Enterprise Risk Management – Steering Your Board :Guidance and Buy-in

CAS Spring Meeting
May 2020

Enterprise Risk Management – Steering Your Board :Guidance and Buy-in

Part 1:
Board Roles in ERM

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ERM Advisory
Willis Re

Part 2:
An Approach to Steer and Engage:

Robert Wolf
Chief Actuary
Stonetrust

Board Roles in ERM

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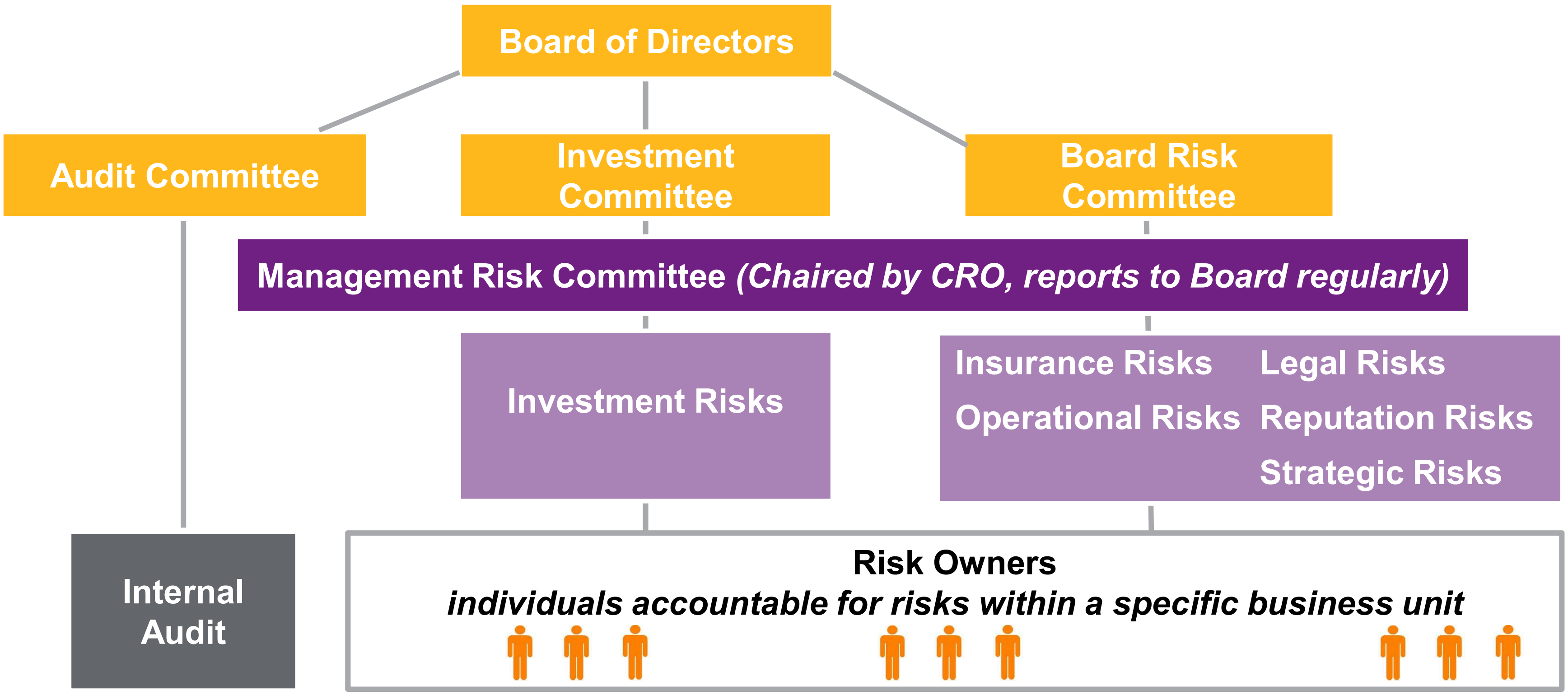
Tone from the Top

Five Key Management Roles

Board's Position in the ERM Org. Chart



ERM & the Board

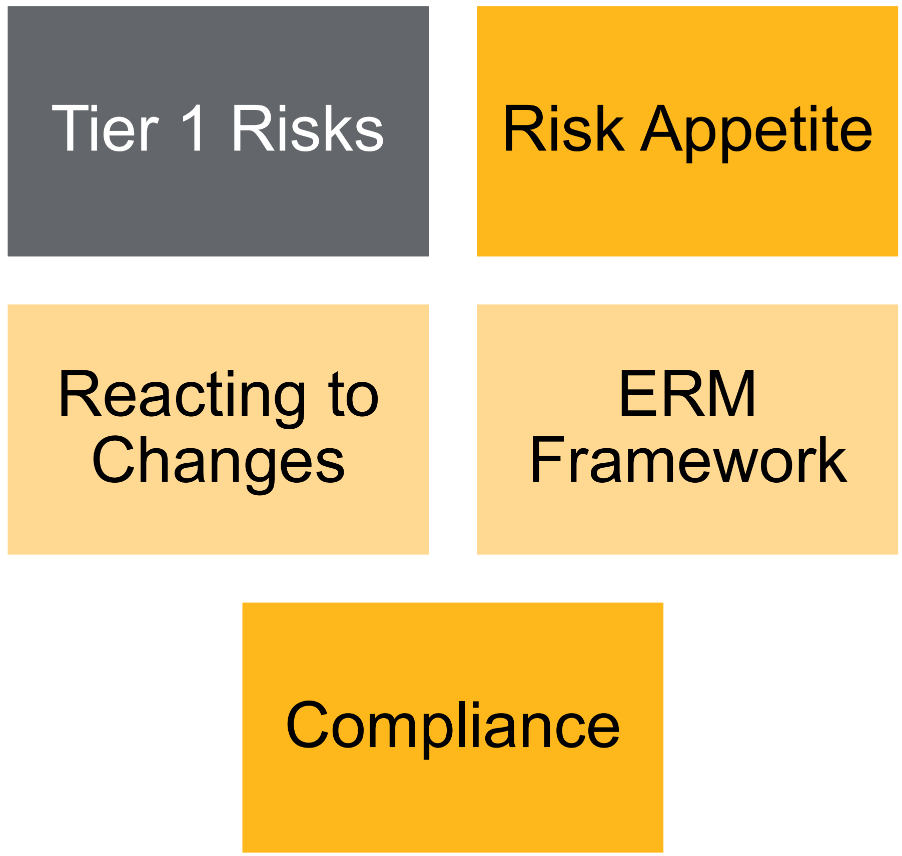
1. Five Board Roles
2. Key Considerations
3. Board Training

Today's Speakers

- Dave Ingram

Board Roles in ERM

Five roles



1. Discuss risk and risk management

Tier 1

- ***Top 5 risks:*** Board focuses on these
  - And makes sure management is looking after the rest

Tier 2

- ***Top 10-15 risks:*** senior management focuses on these
  - And makes sure risk owners are looking after the rest

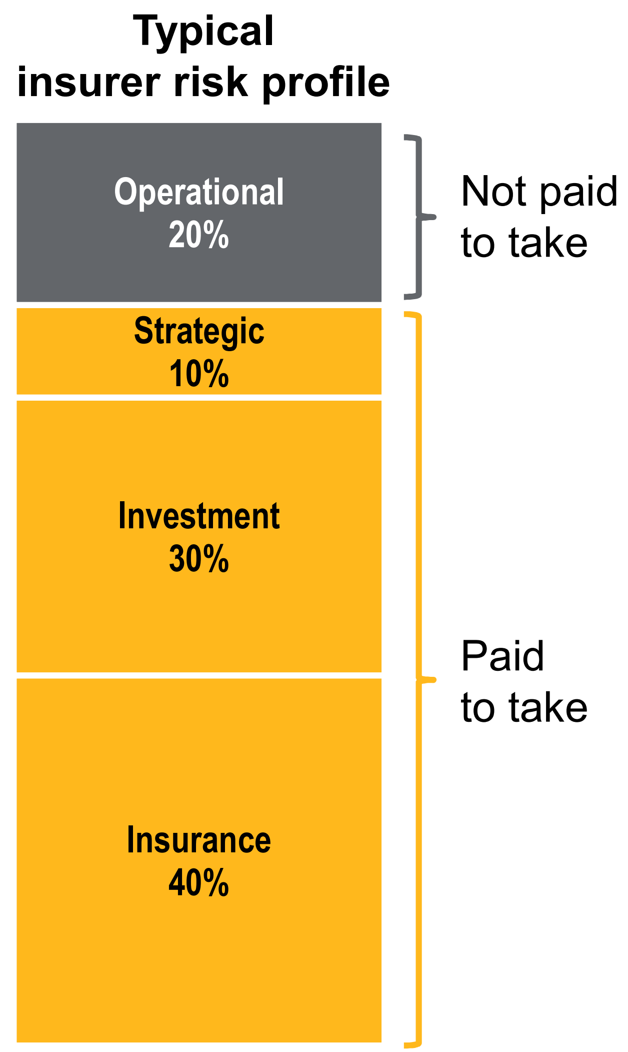
Tier 3

- No more than ***20 – 30 risks total*** on the register
  - Extremely lengthy risk registers can reduce perceived value and actual quality of risk management

Category	Risk examples
Insurance	Underwriting / pricing Reserving Specific LOB
Investment	Credit risk Interest rates Equity market Liquidity
Strategic	Competition Legislative and regulatory Distribution Customer preferences Organizational change
Operational	Compliance Business interruption IT management Cyber security Fraud Human resources Expenses Reputational risk

2. Approve plans for risk exposure

- Risk appetites, limits and tolerances for each risk category and sub-category
  - Overall risk direction
    - Grow risk faster than capital
    - Grow capital faster than risk or
    - Maintain balance of risk and capital
- Risk profile
  - How risk profile changed last year
  - How changes to environment may change risk profile
  - Plans for each major risk: accept, avoid, exploit, transfer, or mitigate
  - How these plans will change the risk profile this year



3. Consultations on changes to major risks and proposed response

External changes

For example:

- Economy
- Legislative / regulatory
- Technological changes / cyber risk
- Reinsurance counterparty failures

Internal changes

For example:

- Strategy
- Distribution
- Organizational change
- Underwriting initiatives

Determine optimal response

Revisit tolerance

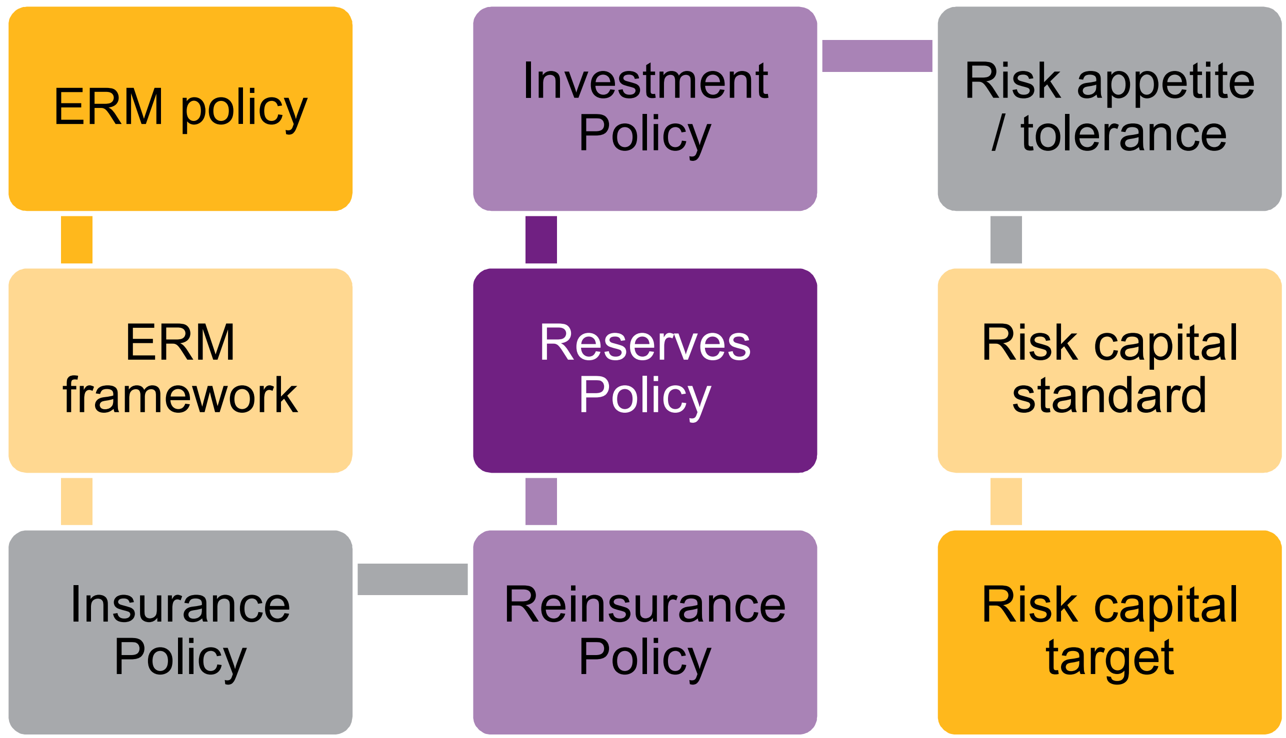
Risk mitigation

Adjust pricing

Claims procedures

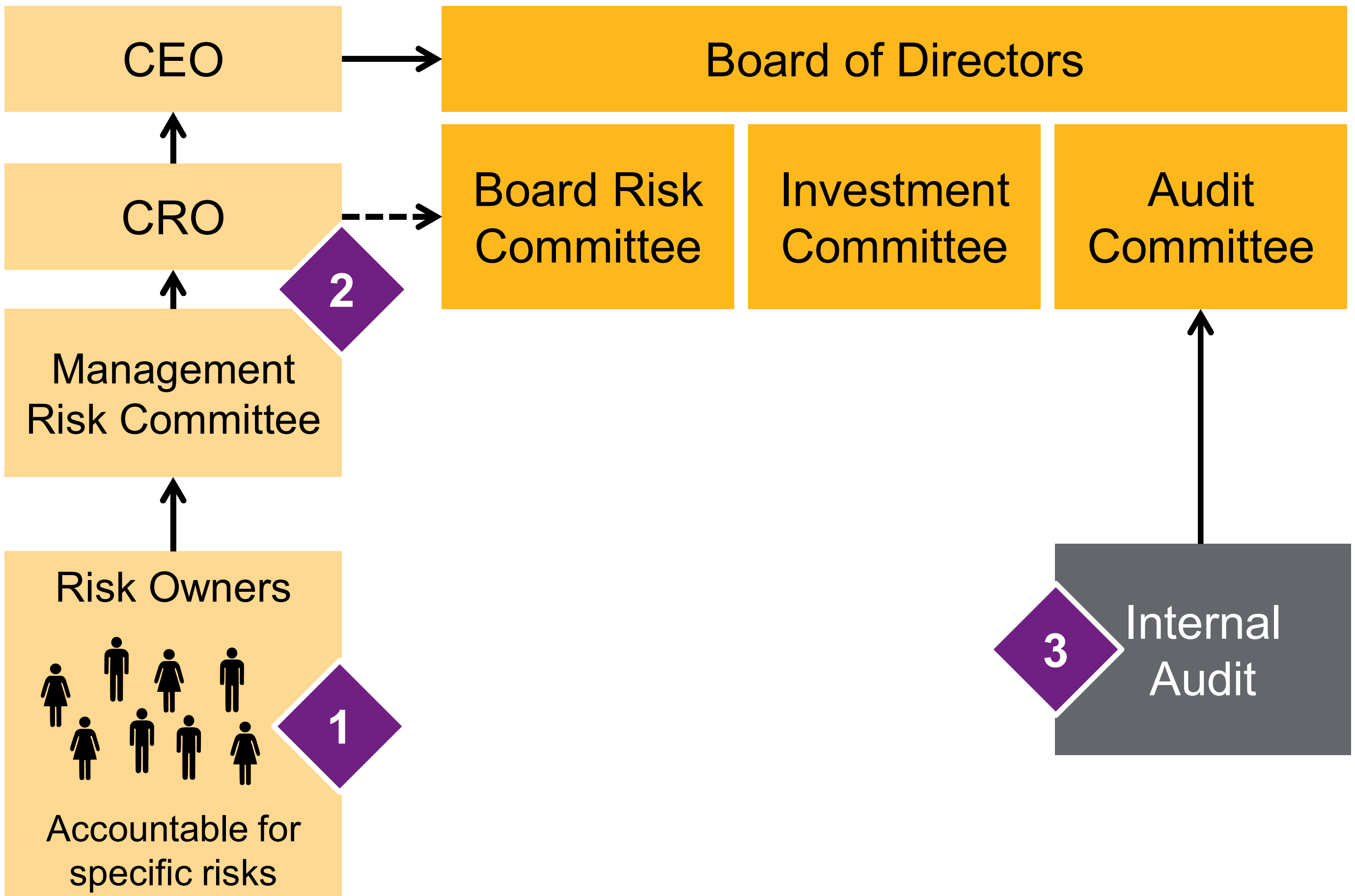
Modify reinsurance

4. Approve policies and standards



5. Compliance oversight

Illustrative approach: “three lines of defense”



Three Levels of ERM

Board roles at each level

Board Roles Vary

Individual Risk Management

Tier 1 Risks	Attention to exposure to and management of these risks. Emerging Risk input.
Risk Appetite	Risk Limits for Tier 1 Risks.
Reacting to Changes	Sales, risk profile of sales, risk environment.
ERM Framework	Reliable and Flexible risk management.
Compliance	Risk acceptance, risk mitigation and risk limit enforcement.

Board Roles Vary

Aggregate Risk Management	
Tier 1 Risks	Tier 1 Risks will make up most of aggregate risk exposure.
Risk Appetite	Aggregate Risk Appetite, Tolerance and Target.
Reacting to Changes	Shifting correlations of risks. Impact on Aggregate risk total.
ERM Framework	Approach to calculating Aggregate Risk.
Compliance	Risk Tolerance. Risk Capital determination.

Board Roles Vary

Risk/Reward Management	
Tier 1 Risks	Positive and negative variances are now part of ERM discussion.
Risk Appetite	Return for Risk expectation part of Risk Appetite.
Reacting to Changes	Changes in attainable profit margins.
ERM Framework	Approach to risk adjusting profits
Compliance	Watch for Out-of-the-Money Put.

Summary: management and Board ERM responsibilities

Management ERM Responsibilities

Activity	Timeframe
Monitor identified / emerging risks and ERM	Ongoing
Develop plans for targeted and maximum risk exposures	Annual
Monitor changes to major risks and propose responses	Ongoing
Develop / update ERM policies, standards & limits	Annual
Comply with ERM policies, standards and limits	Ongoing
Engage and **train** staff in ERM	Ongoing

Summary: management and Board ERM responsibilities

Board ERM Responsibilities

Activity	Timeframe
Regularly **discuss** identified / emerging risks and ERM	Annual / twice per year
Approve plans for targeted and maximum risk exposures	Annual
Consultations regarding changes to major risks and proposed response	Every meeting and/or as needed
Approve ERM policies and standards	Annual
Oversee compliance with ERM policies, standards and limits	Every meeting

Key Considerations

Diversity of Viewpoints	Board Education
Risk Culture	Chief Risk Officer

Key Considerations

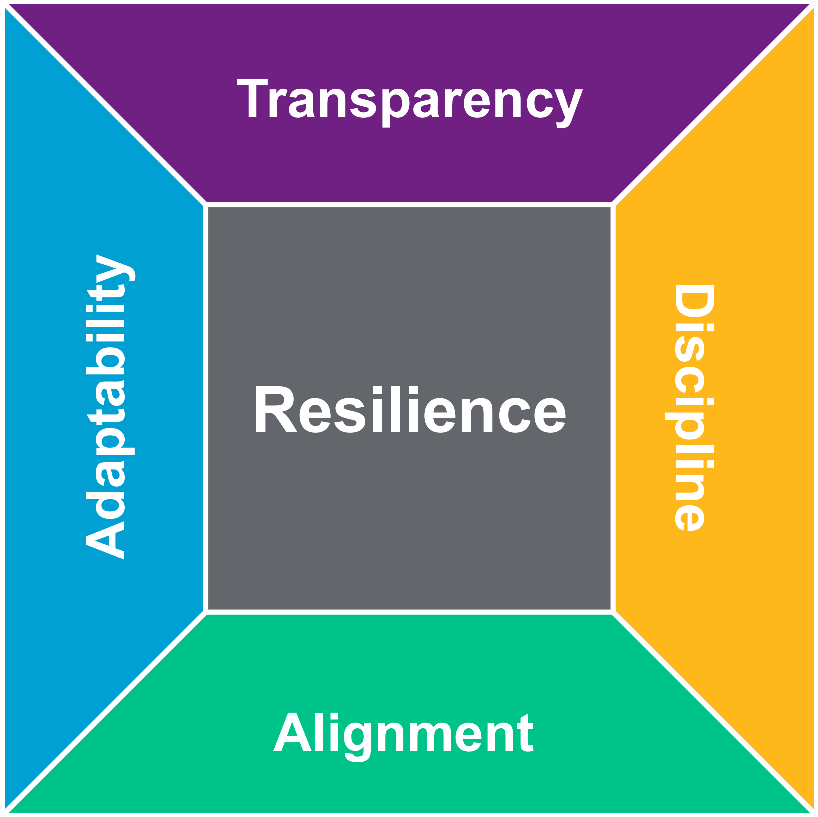
Challenge

Shareholder Stewardship

Management Compensation

Conclusions

You want the Company to Get the Benefits of ERM



Effective ERM

- ERM is the link between operational management of risk and longer-term objectives
  - **The board plays a crucial role**
- The board has a primary responsibility to make sure that the company will be able to meet its obligations
  - This is largely delegated to management
  - But the board needs to
    - Be sure that management has a plan for risk management that could show the desired result
    - And that management is actually implementing that plan responsibly

Thank You!

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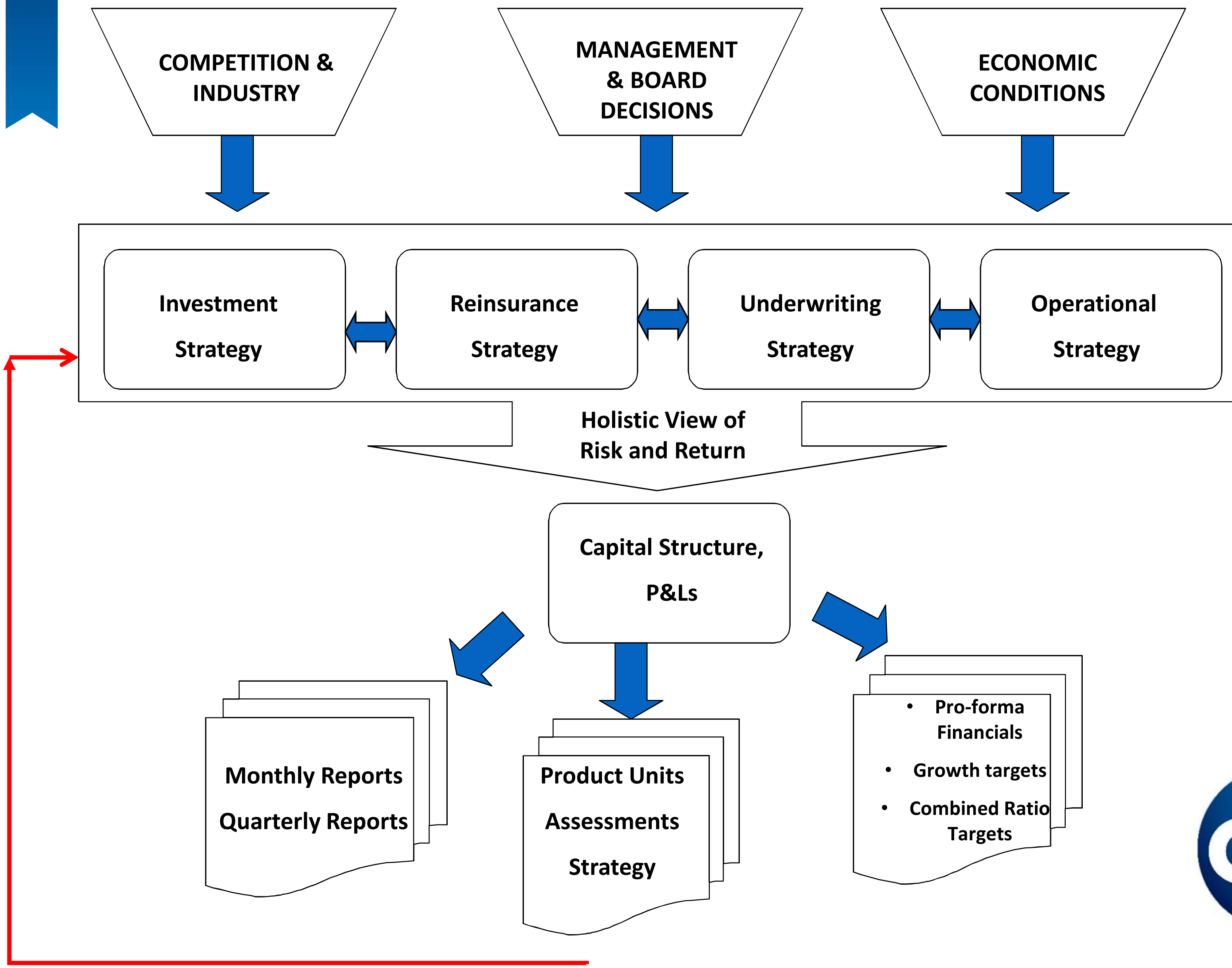
An Approach to Steer and Engage:

Robert Wolf
Stonetrust Commercial Insurance Company

No One Size Fits All

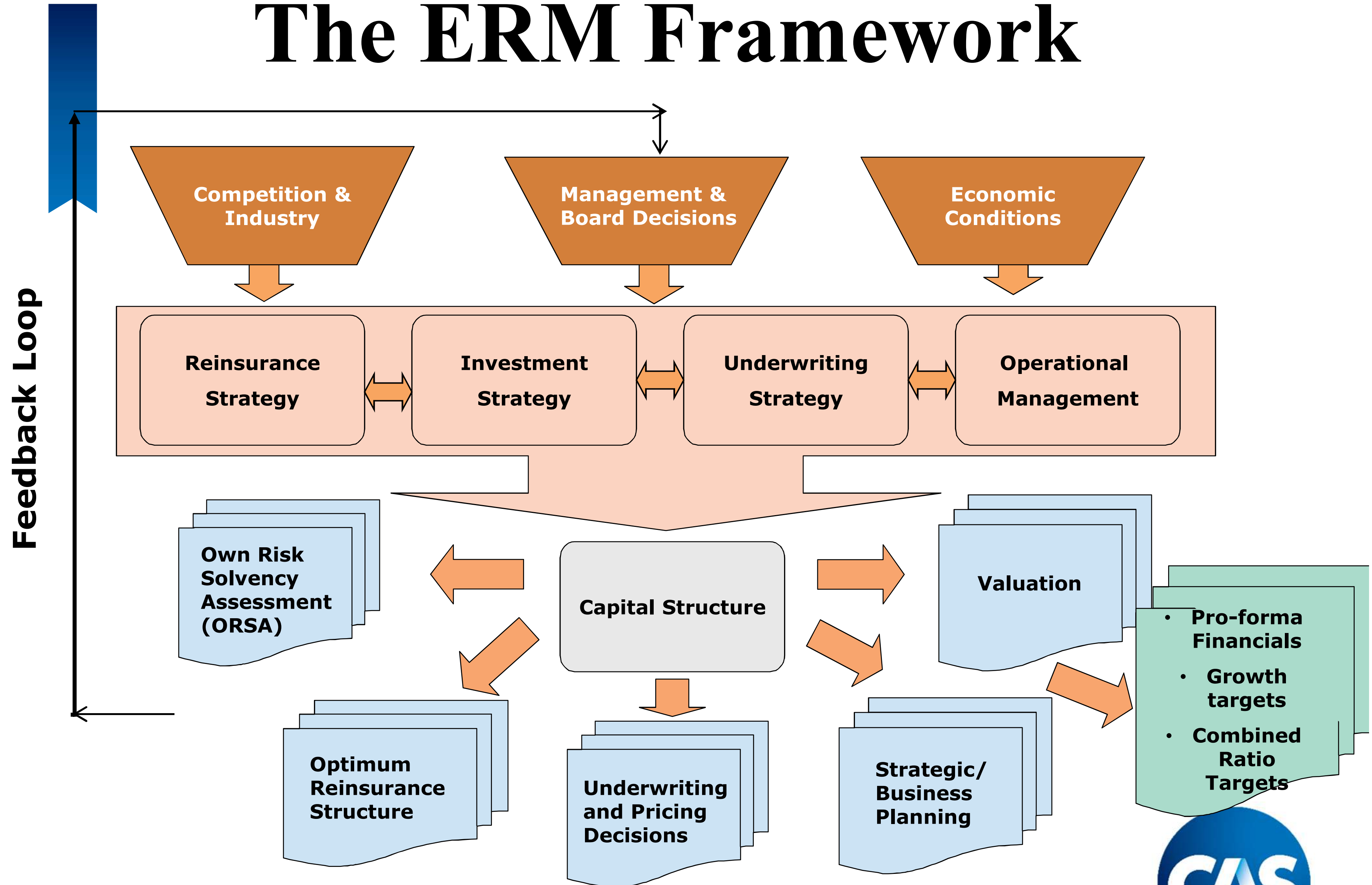
- What I am sharing is what works for me
- Need to consider the audience and experience of the Board
- Need to flexible and adaptable
- Don’t hesitate in keeping the details behind the curtain
- Be prepared to put in front of the curtain
- Keep the communications in front of the curtain to have a tone of transparent applicability, adaptability, and agility

The ERM Framework



In Front of the Curtain

The ERM Framework



Behind the Curtain

ENTERPRISE RISK & CAPITAL MANAGEMENT GOVERNANCE

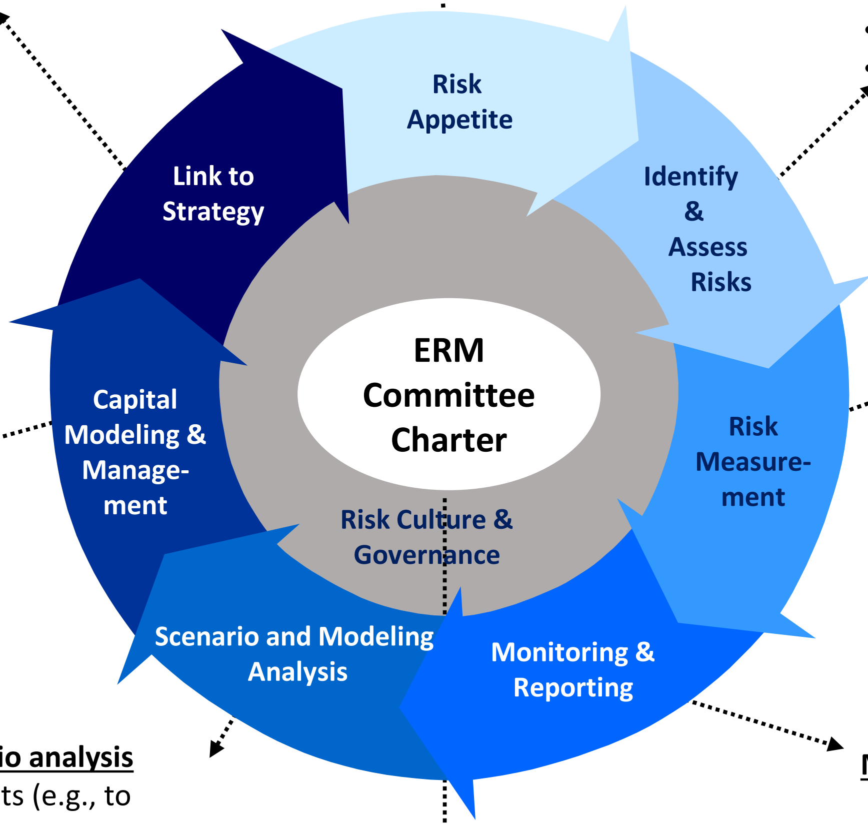
3 -5 Year Financial Pro-forma Forecasts Strategic Business Plans

	Financial Targets/Goals ($000s) 2019	2020	2021
Balance Sheet			
Cash and Investments	158,034	165,011	175,177
Total Assets	179,584	187,513	199,064
Loss and LAE Reserves	71,655	70,107	70,308
Unearned Premium Reserves	18,168	18,401	19,518
Total Liabilities	100,924	99,447	100,928
Capital and Surplus	80,137	86,584	93,578
Returns	8%	8%	8%
Income Statement			
Gross Written Premium	49,853	53,753	58,760
Net Written Premium	47,609	51,334	56,116
Net Earned Premium	47,376	50,217	54,681
Loss and Loss Adjustment Expenses	(28,075)	(29,676)	(32,509)
Underwriting Expenses	(18,841)	(19,884)	(21,155)
Net Underwriting Gain /Loss	459	657	1,017
Operating Ratios			
Loss and LAE Ratio	59.3	59.1	59.5
Expense Ratio	39.6	38.7	37.7
Combined Ratio	98.8	97.8	97.2
BCAR Target	40	50	60
Target Best Rating	B++ (OP)	B++ (OP)	A- (OS)

Establish Risk Appetite and Risk Tolerance for risk taking in pursuit of strategic objectives

Identify and assess significant key risks

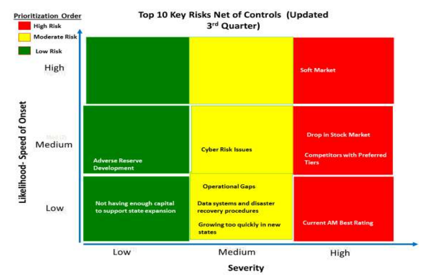
- Discussion
- Pairwise Risk Surveys

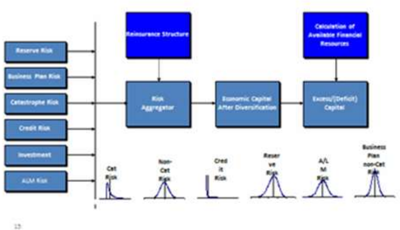


Measure risks

Risk Map

Stochastic Modeling





- **Stress testing and scenario analysis**
- Assessing potential impacts (e.g., to capital, earnings, etc.)
- Economic Capital Modeling
- Assessing Impacts to BCAR, NAIC RBC, etc.

Sound Risk Governance,

- Risk Awareness and Transparency
- ERM Report to Board,
- Advisement to Audit Committee, Investment Committee, Compliance Committee

Management Reports

Risk Register

Total Risk Exposure

Leverage Ratios

Own View- Economic Capital Modeling

3 -Year Forecasts

BCAR Score

NAIC RBC Score

ERM Processes and Governance

Board of Directors

Audit Committee

Investment Committee

Enterprise Risk Management Steering Committee ("ERMC")

Compliance Committee

The Terms of Reference of the ERMC is defined below:

Ultimate Goal: Increasing the Company's short and long-term value to its stakeholders.

Ownership:

- Economic Capital Management
- Risk Registers, Key Risk Indicators, and Risk Maps

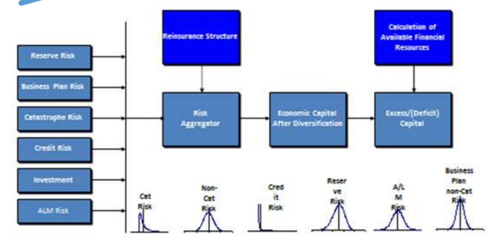
Accountabilities:

- Identifying/Quantifying/Integrating "Risks and Opportunities" underlying the ERM Policies of the Organization
- Assessing and Managing the Capital Adequacy of the Company and "Own Risk Solvency Assessment"
- Developing the Company's own internal economic Risk Based Capital Model, used for discussions and communication with regulators and rating agencies
- Assessing and Monitoring Risk Mitigation and Risk Management Controls of the Company
- Developing and Assessing Key Risk indicators (KRI) as a Function of Key Performance Indicators (KPI)
- Assessing New Initiatives and Strategies within a Risk/Reward Framework
- Assessing the Opportunities and Risks Associated with the introduction of new product lines and/or territories outside the scope of the Company's Current Business

New opportunities Risk/reward assessments

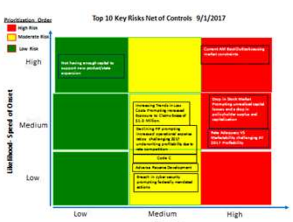
Task/Project	Role (s) Leading	Rating of Readiness / Status Green Yellow Red	Next Action, Comment(s), or Timing
Market Research and General Feasibility Assessment of the State- Criteria- Is the state economic environment favorable and consistent to favorable pursuit of opportunity?	**Chief Actuary** **Underwriting**		**New State of Domicile, unemployment low, economic growth in health and education sectors, claim consciousness low**
Underwriting Expertise- Do we have the capacity, expertise, and assigned role(s) to engage/lead launch?	**Underwriting**		
Producer Connection- there is at least one market entry or the feasibility of attaining at least one market entry?	**Underwriting**		
IT and Systems are in Place to support new Product/new State- Is IT prepared for execution?	**IT**		
Rates Analyzed, Filed and Approved. Rating Algorithms in Place	**Chief Actuary**		**Base Rates Established via corresponding LCM, Next Action- File rates this week. State is" File&Use"**
Forms Filed and Approved	**Underwriting**		
3-5 Year Financial Forecast and Strategy: Is strategy reasonable to justify supporting venture? - Is there a reasonable forecast to support being in a profitable position within 24 months of launch?	**Chief Actuary** **Finance**		
Capital Management and Support - Do we Have sufficient capital or can	**Chief Actuary** **Enterprise Risk**		

Economic Capital Management



Risk Map

Risk Identification and Ranking



Managing Risk Appetite Relative to Risk Tolerance

- Goals
  - A target combined ratio of 102% or less
  - A target return on equity of 10 percent
  - Achieving and maintaining an A- or better rating from A.M Best
- Risk Appetite
  - Retention of net catastrophic risk less than or equal to its peers
  - Avoidance of excessive underwriting volatility and operational risk
- Risk Tolerance
  - Quarterly impact from underwriting results not greater than 10 percent of forecasted earnings
  - Net 1 in 100 probable maximum surplus loss limited to 10 percent of capital
  - Net 1 in 250 probable maximum surplus loss limited to 15 percent of capital
  - A reinsurance retention limit that is 1.5- 3.0% of the company's statutory surplus

Risk Register

Risk Mitigation

Risk	Descriptor	Consequences	Controls/Next Actions	Category
Reputational Risk	Current AM Best Outlook	Holding Company Back as Agents not providing the Company to underwrite the best risks	• Communication Plan with Agents • Meet with Best's on 9/20/17 with quarterly communications therafter	High
Competition Risk	Declining Policies in Force (PIF)	Increased operational fixed expense ratios holding company back in achieving target profits in 2017	• Expense Analysis and Benchmarking • Develop 3-year Strategic Plan	High
Competition Risk	Rate Inadequacy Vs. Marketability	Threat to 2017 underwriting Profitability	• Develop Actuarial/Underwriting Strategy for MS,LA,AR	High
Investment Risk	A sisgnificant srop in stock market can drop policyholder surplus significantly	Risking further surplus , increasing risk for a downgrade and not removing the "negative outlook"	• Develop/Recommend a capital budgeting contingency plan • ERMC Develop/Recommend ALM Strategy for Investment Committee	High
Cyber Risk	Breach in cyber security	Prompting federally mandated actions AND LAWSUITS	• IT Development of Cyber Security Plan • Finance Research Cyber Insurance Gap with our brokers	Medium
Code C	Gap in Compliance in our policy forms and rules	Risk of fines and reputation	• Include Terrorism and Natural Catastrophe Policy Forms • Sukhy/Bob Identify the Rating Algortihm Gaps	Medium
Exposure risk	Reinsurance Attachment Point exceeding ERMC recommended risk appetite	Exposure to $2 Million claims increases uncertainty in pricing and reserving, threatening profitability	• Perform cost/benefit analysis at various retentions • Reconsider Exploring Alternative reinsurance structure considering Aggregate excess deductible	*Medium*
Exposure risk	Adverse loss development Caused by increased attachment point and fierce competition	Adverse Development of loss reserves further threatening AM Best Rating	• Quarterly Reserves • Monthly Diagnostic Monitors in Place • Large Claim Assessment Integration into overall reserve analysis	Low

Risk, Return, and the Cost of Supplied Funds

Supplied Funds

Let K = Policyholder Supplied Funds = Premiums Less Loss Payments

Let S = Shareholder Supplied Funds= Capital to Support Insurance Operations

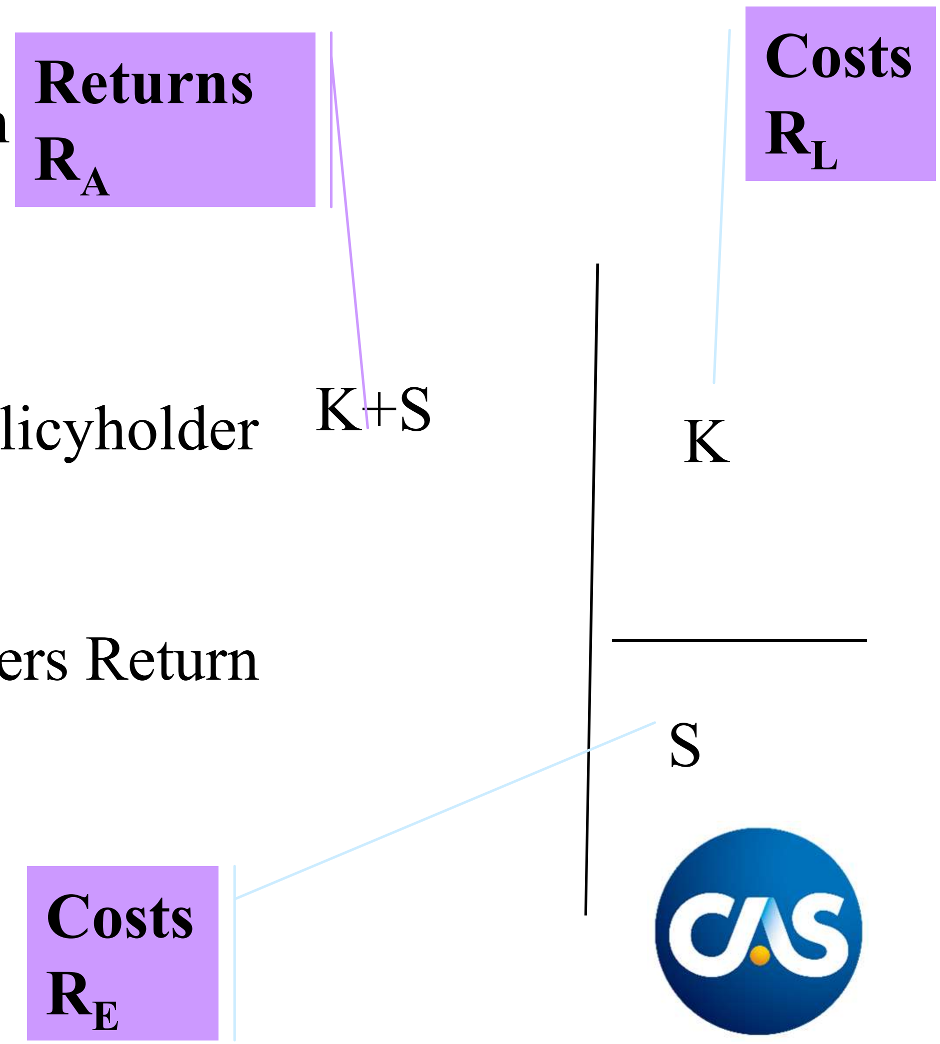
Assets	Liabilities
K+S	K
	Capital
	S

Marginal Balance Sheet Impact

Let R_A = Return on Assets which supplied by both policyholders and shareholders.

R_L = Cost of Float. Investing policyholder Supplied funds until needed.

R_E = Cost of Capital. Shareholders Return on their investment

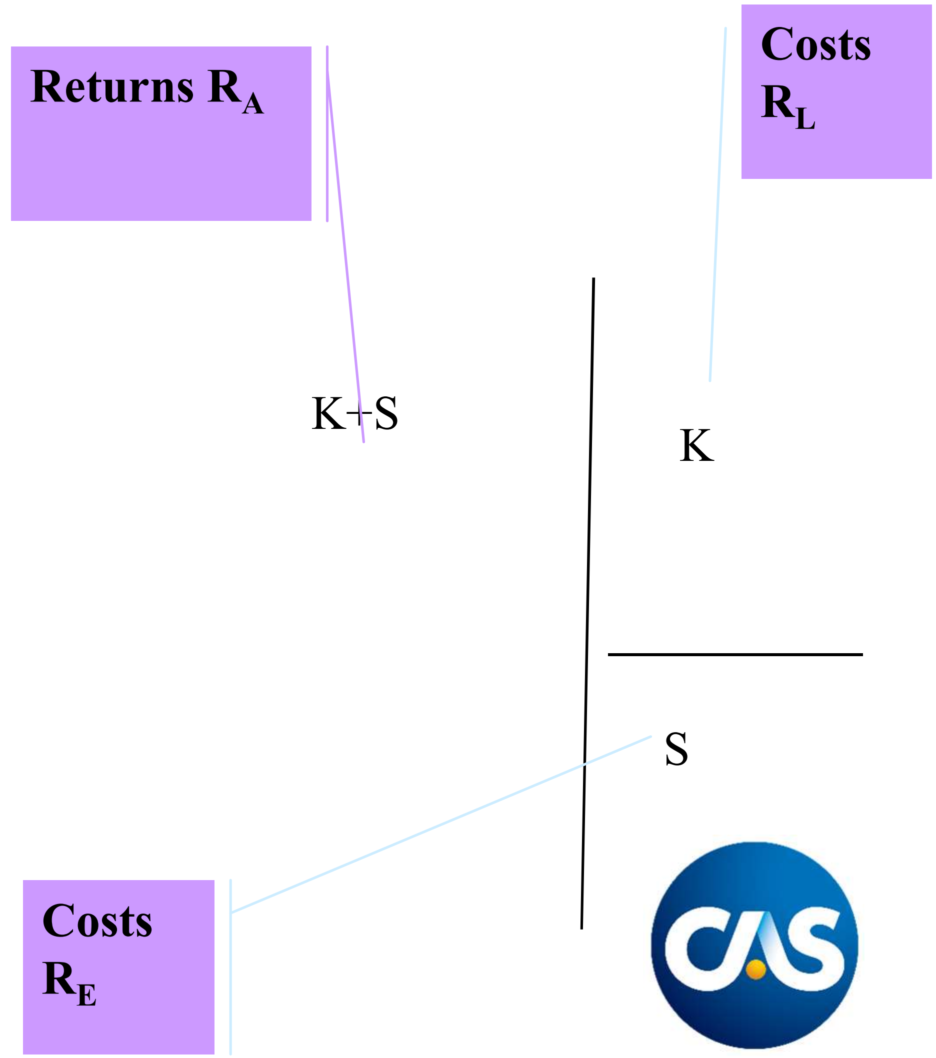


Marginal Balance Sheet Impact

Let R_A = Return on Assets supplied by both policyholders and shareholders.

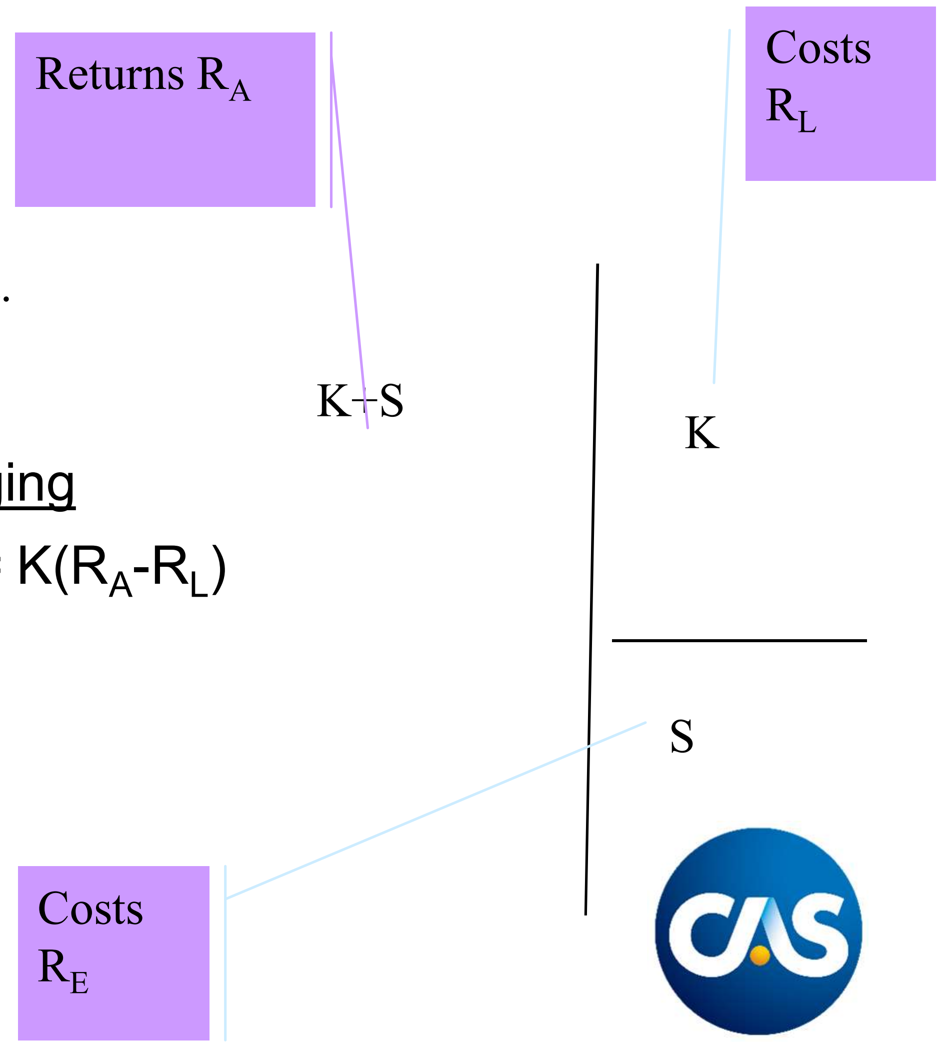
R_L = Cost of Debt. Borrowing From Policyholders. Borrowing PHSF

R_E = Cost of Capital. Using SHSF



Marginal Balance Sheet Impact

This relationship develops into the generally accepted view that an insurance company is a tax disadvantaged leveraged trust.



Levered Trust	Re-Arranging
$(K+S)R_A = KR_L + SR_E$	$S(R_E - R_A) = K(R_A - R_L)$

So $R_L = R_A - (S/K)(R_E - R_A)$

Let R_u = Underwriting Profit Margin

Let P = Premium

$R_U = -K R_L/P$

Target CR= $1 - R_U = 1 + K R_L/P$

Balancing Equilibrium

Financial Markets

$$S\,(R_e - R_A) \quad = \quad K(R_A - R_L)$$

Creating Value

Product Markets

Product Pricing

Positive Economic Returns on Underwriting if $R_A > R_L$
$(R_u > -(K/P)\, R_A)$

Target CR= $1 - R_U < 1 + K\, R_L/P$

Combined Ratio $< 1 + K\, R_L/P$

Growth Considerations

- High growth rate means more risk
  - Means more ROE should be demanded (increase cost of capital R_e)
  - Or more capital (S) is required
- Reinvested Capital = Required Ending Capital- Beginning Capital
- Reinvestment Rate= Reinvested capital/ Net Income
- Growth Rate = Reinvestment Rate x ROE

Caution on Growth Assumptions as they are very sensitive to valuation

We use

Valuation = Book Value$_0$+ $\sum_{t=1}^{\infty} E[Abnormal\ Earningst]\frac{1}{(1+Re)^t}$

With a 3 year projection period + Terminal Value

$$\frac{Price}{Book}Value = 1 + \frac{Projected\ Constant\ ROE\ - Re}{R_e - Growth\ Rate}$$

$$\frac{Price}{Book}Value = 1 + \frac{Projected\ Constant\ ROE - R}{R_e - Grow\ \ \ Rate} \text{ x } (1\text{-}[\ \frac{(1+growth\ rate)}{1+Re}]^{n}$$

Embed/Integrate/Adapt Discussions: strategic decision-making, pricing & underwriting

Consistent Treatment

Economic Capital Adequacy & Productivity

Economic Value

- Provide a valuable input to Net economic value added calculations
- Permit distinct treatment of excess capital

Pricing

- Provides basis for capital allocation to lines of business for pricing purposes.
- Consider Cost of Capital

Capital Planning

- Assessment of capital adequacy
- Facilitates planning for future capital usage and "what if" scenario modeling of capital adequacy

Financial Reporting

- Provides basis for capital allocation to classes of business
- Enhanced investment income allocation to classes of business

Asset/Liability Management

- Supports evaluation of alternative asset and duration mixes using the economic capital framework

Regulatory and Compliance

- Transparent analysis of capital requirements
- Informed discussions on ORSA l
- Use Test Compliance

Asset Management Process

- Can provide input to evaluation of performance of assets and their corresponding contributions to economic value

Reserving

- Can provide input to reserve margins for the management of reserve uncertainty and confidence intervals.

Reinsurance Optimization

- Supports evaluation of alternative reinsurance purchasing strategies

The Pairwise Risk Survey- a very useful tool for me

Involve the Board in these surveys

In Front of the Curtain

Structure the Presentation in Three Themes of Capital Management

Capital Adequacy	▪ To have sufficient economic capital for its ongoing operations in the interest of gaining the necessary confidence in the marketplace, its policyholders, its investors, and its regulatory supervisors
Capital Productivity	▪ In consideration of its inherent risks, to yield a rate of return deemed a reasonable and acceptable reward given its risk appetite by the providers of its economic capital in the interest of the creation of value
Capital Protection	▪ To align its strategic objectives and 1-3 year business plans to be consistent with its risk appetite and risk tolerance

I ALWAYS FRAME IT IN THIS CONTEXT

An economic capital and RAROC framework provides the measures needed to better manage risk and return

$$\textbf{RAROC} = \frac{\textbf{Risk-Adjusted Return}}{\textbf{Economic Capital}}$$

How much am I earning on the capital that I have committed to the business to satisfy the ***shareholder*** *(policyholder)?*

CAPITAL PRODUCTIVITY

Compare RAROC with Hurdle Rate

How much capital is needed to ensure that ***policyholders*** *are paid in the event of a stress scenario?*

CAPITAL ADEQUACY

Compare Economic Capital with Available Financial Resources (AFR)

Should we grow in a Product Line/Territory ?

Let P = Return and C = Capital. Then the insurer is better off by growing a line or region et.el. if:

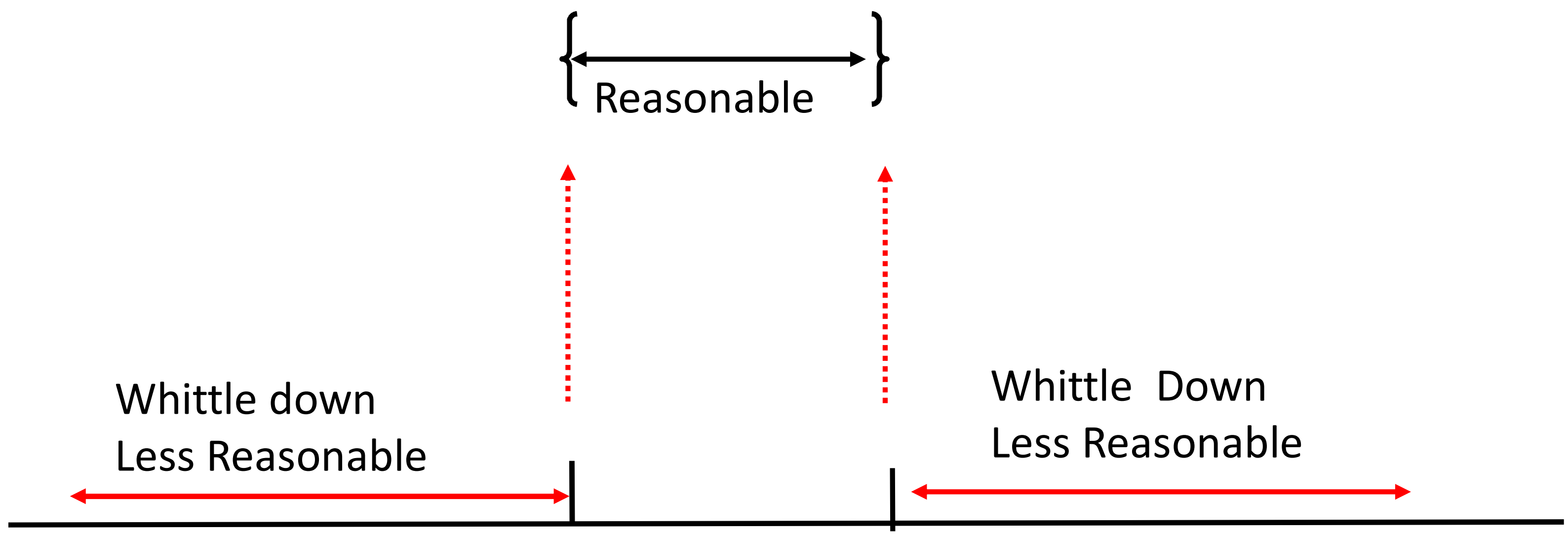
$$\boxed{\frac{P+\Delta P}{C+\Delta C} \geq \frac{P}{C}}$$

$$\Leftrightarrow \cancel{P \cdot C} + C \cdot \Delta P \geq \cancel{C \cdot P} + P \cdot \Delta C$$

$$\Leftrightarrow \frac{\Delta P}{\Delta C} \geq \frac{P}{C}$$

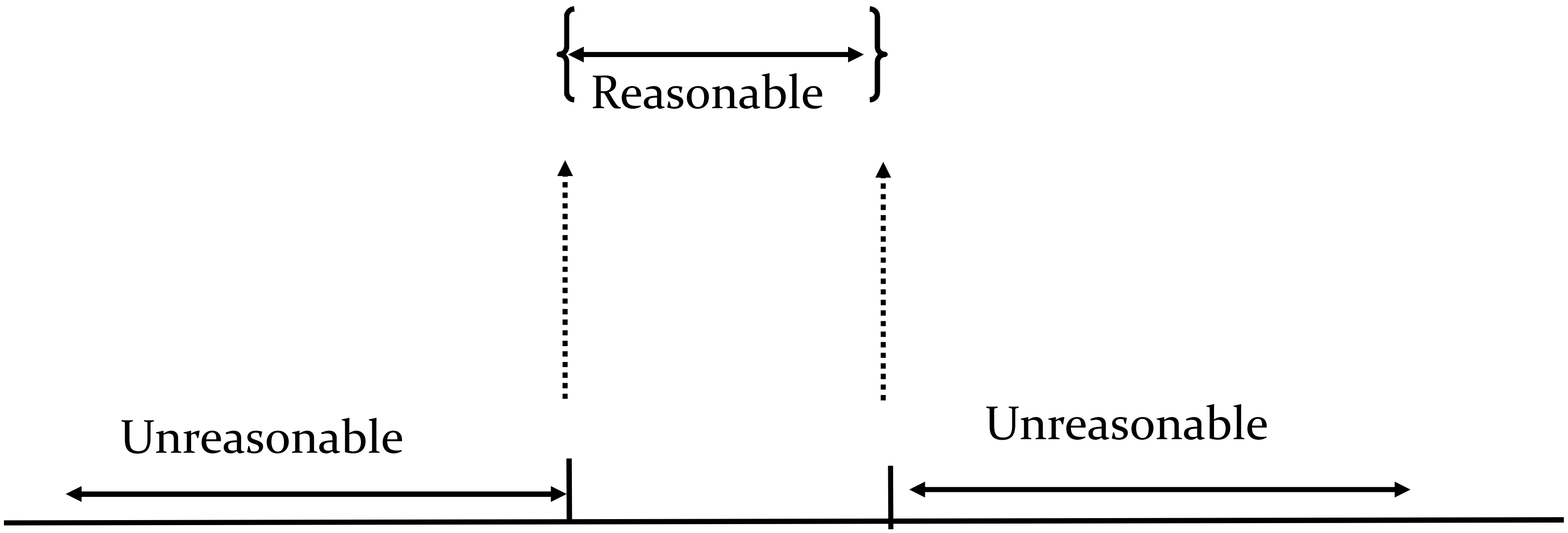
□ Marginal return on new business > return on existing business.

It always starts with Reserves What's Your Reasonable Range?

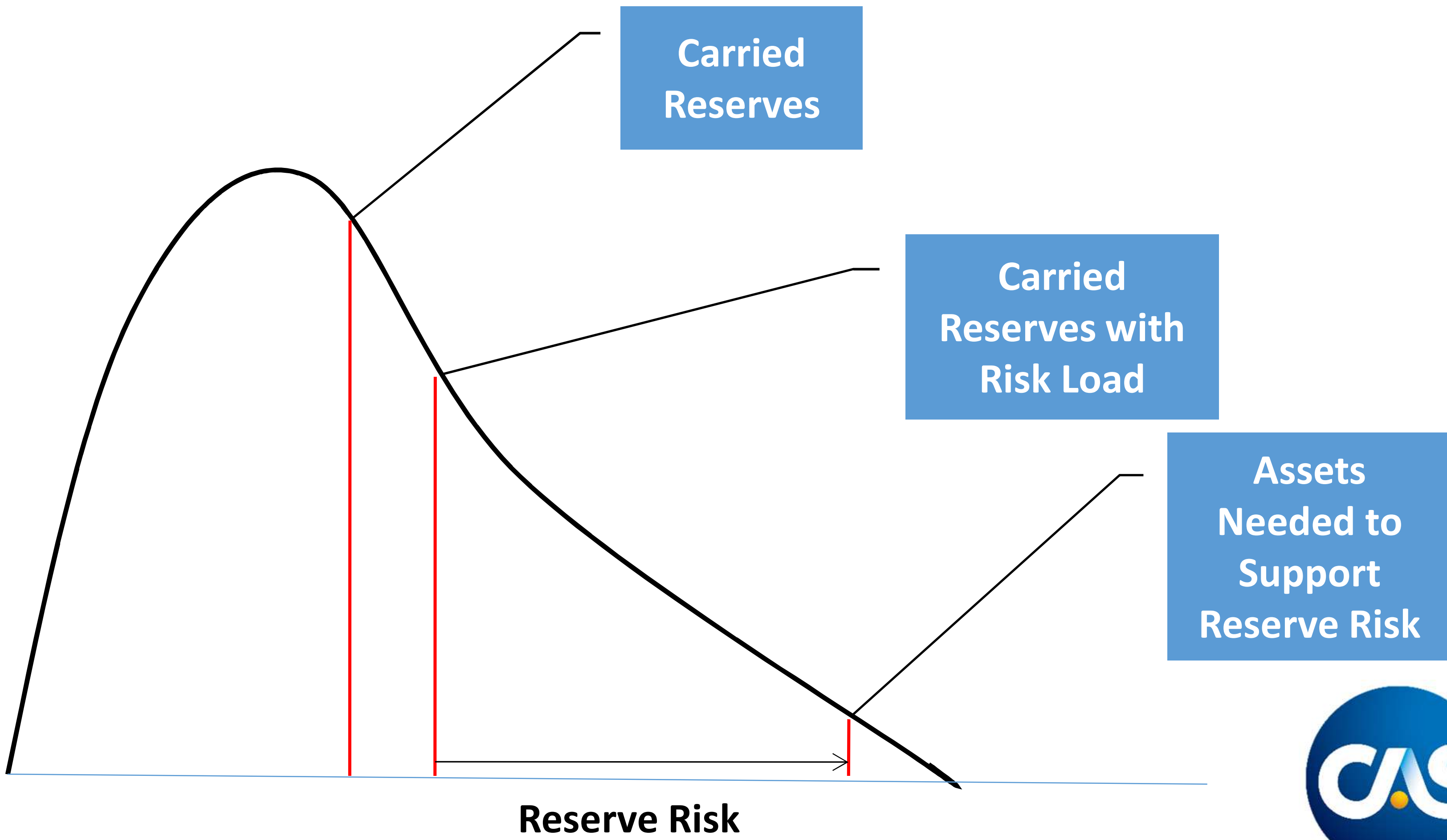


What is a Reasonable Range?

That which is **Not Unreasonable**



Risk Loads



Carried Reserves
Carried Reserves with Risk Load
Assets Needed to Support Reserve Risk
Reserve Risk

Should we grow in a Product Line/Territory ?

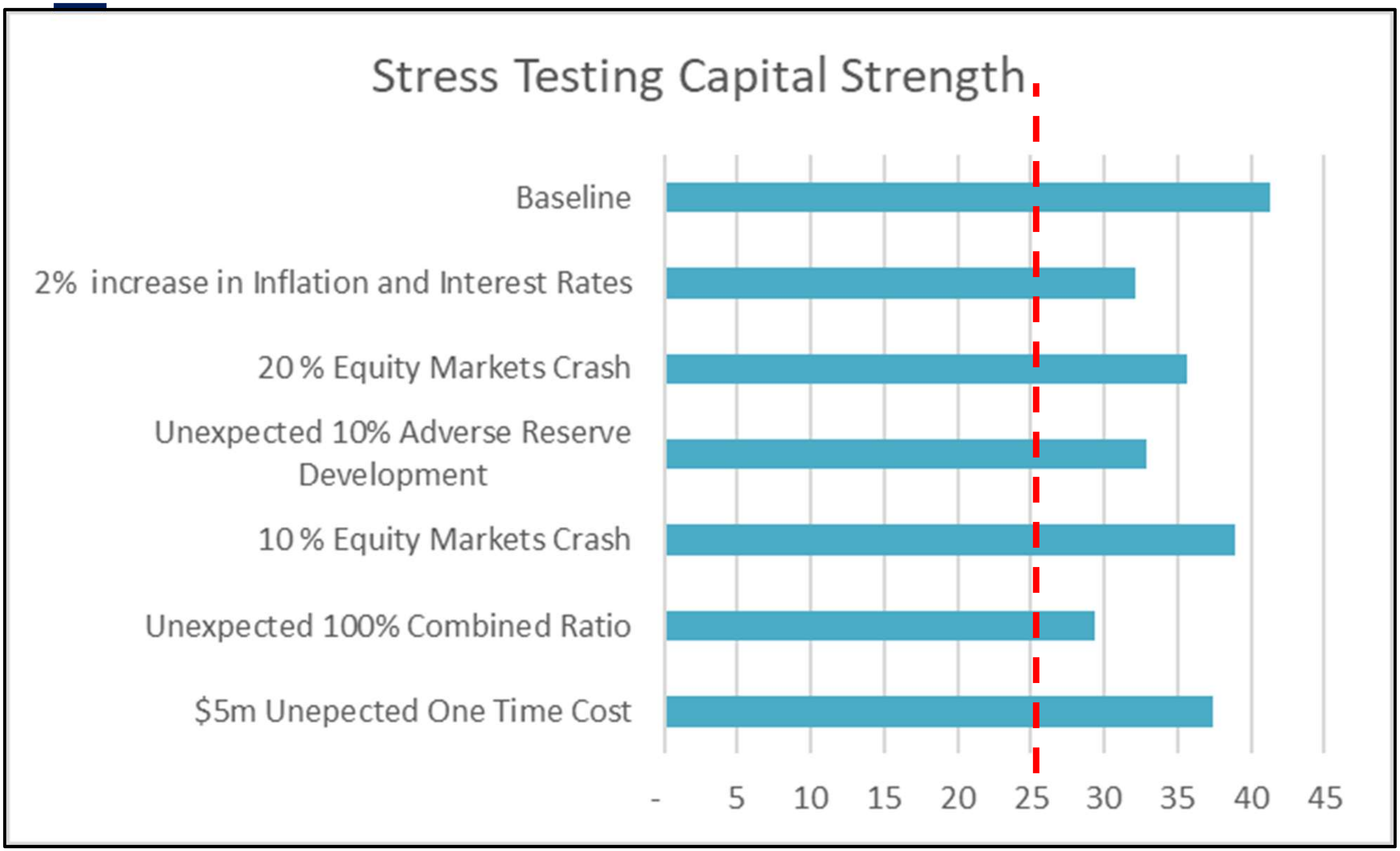
Let P = Return and C = Capital. Then the insurer is better off by growing a line or region et.el. if:

$$\boxed{\frac{P+\Delta P}{C+\Delta C} \geq \frac{P}{C}}$$

$$\Leftrightarrow \cancel{P \cdot C} + C \cdot \Delta P \geq \cancel{C \cdot P} + P \cdot \Delta C$$

$$\Leftrightarrow \frac{\Delta P}{\Delta C} \geq \frac{P}{C}$$

? Marginal return on new business > return on existing business.

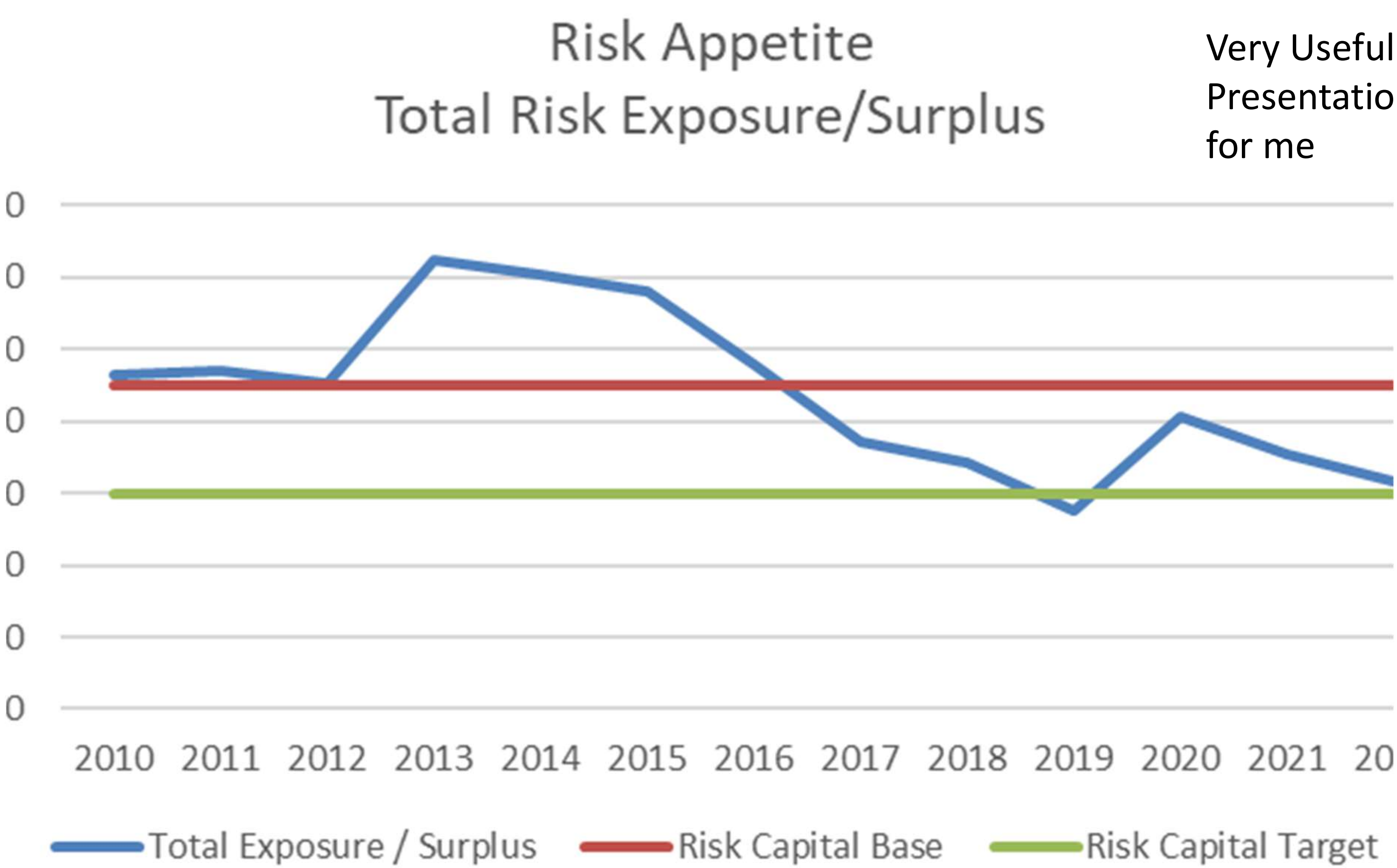


Example of stress testing shocks

Example of stress testing when things come out of nowhere

Risk Appetite Metrics	Actual @12/31/2019	Target Baseline @12/31/2020	Scenarios	Stress Testing Combined Scenarios: 20% stock market decline	25% stock market decline	30% stock market decline
Net Written Premium/Surplus Ratio	0.5	0.5	110% Combined Ratio	0.6	0.7	0.7
Net Leverage Ratio < 2.0 *	1.7	1.6		2.2	2.3	2.4
Total Risk Exposure Ratio = (2.5-3.25) **	2.4	2.2		2.9	3.1	3.2
Surplus ($000,000)	84.4	92.9		69.2	65.9	62.6
BCAR Score >25	45	50		35	32	29
Net Written Premium/Surplus Ratio	0.5	0.5	115% Combined Ratio	0.6	0.7	0.7
Net Leverage Ratio < 2.0 *	1.7	1.6		2.3	2.4	2.5
Total Risk Exposure Ratio = (2.5-3.25) **	2.4	2.2		3.0	3.2	3.3
Surplus ($000,000)	84.4	92.9		67.5	64.2	60.9
BCAR Score >25	45	50		32	29	26
Net Written Premium/Surplus Ratio	0.5	0.5	120% Combined Ratio	0.7	0.7	0.7
Net Leverage Ratio < 2.0 *	1.7	1.6		2.4	2.5	2.6
Total Risk Exposure Ratio = (2.5-3.25) **	2.4	2.2		3.2	3.3	3.5
Surplus ($000,000)	84.4	92.9		65.7	62.4	59.1
BCAR Score >25	45	50		30	27	23

Very Useful Presentation Tool for me

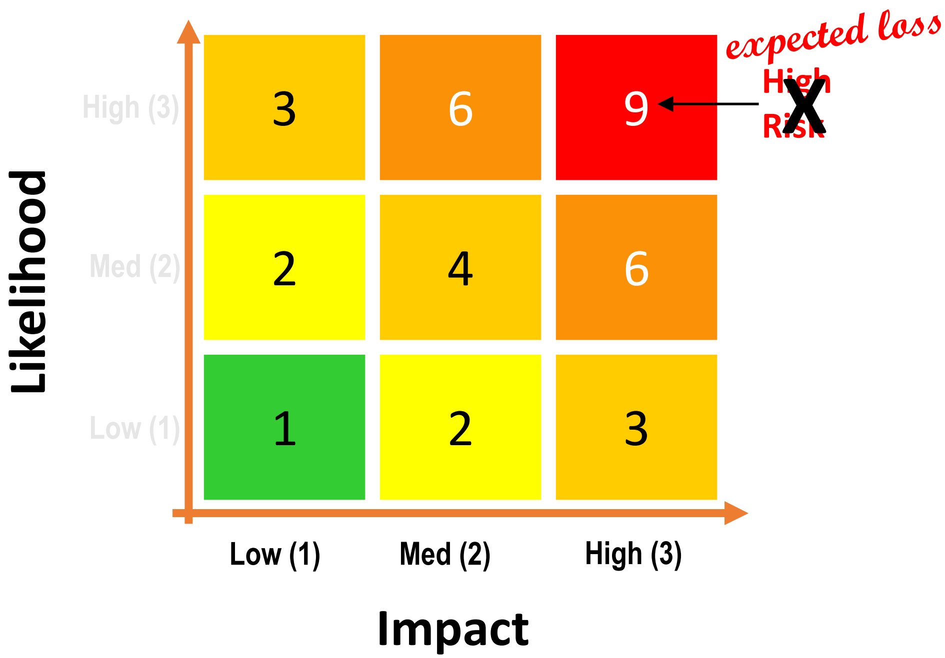


#	Factor	Field
1	Premiums	Net Premiums Earned
2	Reserves	Loss and LAE Reserves
3	Investments	Common Stock
4	Expenses	Expenses x Direct Commissions
5	Catastrophe	ex. 1-in-250 All Perils

Provides Guidance in Driving Risk Appetite Discussions and Growth Capacity

Focus on top 10 Risk Themes

Traditional



Focus

Pot them in the buckets

Risk Appetite and Goals

Goals

A target combined ratio of 98.0% or less

A target return on equity of 10 percent or more

A.M. Best Capital Adequacy Score (“BCAR”) in “Strongest” Category

Achieving and maintaining an A or better rating from A.M Best

Risk Appetite

Retention of net catastrophic risk less than or equal to its peers

Avoidance of excessive underwriting volatility, asset risk, or operational risk

- Maintain Leverage Ratio < 2.1
- Maintain Total Risk Exposure Ratio >2.5<3.25
- Maintain Stock Portfolio Percentage < 20% on total investible funds
- Maintain Stock Portfolio Beta < 1.1
- Fixed Income Duration <= 5 Years

Risk Tolerance

Quarterly impact from underwriting results not greater than 10 percent of forecasted earnings

Net 1 in 100 probable maximum loss (PML) limited to 10 percent of capital

Net 1 in 250 PML limited to 15 percent of capital

Remote chance of asset loss greater than 10 percent of capital in any one year

A reinsurance retention limit that is 0.5- 2% of the company’s statutory surplus

High Level Risk Metric Dashboard

Measure	2020 Target	Year-end 2019	January	February	March	April	May	June
Reserve Adequacy (Risk Margin)	>3%	10%			8%			
Overall Rate Adequacy Index (Projected Loss Ratio/Permissible Loss Ratio)	1.00	1.00	1.00	1.00	0.97			
Target State Loss Ratios (Net Loss and LAE)	64%	63%			65%			
Capital Adequacy (BCAR)	>40	est 41-45			41			
Return on Equity (ROE)	>10%	15%			TBD			
ERM: Maintenance of Overall Risk Appetite	Yes/Check	Yes/Check	Yes/Check	Yes/Check	Yes/Check			
Net Leverage Ratio	<2.0	1.7			TBD			
Total Risk Exposure Ratio	<2.7<3.25	2.4			2.8			
Stock Portfolio Percentage	<= 20% investible funds	20%			35%			
Stock Portfolio Beta	<=1.1	1.1			1.05			
Fixed Income Portfolio Duration	<5.0 Years	4.5			4%			
ERM: Maintenance of Overall Risk Tolerance	Yes/Check	Yes/Check	Yes/Check	Yes/Check	Yes/Check			

Hard Discussions - Recommendations with the non-executive members of the Board (Audit Committee)

Incentive compensation requires appropriate alignment with desired performance

Nobody should have the authority to make decisions without accountability.

Do Not Assume we Can Get Rid of the Risk Tomorrow for the same Price as Today

Modeling and Management Must consider the Behavioral Decisions of people.

Risk Managers Must Question the Answers

Thank You

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- Robert.Wolf@stonetrustinsurance.com