 Line 7	\$0 X	0.300 =	\$0
(8) Total Long-Term Bonds	Sum of Lines (1) through (7)	\$0		\$0
(Column (1) should equal Page 2 Column 3 Line 1)				
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Determination of C1-o Factors: Mortgage Factors

Mortgage factors are based on 3 groups:

- in good standing 90 days overdue
- in process of foreclosure
- No ratings exist for mortgages; therefore, factors were developed on the basis of experience on the entire mortgage portfolio.
- Factor based on insurer's mortgage experience relative to industry experience (i.e., $\ensuremath{MEAF}\xspace)$
 - If company experience is worse than industry experience, capital charge will be higher than for an average portfolio.
 - MEAF falls between 0.5 and 3.5 for mortgages in good standing. Note: MEAF factors have been reduced to (1.25 - 0.75) on an interim basis.

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MEAF falls between 1.0 and 2.5 for mortgages in default

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Determination of C1-o Factors: Derivatives Factors

- Required capital for derivatives reflects the amount held on the balance sheet exposed to loss upon default of the Overthe-Counter (OTC) counterparty or exchange.
- OTC derivatives are carried at market value with RBC factors based on bond factors.
 - Factor for exchange-traded derivatives = NAIC Class 1 Bond Factor
 - Factor for OTC derivatives based on NAIC Class 1-6 Bond Factors

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Determination of C1-o Factors: Derivatives Factors (cont.)

- Replicating transactions (Schedule DB) A replication (synthetic asset) transaction increases the insurer's exposure to one type of asset, the replicated (synthetic) asset, and may reduce the insurer's exposure to the asset risk associated with the cash market components of the transaction
 - Required capital on a replicating transaction is the net amount of exposure times the RBC factor for a Schedule DB asset (i.e., NAIC Class Bond Factors 1-6)
- A mandatorily convertible security is a security that is mandatorily convertible at prices different from the market prices at the time of conversion;
 - Such securities are classified on the annual statement by ignoring the conversion feature. RBC is adjusted upward if the security that results from the conversion is more risky than the original security.
 - Required capital on mandatorily convertible securities is based on the RBC factor for NAIC Class Bond Factors 1-6

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Total Adjusted Capital (TAC)

• TAC = unassigned surplus

- + Asset Valuation Reserve (AVR) + (0.5) * Dividend Liability
- AVR is considered to be "assigned" surplus or a reserve for defaults.
 Provides cushion to surplus from wide swings.
 - The AVR is an estimate of the portion of policy reserves attributed to defaults.
- AVR is required for assets classified as Bonds and mortgages.
 Annual contribution to AVR based on the same asset classifications (i.e., NAIC 1-6) used in RBC plus capital gains minus capital losses.
 Total AVR is capped; Once cap is reached there are no further flows into AVR.
- The level of AVR is based on the same asset classifications (i.e., NAIC 1-6) used in RBC.

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Other Uses of Ratings by Insurers

Actuarial Modeling of Projected Defaults

- Regulatory Cash Flow Testing and the determination of asset adequacy
- Capital requirements for C3 Phase I and II
- Risk Management modeling

PBR for Life Insurance

- Rating Agency ratings are the basis for prescribed default costs and investment spreads for fixed income assets modeled in the calculation of life insurance reserves based on PBA methodology.
- Investment Restrictions per NAIC Model Laws

and/or state laws

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Limitations of Ratings

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Limitations of Using Rating Agency Ratings in RBC

- RBC calculation linked to financial statement classification. Risk information is lost in the mapping of ratings to NAIC classes.
- Certain investment risks are not captured in the ratings and therefore RBC (extension, market, event, liquidity)
- Factors are based on average experience across many types of securities with different risk profiles
- New features in securities will not be reflected until experience emerges (can be a long time)
- Broad industry averages may not represent credit risk for an individual company's portfolio, as techniques for mitigating portfolio credit risk are not reflected in RBC (e.g., derivatives).
- Broad industry averages may not be consistent with internal ratings assigned by company's analysis of credit risk.

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Concerns with Ratings from an Actuarial Perspective

- Rating methodologies and underlying assumptions differ by security type (e.g., frequency of factor update, RMBS factors do not reflect severity)
- Ratings are not consistent between different securities
 - Agencies will rate securities differently
 - Securities with similar risk profile will get different ratings
- Ratings process is not transparent

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- The stated purpose of RBC (identify weakly capitalized companies) naturally forces a balance between reflecting more complete information and the cost of implementation.
 Introduction of more sophisticated methods has sometimes met resistance from insurers due to the increased cost and time to implement

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