2016 CAS Annual Meeting

Orlando, FL

Update on BCRM / BCAR

Thomas Mount

ACAS, MAAA, CERA, CCM

Senior Director

16 November 2016

AM BEST®

Rating Methodology 2017

- Impetus for Change
- Building Block Approach
- Rating Implications
- Comment Feedback
- PC BCAR Changes Under Consideration
- Questions

Impetus for Change

- Transparency & consistency
- A move towards best practices
- A way to integrate new tools
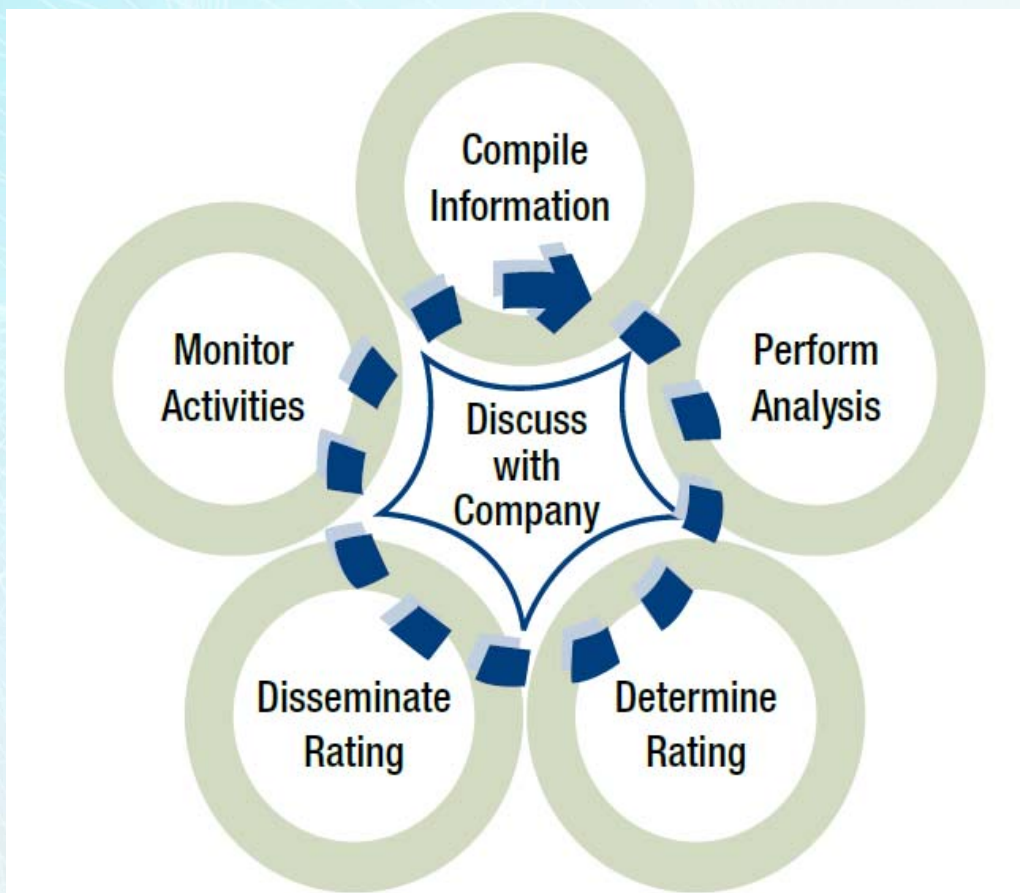 - Application of BCAR

An Updated BCRM

The BCRM will be the key source document for deriving ratings

- Issuer Credit Ratings
- Financial Strength Ratings
- Issue Credit Ratings

An Updated BCRM

Not a fundamental change to rating analysis

An Updated BCRM

The BCRM is being updated but the fundamental rating drivers will remain the same
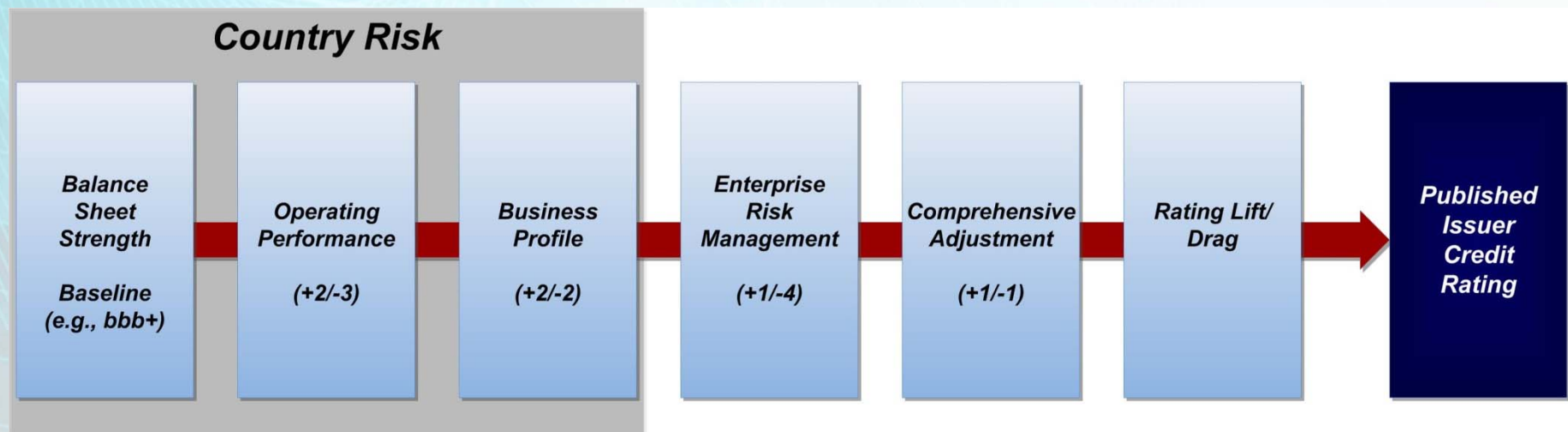
- Balance sheet strength
- Operating performance
- Business profile
- Enterprise risk management

The Building Block Approach

- The building blocks themselves will remain the same
- Components of the building blocks are currently being reviewed

A.M. Best's Rating Process
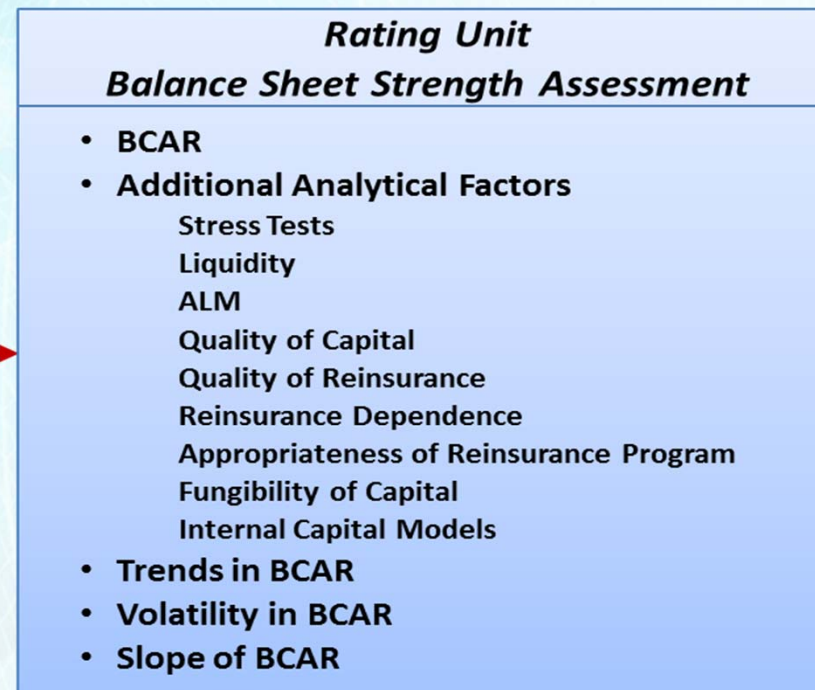
The Building Block Approach Recap: Balance Sheet Strength

- Rating unit balance sheet strength assessment
  - BCAR
  - Internal capital models
  - Other qualitative and quantitative factors
- Holding company impact
- Country risk impact

The Building Block Approach Recap: Balance Sheet Strength

Country Risk

Rating Unit Balance Sheet Strength Assessment **+** Holding Company Impact Assessment → Balance Sheet Strength Baseline (e.g., bbb+)

Rating Unit Balance Sheet Strength Assessment

- BCAR
- Additional Analytical Factors
  - Stress Tests
  - Liquidity
  - ALM
  - Quality of Capital
  - Quality of Reinsurance
  - Reinsurance Dependence
  - Appropriateness of Reinsurance Program
  - Fungibility of Capital
  - Internal Capital Models
- Trends in BCAR
- Volatility in BCAR
- Slope of BCAR

Stochastic Based BCAR

Best's Capital Adequacy Ratio (BCAR) is a comprehensive quantitative tool that evaluates <u>many</u> of the risks to the balance sheet simultaneously and generates an overall estimate of the required level of capital to support those risks and compares it with available capital

BCAR is a <u>key</u> tool in the assessment of balance sheet strength

- Not the sole determinant of balance sheet strength
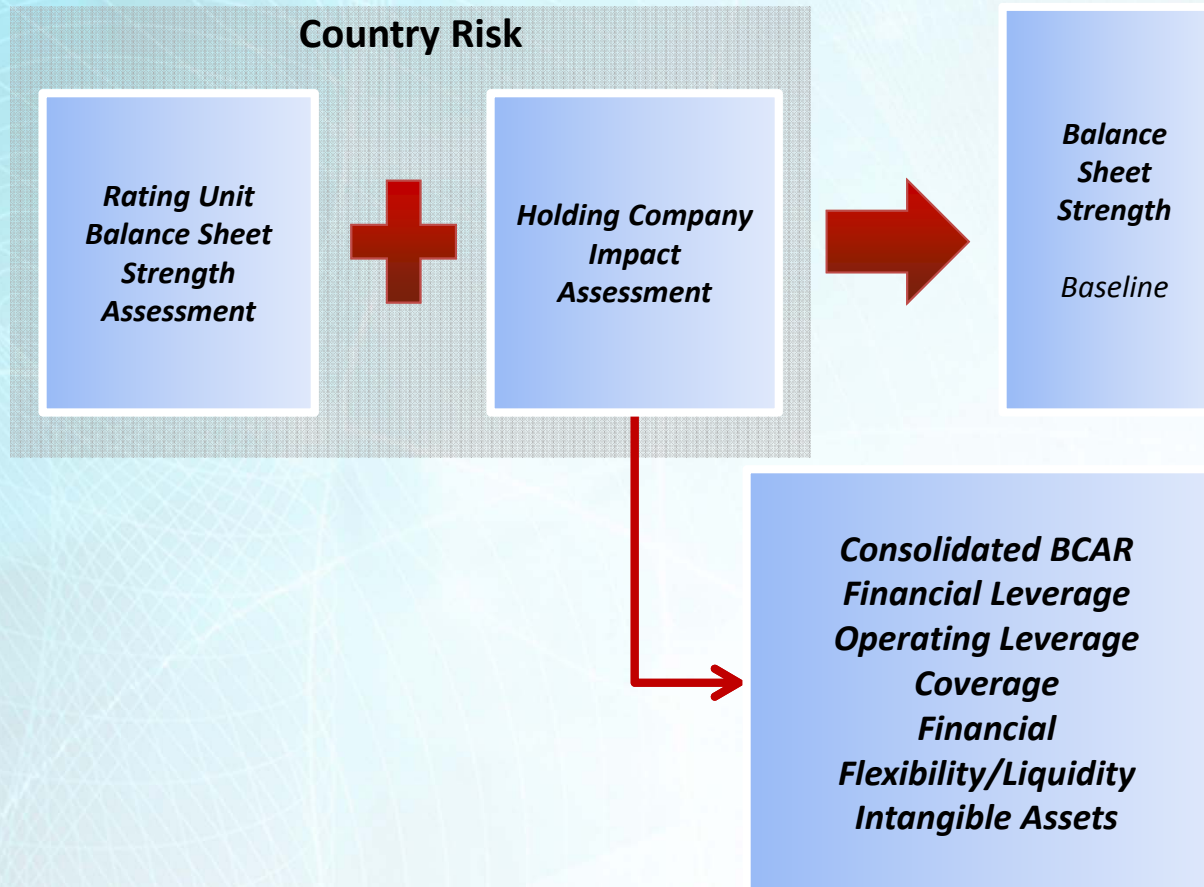- Not the sole determinant of the rating

Summary of Changes

- New Calculation of BCAR
  - Formula change
  - Difference between Available Capital and Required Capital, as a ratio to Available Capital
  - Better alignment with risk appetite/tolerance statements

The Building Block Approach Recap: Balance Sheet Strength

AM BEST

Country Risk

Rating Unit Balance Sheet Strength Assessment

+

Holding Company Impact Assessment

➡

Balance Sheet Strength

Baseline

Consolidated BCAR
Financial Leverage
Operating Leverage
Coverage
Financial Flexibility/Liquidity
Intangible Assets

The Building Block Approach Recap: Balance Sheet Strength

	Holding Company			
Lead Rating Unit	**Positive**	**Neutral**	**Negative**	**Very Negative**
Strongest	Strongest	Strongest	Very Strong	Adequate
Very Strong	Strongest	Very Strong	Strong	Weak
Strong	Very Strong	Strong	Adequate	Very Weak
Adequate	Strong	Adequate	Weak	Very Weak
Weak	Adequate	Weak	Very Weak	Very Weak
Very Weak	Weak	Very Weak	Very Weak	Very Weak

The Building Block Approach Recap: Balance Sheet Strength

Combined Balance Sheet Assessment (Rating Unit/ Holding Company)	Country Risk Tier				
	CRT-1	CRT-2	CRT-3	CRT-4	CRT-5
Strongest	a+/a	a+/a	a/a-	a-/bbb+	bbb+/bbb
Very Strong	a/a-	a/a-	a-/bbb+	bbb+/bbb	bbb/bbb-
Strong	a-/bbb+	a-/bbb+	bbb+/bbb/bbb-	bbb/bbb-/bb+	bbb-/bb+/bb
Adequate	bbb+/bbb/bbb-	bbb+/bbb/bbb-	bbb-/bb+/bb	bb+/bb/bb-	bb-/b+/b
Weak	bb+/bb/bb-	bb+/bb/bb-	bb-/b+/b	b+/b/b-	b/b-/ccc+
Very Weak	b+ and below	b+ and below	b- and below	ccc+ and below	ccc and below

The Building Block Approach Recap: Balance Sheet Strength

Impact of Operating Performance and Business Profile on Balance Sheet Strength
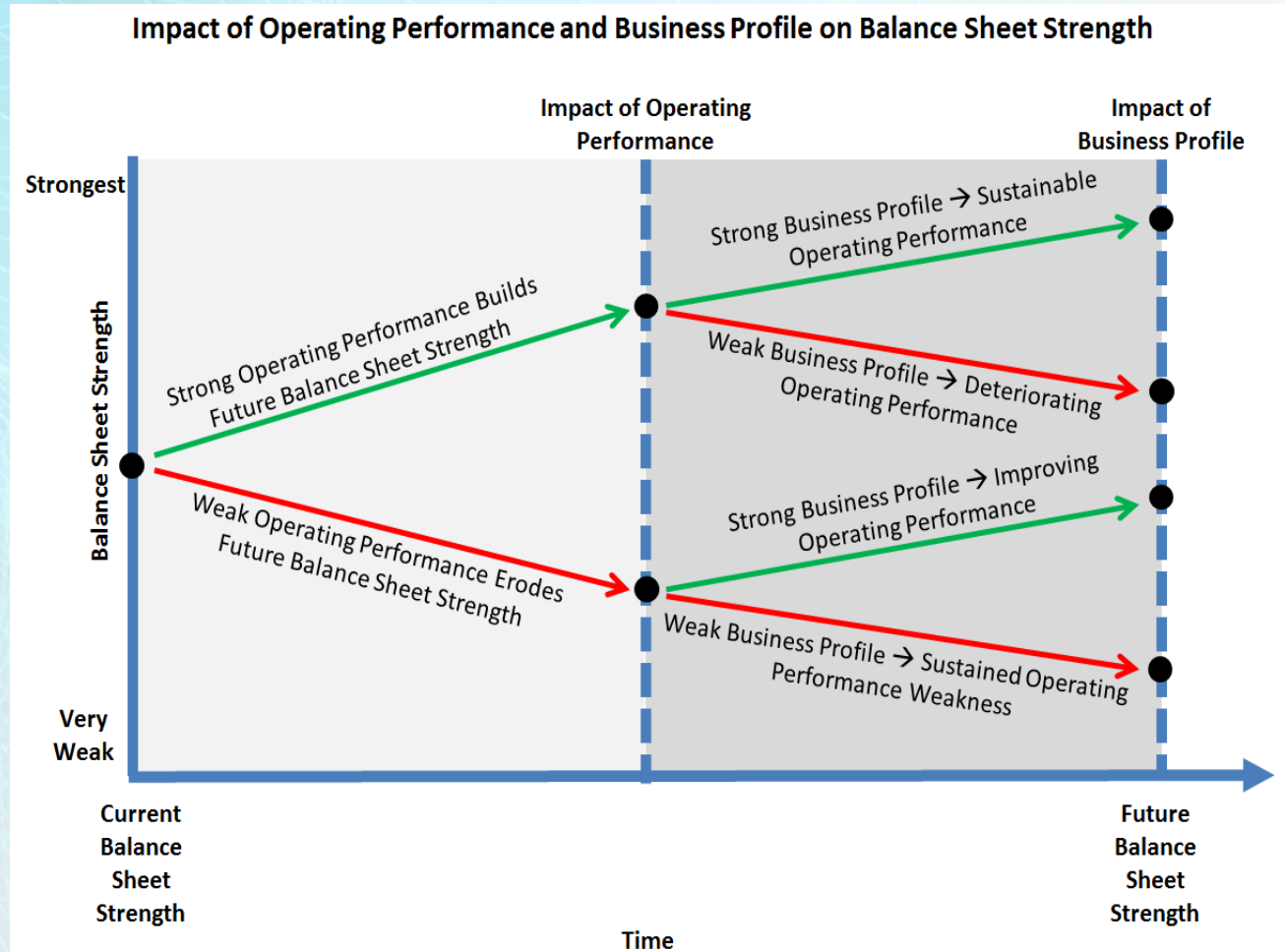
The Building Block Approach Recap: Operating Performance

- Underwriting performance
- Investment performance
- Total operating earnings
- Prospective financial forecasts
- Other considerations
- Unique to LOB, region of operation, structure

The Building Block Approach Recap: Operating Performance

Depending on a company's operating performance, the baseline can be adjusted up or down

- Using appropriate benchmark
- Looking at level, trend and volatility

Operating Performance Assessment	Adjustment (Notches)	Key Operating Performance Characteristics
Very Strong	+2	Historical operating performance is exceptionally strong and consistent. Trends are positive and prospective operating performance is expected to be exceptionally strong. Volatility of key metrics is low.
Strong	+1	Historical operating performance is strong and consistent. Trends are neutral/slightly positive and prospective operating performance is expected to be strong. Volatility of key metrics is low to moderate.
Adequate	0	Historical operating performance and trends are neutral. Prospective operating performance is expected to be neutral. Volatility of key metrics is moderate.
Weak	-1	Historical operating performance is poor. Trends are neutral/slightly negative and prospective operating performance is expected to be poor. Volatility of key metrics is high.
Very Weak	-2/3	Historical operating performance is very poor. Trends are negative and prospective operating performance is expected to be very poor. Volatility of key metrics is high.

The Building Block Approach Recap: Business Profile

AM BEST

- Review key areas including:

Sub-Assessment	Positive	Neutral	Negative
Product/Geographic Concentration	Significant diversification of product line /geographies	Moderate diversification of product lines / geographies	Insufficient diversification of product lines / geographies
Market Position	Increase profitable market share at a sustainable rate	Sustain profitable market share	Unable to sustain profitable market share
Pricing Sophistication & Data Quality	Provides Competitive Advantage	No Competitive Advantage/Disadv.	Lack of sophistication creates disadvantage
Product Risk	Low Risk Offerings	Average Risk Offerings	High Risk Offerings
Degree of Competition	Low Competition	Average Competition	High Competition
Management Quality	Consistently achieves forecasts & targets	Occasionally falls short of forecasts & targets	Provides unreliable forecasts & targets
Regulatory, Event & Market Risks	Very Low or Significantly Reduced	Moderate and Stable	Very High or Significantly Increased
Distribution Channels	Created a significant competitive advantage thru distribution channels	Has not created a significant competitive advantage thru distribution channels	Faces a significant competitive disadvantage with regards to distribution

The Building Block Approach Recap: Business Profile

- Sub-assessments are qualitatively combined by analyst into a single business profile assessment
- Ultimate "weights" of each sub-assessment will vary depending on which metrics will have biggest impact on future financial strength

Business Profile Assessment	Adjustment (Notches)	Key Characteristics of Business Profile
Very Favorable	+2	The company's market leadership position is unquestionable, demonstrated, and defensible with high brand recognition. Distribution is seen as a competitive advantage; business lines are non-correlated and generally lower risk. Its management capabilities and data management are very strong.
Favorable	+1	The company is a market leader with strong business trends and good control over distribution. It has diversified operations in key markets that have high to moderate barriers to entry with low competition. It has a strong management team that is able to meet projections and utilize data effectively.
Neutral	0	The company is not a market leader, but is viewed as competitive in chosen markets. It has some concentration and/or limited control of distribution. It has moderate product risk but limited severity and frequency of loss. Its use of technology is evolving and its business spread of risk is adequate.
Limited	-1	The company has a lack of diversification in geographic and/or product lines; its control over distribution is limited and undifferentiated. It faces high/increasing competition with low barriers to entry and elevated product risk. Management is unable to utilize data effectively or consistently in business decisions.
Very Limited	-2	The company faces high competition and low barriers to entry. It has high concentration in commodity or higher-risk products with very limited geographic diversity. It has weak data management. Country risk may factor into its elevated business profile risks.

The Building Block Approach Recap: ERM Analysis

- Analyst assessment of the overall risk management framework that is in place

- Analyst assessment of the rating unit's risk profile relative to its risk management capabilities

- Overall assessment of ERM
  - Evidence of use test, process changes
  - Performance under stressed environments

The Building Block Approach Recap: ERM

- Analyst assessment of the overall risk management framework that is in place
- Analyst assessment of the rating unit's risk profile relative to its risk management capabilities
- Overall assessment of ERM
  - Evidence of use test, process changes
  - Performance under stressed environments

ERM Assessment	Adjustment (Notches)	Key Characteristics of ERM
Very Strong	+1	The insurer's ERM framework is sophisticated, time/stress tested and embedded across the enterprise. Risk management capabilities are excellent and are suitable for the risk profile of the company.
Adequate	0	The insurer's ERM framework is well developed and is adequate given the size and complexity of its operations. Risk management capabilities are good and are adequate for the risk profile of the company.
Weak	-1/2	The insurer's ERM framework is emerging and management is still developing formal risk protocols. Risk management capabilities are insufficient given the risk profile of the company.
Very Weak	-3/4	There is limited evidence of a formal ERM framework in place. Risk management capabilities contain severe deficiencies relative to the risk profile of the company.

The Building Block Approach Recap: Comprehensive Adjustment

- Evaluation of key rating factors includes parameters which place limits on any one factor

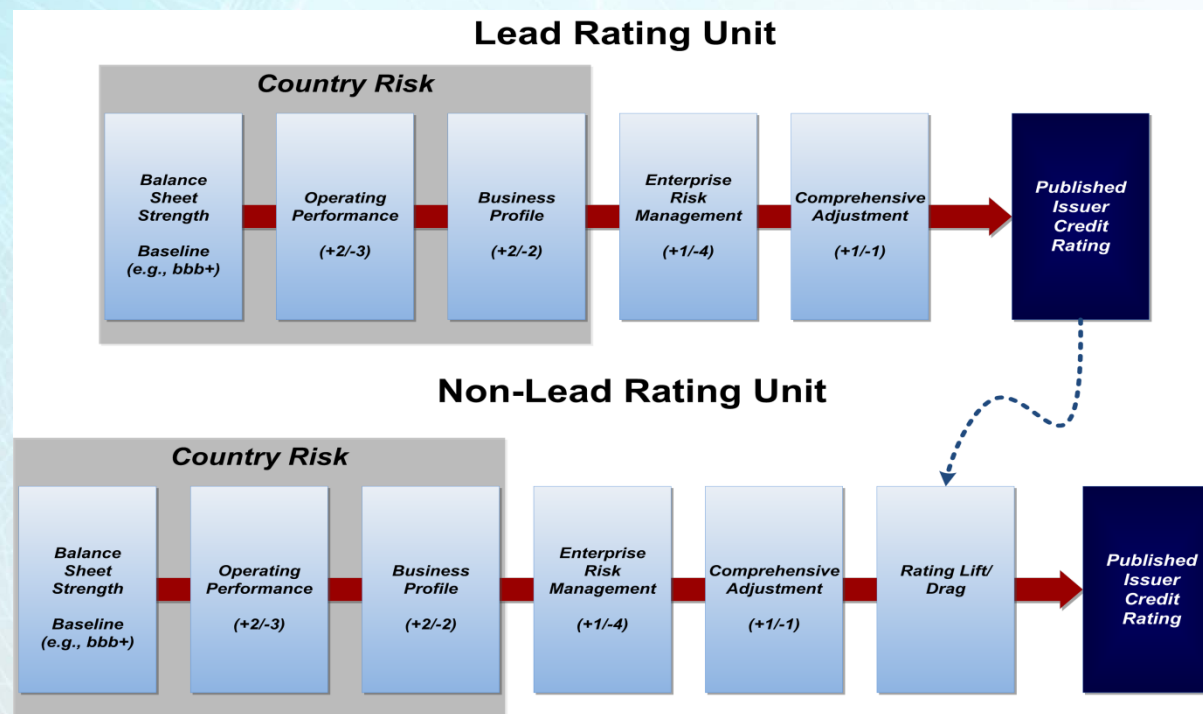- Recognizes a truly uncommon strength/weakness that is not captured through the rating process

Comprehensive Adjustment	Adjustment (Notches)	Key Characteristics
Positive	+1	The company has uncommon strengths that exceed what has been captured throughout the rating process.
None	0	The company's strengths and weaknesses have been accurately captured throughout the rating process.
Negative	-1	The company has uncommon weaknesses that exceed what has been captured throughout the rating process.

The Building Block Approach Recap: Lift/Drag

- A non-lead rating unit may be eligible for rating lift based on benefits it receives from being affiliated with the lead rating unit.

- Rating drag can also occur from negative impact of the lead rating unit on the non-lead unit.

Lead Rating Unit

Country Risk					
Balance Sheet Strength	Operating Performance	Business Profile	Enterprise Risk Management	Comprehensive Adjustment	Published Issuer Credit Rating
Baseline (e.g., bbb+)	(+2/-3)	(+2/-2)	(+1/-4)	(+1/-1)	

Non-Lead Rating Unit

Country Risk						
Balance Sheet Strength	Operating Performance	Business Profile	Enterprise Risk Management	Comprehensive Adjustment	Rating Lift/ Drag	Published Issuer Credit Rating
Baseline (e.g., bbb+)	(+2/-3)	(+2/-2)	(+1/-4)	(+1/-1)		

Rating Implications

- BCRM is NOT a means to change ratings although some ratings may change

- Analyst will communicate any potential rating issues as they become apparent during comment period

- Ratings impacted will be placed under review at end of comment period
  - Need to be resolved within 6 months after under review

Rating Methodology 2017

- Released for initial comment period on March 10th, 2016
  - *Understanding BCAR for U.S. Property/Casualty Insurers*
  - *Best's Credit Rating Methodology*
- Comment period ended June 30th, 2016
- Next criteria releases in 2016 will contain the following:
  - Revised *Understanding BCAR for U.S. Property/Casualty Insurers* draft
  - Revised *Best's Credit Rating Methodology*
  - Initial draft of *Understanding BCAR for U.S. and Canadian Life/Health Insurers*
  - Initial draft of *Understanding Universal BCAR*

Rating Methodology 2017

- New criteria procedures/methodology are expected to go live in late 2017

- However, timing will depend on the quantity and depth of comments received

- Received a substantial amount of comments during the initial comment period

- Revisions to the BCAR and the BCRM were recently completed

Comments

Type of Company (Dominant Business Line)	% of Comments Received
U.S. Property/Casualty	46.2%
Reinsurance	17.9%
International	12.8%
Non-Insurance	10.3%
Reinsurance Broker	7.7%
Other	5.1%

Official Comments

- Issued an update to the Call for Comment on May 5th

- Update was designed to encourage additional market feedback on use of models and understanding of BCRM

- Three specific questions were asked:

  – Do you fully understand the Building Block approach outlined in the BCRM and is it fully transparent?

  – Are there any parameters outlined for Balance Sheet Strength, Operating Performance, Business Profile, ERM, or Comprehensive Adjustment you disagree with?

  – What are your views on using VaR metrics for risk modeling in general? Do your views concerning the value of these metrics change as one goes out further into the tail (e.g. VaR 99.8 and 99.9)?

Official Comments

- Comments tended to focus on the BCAR
- BCRM generally seen as facilitating transparency though the building block approach
- Goal remains consistency and transparency
  - Currently considering areas where more visibility needed
  - Intend to add detail where questions have arisen

Changes Under Consideration: ERM

- Making the ERM framework assessment more prominent/transparent via a redesign of the Risk Impact Worksheet (RIW)
  - Part I: ERM Framework
  - Part II: Risks
  - Part III: Overall ERM Assessment

Changes Under Consideration: VaR

- Moving off of the tail
  - Issues of consistency and availability of data globally
  - Removing 99.8 and 99.9 and including lower probability tail events in ERM discussion
- Adding 99.6

VaR Confidence Level (%)	BCAR	BCAR Assessment
99.6	> 25 at 99.6	Strongest
99.6	> 10 at 99.6 & ≤ 25 at 99.6	Very Strong
99.5	> 0 at 99.5 & ≤ 10 at 99.6	Strong
99	> 0 at 99 & ≤ 0 at 99.5	Adequate
95	> 0 at 95 & ≤ 0 at 99	Weak
95	≤ 0 at 95	Very Weak

Changes Under Consideration: Covariance Adjustment

- Reviewing the assumption that catastrophe risk is correlated to other risks
  - Moving the natural catastrophe (B8) under the square root

$$\text{Net Required Capital} = \sqrt{(B1)^2 + (B2)^2 + (B3)^2 + (.5 * B4)^2 + [(.5 * B4) + (B5)]^2 + (B6)^2 + (B8)^2} + (B7)$$

Changes Under Consideration: Interest Rate Shocks

- Reviewing the assumption that an interest rate shock would occur at the same time as an equivalent tail event
  - Proposal is to hold constant the liquidity need (10% minimum) for interest rate shocks across the VaR levels

Changes Under Consideration: Stochastic Modeling within the BCAR

- Moving to stochastic-based factors as opposed to conducting stochastic modeling within the BCAR model itself
  - Will provide more transparency
  - Allow the running of "what if" scenarios

Changes Under Consideration: Stochastic Modeling within the BCAR

AM BEST

- Moving to ~~stochastic-based factors~~ as opposed to conducting stochastic modeling within the BCAR model itself
  - Assets:
    - Bonds (default risk)
    - Common Stocks (market risk)
    - Other assets already were stochastic based factors
  - Reserve Risk
  - Premium Risk
  - Reinsurance Credit Risk

Bond Quality & Maturity SRQ question:

3b. FIXED INCOME PORTFOLIO ANALYSIS: Please complete the following Quality and Maturity Distribution of All Bonds Owned as of December 31, 2013. Please show US Governments on line 18, and show Parents, Subsidiaries, and Affiliates on ... Book/Adjusted ... ting. ...rs should be provided ... er of bond issuers associated with the dollar amount o...

Rating (or e...	Amount ($000)		Risk Factors	VaR 95	Required Capital		VaR 95
1. AAA	t: 1 AAA	17,000	t: 1 AAA	0.00%	t: 1 AAA		0
2. AA+	t: 1 AA+	16,000	t: 1 AA+	0.00%	t: 1 AA+		0
3. AA	t: 1 AA	15,000	t: 1 AA	0.00%	t: 1 AA		0
4. AA-	t: 1 AA-	14,000	t: 1 AA-	0.08%	t: 1 AA-		11
5. A+	t: 1 A+	13,000	t: 1 A+	0.25%	t: 1 A+		33
6. A	t: 1 A	12,000	t: 1 A	0.33%	t: 1 A		40
7. A-	t: 1 A-	11,000	t: 1 A-	0.42%	t: 1 A-		46
8. BBB+	t: 1 BBB+	10,000	t: 1 BBB+	0.75%	t: 1 BBB+		75
9. BBB	t: 1 BBB	9,000	t: 1 BBB	0.88%	t: 1 BBB		79
10. BBB-	t: 1 BBB-	8,000	t: 1 BBB-	1.16%	t: 1 BBB-		93
11. BB+	t: 1 BB+	7,000	t: 1 BB+	1.89%	t: 1 BB+		132
12. BB	t: 1 BB	6,000	t: 1 BB	2.21%	t: 1 BB		133
13. BB-	t: 1 BB-	5,000	t: 1 BB-	4.35%	t: 1 BB-		218
14. B+ to B-	t: 1 B+orBorB-	4,000	t: 1 B+orBorB-	6.52%	t: 1 B+orBorB-		261
15. CCC+ to CCC-	t: 1 CCCs	3,000	t: 1 CCCs	24.38%	t: 1 CCCs		731
16. CC to C	t: 1 CCsorCs	2,000	t: 1 CCsorCs	28.45%	t: 1 CCsorCs		569
17. D (in or near def	t: 1 Ds	1,000	t: 1 Ds	32.51%	t: 1 Ds		325
18. U.S. Governmer	t: 1 USGovts	20,000	t: 1 USGovts	0.00%	t: 1 USGovts		0
19. Parents, Subsidi							
20. All Other	t: 1 PSAs	0	t: 1 PSAs	100.00%	t: 1 PSAs		0
21. TOTAL (Lines 1		173,000					2,745

*Row 18 Column 14 Total should match NAIC annual statement Schedule D Part 1A Section 1 Line 1.7 Column 6 (divided by 1000).
**Row 19 Column 14 Total should match NAIC annual statement Schedule D Part 1A Section 1 Line 8.7 Column 6 (divided by 1000).
***Row 21 Column 14 Total should match NAIC annual statement Schedule D Part 1A Section 1 Line 9.7 Column 6 (divided by 1000).

PC SRQ

Bond Quality & Maturity SRQ question:

3b. FIXED INCOME PORTFOLIO ANALYSIS: Please complete the following Quality and Maturity Distribution of All Bonds Owned as of December 31, 2013. Please show US Governments on line 18, and show Parents, Subsidiaries, and Affiliates on line 19. Dollar amounts should be stated at Book/Adjusted carrying values (in $000s). Number of Issuers should be provided in whole numbers and represents the number of bond issuers associated with the dollar amount of bonds expiring at that maturity date and rating.

(01) Rating (or equivalent to rating)
1. AAA
2. AA+
3. AA
4. AA-
5. A+
6. A
7. A-
8. BBB+
9. BBB
10. BBB-
11. BB+
12. BB
13. BB-
14. B+ to B-
15. CCC+ to CCC-
16. CC to C
17. D (in or near default)
18. U.S. Governments*
19. Parents, Subsidiaries, & Affiliates**
20. All Other
21. TOTAL (Lines 1 through 20)***

*Row 18 Column 14 Total should match NAIC annu...
**Row 19 Column 14 Total should match NAIC annu...
***Row 21 Column 14 Total should match NAIC annual statement Schedule D Part 1A Section 1 Line 9.7 Column 6 (divided by 1000).

	Amount ($000)		VaR 95		Required Capital	VaR 95
t: 2	AAA	19,000	t: 2 AAA	0.00%	t: 2 AAA	0
t: 2	AA+	18,000	t: 2 AA+	0.05%	t: 2 AA+	9
t: 2	AA	17,000	t: 2 AA	0.10%	t: 2 AA	17
t: 2	AA-	16,000	t: 2 AA-	0.24%	t: 2 AA-	38
t: 2	A+	15,000	t: 2 A+	0.53%	t: 2 A+	80
t: 2	A	14,000	t: 2 A	0.67%	t: 2 A	94
t: 2	A-	13,000	t: 2 A-	0.86%	t: 2 A-	112
t: 2	BBB+	12,000	t: 2 BBB+	1.52%	t: 2 BBB+	182
t: 2	BBB	11,000	t: 2 BBB	1.75%	t: 2 BBB	193
t: 2	BBB-	10,000	t: 2 BBB-	2.29%	t: 2 BBB-	229
t: 2	BB+	9,000	t: 2 BB+	3.65%	t: 2 BB+	329
t: 2	BB	8,000	t: 2 BB	4.24%	t: 2 BB	339
t: 2	BB-	7,000	t: 2 BB-	8.14%	t: 2 BB-	570
t: 2	B+orBorB-	6,000	t: 2 B+orBorB-	11.91%	t: 2 B+orBorB-	715
t: 2	CCCs	5,000	t: 2 CCCs	37.13%	t: 2 CCCs	1,857
t: 2	CCsorCs	4,000	t: 2 CCsorCs	43.32%	t: 2 CCsorCs	1,733
t: 2	Ds	3,000	t: 2 Ds	49.51%	t: 2 Ds	1,485
t: 2	USGovts	22,000	t: 2 USGovts	0.00%	t: 2 USGovts	0
t: 2	PSAs	0	t: 2 PSAs	100.00%	t: 2 PSAs	0
		209,000				7,980

PC SRQ

Bond Quality & Maturity SRQ question:

3b. FIXED INCOME PORTFOLIO ANALYSIS: Please complete the following Quality and Maturity Distribution of All Bonds Owned as of December 31, 2013. Please show US Governments on line 18, and show Parents, Subsidiaries, and Affiliates on line 19. Dollar amounts should be stated at Book/Adju... ssuers should be provided in whole numbers and re... sents the num... of... i... co... istent with the dollar amount of bonds expiring at that maturity date and rating.

(01)	Maturing in 1 Year of Less	
	(02) Amount ($000)	(03) Number of Issuers
Rating (or equivalent to rating)		
1. AAA		
2. AA+		
3. AA		
4. AA-		
5. A+		
6. A		
7. A-		
8. BBB+		
9. BBB		
10. BBB-		
11. BB+		
12. BB		
13. BB-		
14. B+ to B-		
15. CCC+ to CCC-		
16. CC to C		
17. D (in or near default)		
18. U.S. Governments*		X X X
19. Parents, Subsidiaries, & Affiliates**		
20. All Other		
21. TOTAL (Lines 1 through 20)***		

*Row 18 Column 14 Total should match NAIC annual statement Schedule D ... (... 1000).
**Row 19 Column 14 Total should match NAIC annual statement Schedule D Part 1A Section 1 Line 8.7 Column 6 (divided by 1000).
***Row 21 Column 14 Total should match NAIC annual statement Schedule D Part 1A Section 1 Line 9.7 Column 6 (divided by 1000).

Amount ($000)

		Amount ($000)
t: 4	AAA	23,000
t: 4	AA+	22,000
t: 4	AA	21,000
t: 4	AA-	20,000
t: 4	A+	19,000
t: 4	A	18,000
t: 4	A-	17,000
t: 4	BBB+	16,000
t: 4	BBB	15,000
t: 4	BBB-	14,000
t: 4	BB+	13,000
t: 4	BB	12,000
t: 4	BB-	11,000
t: 4	B+orBorB-	10,000
t: 4	CCCs	9,000
t: 4	CCsorCs	8,000
t: 4	Ds	7,000
t: 4	USGovts	26,000
t: 4	PSAs	0
		281,000

VaR 95

		VaR 95
t: 4	AAA	0.00%
t: 4	AA+	0.15%
t: 4	AA	0.29%
t: 4	AA-	0.57%
t: 4	A+	1.12%
t: 4	A	1.39%
t: 4	A-	1.73%
t: 4	BBB+	2.97%
t: 4	BBB	3.39%
t: 4	BBB-	4.34%
t: 4	BB+	6.77%
t: 4	BB	7.75%
t: 4	BB-	14.18%
t: 4	B+orBorB-	19.90%
t: 4	CCCs	46.09%
t: 4	CCsorCs	53.77%
t: 4	Ds	61.45%
t: 4	USGovts	0.00%
t: 4	PSAs	100.00%

Required Capital   VaR 95

		VaR 95
t: 4	AAA	0
t: 4	AA+	33
t: 4	AA	61
t: 4	AA-	114
t: 4	A+	213
t: 4	A	250
t: 4	A-	294
t: 4	BBB+	475
t: 4	BBB	509
t: 4	BBB-	608
t: 4	BB+	880
t: 4	BB	930
t: 4	BB-	1,560
t: 4	B+orBorB-	1,990
t: 4	CCCs	4,148
t: 4	CCsorCs	4,302
t: 4	Ds	4,302
t: 4	USGovts	0
t: 4	PSAs	0
		20,667

Changes Under Consideration: Stochastic Based Factors - Bonds

Bond Risk Factors			Using P/C Industry's Bond Mix				
	Percent of Total	Current BCAR	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 99.8
NAIC 1	82.2%	1.0%	0.6%	0.9%	1.0%	1.1%	1.2%
NAIC 2	13.7%	2.0%	3.3%	4.3%	4.6%	4.7%	5.0%
NAIC 3	2.2%	4.0%	9.9%	11.2%	11.6%	11.7%	12.1%
NAIC 4	1.4%	4.5%	20.9%	22.3%	22.8%	22.9%	23.4%
NAIC 5	0.3%	10.0%	42.1%	42.4%	42.6%	42.7%	42.9%
NAIC 6	0.2%	30.0%	54.2%	54.6%	54.7%	54.8%	54.9%
Total (ex US Govt)	100.0%	1.3%	1.7%	2.1%	2.3%	2.4%	2.5%

Repeat Process for VaR 99, VaR 99.5, VaR 99.6, VaR 99.8

Changes Under Consideration: Stochastic Based Factors - Bonds

What-if Testing

INVESTMENT RISK (Testing)

Analyst Adjusted SRQ Amounts

Book Value of Bonds Maturing in:

Bonds by Rating	1 yr or less	1yr < M and M <= 3 yrs	3 yrs < M and M <= 5 yrs	5 yrs < M and M <= 10 yrs	10 yrs < M and M <= 20 yrs	M > 20 yrs
U.S. Government	100,000	105,000	102,000	90,000	40,000	20,000
Global Rating AAA	90,000	95,000	98,000	85,000	30,000	19,000
Global Rating AA+	80,000	85,000	88,000	80,000	20,000	18,000
Global Rating AA	70,000	80,000	78,000	75,000	18,000	17,000
Global Rating AA-	60,000	70,000	68,000	65,000	17,000	16,000
Global Rating A+	50,000	60,000	58,000	60,000	16,000	15,000
Global Rating A	40,000	50,000	48,000	55,000	15,000	14,000
Global Rating A-	30,000	40,000	38,000	45,000	14,000	13,000
Global Rating BBB+	20,000	30,000	28,000	35,000	12,000	12,000
Global Rating BBB	10,000	20,000	18,000	25,000	10,000	11,000
Global Rating BBB-	5,000	10,000	15,000	20,000	8,000	10,000
Global Rating BB+	4,000	8,000	10,000	15,000	7,000	9,000
Global Rating BB	3,000	6,000	9,000	10,000	6,000	8,000
Global Rating BB-	2,000	5,000	7,000	8,000	5,000	7,000
Global Rating B+, B, B-	1,000	4,000	5,000	7,000	4,000	6,000
Global Rating CCC+, CCC, CCC-	1,000	3,000	3,000	5,000	3,000	5,000
Global Rating CC to C	1,000	2,000	2,000	3,000	2,000	4,000
Global Rating D (in/near default)	1,000	1,000	1,000	2,000	1,000	3,000
Other Non Affiliated (Not Rated)	XXX	XXX	XXX	XXX	XXX	XXX
Affiliated	0	0	0	0	0	0
Total Bonds	568,000	674,000	676,000	685,000	228,000	207,000

NAIC Class 1 is made up of AAA thru A-

Changes Under Consideration: Stochastic Based Factors - Bonds

What-if Testing (cont'd)

Bonds	Capital Factors					Required Capital Amount					Change in Required Capital Amount				
	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 99.8	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 99.8	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 99.8
U.S. Government	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0
Class 1	0.7	1.0	1.2	1.2	1.4	13,776	21,586	24,814	25,871	29,175	-174,709	-277,272	-319,369	-332,634	-375,538
Class 2	4.2	5.3	5.8	5.9	6.3	12,606	15,994	17,249	17,586	18,794	-83,598	-106,942	-115,840	-118,218	-126,781
Class 3	11.5	13.1	13.6	13.7	14.3	14,891	16,861	17,522	17,726	18,389	-22,263	-24,811	-25,707	-25,980	-26,852
Class 4	23.6	25.0	25.5	25.6	26.0	6,365	6,745	6,873	6,909	7,026	-57,085	-60,712	-61,920	-62,267	-63,348
Class 5	43.8	44.1	44.2	44.2	44.2	14,880	14,979	15,018	15,028	15,028	-10,849	-10,860	-10,863	-10,861	-10,861
Class 6	53.4	53.7	53.9	53.9	54.0	4,803	4,834	4,847	4,850	4,859	4,645	4,676	4,688	4,692	4,701
Affiliated	100.0	100.0	100.0	100.0	100.0	0	0	0	0	0	0	0	0	0	0
Total Bonds	2.2	2.7	2.8	2.9	3.1	67,321	80,999	86,323	87,969	93,271	-343,859	-475,922	-529,010	-545,268	-598,679

PC SRQ

Common Stock Beta SRQ Question:

I. ASSET SECTION (Continued)

3c. COMMON STOCK PORTFOLIO ANALYSIS: Please enter the "Beta" and the associated "R-Squared" of your company's publicly traded common stock portfolio as of December 31, 2013 (including publicly traded Parent, Subsidiary, and Affiliated common stock). The "Beta" represents the level of movement in the market value of common stocks owned relative to the stock market as a whole over a specified period of time. "R-Squared" measures how reliable the calculated "Beta" is.

The stock portfolio should be separated based upon the country of the exchange in which the stock is traded. If a stock is traded on exchanges in multiple countries, only include it in one of the countries. If the total market value of the common stocks that are traded in a particular country is less than 5% of the rating unit's total publicly traded common stock portfolio market value, then a response for that country is not required.

Please use the Aggregate Method to calculate the portfolio Beta based upon the specified index shown. The Aggregate Method portfolio Beta at year end is determined by a simple linear regression using 52 weeks of time weighted rates of return for the entire portfolio. When using the value of the publicly traded common stock portfolio in the calculation of the Beta, do not include the effects of any hedging on the portfolio. For companies that do not want the administrative expense of calculating the portfolio Beta, please enter a Beta of 1.50 and R-Squared of 1.00 along with the market value of the common stocks in that portfolio.

Publicly Traded Common Stocks

(01) Location of Domestic Exchange on which Common Stocks are Traded	(02) Market Value @12/31/2013 (in $000s)	(03) Beta	(04) R-Squared	(05) Index Used to Calculate Beta & R-Squared
1. United States of America				S&P 500
2. Canada				S&P/TSX Composite
3. United Kingdom				FT All Shares
4. Japan				TOPIX
5. Other (please specify)				Please specify:
6. Other (please specify)				Please specify:
7. Other (please specify)				Please specify:
8. TOTAL (Lines 1 through 7)		X X X	X X X	X X X

What-if Testing

Common Stocks (Public):	SRQ Baseline Amount	SRQ Adjusted Amount	Selected Amount	SRQ Baseline Beta	SRQ Adjusted Beta	Selected Beta	Capital Factors					Required Capital Amount				
							VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 99.8	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 99.8
United States	1,500,000	3,000,000	3,000,000	1.05	1.02	1.00	25.0	38.0	43.0	44.0	48.0	750,000	1,140,000	1,290,000	1,320,000	1,440,000
Canada	200,000	400,000	400,000	1.10	1.05	1.00	27.0	41.0	46.0	47.0	50.0	108,000	164,000	184,000	188,000	200,000
United Kingdom	200,000	400,000	400,000	0.90	0.95	1.00	26.0	39.0	45.0	46.0	51.0	104,000	156,000	180,000	184,000	204,000
Japan	100,000	200,000	200,000	0.75	0.90	1.00	29.0	43.0	48.0	49.0	54.0	58,000	86,000	96,000	98,000	108,000
Other	0	0	0	1.00	1.00	1.00	25.0	39.0	45.0	46.0	51.0	0	0	0	0	0
Total	2,000,000	4,000,000	4,000,000				25.5	38.7	43.8	44.8	48.8	1,020,000	1,546,000	1,750,000	1,790,000	1,952,000

Changes Under Consideration: Stochastic Based Factors – Reserve Risk

- Create 4 Industry Curves of potential reserve development for each Sch P line of business – based on size of reserve

- Industry baseline factors correspond to the VaR levels on the curves

- Company size of reserve determines industry baseline factors for that line of business

- Now look at company case incurred LDF volatility relative to industry

- Adjust industry factors for company volatility/stability to get company specific factors

Changes Under Consideration: Stochastic Based Factors – Reserve Risk

Industry Curve for Medium Pers Auto Liab

99% CI 99.5% CI 99.8% CI

0.25 0.28 0.32 Industry Factors for Medium PAL

Probability

Reserve Development

WORSE
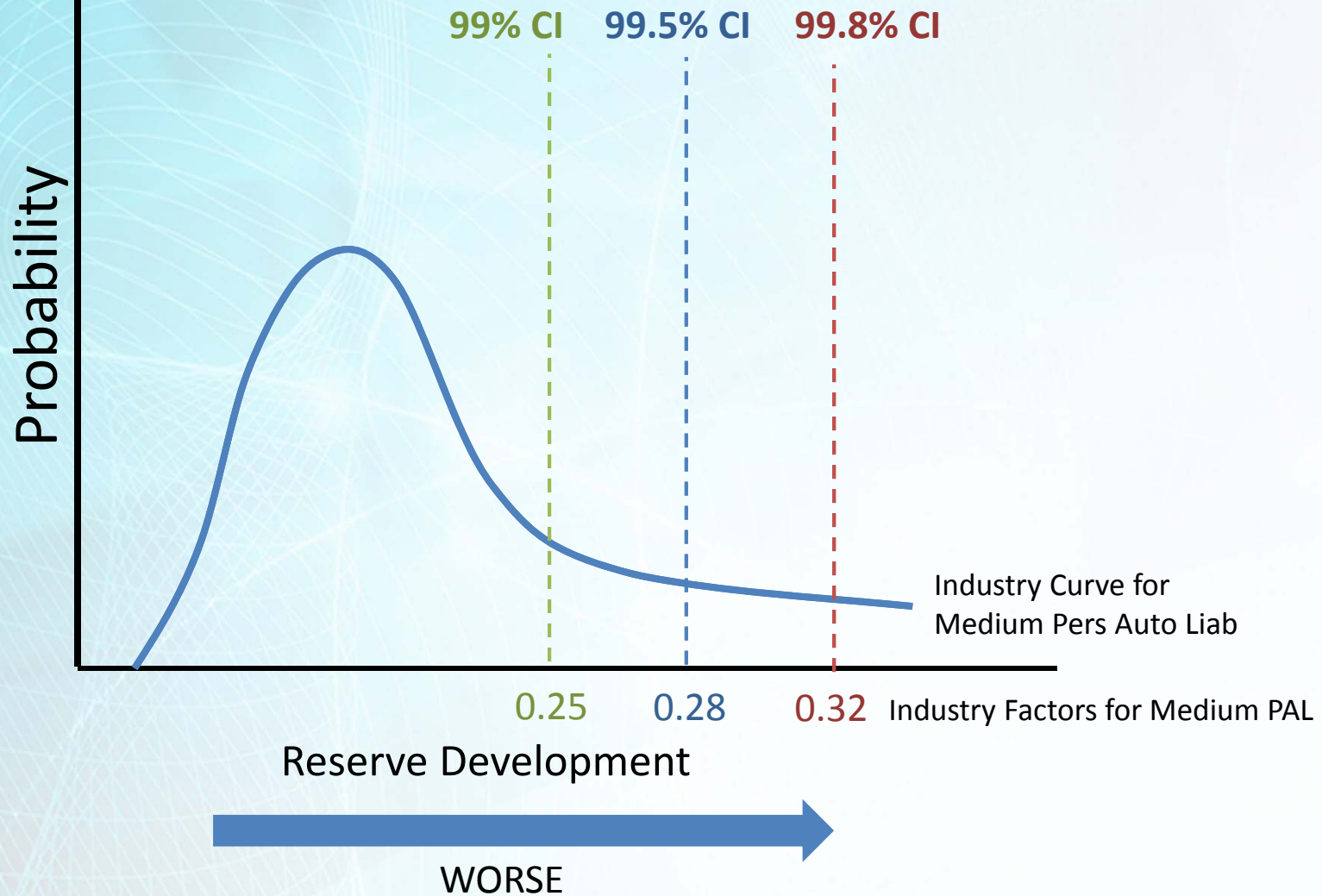
Changes Under Consideration:
Stochastic Based Factors – Reserve Risk

	Medium Reserves			Average Stability	
	VaR 95	**VaR 99**	**VaR 99.5**	**VaR 99.6**	**VaR 99.8**
HO	0.242	0.364	0.412	0.426	0.475
PAL	0.169	**0.250**	**0.281**	0.291	**0.320**
CAL	0.194	0.289	0.326	0.338	0.373
WC	0.223	0.334	0.377	0.390	0.430
CMP	0.239	0.360	0.406	0.422	0.467
MPL OCC	0.299	0.456	0.520	0.540	0.599
MPL CM	0.251	0.381	0.432	0.448	0.497
SP Liab	0.200	0.299	0.338	0.350	0.386
OL OCC	0.283	0.430	0.487	0.507	0.560
OL CM	0.288	0.438	0.497	0.516	0.573
PROD OC	0.365	0.558	0.634	0.658	0.733
PROD CM	0.289	0.441	0.501	0.519	0.578
Prop	0.243	0.366	0.415	0.430	0.475
PHYS	0.188	0.279	0.314	0.325	0.357
F&S	0.252	0.381	0.433	0.448	0.496
OTHER	0.206	0.307	0.346	0.359	0.396
INTL	0.239	0.359	0.406	0.422	0.465
REIN A	0.256	0.387	0.440	0.456	0.507
REIN B	0.332	0.508	0.577	0.599	0.667
REIN C	0.274	0.417	0.474	0.491	0.545
WTY	0.188	0.279	0.314	0.326	0.358

Changes Under Consideration: Stochastic Based Factors – Reserve Risk

Line of Business Thresholds

Net Loss and LAE Reserve Risk

Size Category

Schedule P Line	Very Small	Small		Medium		Large
Homeowners/Farmowners	Under $2M	$2M to	$5M	$5M to	$15M	Over $15M
Personal Auto Liability	Under $5M	$5M to	$15M	$15M to	$50M	Over $50M
Commercial Auto Liability	Under $3M	$3M to	$7M	$7M to	$20M	Over $20M
Workers Compensation	Under $5M	$5M to	$20M	$20M to	$75M	Over $75M
Commercial Multiperil	Under $4M	$4M to	$10M	$10M to	$20M	Over $20M
Medical Prof Liab - Occurrence	Under $3M	$3M to	$7M	$7M to	$30M	Over $30M
Medical Prof Liab - Claims Made	Under $4M	$4M to	$15M	$15M to	$50M	Over $50M
Special Liability	Under $2M	$2M to	$10M	$10M to	$60M	Over $60M
Other Liability - Occurrence	Under $4M	$4M to	$12M	$12M to	$40M	Over $40M
Other Liability - Claims Made	Under $3M	$3M to	$8M	$8M to	$30M	Over $30M
Products Liability - Occurrence	Under $3M	$3M to	$7M	$7M to	$20M	Over $20M
Products Liability - Claims Made	Under $3M	$3M to	$7M	$7M to	$20M	Over $20M
Property	Under $2M	$2M to	$5M	$5M to	$17M	Over $17M
Auto Physical Damage	Under $2M	$2M to	$5M	$5M to	$17M	Over $17M
Fidelity & Surety / Guaranty	Under $2M	$2M to	$5M	$5M to	$17M	Over $17M
Other	Under $2M	$2M to	$5M	$5M to	$17M	Over $17M
International	Under $4M	$4M to	$10M	$10M to	$20M	Over $20M
Reinsurance A	Under $2M	$2M to	$10M	$10M to	$25M	Over $25M
Reinsurance B	Under $5M	$5M to	$20M	$20M to	$100M	Over $100M
Reinsurance C	Under $2M	$2M to	$5M	$5M to	$15M	Over $15M
Warranty	Under $2M	$2M to	$5M	$5M to	$17M	Over $17M

Changes Under Consideration:
Stochastic Based Factors – Reserve Risk

Reserve stability/volatility

Stable		Cumulative Case Incurred Link Ratios				
	12-24	24-36	36-48	48-60	60-72	72-84
2004	1.162	1.057	1.028	1.010	1.005	1.002
2005	1.158	1.055	1.026	1.010	1.004	1.002
2006	1.160	1.056	1.027	1.010	1.004	1.002
2007	1.172	1.059	1.025	1.009	1.003	1.002
2008	1.181	1.055	1.026	1.009	1.004	
2009	1.178	1.055	1.023	1.010		
2010	1.165	1.051	1.024			
2011	1.158	1.052				
2012	1.171					
All Yr Avg	1.167	1.055	1.025	1.010	1.004	1.002
Std Dev	0.0082	0.0023	0.0017	0.0005	0.0007	0.0001
CoV	0.0070	0.0022	0.0017	0.0005	0.0007	0.0001

Volatile		Cumulative Case Incurred Link Ratios				
	12-24	24-36	36-48	48-60	60-72	72-84
2004	1.345	1.040	1.100	1.109	1.038	1.009
2005	1.580	1.010	1.307	1.012	1.036	0.995
2006	1.598	1.043	1.023	1.021	1.015	0.998
2007	1.238	1.042	1.267	0.974	1.073	0.998
2008	1.014	1.365	0.998	1.003	1.094	
2009	1.452	1.027	1.013	1.006		
2010	1.165	1.097	1.010			
2011	1.147	1.011				
2012	1.112					
All Yr Avg	1.295	1.079	1.102	1.021	1.051	1.000
Std Dev	0.1986	0.1110	0.1211	0.0422	0.0283	0.0052
CoV	0.1534	0.1029	0.1099	0.0413	0.0269	0.0052

Coefficient of Variation (COV) = Std Dev / All Yr Avg

Company Adjustment Factor based on:

Company COV / Industry COV

0.70 <= Company Adjustment Factor <= 1.30

Changes Under Consideration:
Stochastic Based Factors – Reserve Risk

Reserve Capital Factors: Represent potential ultimate UNANTICIPATED adverse loss and LAE reserve development (discounted) using VaR metric

Industry Baseline Reserve Capital Factors

Ex. Medium PAL: 16.9%, 25.0%, 28.1%, 29.1%, 32.0%

X   Company Stability Factor   0.80 (based on company's case incurred LDFs)

Notes:
Reserves represent business exposed to in the past.
Deficiency factor represents expected deficiency.
Reserves are discounted and net of reinsurance.

= Company Reserve Capital Factors   13.5%,20%,22.5%,23.3%,25.6%

Changes Under Consideration: Stochastic Based Factors – Premium Risk

- Create 4 Industry Curves of potential UW profit/loss for each Sch P line of business – based on size of NPW

- Industry baseline factors correspond to the VaR levels on the curves

- Company size of NPW determines industry baseline factors for that line of business

- Now look at company combined ratio relative to breakeven combined ratio

- Adjust industry factors for company profitability to get company specific factors

Changes Under Consideration: Stochastic Based Factors – Premium Risk
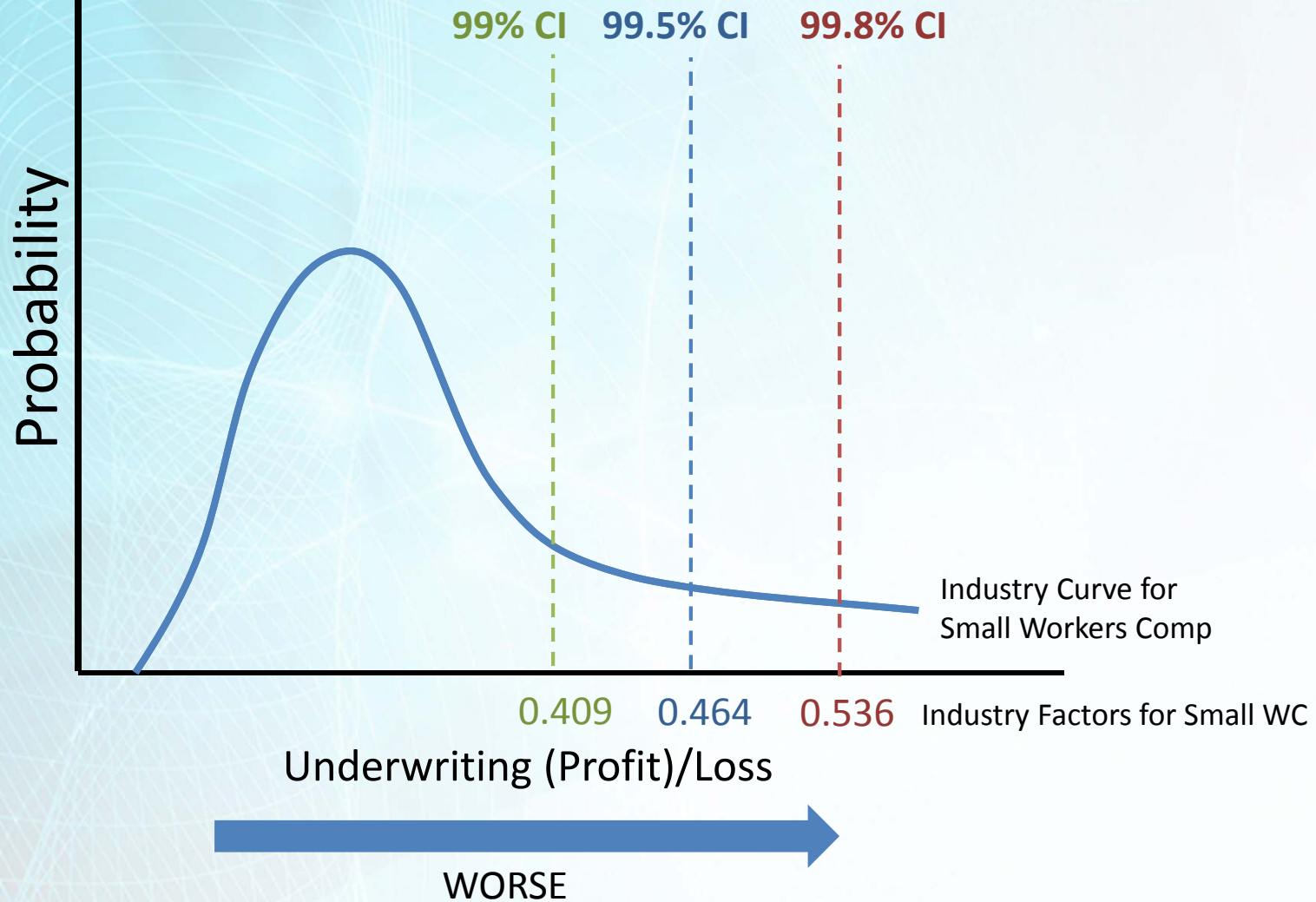
Changes Under Consideration: Stochastic Based Factors – Premium Risk

	Small Premium		Break Even Profitability		
	VaR 95	**VaR 99**	**VaR 99.5**	**VaR 99.6**	**VaR 99.8**
HO	0.281	0.427	0.485	0.503	0.559
PAL	0.239	0.359	0.406	0.421	0.464
CAL	0.248	0.374	0.425	0.440	0.490
WC	0.270	**0.409**	**0.464**	0.483	**0.536**
CMP	0.267	0.406	0.461	0.478	0.532
MPL OCC	0.324	0.500	0.569	0.594	0.663
MPL CM	0.307	0.471	0.537	0.557	0.620
SP Liab	0.266	0.405	0.460	0.479	0.533
OL OCC	0.286	0.438	0.498	0.518	0.578
OL CM	0.311	0.477	0.543	0.564	0.630
PROD OC	0.335	0.517	0.589	0.612	0.682
PROD CM	0.315	0.485	0.553	0.573	0.639
Prop	0.266	0.404	0.459	0.476	0.530
PHYS	0.212	0.318	0.359	0.374	0.412
F&S	0.266	0.404	0.459	0.477	0.531
OTHER	0.257	0.390	0.443	0.459	0.509
INTL	0.267	0.406	0.461	0.478	0.533
REIN A	0.282	0.431	0.489	0.507	0.564
REIN B	0.300	0.461	0.525	0.544	0.605
REIN C	0.261	0.400	0.455	0.474	0.528
WTY	0.221	0.332	0.376	0.389	0.431

Changes Under Consideration: Stochastic Based Factors – Premium Risk

AM BEST

Line of Business Thresholds	Net Premium Written Risk			
		Size Category		
Schedule P Line	Very Small	Small	Medium	Large
Homeowners/Farmowners	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Personal Auto Liability	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Commercial Auto Liability	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Workers Compensation	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Commercial Multiperil	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Medical Prof Liab - Occurrence	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Medical Prof Liab - Claims Made	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Special Liability	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Other Liability - Occurrence	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Other Liability - Claims Made	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Products Liability - Occurrence	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Products Liability - Claims Made	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Property	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Auto Physical Damage	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Fidelity & Surety / Guaranty	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Other	Under $2M	$2M to $10M	$10M to $30M	Over $30M
International	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Reinsurance A	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Reinsurance B	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Reinsurance C	Under $2M	$2M to $10M	$10M to $30M	Over $30M
Warranty	Under $2M	$2M to $10M	$10M to $30M	Over $30M

Profitability Adjustment based on most recent 3 years

Years in Which Premiums Were Earned and Losses Were Incurred	Premiums Earned		
	1 Direct and Assumed	2 Ceded	3 Net (Cols. 1 - 2)
1. Prior	XXX	XXX	XXX
2. 2006	88,802	13,548	75,254
3. 2007	75,145	10,601	64,544
4. 2008	58,990	8,429	50,561
5. 2009	42,481	5,157	37,324
6. 2010	32,853	3,884	28,969
7. 2011	32,623	2,712	29,911
8. 2012	35,831	3,390	32,441
9. 2013	43,865	4,425	39,440
10. 2014	60,454	4,703	55,751
11. 2015	70,151	4,851	65,300
12. Totals	XXX	XXX	XXX

SCHEDULE P - PART 2D - WORKERS' COMPENSATION (EXCLUDING EXCESS WORKERS' COMPENSATION)

1. Prior	50,162	40,459	33,019	29,430	29,005	27,981	28,280	27,098	27,204	27,477
2. 2006	43,151	33,829	29,479	28,297	27,318	27,311	27,329	27,031	26,990	27,194
3. 2007	XXX	49,112	40,272	39,601	38,373	37,792	37,072	36,493	37,295	37,548
4. 2008	XXX	XXX	39,108	33,979	32,036	31,299	30,530	30,979	30,784	31,201
5. 2009	XXX	XXX	XXX	32,839	31,828	31,269	30,123	29,997	29,980	29,892
6. 2010	XXX	XXX	XXX	XXX	24,601	23,721	23,217	23,679	23,544	23,278
7. 2011	XXX	XXX	XXX	XXX	XXX	23,059	23,010	23,935	23,215	23,383
8. 2012	XXX	XXX	XXX	XXX	XXX	XXX	22,692	22,881	23,335	22,896
9. 2013	XXX	XXX	XXX	XXX	XXX	XXX	XXX	25,905	26,510	26,030
10. 2014	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	37,567	38,281
11. 2015	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	41,449

3 yr AY avg L&DCC ratio = 66.1 = (66.0+68.7+63.5)/3

3 yr avg CY A&O ratio = 7.3

3 yr avg CY UW exp ratio = 26.3

Company combined ratio = 99.7 = (66.1+7.3+26.3)

Changes Under Consideration: Stochastic Based Factors – Premium Risk

Profitability Adjustment cont'd

Company combined ratio = 99.7

Indicated Factor = .742 = 99.7/134.4

Capped Factor = .80

	Breakeven Combined	UW Cycle Adjustment	Adjusted Breakeven Combined
HO	102.6	1.03	105.7
PAL	104.9	1.02	107.0
CAL	106.9	1.01	108.0
WC	124.4	1.08	134.4
CMP	105.8	1.03	109.0
MPL OCC	118.0	0.93	109.7
MPL CM	111.3	0.93	103.5
SP Liab	105.5	0.97	102.3
OL OCC	119.3	1.05	125.3
OL CM	112.2	1.03	115.6
PROD OCC	125.2	1.04	130.2
PROD CM	114.6	1.01	115.7
Prop	103.2	1.00	103.2
PHYS	101.8	1.00	101.8
F&S	106.9	1.00	106.9
OTHER	104.0	1.00	104.0
INTL	105.0	1.02	107.1
REIN A	106.7	0.96	102.4
REIN B	128.1	0.94	120.4
REIN C	112.5	1.00	112.5
WTY	102.1	1.00	102.1

Company Adjustment Factor based on:
Company Combined Ratio / Industry Adjusted Breakeven Combined Ratio
0.80 <= Company Adjustment Factor <= 1.20

Changes Under Consideration:
Stochastic Based Factors – Premium Risk

NPW Capital Factors: Represent potential ultimate UW Loss (discounted) using VaR metric

Industry Baseline
NPW Capital Factors

Ex. Small WC: 27%, 40.9%, 46.4%, 48.3%, 53.6%

UW cycle Adjustment to
breakeven CRs

x Company
Profitability

0.80 (relative to adjusted break even)
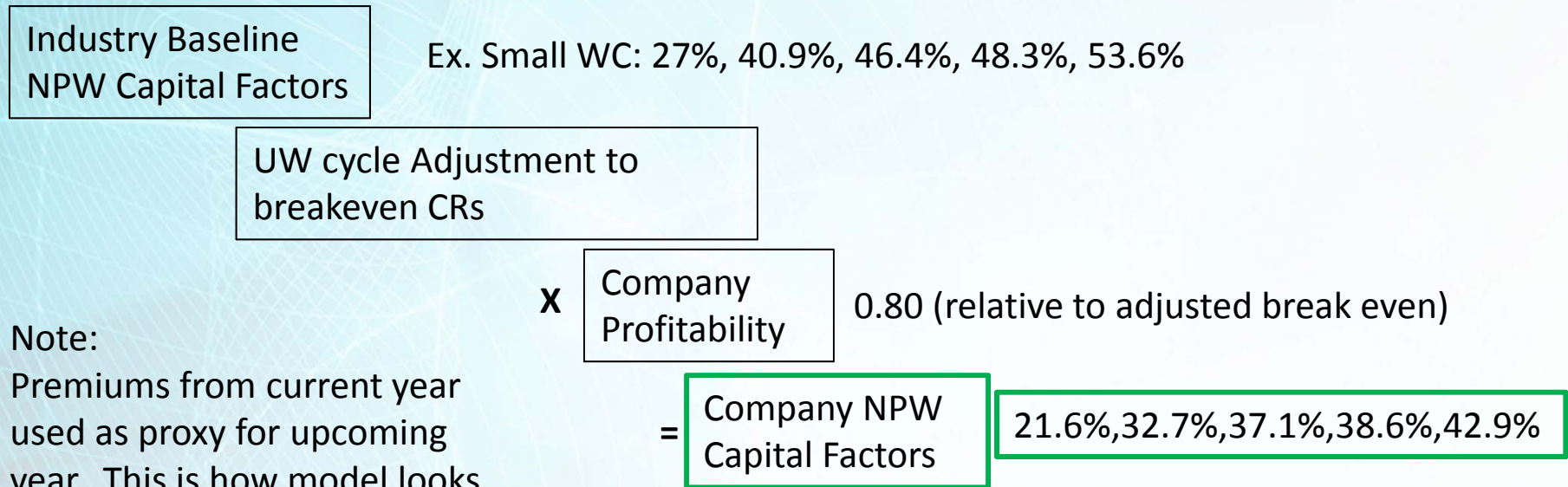
Note:
Premiums from current year
used as proxy for upcoming
year. This is how model looks
forward - 1 year of new
business.

= Company NPW
Capital Factors

21.6%,32.7%,37.1%,38.6%,42.9%

Changes Under Consideration: Stochastic Based Factors – Diversification

- Feedback on Premium and Reserve Diversification
  - Matrices not positive semi-definite
  - Can't duplicate diversification
  - Can't update diversification if business mix changes
    - Would need to re-run simulations
- Updated matrix in stochastic based model to be positive semi-definite
- Use matrix multiplication with weight adjusted stochastic based risk factors

Changes Under Consideration: Stochastic Based Factors – Diversification

$$Diversification\ Factor = SQRT\{\ [w_1\sigma_1 \ldots w_n\sigma_n] \times \begin{bmatrix} 1 & \cdots & \rho_{1n} \\ \vdots & \ddots & \vdots \\ \rho_{n1} & \cdots & 1 \end{bmatrix} \times \begin{bmatrix} w_1\sigma_1 \\ \vdots \\ w_n\sigma_n \end{bmatrix}\}$$

$$Divided\ by$$

$$SUM[w_1\sigma_1 \ldots w_n\sigma_n]$$

Where weights (w) are % of total business in that line and the σ are the company risk factors by line

Correlation matrices vary by size of company's total NPW or total Reserves

Changes Under Consideration:
Stochastic Based Factors – Reins Recovs

- Need factors by ICR and year recov collected for each VaR

- Use stochastic simulations to create tables of factors

- Had to run simulations of impairments of different size portfolios of reinsurers (1, 10, 20, 40) for each ICR at year 1, year 5 and year 10

  – Use AMBest insurer cumulative impairment rates for each reinsurer in portfolio

  – Approximately 250 simulated portfolio results to base selections of factors on

  – Indicated factors are net of 50% recov and PV'd

Changes Under Consideration:
Stochastic Based Factors – Reins Recovs

- Currently testing with selections based on portfolio of 20 reinsurers
  - No longer reflects concentration risk
    - Concentration risk addressed in Balance Sheet Strength analysis, not in BCAR
    - Still reflects credit quality and duration of recovs
- Take $recoverables from Sch F and allocate by year and aggregate by ICR
- Multiply $recovs by rating and year against impairment tables of factors (one table for each VaR)

Changes Under Consideration: Stochastic Based Factors – Reins Recovs

VaR 99
Reinsurer Impairment Factors

	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
aaa	1.2%	1.4%	1.5%	1.6%	1.7%	1.8%	1.9%	1.9%	2.0%	2.1%
aa+	1.5%	1.7%	1.8%	2.0%	2.1%	2.3%	2.4%	2.5%	2.7%	2.8%
aa	1.7%	1.9%	2.2%	2.3%	2.5%	2.7%	2.9%	3.1%	3.3%	3.4%
aa-	2.0%	2.2%	2.5%	2.7%	2.9%	3.2%	3.5%	3.7%	3.9%	4.1%
a+	2.2%	2.5%	2.8%	3.1%	3.4%	3.7%	4.0%	4.3%	4.6%	4.8%
a	2.5%	3.0%	3.4%	3.8%	4.2%	4.5%	4.8%	5.1%	5.3%	5.5%
a-	2.9%	3.5%	4.1%	4.6%	5.0%	5.5%	5.9%	6.3%	6.6%	6.9%
bbb+	3.9%	4.7%	5.4%	6.1%	6.7%	7.4%	8.1%	8.6%	9.2%	9.7%
bbb	4.9%	5.9%	6.8%	7.6%	8.4%	9.4%	10.2%	11.0%	11.8%	12.4%
bbb-	5.9%	7.3%	8.6%	9.8%	10.9%	11.9%	12.9%	13.7%	14.5%	15.2%
bb+	8.8%	10.4%	11.8%	13.1%	14.3%	15.3%	16.3%	17.1%	17.9%	18.6%
bb	11.8%	13.4%	15.0%	16.3%	17.6%	18.7%	19.7%	20.6%	21.4%	22.1%
bb-	14.7%	16.5%	18.1%	19.6%	21.0%	21.8%	22.5%	23.1%	23.6%	24.1%
b+	17.7%	19.1%	20.4%	21.6%	22.6%	23.4%	24.0%	24.6%	25.1%	25.5%
b	20.6%	21.7%	22.7%	23.5%	24.3%	25.0%	25.6%	26.1%	26.5%	26.9%
b-	22.6%	23.6%	24.5%	25.3%	26.0%	26.6%	27.1%	27.6%	27.9%	28.3%
ccc+ and lower	49.0%	47.1%	45.3%	43.6%	41.9%	40.3%	38.8%	37.3%	35.8%	34.5%
Not Rated by A. M. Best	49.0%	47.1%	45.3%	43.6%	41.9%	40.3%	38.8%	37.3%	35.8%	34.5%

table of credit risk factors – one for each VaR

Changes Under Consideration: Stochastic Based Factors – Reins Recovs

Unaffiliated Funds Held Collected by Future Year

A.M. Best ICR	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10 and Later	Total
aaa	1,000	2,000	900	500	100	0	0	0	0	0	4,500
aa+	1,100	2,100	700	300	50	0	0	0	0	0	4,250
aa	1,200	2,200	300	200	50	0	0	0	0	0	3,950
aa-	1,300	2,300	200	100	50	0	0	0	0	0	3,950
a+	1,400	2,400	100	50	50	0	0	0	0	0	4,000
a	1,500	2,500	100	50	50	0	0	0	0	0	4,200
a-	1,600	2,600	100	50	50	0	0	0	0	0	4,400
bbb+	900	1,900	100	50	50	0	0	0	0	0	3,000
bbb	800	1,800	100	50	50	0	0	0	0	0	2,800
bbb-	700	1,700	100	50	0	0	0	0	0	0	2,550
bb+	600	1,600	50	50	0	0	0	0	0	0	2,300
bb	500	1,500	50	25	0	0	0	0	0	0	2,075
bb-	400	1,400	50	0	0	0	0	0	0	0	1,850
b+	300	1,300	50	0	0	0	0	0	0	0	1,650
b	200	1,200	25	0	0	0	0	0	0	0	1,425
b-	100	1,100	25	0	0	0	0	0	0	0	1,225
ccc+ and lower	50	250	25	0	0	0	0	0	0	0	325
Not Rated by A. M. Best	1,350	150	25	25	0	0	0	0	0	0	1,550
Total Recoverables	15,000	30,000	3,000	1,500	500	0	0	0	0	0	50,000

table of recoverables – one each for:

Affiliated Recovs   Unaffiliated Recovs
Affiliated Funds Held   Unaffiliated Funds Held
Affiliated LOCs & Trust   Unaffiliated LOCs & Trust

Changes Under Consideration: Stochastic Based Factors – Reins Recovs

VaR 99

Reinsurance Recoverable Required Capital

	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
aaa	12	27	13	8	2	0	0	0	0	0
aa+	16	35	13	6	1	0	0	0	0	0
aa	21	43	6	5	1	0	0	0	0	0
aa-	25	52	5	3	1	0	0	0	0	0
a+	31	61	3	2	2	0	0	0	0	0
a	37	74	3	2	2	0	0	0	0	0
a-	47	92	4	2	3	0	0	0	0	0
bbb+	35	89	5	3	3	0	0	0	0	0
bbb	39	106	7	4	4	0	0	0	0	0
bbb-	41	124	9	5	0	0	0	0	0	0
bb+	53	166	6	7	0	0	0	0	0	0
bb	59	202	7	4	0	0	0	0	0	0
bb-	59	231	9	0	0	0	0	0	0	0
b+	53	248	10	0	0	0	0	0	0	0
b	41	260	6	0	0	0	0	0	0	0
b-	23	259	6	0	0	0	0	0	0	0
ccc+ and lower	25	118	11	0	0	0	0	0	0	0
Not Rated by A. M. Best	662	71	11	11	0	0	0	0	0	0

Required Capital = table of recovs times table of credit risk factors (one for each VaR)

Changes Under Consideration:
Stochastic Based Factors – Reins Recovs

| A.M. Best ICR | Capital Factors | | | | |
	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 99.8
aaa	0.4	1.4	1.9	2.0	2.3
aa+	0.6	1.7	2.2	2.3	2.7
aa	0.8	1.9	2.4	2.6	3.2
aa-	1.1	2.2	2.8	3.0	3.7
a+	1.4	2.4	3.3	3.5	4.2
a	1.7	2.8	3.8	4.1	4.9
a-	2.2	3.4	4.5	4.9	6.0
bbb+	3.0	4.6	5.7	6.1	7.2
bbb	3.8	5.7	6.9	7.3	8.8
bbb-	5.1	7.0	8.9	9.4	10.8
bb+	7.2	10.1	12.0	12.4	13.9
bb	10.3	13.1	15.0	15.5	16.9
bb-	13.3	16.2	18.1	18.5	20.0
b+	16.0	18.9	20.8	21.2	22.7
b	18.7	21.6	23.4	23.9	25.3
b-	20.7	23.5	25.4	25.9	27.3
ccc+ and lower	47.3	47.3	47.3	47.3	47.3
Not Rated by A. M. Best	48.7	48.7	48.7	48.7	48.7
Total Recoverables	6.0	7.5	8.6	8.9	9.8

Sum up required capital by ICR get overall credit risk factors by ICR and VaR.
Sum up all ICRs required capital to get overall credit risk factors.

Interest Rate Risk

o **<u>Interest Rate Risk</u>**

- Risk of having to sell fixed income assets when market values are lower

- Exposure to a rise in interest rates over next one year

- Liquidity risk during the upcoming year

- Risk is driven by sudden shock event
  - ✓ Usually natural catastrophe, or man-made, or economic shock

- Already marked bonds to market in Available Capital so this is additional potential loss

- Impact of short-term cash need

- Considers all assets

Changes Under Consideration: Interest Rate Shocks

- Reviewing the assumption that an interest rate shock would occur at the same time as an equivalent tail event
  - Proposal is to hold constant the liquidity need (10% minimum) for interest rate shocks across the VaR levels
- Interest Rate Movements
  - Based on ESG
  - Simulated 10,000 potential one year changes in interest rates, selected BP rise at each VaR level
  - Applied to duration of company's fixed income asset portfolio
  - Considers all liquid assets
- Reflects liquidity need using Greater of 1/100 All perils per occurrence Gross PML or 10% of surplus
  - Same PML used at all VaR levels

	Proposed One Year Rise in Interest Rate				
Current	VaR 95	VaR 99	VaR 99.5	VaR 99.6	VaR 99.8
120 BP	170 BP	240 BP	270 BP	280 BP	290 BP

Questions

AM BEST

In Summary:

This is an update on items being considered at this time and may change………

Next Draft criteria is a Draft and that may change based on additional feedback too….

Comments always welcome!

Email comments to:
– methodology.commentary@ambest.com