Casualty Loss Reserve Seminar
Denver, Colorado
September 6-7, 2012

Reserve Distributions --> Range of Reasonable Estimate --> What Number do I Book?

Panelists

- **Moderator:**

  Robert Wolf, CLRS Planning Committee

- **Panelists:**

  Glenn G. Meyers, Joint Risk Management Section Council of the SOA/CAS/CIA
  Scott Weinstein, KPMG LLP
  Anthony Martella, Liberty Mutual Insurance Group

Agenda

- Talk Show
  - Loss Reserve distributions
  - Best estimate Ranges
  - Point Estimates plus reserve margins.
  - Yeah, but I have to book a number that many people care about.
  - Which X or Xs mark the spot?
  - ……Especially if I want to book Y.

Agenda (Cont)

- What is my best estimate range?
- What is management's best estimate?
- What number do we book gross and net?
- What number do we book by line of business/SBU?
- Any number in a reasonable range works right?

More Questions

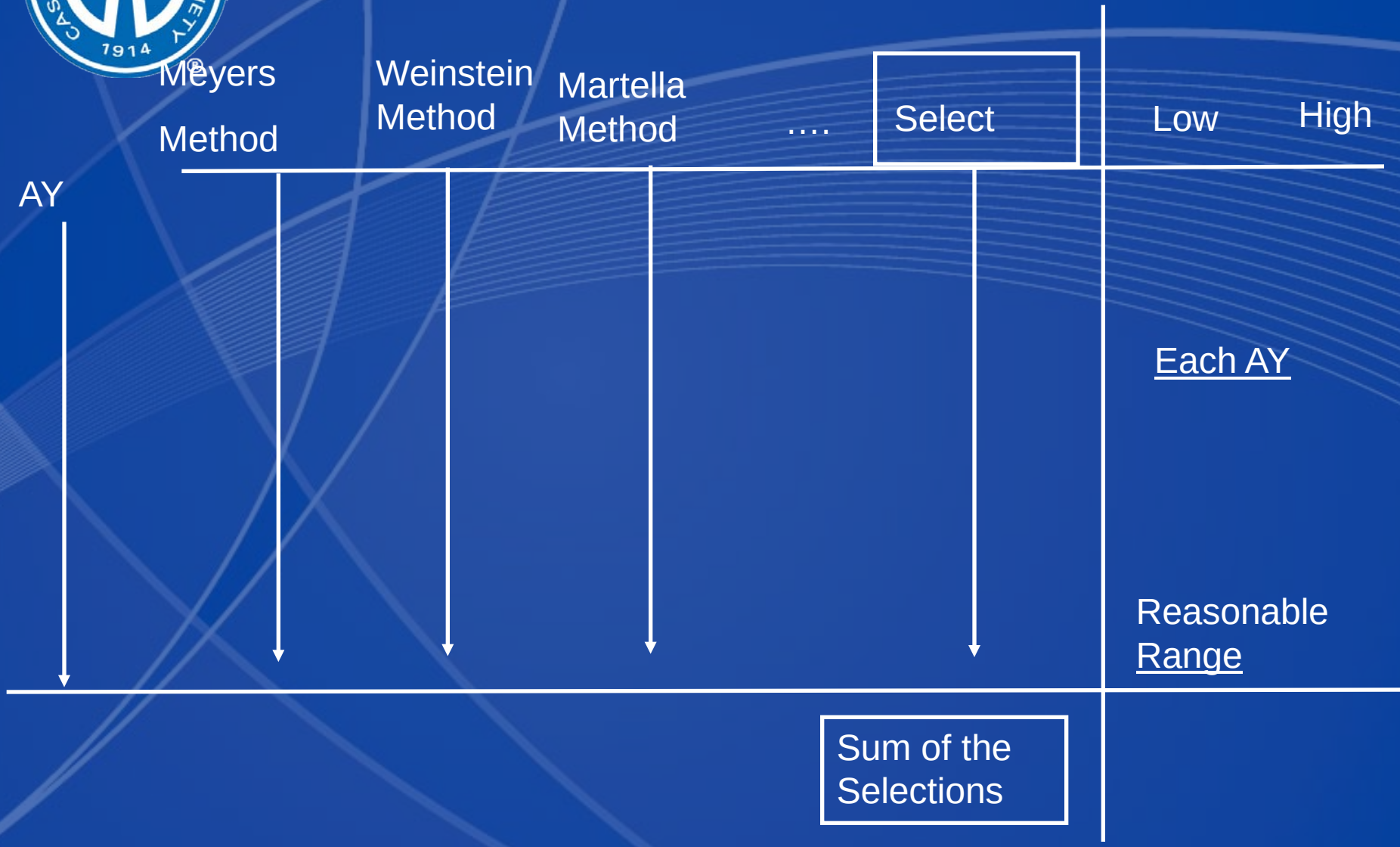
- Yeah but SBU#A's incentive compensation is affected if we book to high in the range.
- Yeah but the CEO is targeting a current year combined ratio of 104.2. My best point estimate is at 105.7. If I lower my estimate, I'm still in range of best estimate, so I'm ok right?
- Yeah but we don't; have to worry about ranges any more if there is a prescribed method booking a point estimate plus prescribed reserve margin. Right? Or do we now have a new pre-scribed "point estimate" to debate about.

Let's Begin

The Process

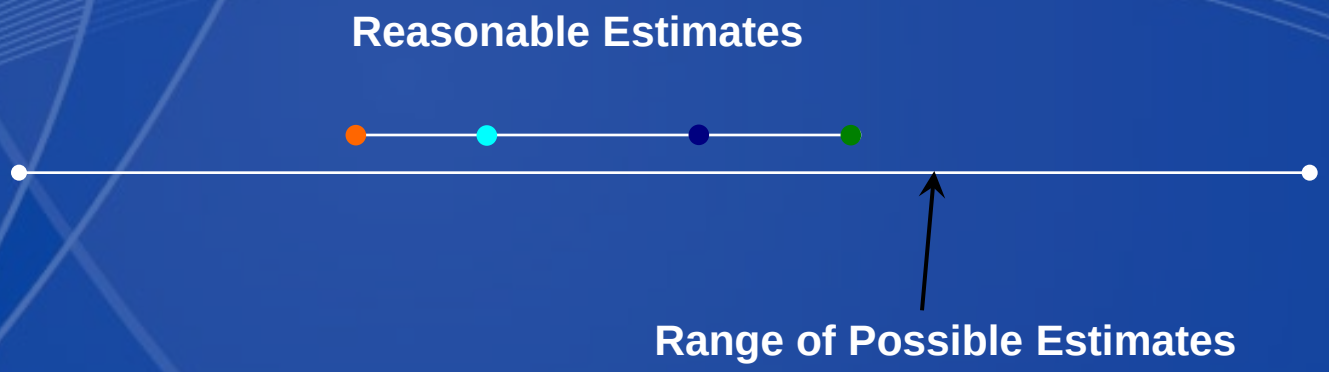
- Step 1- Apply a bunch of your favorite deterministic reserve techniques

Traditional Methods



- Step 1- Apply a bunch of your favorite deterministic reserve techniques
- Step 2- Come up with some indications by LOB and or SBU

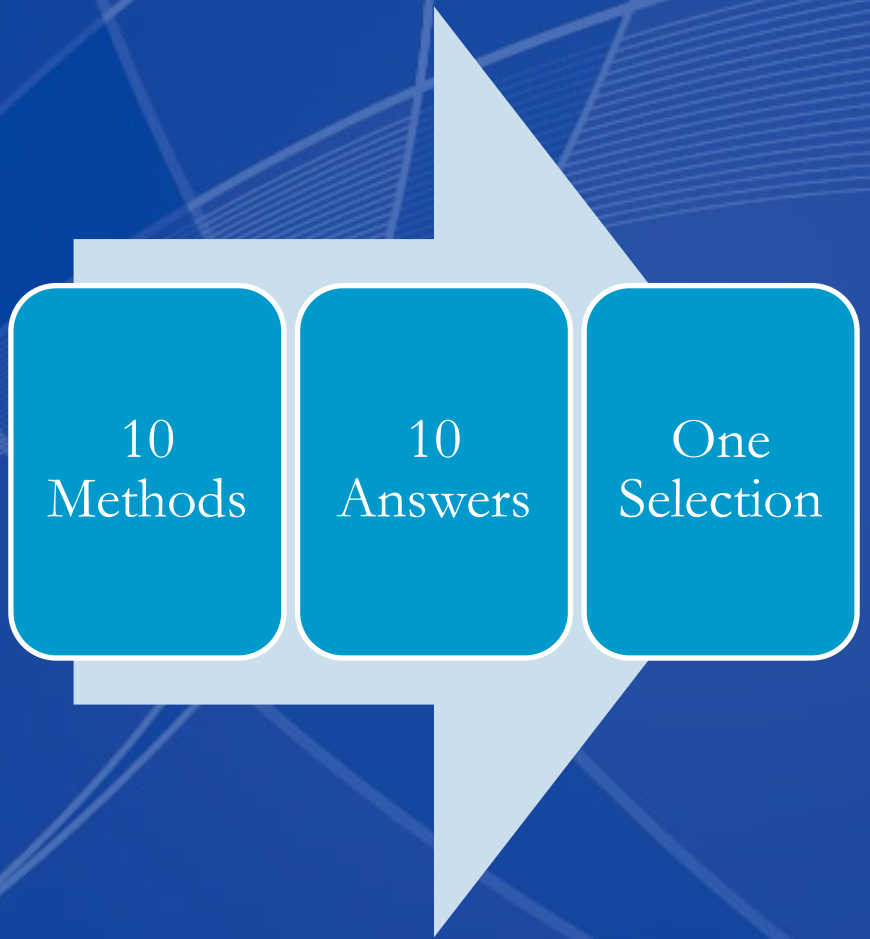
“Reasonable” Estimates



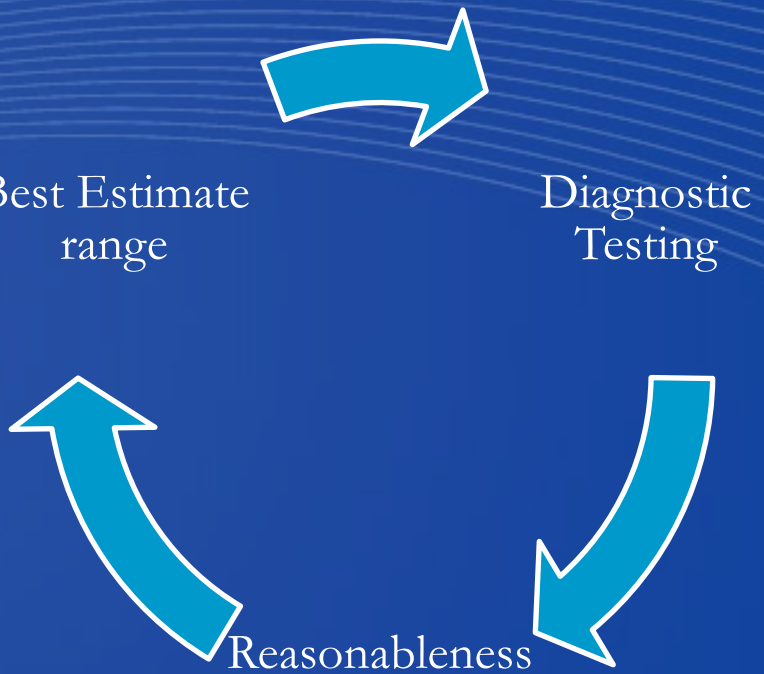
- Step 1- Apply a bunch of your favorite deterministic reserve techniques
- Step 2- Come up with some indications
- Step 3- Pick your best One

The "Pick a Number" Process

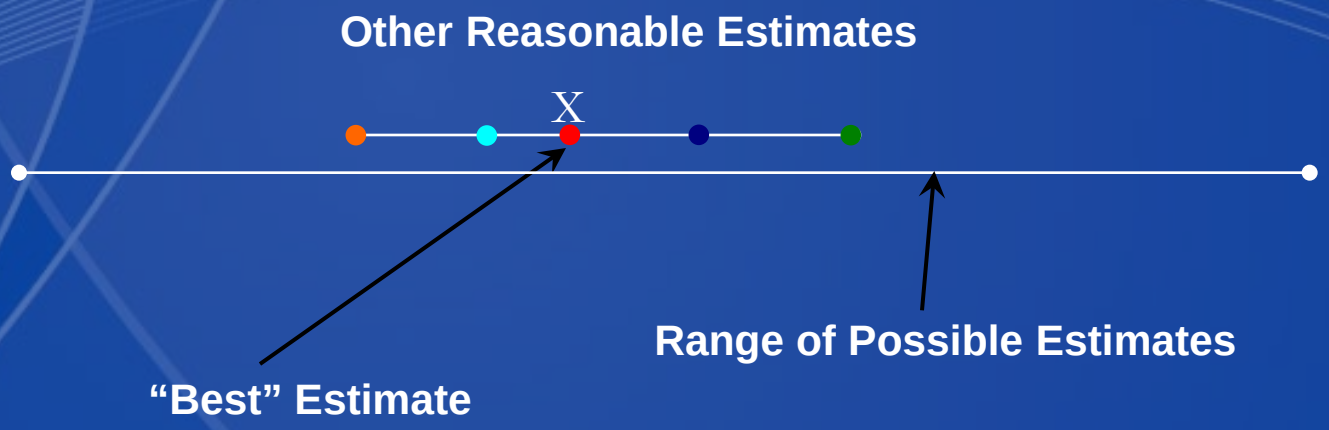
Traditional Approach



Holistic Approach

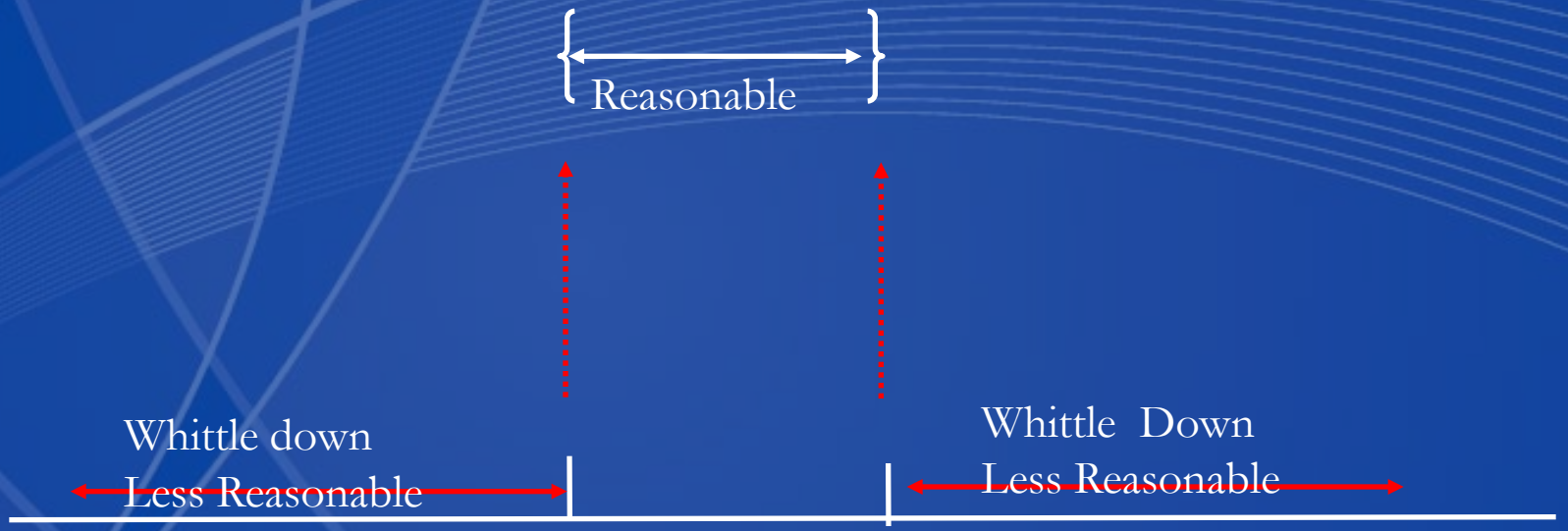


Range of “Reasonable” Estimates



- Step 1- Apply a bunch of your favorite deterministic reserve techniques
- Step 2- Come up with some indications
- Step 3- Pick your best One
- Step 4- Someone asks you what your range is?

What's Your Reasonable Range?



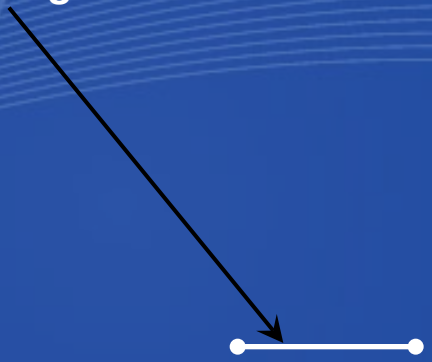
Ranges vs. Distributions

- *A **Range of Reasonable Estimates*** is a range of estimates that could be produced by appropriate actuarial methods or alternative sets of assumptions that the actuary judges to be reasonable.

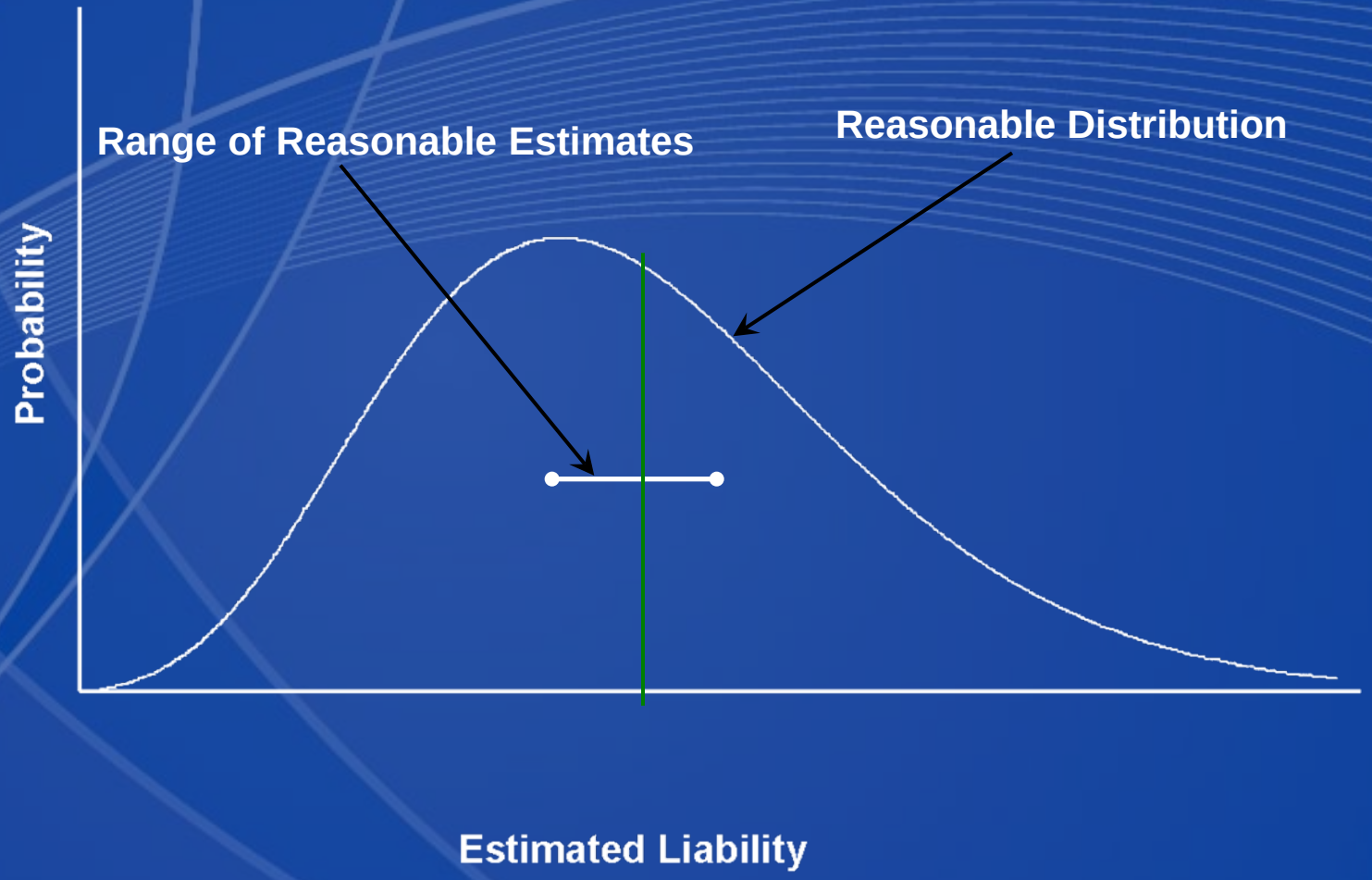
- A ***Distribution*** is a statistical function that attempts to quantify probabilities of all possible outcomes.

Now we have our range of reasonable estimates?

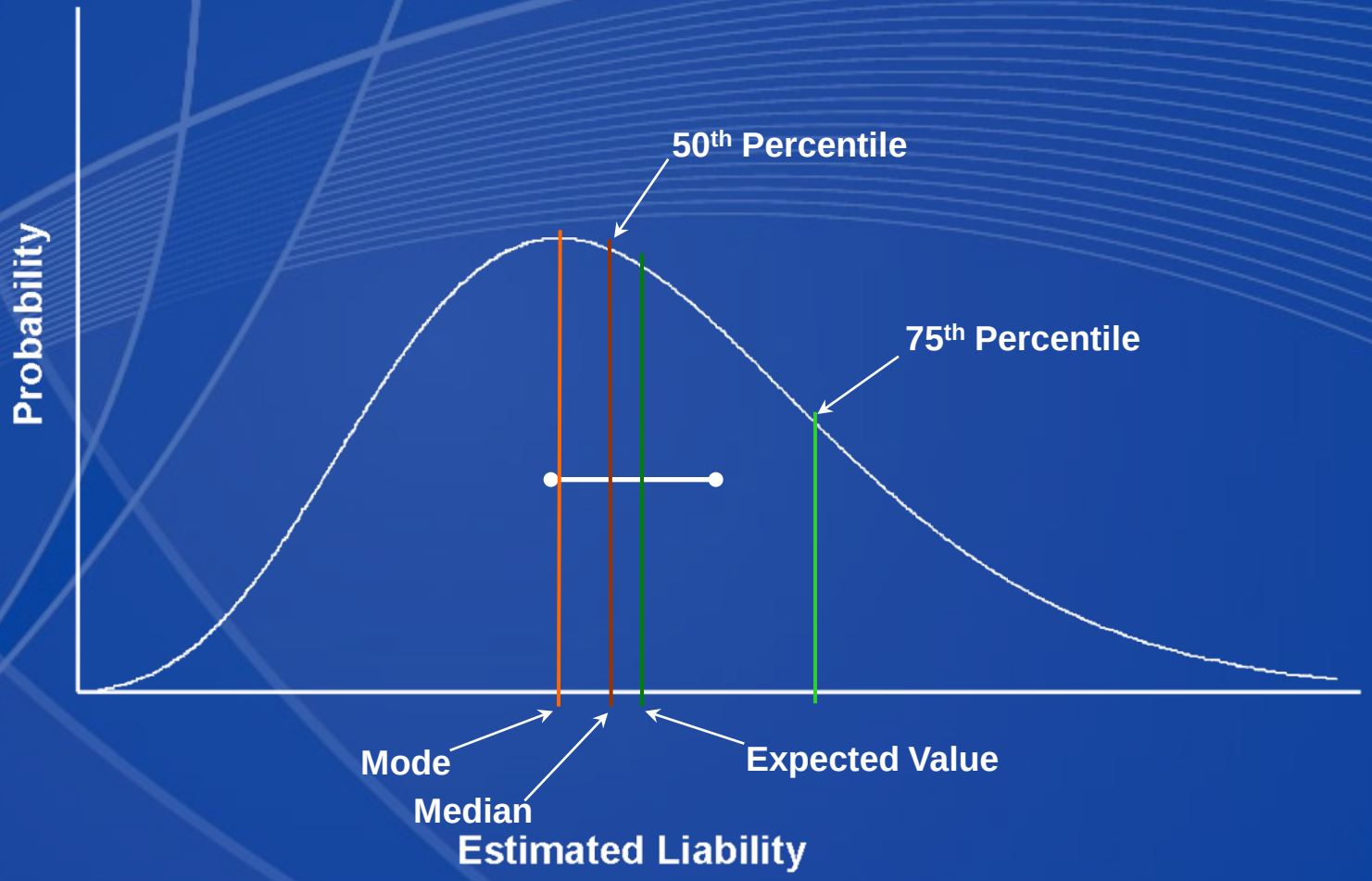
This is my Range of Reasonable Estimates



You even stochastically model the possibilities?

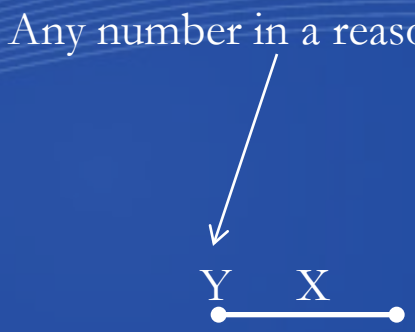


What Reserve to Book?



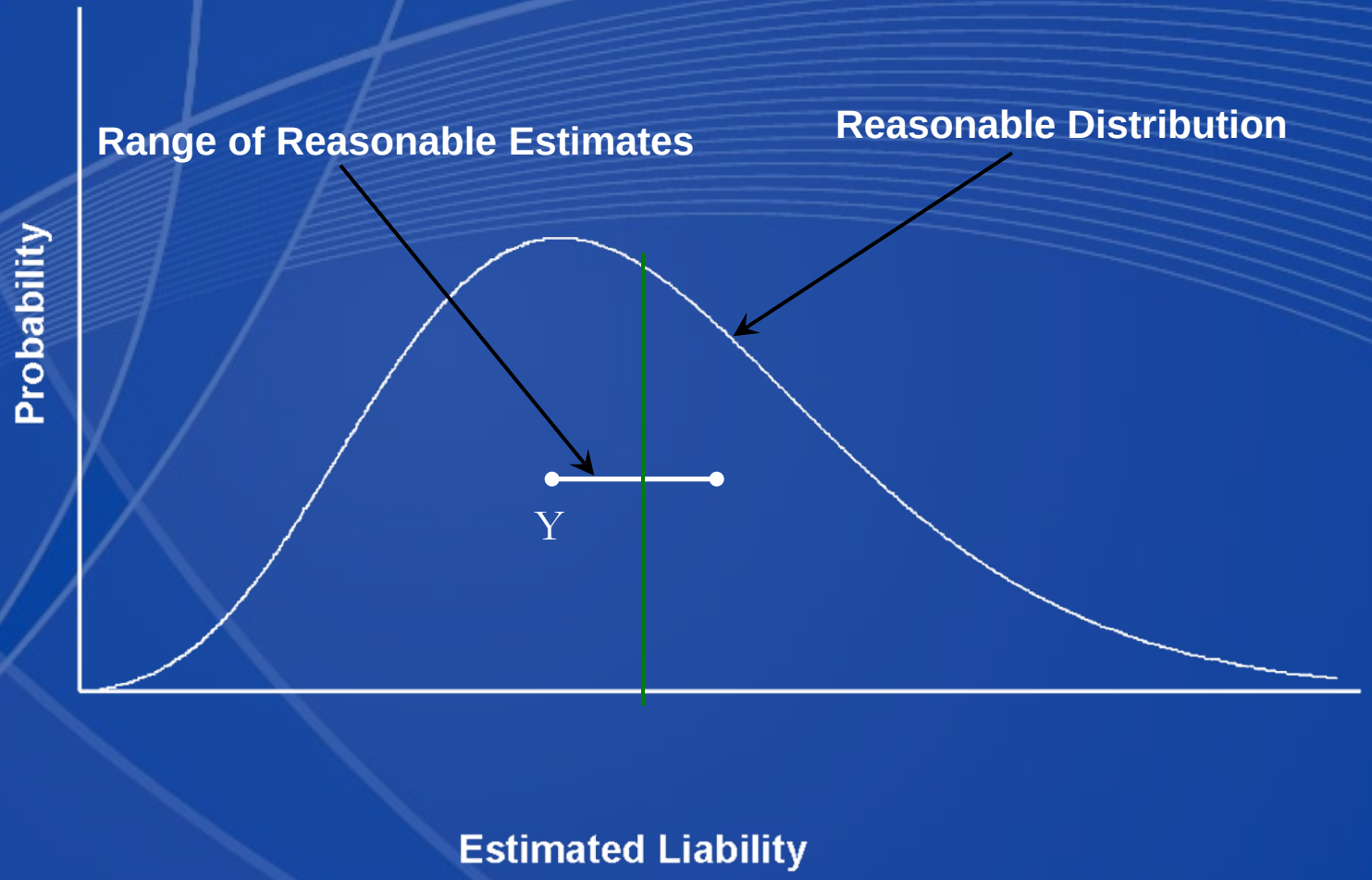
- Step 1- Apply a bunch of your favorite deterministic reserve techniques
- Step 2- Come up with some indications
- Step 3- Pick your best One
- Step 4- Someone asks you what you range is?
- Step 5- Someone asks you if ok to book a number Y

What Reserve to Book?



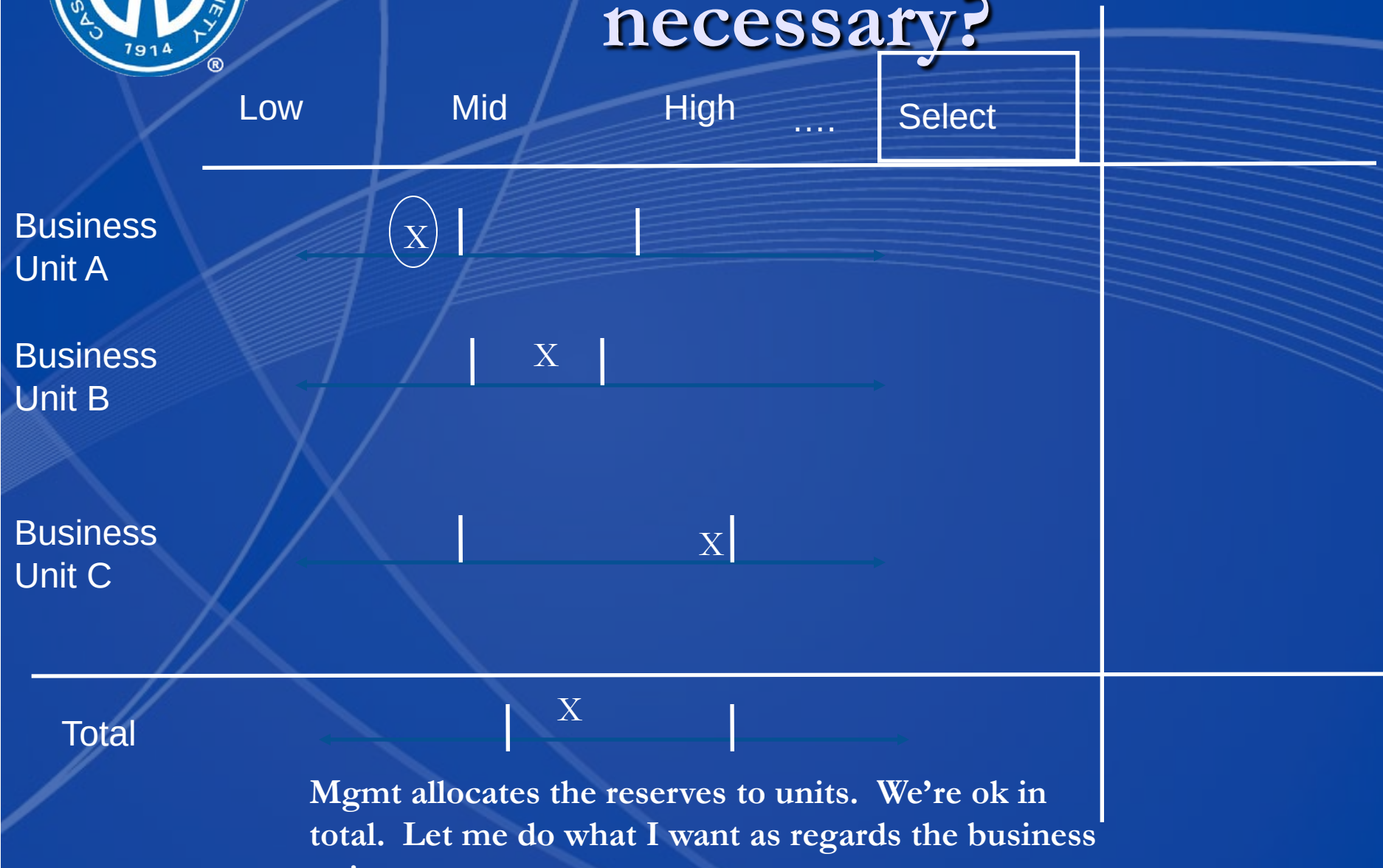
The CEO is targeting a current year combined ratio of 104.2. My best point estimate is at 105.7. If I lower my estimate, I'm still in range of best estimate, so I'm ok right? Lets' start here.

Any number in a reasonable range works right?



- Given that you have determined a probability distribution of reserves
- You have determined a best estimate ranges by SBU and in total.
- Yeah but SBU#A's incentive compensation is affected if we book to high in the range.
- I don't want to hit him to hard…..sooooo..

Adequacy by Parts- is it necessary?



Mgmt allocates the reserves to units. We're ok in total. Let me do what I want as regards the business units

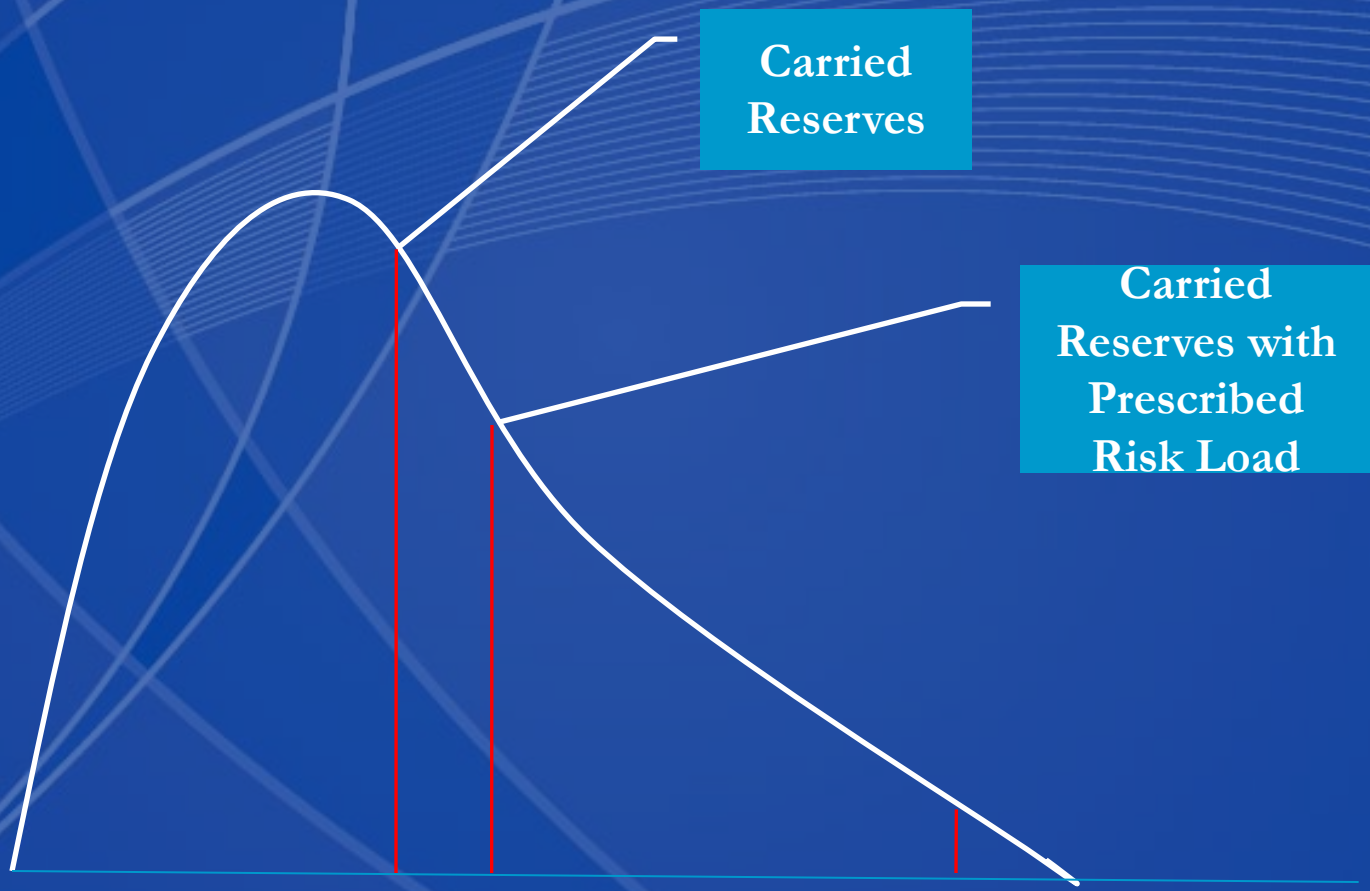
Direct to Net

- Net is Net Right?
- I want to book lower end in the range for direct results
- Keep Within range for net results

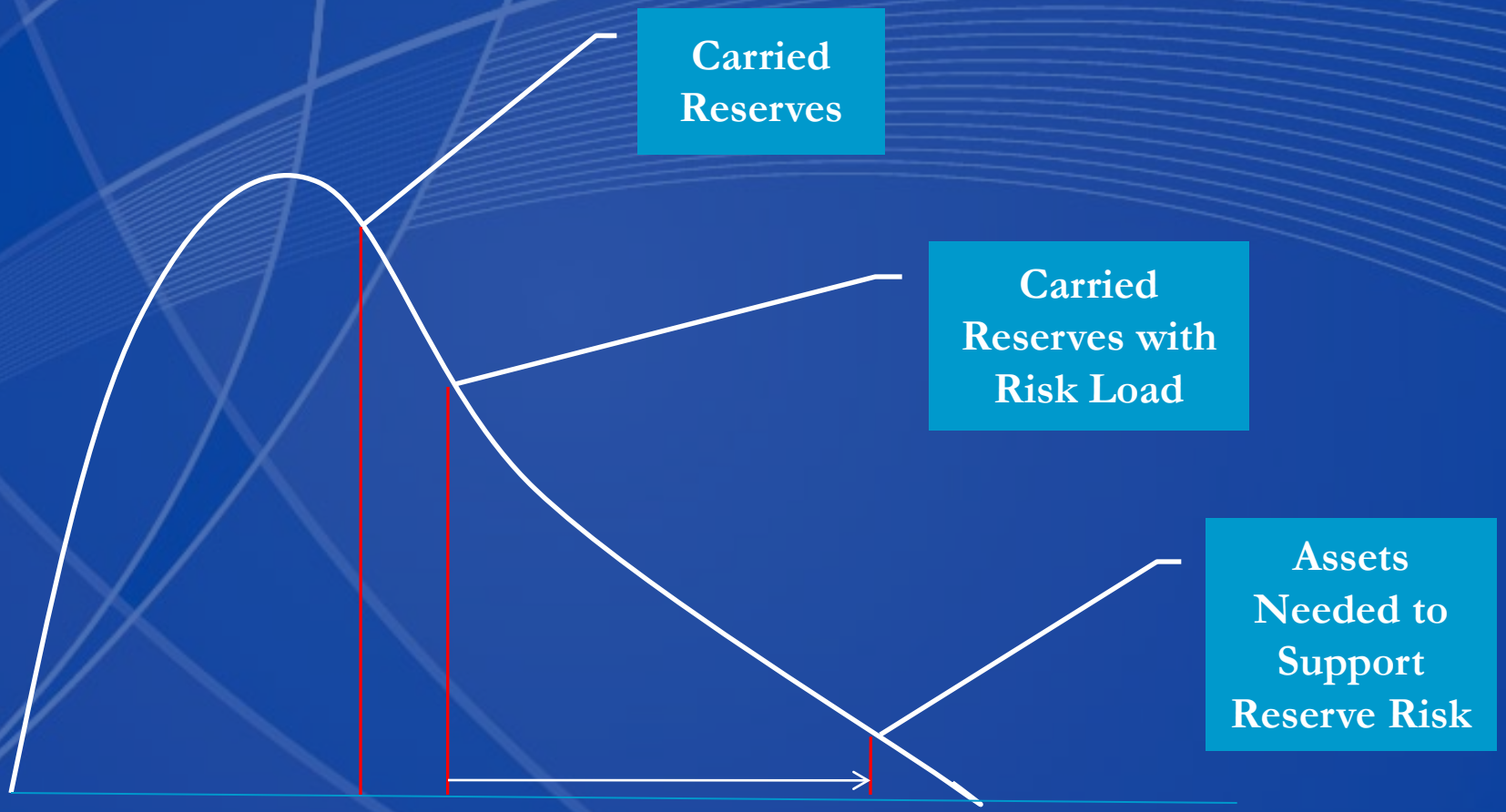
More Questions

- Yeah but we don't; have to worry about ranges any more if there is a prescribed method booking a point estimate plus prescribed reserve margin. Right?
- Isn't IFRS doing just that
- Hence, ……..

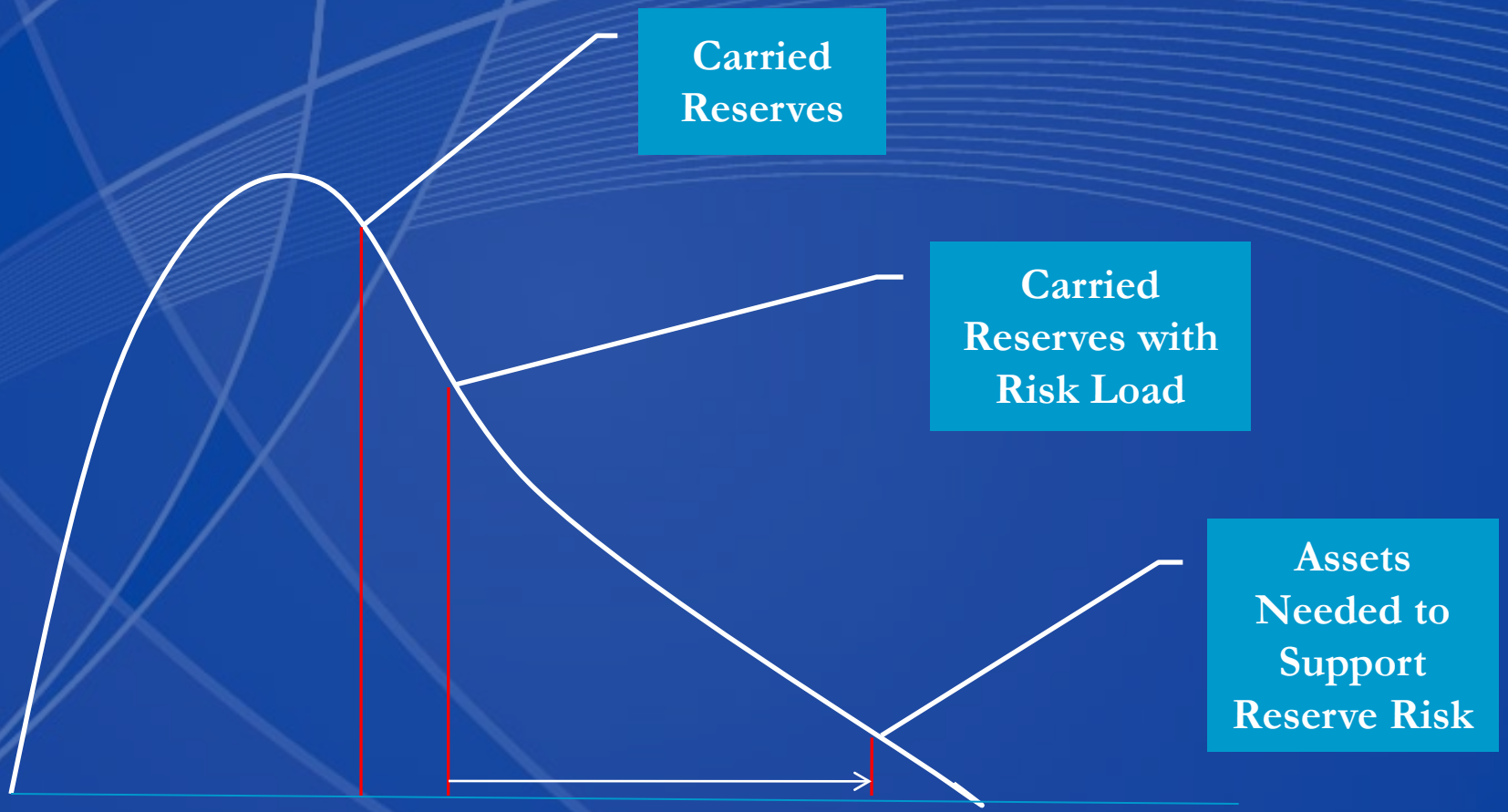
Risk Loads


Carried Reserves
Carried Reserves with Prescribed Risk Load

Risk Loads


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

Risk Loads



Isn't this area our focus as well ??????

Managing Change

- You're a Domestics primary insurer
  - $3 billion in net reserves
  - Over $1 billion of net reserves from one long tailed line (maybe Med Mal)
  - Carried reserves in total and by line from the previous quarter (year-end) were at the internal actuary's central estimate
  - Carried reserves were at roughly the 55th percentile for the overall year-end internal reserve range (no ranges by line were considered)
  - Reserve Ranges Only Updated at Year-End

Specifics

- First Quarter Reserve Review
  - Med Mal loss emergence for 2001-2004 accident years in Q1 come in $20 million worse than expected
  - A new Med Mal claims manager was hired about 18 months ago
  - While the new claims manager did not explicitly change any processes, he did reinforce them with training and metrics to monitor them.

Specifics

- First Quarter Reserve Review
  - The internal actuary responds by raising loss picks by $30 million ($20 million for actual adverse emergence plus a $10 million across all accident years due to a very modest increase in the older age-to-age factors)
  - Management does not want to put up the $30 million based on the belief the adverse loss emergence was the result of quicker recognition by the claims department and if it turns out to be true adverse development there is plenty of room within the range based on the year-end analysis

Specifics

- First Quarter Reserve Review
  - What are some reasonable (or appropriate) responses from the company's actuary? What would your initial response be?

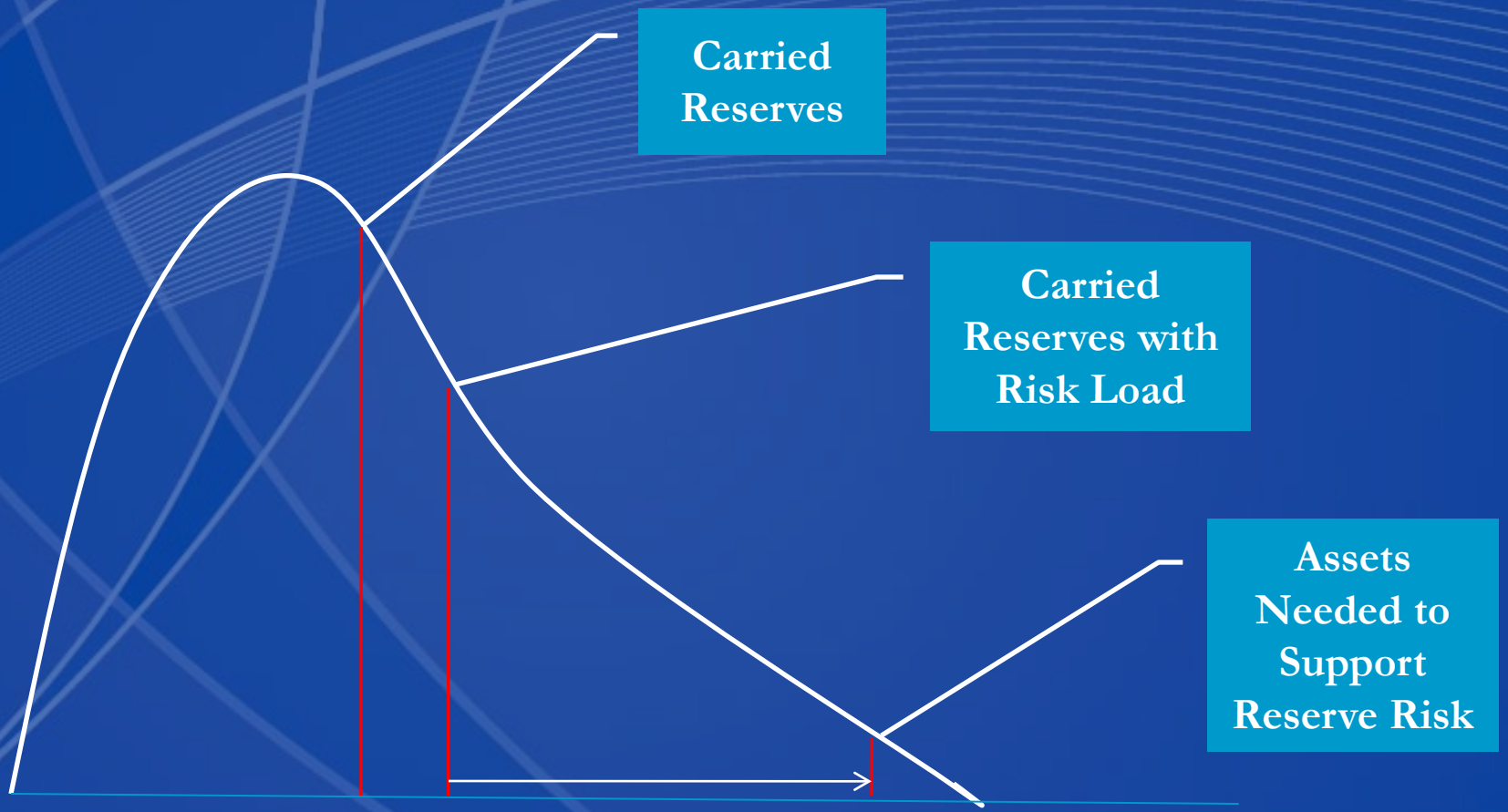
Managing Earnings Over Time

- Every business in the world manages earnings
- As long as I don't manipulate earnings I'm ok, right? (different points in "best estimate range")
- I have to manage the underwriting cycle
- Volatility on results
  - What the shareholders think?
  - What my rating agencies think?
  - What my incentive comp'd managers think?
  - What my regulators think?
  - What my auditors think?

Closing Question

- Ok….I will ask the question---
- As regards Our Statement of Actuarial Opinion: Shouldn't We Be Evolving Towards Opining on the Risk of Deviating from a Booked Number and Not the Number Itself?

Risk Loads



Isn't this area our focus as well ??????

In Conclusion…My Opinions Only

- A Reasonable Range is that which is not Unreasonable
- Booking High/Low is ok as long as high/low is reasonable and enough capital supports the risks
- Use Holistic Techniques not a bunch of myopic techniques
- Consideration of who your audience is.
- Our Statement of opinion should reflect accounting number reasonable reserve range and…..economic capital needed to support reserve risk.
- Education of the Public as to the Inductive Reasoning of the Reserving Process……

Are published earnings reasonable given the risk profile of the company?

- If the carried reserves are carried within a reasonable range and the company has sufficient economic capital, the answer to this question takes care of itself over time
- Management Carried the Burdon of Proof of providing evidence of reasonableness of carried reserves and the sufficiency of capital

Glenn's Study

At What Percentile Have Insurers Posted in the Past?

- Meyers/Shi study on Commercial Auto
  - The Retrospective Testing of Stochastic Loss Reserve Models – ASTIN Colloquium 2011.
  - BCL and BAT models
    - Details, while interesting, are not the focus of this discussion.
  - The models were fit to data on the CAS Loss Reserve Database.
  - Models produced a predictive distribution of outcomes for total outstanding losses
  - Calculated the predictive percentile of the actual posted reserve.

Percentile of Posted Reserve for Each Model