



axene health partners
HEALTH ACTUARIES & CONSULTANTS

Presentation to Green Mountain Care Board: 'Optimal Surplus Range Development'

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Summary of Discussion

- Introduction
- Historical context
- Risk-Based Capital (RBC) Structure
- Actuarial Modeling
- RBC Impact Items
- Optimal Surplus Range Recommendation
- Closing Comments/Questions?

Introduction: Actuarial Qualifications

- Axene Health Partners, LLC
 - Actuarial consulting firm established in 2003
 - Broad analytical experience in all aspects of health care
 - Have performed multiple RBC and Own Risk and Solvency (ORSA) assessments for organizations of various sizes and for-profit status
- Greg Fann, FSA, MAAA, FCA
 - Fellow of the Society of Actuaries (SOA) since 1998
 - Elected to SOA Health Section Council (2015-2018)
 - Endorsed Candidate for SOA Board of Directors (2019)
 - Extensive experience with traditional group and ACA markets

Introduction: Risk-Based Capital

- “Risk-based” capital: minimum amount of capital to support overall insurance business operations, taking into consideration company size and risk profile.
 - 1. limits risk an insurer can take by on requiring those with a higher amount of risk to hold a higher amount of capital.
 - 2. Intended to provide a measure for a minimum regulatory capital standard
 - a. Not a recommended amount for growth, competitiveness, and operational/compliance efforts
 - b. Not a stand-alone regulatory tool in determining financial solvency

Historical Context

- How do we decide how much “Capital” is needed?
- Early requirements
 - Flat-dollar
 - Surplus as a Percentage of Revenue (SAPOR)
 - Doesn’t consider insurer’s risk profile
- Insolvencies (around 1990) led NAIC to consider rigorous calculation that reflected company risk factors
 - Important to note that failing companies were studied, not a “Best Practices” analysis
 - Early warning system for problems, not a direct measure of financial health

RBC Terms/Thresholds – Blue Cross Blue Shield Association Requirements

- Authorized Control Level (ACL)
 - RBC benchmark calculation used to determine RBC ratio between Total Adjusted Capital (TAC) and ACL. $RBC \text{ ratio} = TAC/ACL$.
 - Commissioner can take control of company at this level.
- 200% of ACL
 - Companies below 200% must submit a corrective action plan.
 - BCBSA Licensees must maintain HRBC ratios greater than 200% to retain licensure of the 'Blue' trademarks.
- 375% of ACL
 - BCBSA early warning mechanism
 - Facilitation of process to establish corrective measures

RBC Components

- H0 = Insurance affiliate investment and off-balance sheet risk
 - H1 = Invested Asset Risk
 - **H2 = Underwriting Risk**
 - H3 = Credit Risk
 - H4 = Business Risk
 - H5 = Operational Risk
-
- Due to long duration contracts and reliance on investments to pay claims, non-health insurers have more long-term investment risk.
 - H2 is the primary risk for health insurers. The relative risk of each category relative to H2 was derived from 2001 study of BCBS plans.
 - H1 – 35%, H2% – 100%, H3 – 9%, H4 – 16%

Underwriting Risk

- Risk-based premium is usually largest RBC driver for health insurers
- Primary health risk is claim risk associated with underwritten fully-insured premium
 - Top 5% of all patients account for 50% of the costs.
 - Less than 40% of the top 5% spenders are in the top 5% in the next year.
- Distribution of business impacts RBC
- RBC is primarily a point-in-time snapshot
 - It doesn't capture volatility in annual results

Stochastic Risk Components

- “Stochastic” – randomly determined
- Claims Fluctuation/Volatility
 - Actuarial Simulation Model
 - utilizes random sampling from a probability distribution to compute the likelihood of various outcomes.
 - Small sample size has more randomness
 - Coin flip 10 times – probability ≥ 6 heads is 38%
 - Coin flip 100 times - probability ≥ 60 heads is 3%
 - Rather than flipping a coin, we simulated claims distribution calibrated to BCBSVT costs

Stochastic Risk Components

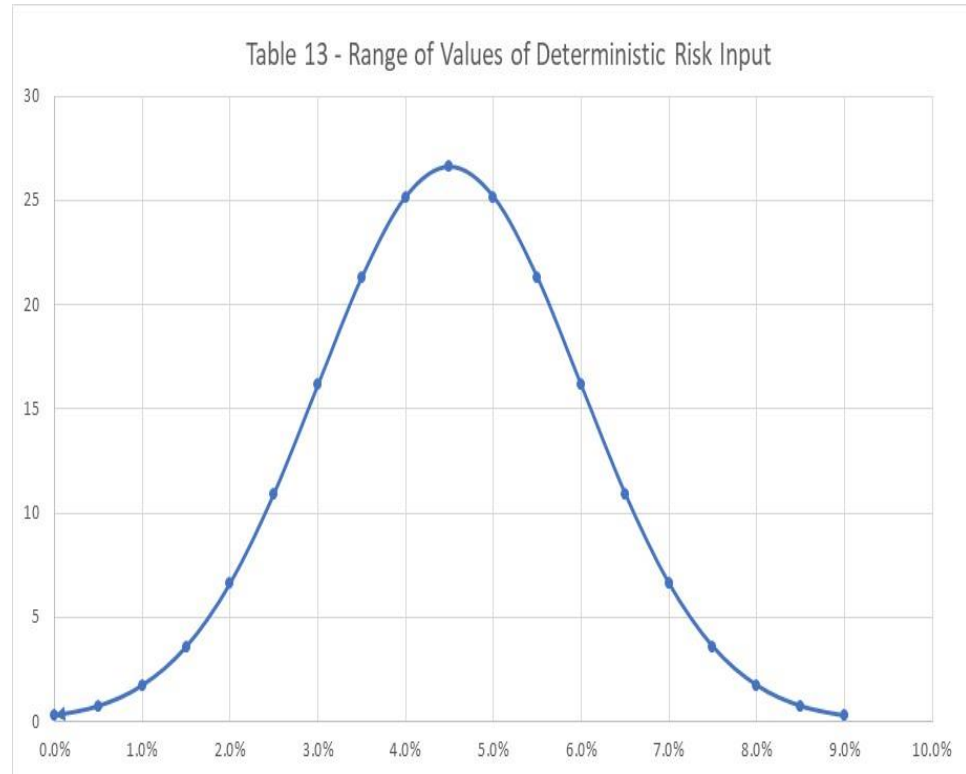
- Time Horizon
 - Historic “underwriting cycle” of six years
 - It can take years to identify and correct problems
 - Timing challenges exacerbated by ACA
 - BCBSVT losses in 5 year timeframe
 - Magnitude of Losses (% of revenue) relative to 1.5% target
 - 29.6% (1984->1989)
 - 21.1% (1993->1999)
 - 11.8% (2004->2009)
 - 13.7% (2015->2018)
 - TAC is roughly 25% of revenue

Stochastic Risk Components

- Trend Variance
 - Difference between expected and actual trend
 - Normal distribution with mean of zero
 - Low projected variance
 - Recent BCBSVT experience
 - Predictable hospital budgeting

Deterministic Risk

- Impossible to feasibly model all of the risks that a company faces
- Deterministic Risk Elements are not able to be stochastically modeled
 - There is no large data set to simulate
 - BCBSVT a little higher than average (5.55%)



Deterministic Risk Components

- Reserving Process
 - accurate methodology, quick payments, little risk
- Care Management Effectiveness
 - Abbreviated review
 - Utilization higher than ideal levels
 - Vermont market and regulatory environment
 - We did not risk adjust; higher utilization may reflect healthier groups moving to self-insured market
- Corporate Structure
 - Company is relatively small and geographically bound
 - Economic risk is mitigated with geographic diversity
 - Limited ability to raise capital

Deterministic Risk Components

- **Regulatory Environment**
 - Vermont rate regulation is atypical; additional risk
 - Rate regulators typically responsible for solvency
 - Vermont assigns rate review and solvency responsibility to two separate regulators
 - Vermont rate focuses on affordability and promotion of “access to care”, in addition to insurer solvency
- **Competitive Environment**
 - Not a hypercompetitive market
- **Provider Reimbursement/Underwriting Policy**
 - Similar to market; no appreciable risk
- **Growth Potential**
 - Modest growth expected

Situations Requiring Higher or Lower Surplus

Source: "Surplus and the ACA",
The ACA @5 An Actuarial Retrospective

Lower Surplus Required

Large issuers/large market share
Mature markets with known risk factors
Diversified product or regional portfolios
For-profit due to access to capital
Effective care management
Stable markets
Reinsurance
Contracting
 Capitation
 Risk sharing

Higher Surplus Required

Regional, smaller issuers/small market share
Markets with significant unknown risk factors
Niche player susceptible to wide fluctuations
Not-for-profits or privately owned issuers
Lack of care management programs
Markets with significant churn
Lack of reinsurance
Fee-for-service (FFS) reimbursement

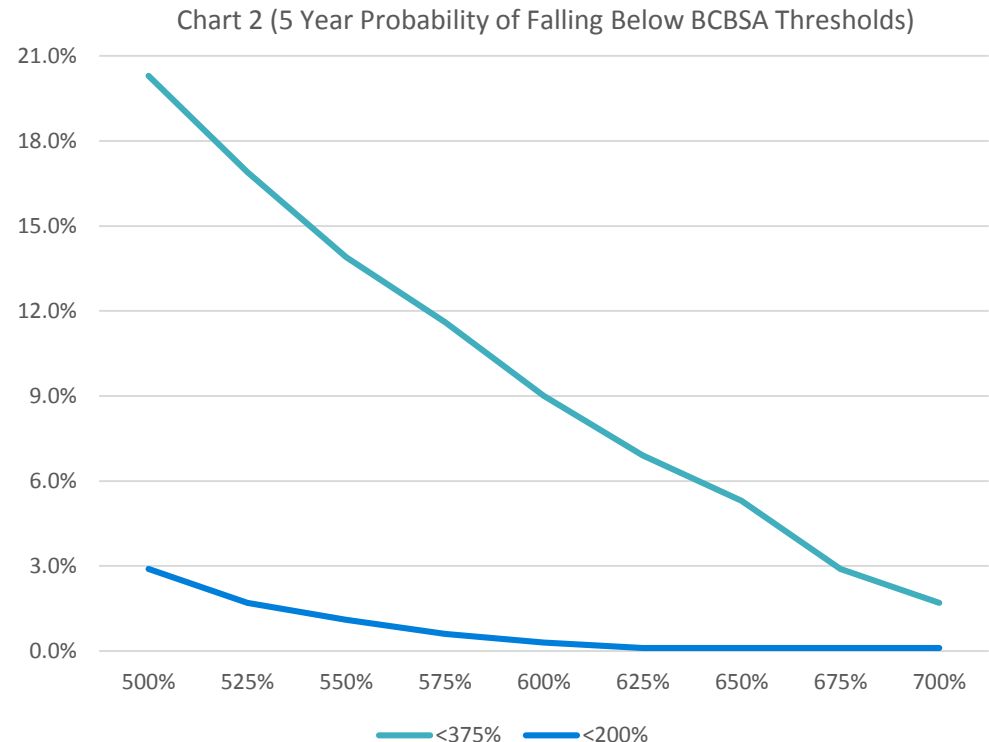
BCBSVT Mitigation Items (Impact on Minimum Surplus Target)

- Reinsurance
 - \$800,000 Limit
 - 25% of RBC
- ACO Agreement
 - Risk-sharing with OneCare Vermont
 - 40% of RBC
- Trend Accuracy
 - Better predictability with fixed budgets
 - 50% of RBC

Probability of Falling Below BCBSA Thresholds within 5 Years

- 500% RBC
 - 20% below 375%
 - 3% below 200%
- 590% RBC
 - 10% below 375%
 - <1% below 200%¹
- 655% RBC
 - 5% below 375%
 - <1% below 200%

¹This level of certainty is between Standard and Poor's 'BBB' and 'A' confidence levels.



Optimal Surplus Range Development

- Target 5% probability of falling out of the range each year
- At both ends of range, there is roughly 50% probability of falling outside of the range each year
- 590% is minimum, not target
- With a target range of 590%-745%, there is a 4.8% chance of falling outside the range from a 690% level

Table 5
Likelihood of Falling Outside Range after 1 Year

HRBC Level	Maximum of HRBC Range				
	730%	735%	740%	745%	750%
590%	47.9%	47.9%	47.9%	47.9%	47.9%
600%	40.7%	40.7%	40.7%	40.7%	40.7%
610%	34.2%	34.2%	34.2%	34.2%	34.2%
620%	28.3%	28.3%	28.3%	28.3%	28.3%
630%	23.0%	23.0%	23.0%	23.0%	23.0%
640%	18.3%	18.3%	18.3%	18.3%	18.3%
650%	14.4%	14.3%	14.3%	14.3%	14.3%
660%	11.2%	11.1%	11.0%	10.9%	10.9%
670%	9.2%	8.9%	8.7%	8.6%	8.5%
680%	8.4%	7.5%	7.0%	6.7%	6.5%
690%	8.9%	7.2%	5.7%	4.8%	4.3%
700%	12.8%	8.7%	6.9%	5.2%	3.7%
710%	22.0%	16.9%	11.6%	7.5%	5.7%
720%	37.0%	28.5%	21.8%	16.7%	11.4%
730%	52.1%	45.5%	36.9%	28.4%	21.7%

Optimal Surplus Range Management

- BCBSVT should increase RBC ratio when near lower end of the range.
- BCBSVT should slow the rate of surplus growth when near the top of the range.
- Ideally, BCBSVT should maintain RBC level near 690% to maximize probability of remaining in Optimal Surplus Range.

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Closing Comments/Questions?

- RBC is a predictor of financial trouble, not a measure of financial health.
- RBC is a retrospective view. It doesn't capture what is around the corner (e.g. ACA).
- The RBC model is a formulaic calculation which does not develop or prescribe an optimal surplus range for a particular company. A qualitative and quantitative company-specific analysis is required to establish such a range.
- Axene Health Partners, LLC performed a rigorous analysis and recommended an Optimal Surplus Range of 590%-745% to appropriately protect BCBSVT's policyholder reserves.