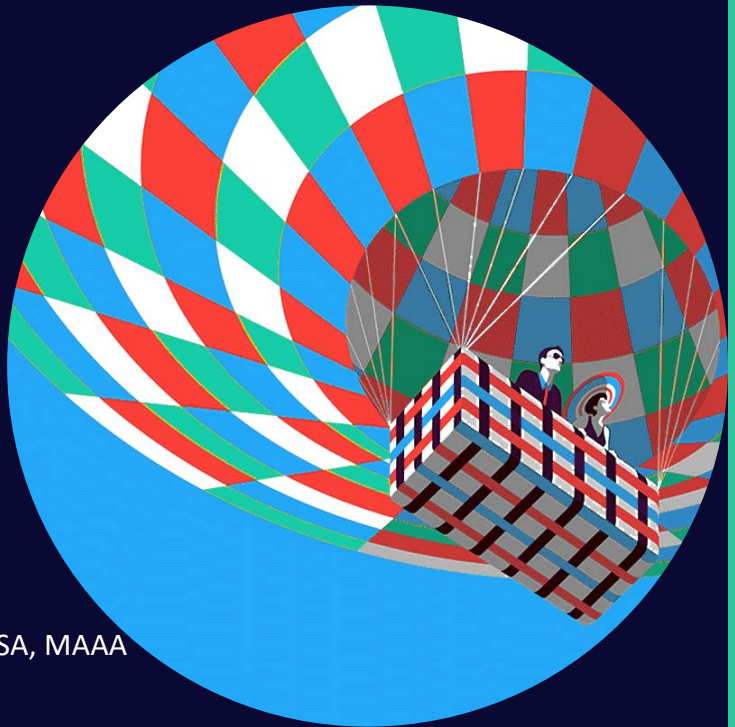
The Revised S&P Global Insurance Capital Model



Presented by
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May 21, 2024

About this Presentation

About Delaware Life

- Founded in 2013, Delaware Life Insurance Company is the flagship member of Group 1001 Insurance Businesses. Group 1001 is a collective that empowers its companies to create positive growth.
- Active seller of retirement products (MYGA, FIA and VA)
- Subsidiary Clear Spring Property & Casualty actively sells Workers Comp, General Liability, and Select Auto
- Rated by AM Best, S&P and Fitch

About my role at Delaware Life

- Responsible for internal capital modeling, forecasting, reporting and analysis for NAIC RBC, AM Best and S&P
- Part of Life & Annuity business unit, but also support the Property & Casualty business unit as well as other corporate capital initiatives
- Lead a cross departmental effort to fill out and submit the new capital model inputs
- Worked with our rating analysts to assist their review of our results under the new criteria

Focus of presentation

- Investments and Annuities
- Statutory NAIC perspective
- Cross capital perspective between NAIC RBC, AM Best and S&P
- Views are my own and do not reflect those of Group 1001 or Delaware Life

Agenda

General Background

- What is a capital model
- Timeline of Capital Model Development
- Structural Changes of Capital Model

Deep Dive into Selected Topics

- Investment Risks
- Liability and Interest Rate Risks
- Diversification

Q&A

What is a Capital Model

A capital model is a framework for evaluating the adequacy of a company's available capital (TAC) in relation to its risks (RBC)

Total Adjusted Capital (TAC)

Amount of capital **available** to absorb losses not already reserved for

TAC = Surplus / Equity
+ Asset Valuation Reserve
+ Rating Agency Adjustments

Risk Based Capital (RBC)

Amount of capital **needed** to absorb losses in a stress scenario

Determined by assigning risk charges to assets and liabilities based on their individual riskiness

S&P Global Insurance Capital Model Timeline

2010	Last major overhaul to S&P insurance capital model
12-2021	S&P issues initial RFC publication
05-2022	S&P announces intention to issue a subsequent RfC
05-2023	Revised RfC guidance issued
11-2023	Revised capital model adopted - 63 issuer ratings placed under criteria observation (UCO)
04-2024	S&P provides update - 63 issuers taken off UCO list, 60% of rated issuers have been reviewed under revised criteria

General Changes to Capital Model

Changes from prior model

- New risk scenario levels that are no longer described with a specific rating
- New factors and inputs for everything
- Completely new diversification credit
- Goal of global consistency
    - Accounting agnostic inputs that require interpretation
    - Inputs are almost entirely provided from company records

Risk Scenario	New Model VaR Level	Prior Model Mapped Level
Moderate Stress	99.5%	BBB
Substantial Stress	99.8%	A
Severe Stress	99.95%	AA
Extreme Stress	99.99%	AAA

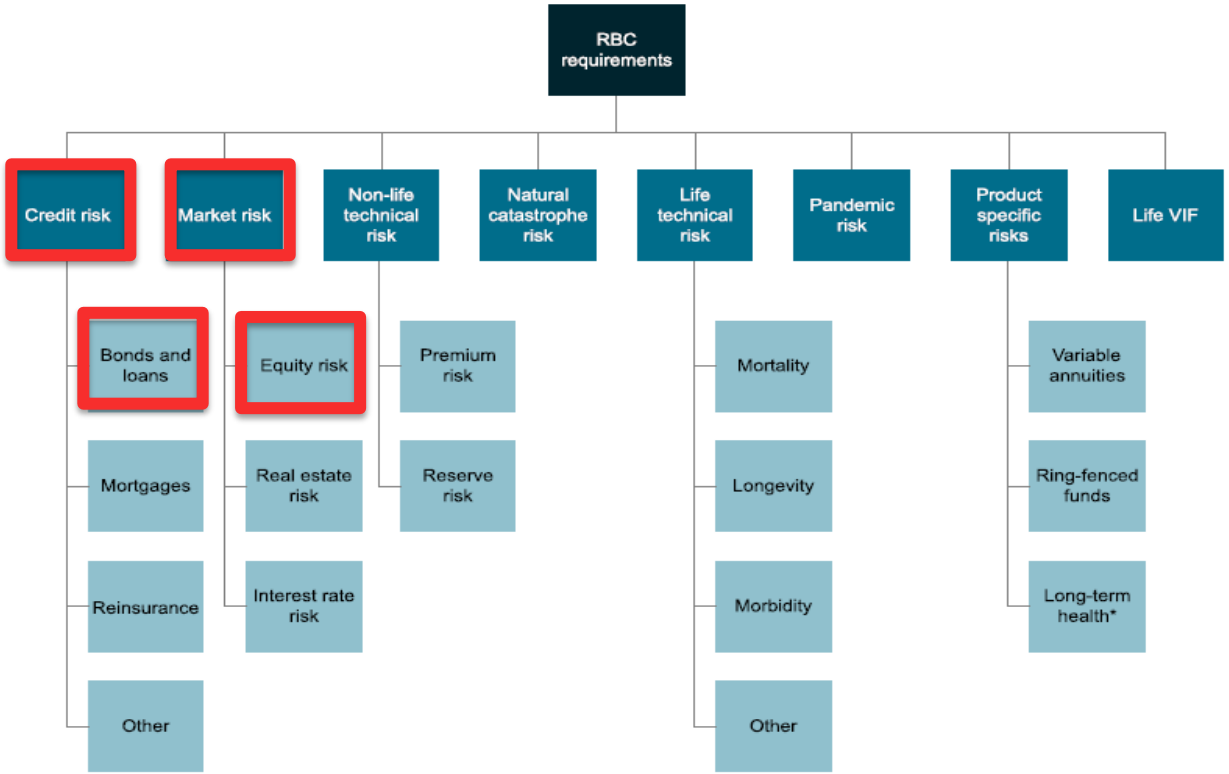
Similarities with prior model

- Transparent capital model provided to insurer
- Primary metric is redundancy in both absolute dollars and as a percent of required capital

Section 2

Investment Risk

Risk-based capital requirements



*Long-term health business with aging reserves. Source: S&P Global Ratings.

Investment Risks

Changes against prior model

Credit Risk for Bonds now depends on the following:

- **Recovery Category** (new!)
- Years to Maturity (same as before)
- **Credit Rating** (updated process)

Investment Risks

Changes against prior model

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- **Recovery Category** (new!)

Table 37

Credit Risk Recovery Categories	
Category	**Typical assets**
Category 1	Sovereign, local and regional governments (LRGs), and U.S. municipal debt (including multilateral lending institutions)
	Government-related entities (GREs) with an almost certain likelihood of extraordinary government support where we equalize the rating with the relevant sovereign
	Senior secured bonds and loans (corporates, financials, and non-LRG public-sector obligors)
	Infrastructure corporates and project finance (other than subordinated exposures)
	Covered bonds
Category 2	Senior unsecured bonds and loans (corporates, financials, and non-LRG public-sector obligors)
Category 3	Subordinated bonds and loans and preferred stock (corporates, financials, non-LRG public-sector obligors, and infrastructure)
Category 4	Structured finance, including non-agency RMBS, non-agency CMBS, CLO, CDO, ABS, agency RMBS, and agency CMBS

Investment Risks

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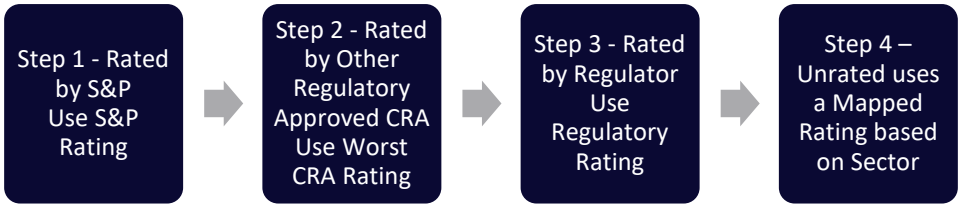
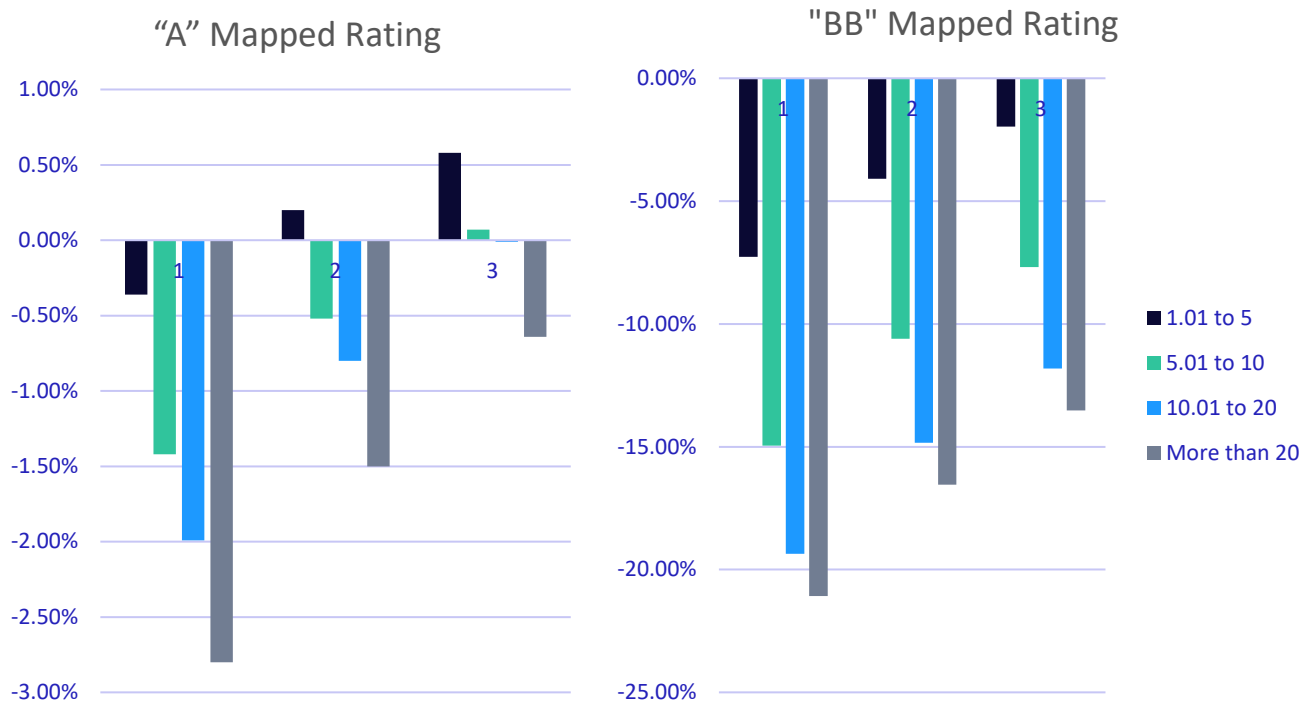


Requires a significant effort in pulling the relevant data from your investment management and accounting system

Investment Risks

S&P VaR 99.95% less Current AA Factor Differences – excluding Recovery Category 4



Investment Risks

Changes against prior model

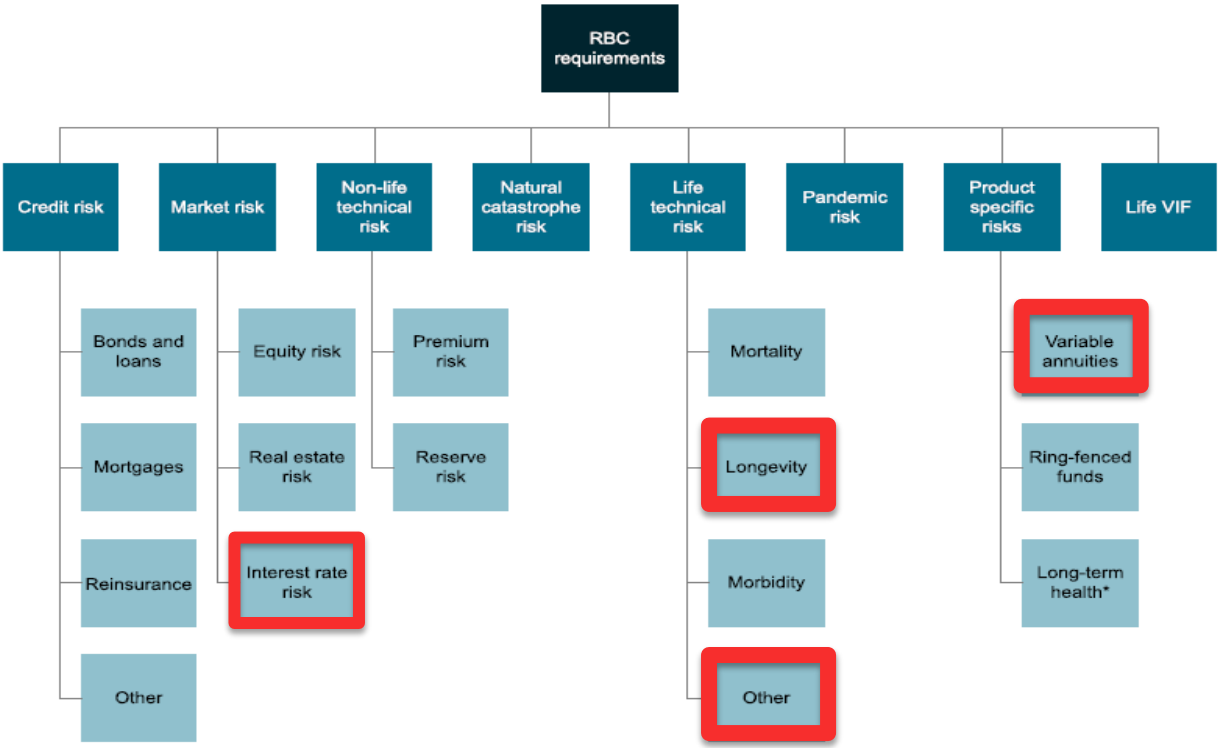
Illustrative Portfolio Example composed of 90% Bonds (75% IG, 15% BIG), 6% Equity, 4% Cash

Category	YTM	Rating	%	S&P VaR 99.95%	S&P AA	Model Impact
Bond - IG Unsecured	5 Yrs	A	50%	1.2%	0.5%	0.7%
Bond - IG Secured	5 Yrs	BBB	25%	1.4%	2.5%	**-1.2%**
Bond - BIG Secured	5 Yrs	BB	15%	3.7%	11.0%	**-7.3%**
CLO Equity	5 Yrs		1%	100.0%	42.0%	**58.0%**
Private Common Stock			5%	60.0%	42.0%	**18.0%**
Cash			4%	0.2%	0.1%	0.1%
Total			100%	5.5%	5.1%	0.5%

Section 3

Liability and Interest Rate Risks

Risk-based capital requirements



*Long-term health business with aging reserves. Source: S&P Global Ratings.

Interest Rate Risk

Baseline risk charges can be instead used as modeled interest rate scenarios for calculating the "Net Change in Market Value of Surplus" (NCMV)

NCMV uses company specific modeling of a market value of assets and liabilities in baseline and shocked interest rate scenarios

NCMV risk charge is floored at 50% of baseline charges, but no cap

- Volatile and unlikely to have consistent application across industry
- Will need to document the modeling methodology and assumptions used

Interest Rate Risk Baseline Charges		
Confidence Level	Rate Shock	
	Up	Down
99.99%	365	-330
99.95%	330	-290
99.80%	295	-250
99.50%	270	-225

Life Risks – Other, aka Lapse Risk

Varies by three risk categories:

1. Lapse risk no mitigants – 2.0% risk charge
2. Lapse risk with mitigants – 1.0% risk charge
3. No lapse risk – 0.6% risk charge for operating expense risk

Other Life Technical Risks

Product	Reported life net reserves	Lapse Risk Mitigants (%)	Not exposed to lapse risk (%)	Risk Category
General account				
Non-linked savings* (eg Fixed indexed annuity / RILA)				1
Immediate payout annuities				3
Separate account				
Linked business without guarantees (e.g. Variable universal life)				3

Life Risks - Longevity

Varies by three categories, and scaled depending on reserving methodology:

1. High Risk
   Products with no or limited lump-sum optionality for policyholders (e.g. SPIA)

2. Medium Risk
   Products with economically attractive annuitization options that may or may not be utilized by the policyholder, assumes 30% of policyholders annuitize (e.g. Deferred Annuities with rich annuitization options)

3. Low Risk (no risk charge)
   Immaterial longevity risk due to economically unattractive annuitization options

Longevity Risk

Longevity risk category	NPV Future Claim Payments	Risk Category
Category 1- immediate payout annuities		1
Category 1- other		1
Category 2		2
Category 3		3
Reserve confidence level	Default	

Longevity risk charges

Risk Category	VaR 99.95%
Category 1	7.00%
Category 2	2.10%
Category 3	0.00%

Reserve confidence level

Reserve Confidence Level	Reduction in Charge
Default	0%
70% to less than 80%	25%
80% to less than 90%	35%
90% or above	45%

Life Risks – Illustrative Example

Below are the prior S&P capital model C3 and C4 risk charges for select products. How will the new model impact liability risk charges on select product types?

Product Type	C3	C4	Total Old Model	VaR 99.95%	Impact
FA with MVA and SC	3.90%	0.20%	4.10%	?	?
FA no MVA or SC	4.10%	0.20%	4.30%	?	?
SPIA with Life Cont.	3.50%	0.20%	3.70%	?	?
SPIA Certain	2.80%	0.20%	3.00%	?	?
VUL Sep Acct	0.00%	0.00%	0.00%	?	?

Life Risks – Illustrative Example

Illustrative Example Assumptions

- Longevity reserves at highest confidence level (45% reduction in risk charge)
- No ALM credit reflected in interest rate risk charge (can be reduced up to 50%)
- Deferred Annuities have economically attractive annuitization options

	Risk Type			Risk Charge Pre Divers.			
Product Type	Interest Rate Risk	Longev. Risk	Lapse Risk	Interest Rate Risk	Longev. Risk	Lapse Risk	Total
FA with MVA and SC	Up Rate Shock Applies	2	2	3.30%	1.16%	1.00%	5.46%
FA no MVA or SC		2	1	3.30%	1.16%	2.00%	6.46%
SPIA with Life Cont.		1	3	3.30%	3.85%	0.60%	7.75%
SPIA Certain		3	3	3.30%	0.00%	0.60%	3.90%
VUL Sep Acct	NA	3	3	0.00%	0.00%	0.60%	0.60%

Life Risks - Illustrative Example

Illustrative Example Assumptions continued

- Include diversification credit in the analysis

Diversification Factor	91%	40%	50%		
Product Type	Interest Rate Risk	Longev. Risk	Lapse Risk	Divers Credit	Total
FA with MVA and SC	3.30%	1.16%	1.00%	-1.50%	3.96%
FA no MVA or SC	3.30%	1.16%	2.00%	-2.00%	4.45%
SPIA with Life Cont.	3.30%	3.85%	0.60%	-2.90%	4.85%
SPIA Certain	3.30%	0.00%	0.60%	-0.61%	3.29%
VUL Sep Acct	0.00%	0.00%	0.60%	-0.30%	0.30%

Life Risks - Illustrative Example

Illustrative Example compared to prior S&P model

- Reduced capital charges in most product types
- Further reductions possible based on ALM credit

Product Type	AA	VaR 99.95%	Impact
FA with MVA and SC	4.10%	3.96%	-0.14%
FA no MVA or SC	4.30%	4.45%	0.15%
SPIA with Life Cont.	3.70%	4.85%	1.15%
SPIA Certain	3.00%	3.29%	0.29%
VUL Sep Acct	0.00%	0.30%	0.30%

Variable Annuities

- Substantial changes to VA risk charges
  - Increased CTE levels
  - No longer reduced for after-tax effect
  - Increased maximum hedging credit from 50% to 80%

- Risk charges continue to differ from AM Best and RBC
  - No diversification credit against other risk categories
  - Maximum hedging credit still much lower than NAIC 95%
  - Removal of tax effect adds to capital volatility
  - S&P VA risk charges continue to be higher and more volatile

Confidence Level	Prior	New
AAA / VaR 99.99%	CTE 99.5%	CTE 99.75%
AA / VaR 99.95%	CTE 98.0%	CTE 98.75%
A / VaR 99.8%	CTE 95.0%	CTE 96.5%
BBB / VaR 99.5%	CTE 90.0%	CTE 92.0%
Tax Rate Used	21%	0%
Hedging Credit	50%	80%

Section 4

Diversification

Diversification

Correlation Matrices

- Significant diversification benefits available between investment and liability risks
- Haircut to diversification credit applied at each VaR level
- Compared to AM Best & NAIC RBC
  - Higher credit to life risks, non-life risks and interest rate risks
  - Lower credit to equity risk and VA

Level 3: Between risk categories: Diversification across risks					
	Market risk	Credit/ default risk	Nat Cat risk	Non-life technical risk	Life technical risk
Market risk	100%	75%	25%	25%	25%
Credit/default risk	75%	100%	25%	25%	25%
Nat Cat risk	25%	25%	100%	0%	0%
Non-life technical risk	25%	25%	0%	100%	0%
Life technical risk	25%	25%	0%	0%	100%
Pandemic Risk	75%	75%	0%	25%	25.0%

Level 2: Within risk categories: Life technical risk diversification					
	Mortality	Morbidity	Longevity	Other life	Pandemic
Mortality	100%	50%	-25%	25%	25%
Morbidity	50%	100%	25%	25%	50%
Longevity	-25%	25%	100%	25%	0%
Other life	25%	25%	25%	100%	25%
Pandemic	25%	50%	0%	25%	100%

Diversification Allocation

Diversification needs to be allocated for management decision making exercises such as product pricing and portfolio management

I recommend a ‘dollar diversification factor allocation’ methodology, akin to hedging greeks

For each risk factor calculate (A – B) / C where

- C = Amount of pre-diversification required capital added
- (A – B) = Impact on after-diversification required capital

Useful for internal incremental analysis, less useful for large scale restructures or M&A

Delaware Life

Diversification Allocation

Illustrative example

How to allocate diversification for this hypothetical rating group?

Risk Category	Risk Capital	Pct of Total
Credit risk	46,946	47%
Equity	8,732	9%
Interest Rate	30,369	30%
Asset Risks Subtotal	**86,047**	**86%**
Other life	10,292	10%
Mortality	4,539	5%
Longevity	7,709	8%
Non-life technical risk	7,261	7%
VA	9,365	9%
Liability Risk Subtotal	**39,166**	**39%**
Diversification	-25,213	-25%
Total	**100,000**	**100%**

Diversification Allocation

Illustrative example

Develop diversification factors by adding an amount to each risk category and calculating the percentage increase in the diversified required capital

Risk Category	Undiversified Impact	Diversified Risk Charge	Diversified Impact	Diversification Factor
Baseline	0	100,000	0	100%
Credit risk	1,000	100,950	950	95%
Equity	1,000	100,686	686	69%
Interest Rate	1,000	100,906	906	91%
Other life	1,000	100,498	498	50%
Mortality	1,000	100,316	316	32%
Longevity	1,000	100,405	405	40%
Non-life technical risk	1,000	100,439	439	44%
VA	1,000	101,000	1,000	100%

Diversification Allocation

Illustrative example

Allocate the diversification benefit up to underlying risk drivers

Category	Risk Capital	Pct of Total	Diversification Factor	Div Allocated Risk Capital	Div Allocated Pct of Total
Credit risk	46,946	47%	95%	44,585	45%
Equity	8,732	9%	69%	5,994	6%
Interest Rate	30,369	30%	91%	27,518	28%
Asset Risks Subtotal	**86,047**	**86%**		**78,096**	**78%**
Other life	10,292	10%	50%	5,125	5%
Mortality	4,539	5%	32%	1,432	1%
Longevity	7,709	8%	40%	3,118	3%
Non-life technical risk	7,261	7%	44%	3,190	3%
VA	9,365	9%	100%	9,365	9%
Liability Risk Subtotal	**39,166**	**39%**		**15,674**	**16%**
Diversification	-25,213	-25%	1%	-327	0%
Total	**100,000**	**100%**		**100,000**	**100%**

Concluding Thoughts

Pros

- Risk charges better aligned with underlying risk drivers
- Completely transparent

Cons

- Not enough guidance on implementation
- Volatility of capital results

Section 5

Questions?

Section 3

Appendix – Cross Model Comparisons

Life Risks – Illustrative Example

Illustrative Example compared to AM Best and NAIC RBC equivalent liability risk charges

Product Type	S&P VaR 99.95%	BCAR VaR 99.6%	RBC 400% CAL	Diff BCAR	Diff RBC
FA with MVA and SC	3.67%	3.12%	1.99%	0.55%	1.68%
FA no MVA or SC	4.17%	4.56%	7.99%	-0.39%	-3.83%
SPIA with Life Cont.	3.65%	2.43%	3.77%	1.22%	-0.12%
SPIA Certain	3.34%	2.43%	1.99%	0.91%	1.35%
VUL Sep Acct	0.30%	0.20%	0.19%	0.10%	0.11%

Assumptions:

- This analysis excludes an operational risk charge add on for new sales which is not applicable for S&P but 2% for BCAR VaR 99.6 and 8% for RBC 400% CAL
- Including S&P diversification credits as shown in prior slide, for RBC only including a 50% RBC longevity credit, and none included for BCAR
- S&P and RBC interest rate risk charges at 100% of baseline charge, ignores the maximum 50% credit

Investment Risks

Cross Model Comparison

Example compared to AM Best (BCAR) and NAIC RBC (at 400% Target)

- Credit risk charges appear to be lower than RBC and BCAR
- Equity risk charges are mixed, but should be reviewed in relation to diversification

Category	YTM	Rating	%	S&P VaR 99.95%	BCAR VaR 99.6%	Diff BCAR	RBC 400% CAL	Diff RBC
Bond - IG Unsecured	5 Yrs	A	50%	1.2%	2.4%	-1.2%	2.7%	-1.5%
Bond - IG Secured	5 Yrs	BBB	25%	1.4%	5.1%	-3.8%	5.1%	-3.7%
Bond - BIG Secured	5 Yrs	BB	15%	3.7%	10.7%	**-6.9%**	15.1%	**-11.4%**
CLO Equity	5 Yrs		1%	100.0%	48.4%	51.6%	142.2%	-42.2%
Private Common Stock			5%	60.0%	55.0%	5.0%	94.8%	-34.8%
Cash			4%	0.2%	0%	-0.1%	1.3%	-1.1%
Total			100%	5.5%	7.3%	**-1.8%**	11.1%	**-5.6%**