



Retention: What is the Right Decision?

A presentation to the Casualty Actuaries of the Southeast

By: Ann M. Conway, FCAS, MAAA, CERA

March 27, 2013

Question: “how do I decide how much risk to retain and how much to transfer?”

Approaches to the answer can vary. We’ll compare two:

- “Traditional” approach considers financial metrics, corporate structure
- “Risk Optimization” or “Variability Capital” approach considers the “cost” to the organization of retaining more risk as compared to the benefits of (re)insurance

“Traditional” Retention Decision Criteria

“Traditional” approach considers various factors that impact retention

- Financial measures
- Corporate culture/management’s risk tolerance
- Corporate structure
- Insurance market conditions
- Benchmarking

Financial Measures

- Consider absolute values and trends
- “Guidelines” provide little value
- Potential metrics to review
 - Net income
 - Earnings per share
 - Return on average equity
 - Average book value per share

To go forward, first step back

Decision, Inc. – Key Financial Measures

Financial Measures	2012	2011	2010	2009	2008
Net Income (\$Millions)	\$800	\$750	\$690	\$650	\$700
Earnings Per Share	\$2.00	\$1.90	\$1.80	\$1.65	\$1.70
Return on Average Equity	11.0%	10.0%	9.5%	10.0%	9.5%
Average Book Value Per Share	\$20	\$18	\$17	\$16	\$18

How would a larger retention impact income growth?

Assume one limits claims and a net income growth target of 5% to 7%; for simplicity ignore change in insurance costs

	Net Income Growth			
	2012	2011	2010	2009
Actual	6.7%	8.7%	6.2%	-7.1%
\$2M Retention	6.4%	8.4%	5.8%	-7.4%
\$5M Retention	6.0%	8.0%	5.4%	-7.9%
\$10M Retention	5.3%	7.2%	4.6%	-8.6%

Even with a \$10 million retention, Decision, Inc. would generally have made its targets.

What would be the impact on earnings per share with the same assumptions? (one limits claims and a target of 5% to 7%)

	Earnings Per Share Growth			
	2012	2011	2010	2009
Actual	5.3%	5.6%	9.1%	-2.9%
\$2M Retention	5.0%	5.3%	8.8%	-3.2%
\$5M Retention	4.6%	4.9%	8.3%	-3.7%
\$10M Retention	3.9%	4.1%	7.5%	-4.4%

The most noticeable impact is in a year where target was marginally met.

Corporate culture impacts the retention decision

- Awareness of the trade-off between retention and expense
- Sensitivity to short- vs. long-term financial goals
- Appreciation of risk profile

Corporate structure also impacts the decision

- Single vs. multiple operating companies
- Alignment of operating vs. corporate goals
- Ownership/use of captive
- Publicly vs. privately held
- Debt levels

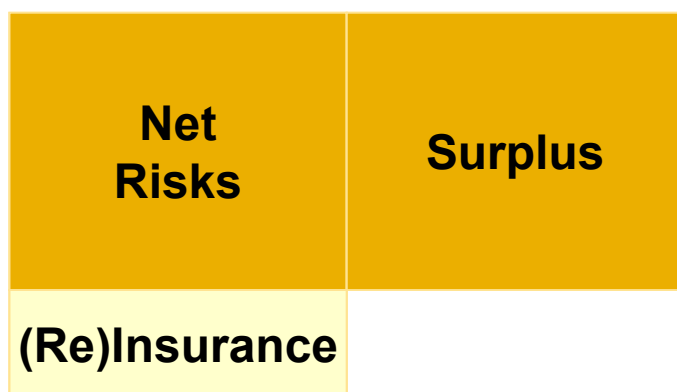
Market Conditions

- Impact varies
 - By line
 - By exposure
 - Benchmarking with peer companies

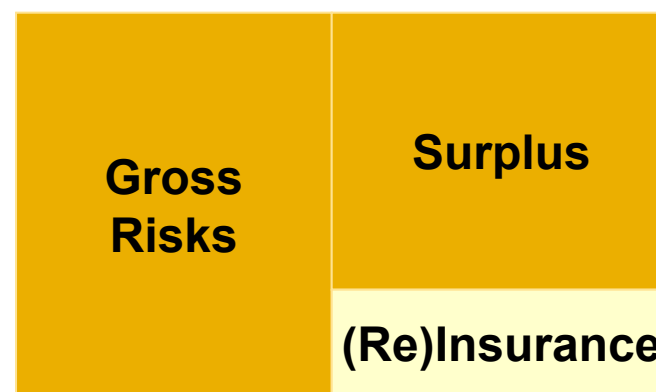
Variability Capital Approach

Variability Capital approach treats insurance as a form of capital used to manage gross risk

Conventional framework (P&L focus)

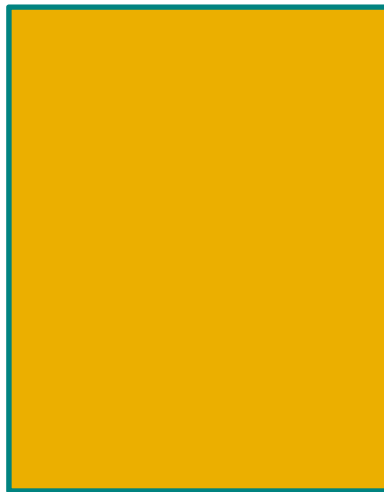


Variability Capital framework (Balance Sheet focus)

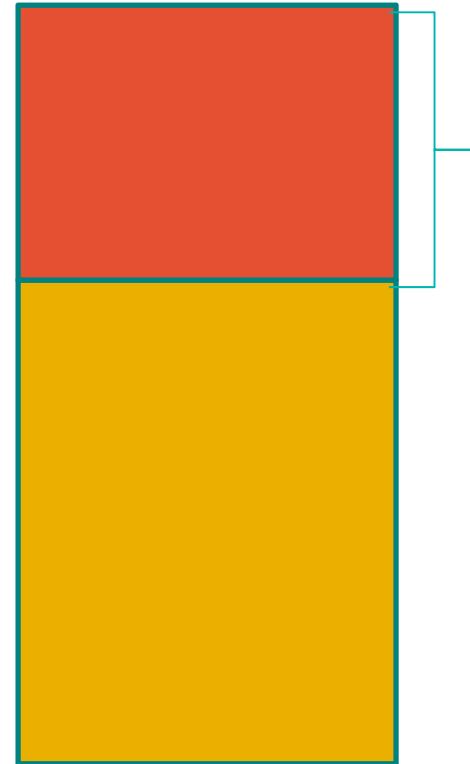


How much contingent capital (i.e., insurance) do I need?
At what level? What cost?

When Decision, Inc. retains risk, capital is needed to support the volatility in the retained losses



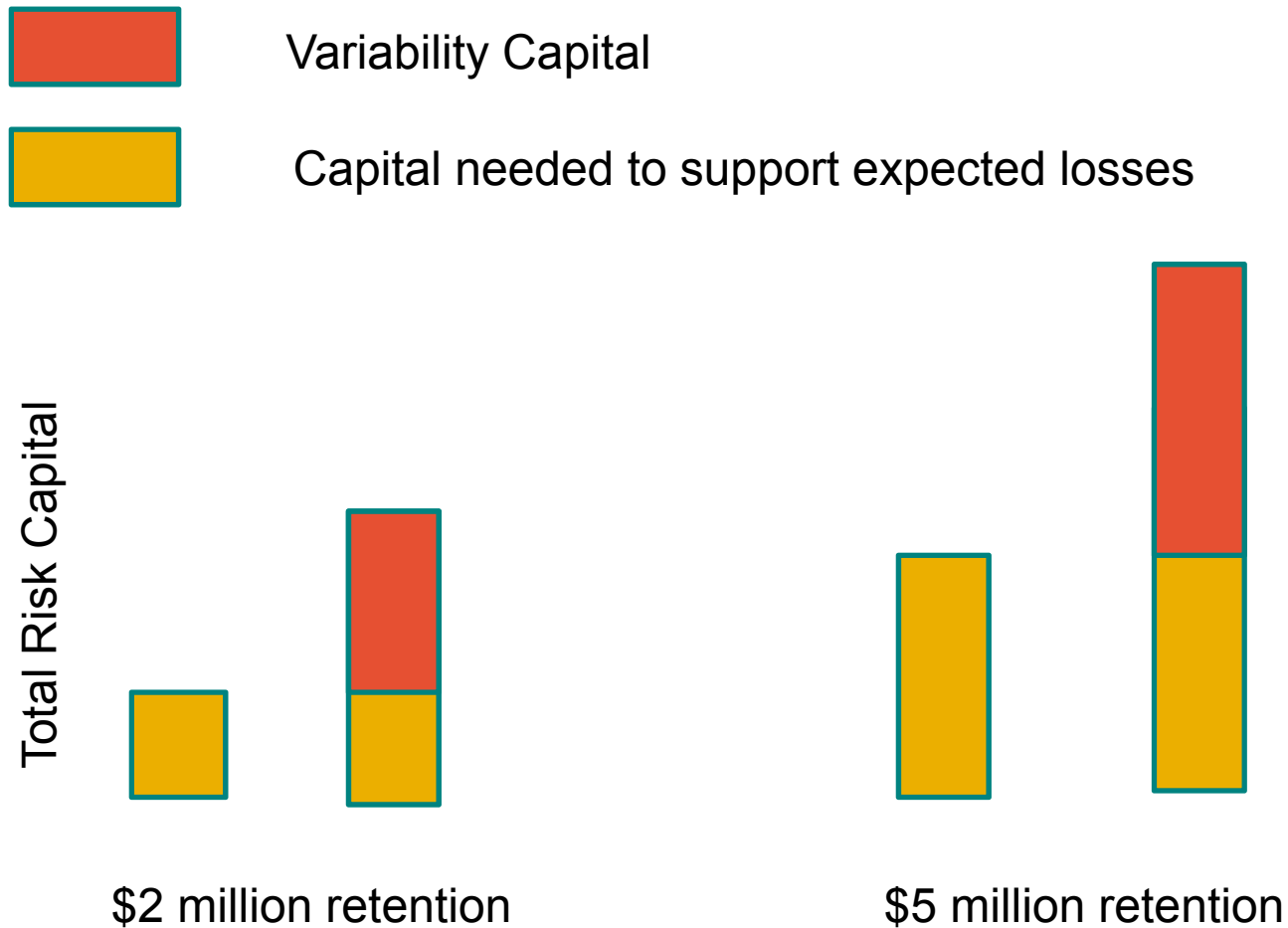
Capital to support expected losses



Variability
Capital =
capital
needed to
support
volatility

Capital to support expected losses and volatility in expected losses

As Decision, Inc.'s retention level increases, the amount of capital needed to support retained losses increases



The Change in the Cost of Variability Capital

- It is the change in the cost of this increasing amount of capital that is the real cost to Decision, Inc. for retaining additional risk.
- Measuring the change (increase) in the cost of risk capital and then comparing it to the difference (reduction) in the amount of premium the insurance market is charging for assuming less risk provides an improved framework for the retain/transfer decision process.
- Under such a scenario, the retention/transfer decision measured as a cost of capital can be compared to Decision Inc.'s other capital opportunities.

How do you calculate Variability Capital?

- Create loss model
 - Frequency distributions
 - Severity distributions
- Run simulations
 - Simulate complex variations in insurance structures (i.e., exposure, risk retention/transfer layers and costs, and insurance limits)
- Options for distributions
 - Empirical
 - Fitted (i.e., lognormal, Pareto)
 - Benchmark
- Traps to avoid
 - the tail
 - the maximum loss
 - the impact of averages
 - the number of simulations
 - ground up vs. excess

An Example

- Calculate difference in expected discounted losses between the two retentions
- Calculate difference in notional capital between the two retentions
- Multiply cost of capital by difference in notional capital
- Sum the first and third steps to get incremental cost of increasing retention
- Compare with premium quote

Putting words into numbers

- Current Retention: \$2 million
- Cost of Capital: 5%
- Risk Tolerance: 99% confidence

Retention	Discounted Expected Losses (paid in capital)	Estimated Loss (99% Confidence Level)	Variability Capital (difference)
\$2 Million	\$7.0 Million	\$18.0 Million	\$11.0 Million
\$5 Million	\$10.0 Million	\$29.0 Million	\$19.0 Million
Difference	\$3.0 Million	\$11.0 Million	\$8.0 Million (change in variability capital)
Cost of Capital	\$3.0 Million		\$0.4 Million (= 0.05 x \$8.0 Million)

- “Risk Capital Cost” of increased retention - \$3.4 Million
- At a \$10 Million retention, the “cost” of changing retention is \$4.9 million

Results are sensitive to assumptions

Confidence level	Cost of capital
<ul style="list-style-type: none">• Will vary significantly by coverage line and company's exposure profile. For Decision, Inc., the impact is +/- 15% at a \$5 million retention• Generally sensitivity increases as you move up the retention "curve"	<ul style="list-style-type: none">• Similar sensitivity as confidence level decision; for Decision, Inc., at a 99% confidence level and a \$5 million retention, a one point increase increases the "cost" of variability capital 3%

Combining the Two Approaches

Traditional Approach – what retention is indicated for Decision, Inc.?

- Financial Measures \$5 to \$10 Million
- Corporate Culture \$2 to \$ 5 Million
- Corporate Structure \$5 to \$10 Million
- Insurance Market Conditions ?
- Benchmarking \$2 to \$5 Million

“Variability” Capital – what retention is indicated for Decision, Inc.?

Retention/Risk Tolerance	Cost of Capital 4%	Cost of Capital 5%	Cost of Capital 6%
\$5 M/ 99.0%	\$3.32 M	\$3.40 M	\$3.48 M
\$5 M/ 99.5%	\$3.56 M	\$3.70 M	\$3.84 M
\$10 M/ 99.0%	\$4.78 M	\$4.90 M	\$5.02 M
\$10 M/ 99.5%	\$5.15 M	\$5.40 M	\$5.65 M

- Market Quotes

- Premium reduction of \$3.5 million to increase retention to \$5 million
- Premium reduction of \$4.5 million to increase retention to \$10 million

Combining Approaches – what to retain?

- Traditional – \$2 – \$10 million range, centering on \$5 million
- Variability capital – \$5 million
- What to choose?