Linkage Between Risk Strategy, Appetite, Tolerances, and Limits

2016 ERM Seminar for the P&C Actuary

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Willis Towers Watson

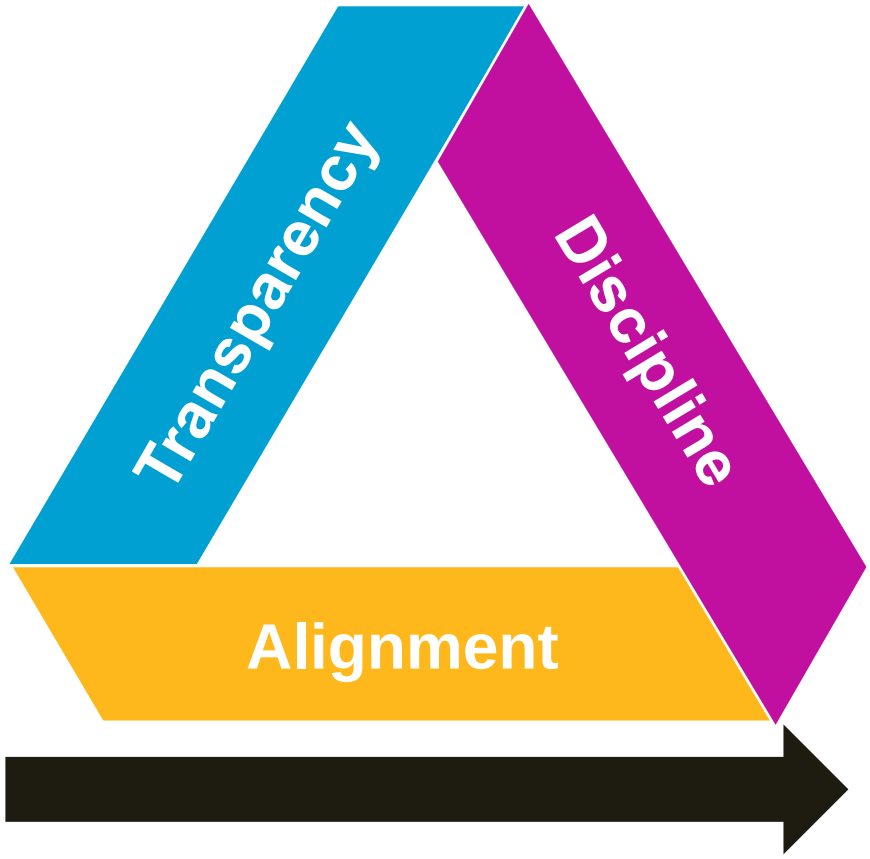
Linking Strategy to ERM

A more detailed discussion of linking strategy to ERM was contained in another session (*Aligning ERM, Risk Models and Business Strategy*) on Thursday, October 6.

Here we want to specifically address linking strategy to one component of ERM: Risk Appetite.

We will illustrate how this linkage allows for the development of tolerances and limits that help insurers obtain real value from their ERM framework.

Benefits of ERM



Traditional Risk Management - **Insurers already have extensive risk management practices.**

Enterprise Risk Management can add three things to the existing risk management:

- **Transparency** – everyone will be able to see what is being done and not done for risk mitigation and control of the key risks
- **Discipline** – an expectation that the planned risk management will actually take place continually and that all key risks will be managed
- **Alignment** – Risk management can be aligned with company strategy

Defining risk in the context of an insurer

> ***Risk is an insurer failing to deliver on its mission***

Purpose	Responsibilities	Mission Time Horizon
▪ Delivering value to shareholders ▪ Fulfilling the social purpose of insurance	▪ Good security and service to policyholders ▪ Rewarding careers for employees ▪ Responsible conduct for regulators	▪ Contracts make long-term promises ▪ Business, investment and insurance cycles

Mission success depends on creating value

- Developing and maintaining a comparative advantage

Examples of ERM linkage to Strategy & Plans

Elements of the risk appetite framework

Risk Appetite

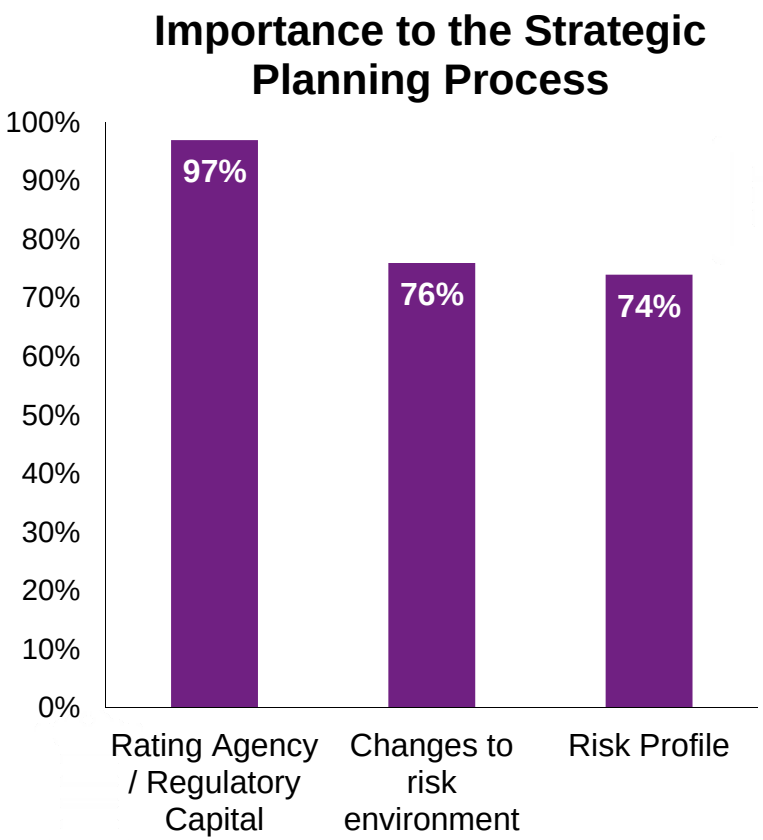
Risk Strategy

Strategic expression of overall philosophy towards risk-trading necessary to achieve the mission, so that from the Board on down there is alignment

What risks to take?	How much risk to take?
Risk Preferences Articulating risk as opportunity, identifying risks that need to be taken deliberately in the expectation of creating value, needed to achieve the mission	**Risk Tolerances** Quantitative expression of the amount of aggregate risk the organization will tolerate over varying time horizons as a means to achieve its mission
Risk Attractiveness Tactical assessment of the risks within the preference set, reflecting current circumstances	**Risk Limits** Granular operational controls on specific risks; expressed in metrics that are locally relevant and practical to monitor

What ERM typically brings into the planning process

Results from a recent, limited, Willis Towers Watson survey



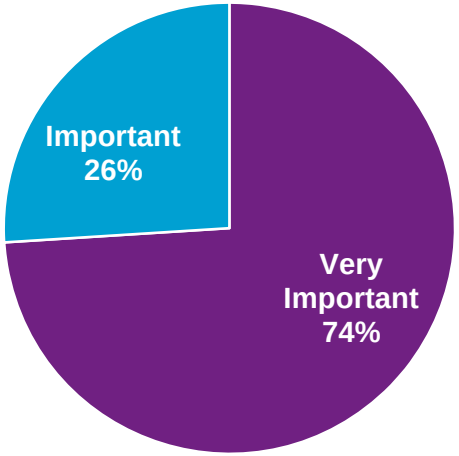
One of the ways that Strategy and ERM alignment happens is through the risk related information that ERM brings to the planning process. Most common:

- **Rating agency & regulatory capital –** long a part of planning discussions, ERM can help linking these values to risk decisions
- **Changes to the risk environment –** plans could be adjusted either up or down in favorable or unfavorable risk environments
- **Risk profile –** a look at the distribution of current risks leads to a discussion of whether plans will further concentrate risk or whether they will lead to increased diversification and the implications of that on growth, profitability and risk.

There are a wide variety of risk related strategic objectives

Results from a recent, limited, Willis Towers Watson survey

Preservation of Capital



- Every company said that **preservation of capital** was very important or important. and almost all agreed on the importance of **rating agency view of capital**.
- There were seven other risk related strategic objectives that were important to a third or more companies
- In all, we found over 20 different combinations – reflecting a high degree of diversity of opinion on what is important for ERM.
- One size ERM will not fit all!!

Managing peak exposures

Managing through the cycle

Return for risk taking

Risk taking within tolerance

Regulatory view of ERM

Rating agency view of ERM

Reduction of losses experienced

Between 1/3 and 2/3 of companies said these items were important or very important

Defining an enterprise's risk appetite is a strong foundation upon which to build broader risk management activities

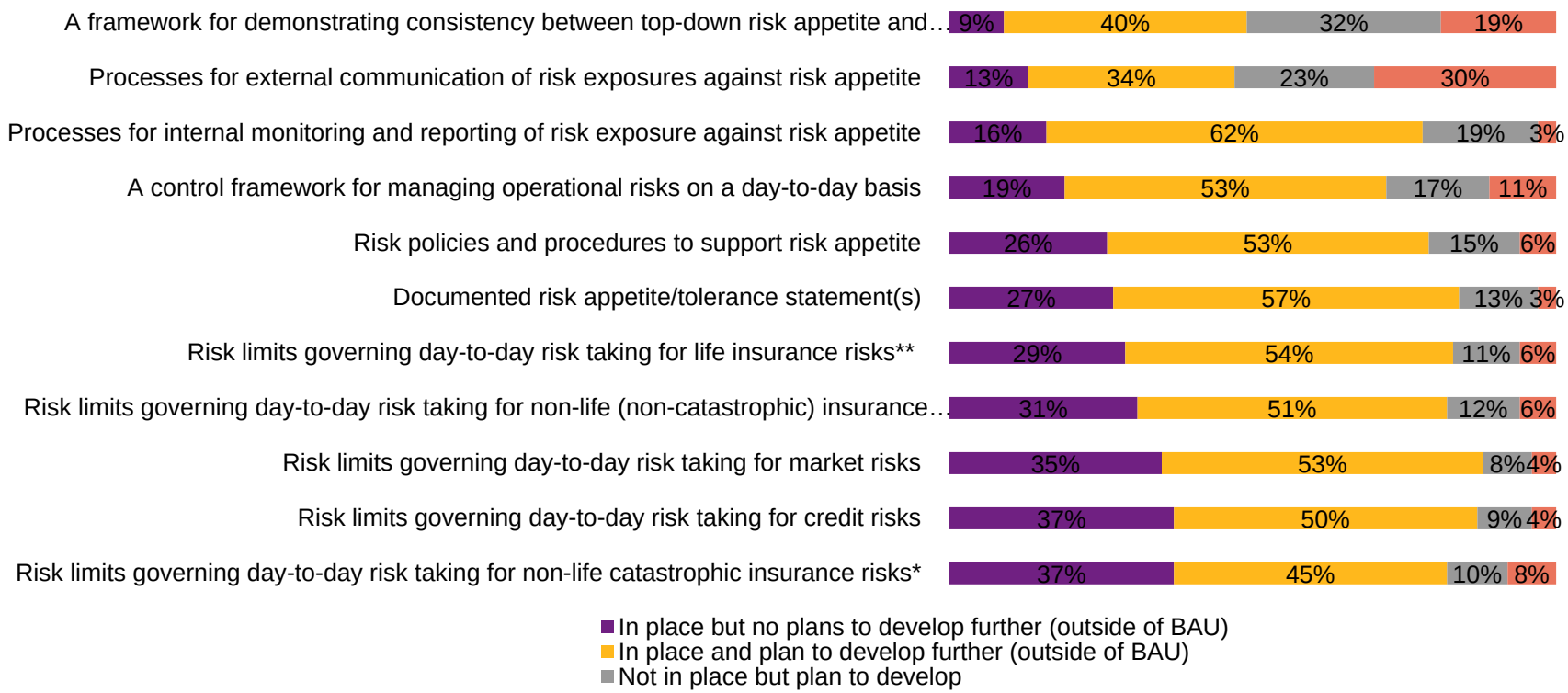
- While many insurers have developed risk appetite statements, there remains **strong dissatisfaction with the value** of the statements in making business decisions

- Risk appetite should begin by stating the **linkage to an organization's business strategy**, yet many statements miss this link

- The link to business strategy leads to an **enhanced approach** to understanding the company's willingness to accept the adverse consequences of uncertainty, i.e. risk

There has been incremental progress with risk appetite but further work is planned

- Does your organization have the following risk appetite components in place and are there further developments planned?



Source: 2014 Towers Watson Global ERM Survey.
Base: North American insurers (percentages exclude non-respondents)

There has been incremental progress with risk appetite but significant further work is planned (continued)

Documenting risk appetite:

- 84% of respondents now have a documented risk appetite statement, up from 74% in 2012 and 59% in 2010.
- 70% still plan to develop these outside of business as usual (BAU).

Risk limits:

- Participants have also made progress in the area of risk limits, with about 82-88% having limits in place compared to 73-81% in 2012. Nevertheless, about 55-65% of participants plan further development of risk limits.

External communication:

- 47% of all respondents (55% of public companies, 42% of private companies and 34% of mutuals) have
  set up processes for external communication of risk exposure against risk appetite.
- 57% of all respondents indicate that further work is needed in this area.

Internal processes for monitoring exposures against risk appetite:

- There has been an increase in the respondents with this in place (78%) compared to 2012 (68%).
- 81% still plan to further develop internal processes for monitoring exposures against risk appetite (80% in 2012).

Consistency of risk appetite and limits:

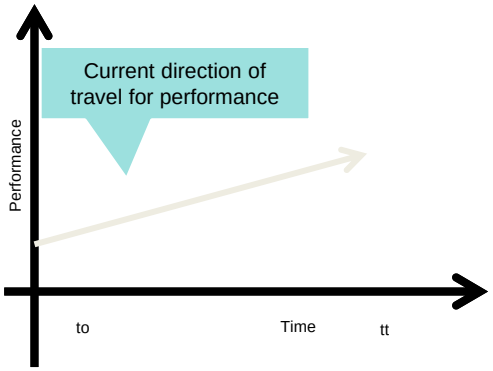
- Substantial work is still planned to demonstrate the top-down/bottom-up consistency of risk limits and risk appetite - 70% of participants have plans to develop this aspect.

Common complaints about risk appetite…

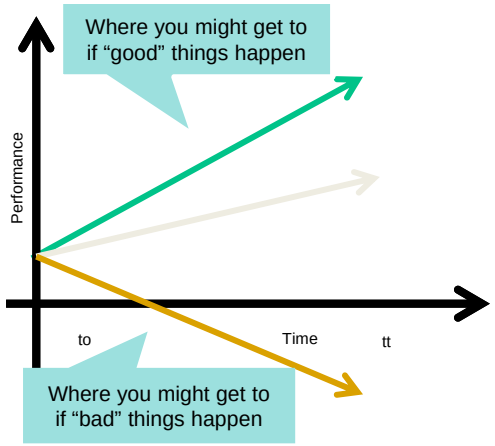
- **“Does not bring value”**
  - Not getting good value from the investment in time and management bandwidth
- **“Not actionable”**
  - Statements aren’t sufficiently actionable
  - Linkages to risk tolerances and limits are tenuous, at best
- **“Information shared is not timely”**
  - Monitoring of actual risks against limits, tolerances, etc., is not sufficiently frequent nor timely
- **“Driven by external requirements”**
  - rather than internal business requirements
- **“Too much focus on downside risk”**
  - What about risk of not meeting performance targets?

Risk preference is “proactive” — Risk tolerance is “defensive”

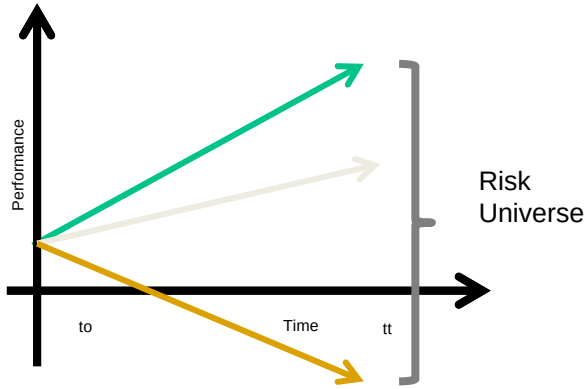
Each company has a positive performance expectation over time



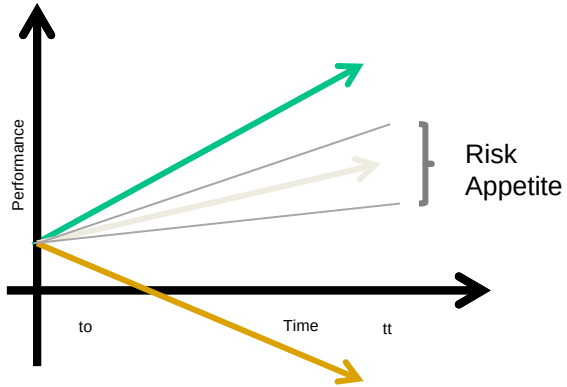
Depending on what happens (internal and external) it ends up in a “good” or “bad” position



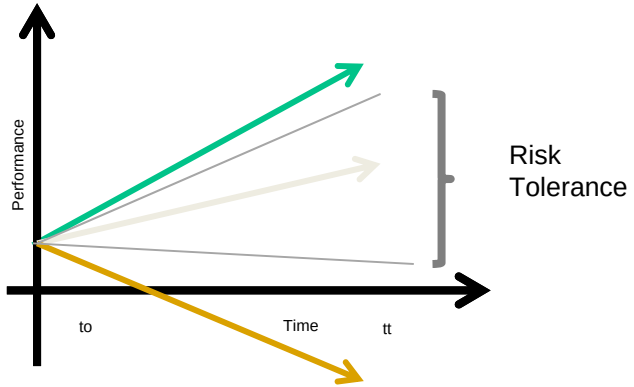
We call the set of possible outcomes the “risk universe”



“Preference” is PROACTIVE statement of the risk a firm will take to achieve its performance expectation



“Tolerance” is a DEFENSIVE “line in the sand” beyond which the firm will not go in pursuit of its objectives



**Adapted from Risk Appetite and Tolerance Guidance Paper. The Institute of Risk Management.*

There is an implied “contract” between the Board and management on Risk and Return

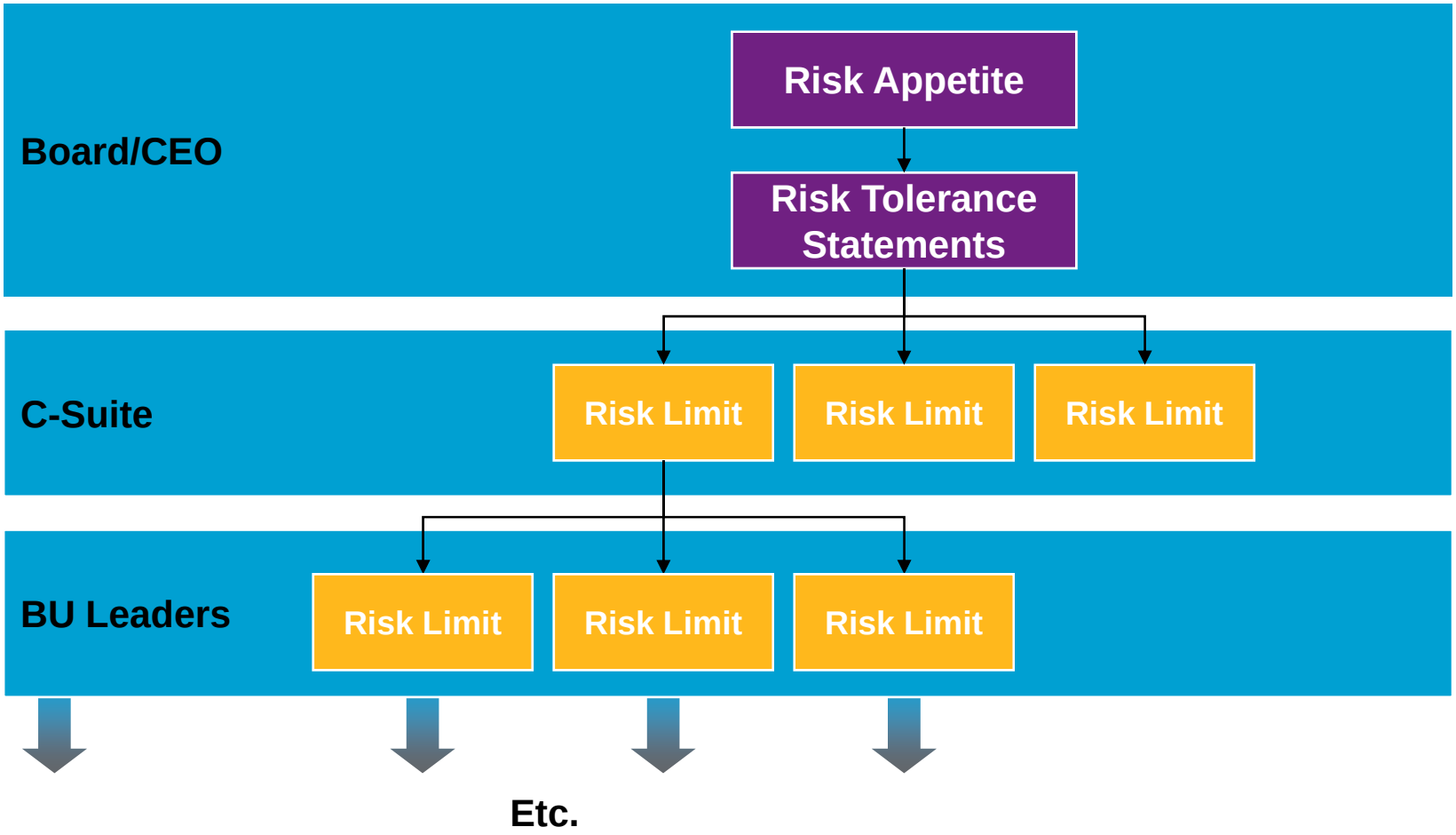
Board of Directors

- Sets/approves overall risk appetite that reflects corporate mission and aligns with stakeholder expectations
- Approves capital plan
- Ensures appropriate corporate risk governance

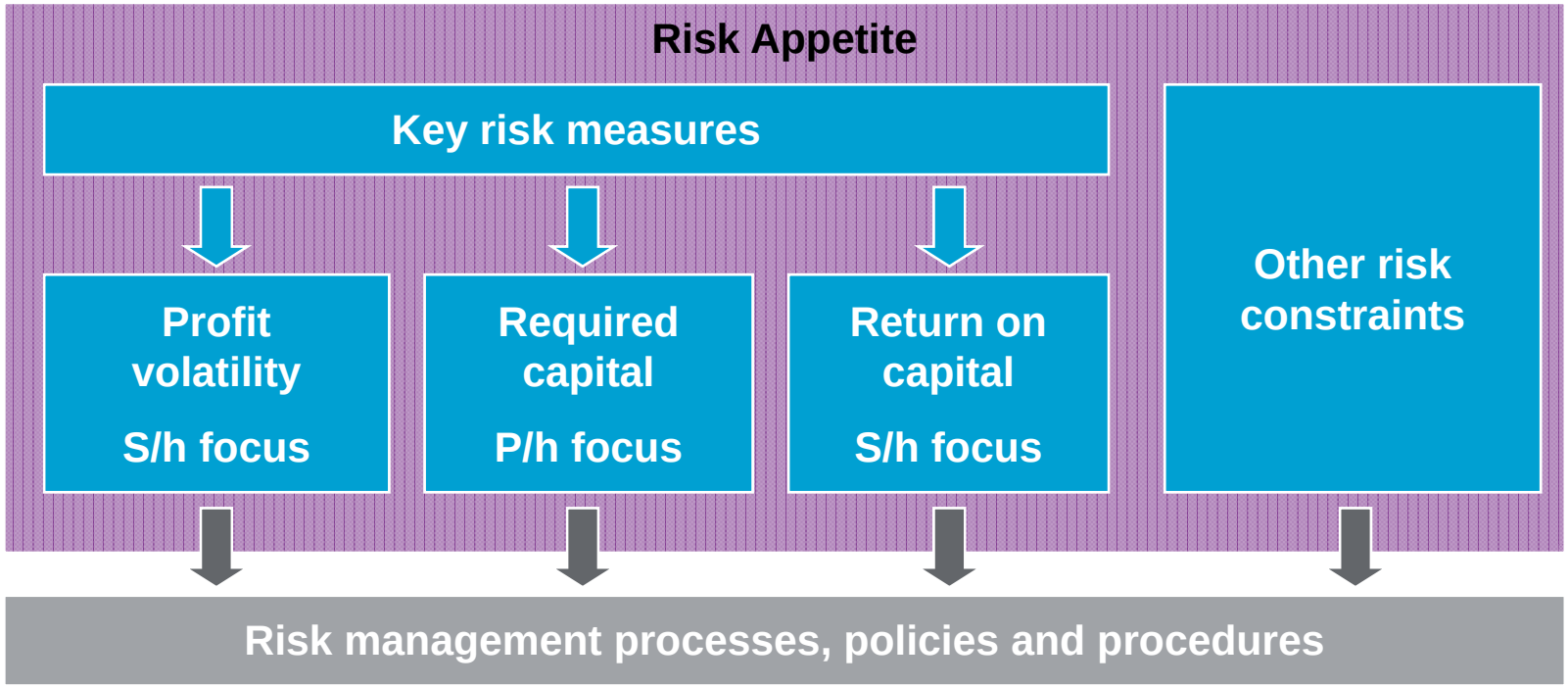
Management

- Develops business strategy, sets financial targets (e.g., growth, earnings, ROE)
- Determines overall capital needs and performs capital budgeting
- Allocates capital
- Manages business, consistent with company’s strategy, to achieve results according to detailed business plans and agreed-on risk appetite

More granular expectations can be defined once the board and management agree on overall objectives



Risk appetite is not captured by any one measure due to the varied characteristics of underlying risk events



Think of mission-failure risk outcomes in four quadrants

Preserving Capital Adequacy (Either economic or regulatory)	Achieving Targeted Performance (Considering all Relevant Metrics)
▪ Avoid insolvency ▪ Avoid impairment ▪ Avoid rating agency actions ▪ Avoid regulatory intervention ▪ Avoid adverse actions by policyholders ▪ Avoid adverse actions by distributors	▪ Avoid sustained underperformance ▪ Avoid excessive volatility to the extent it undermines confidence ▪ Avoid poor performance relative to peers, if constituents care
Maintaining Liquidity	**Protecting Franchise Value**
▪ Handle extraordinary policyholder obligations ▪ Handle unusual illiquidity in asset markets	▪ Avoid damage to reputation ▪ Avoid loss of policyholder (and distributor) affinity ▪ Avoid loss of employee engagement ▪ Avoid loss of sources of competitive advantage

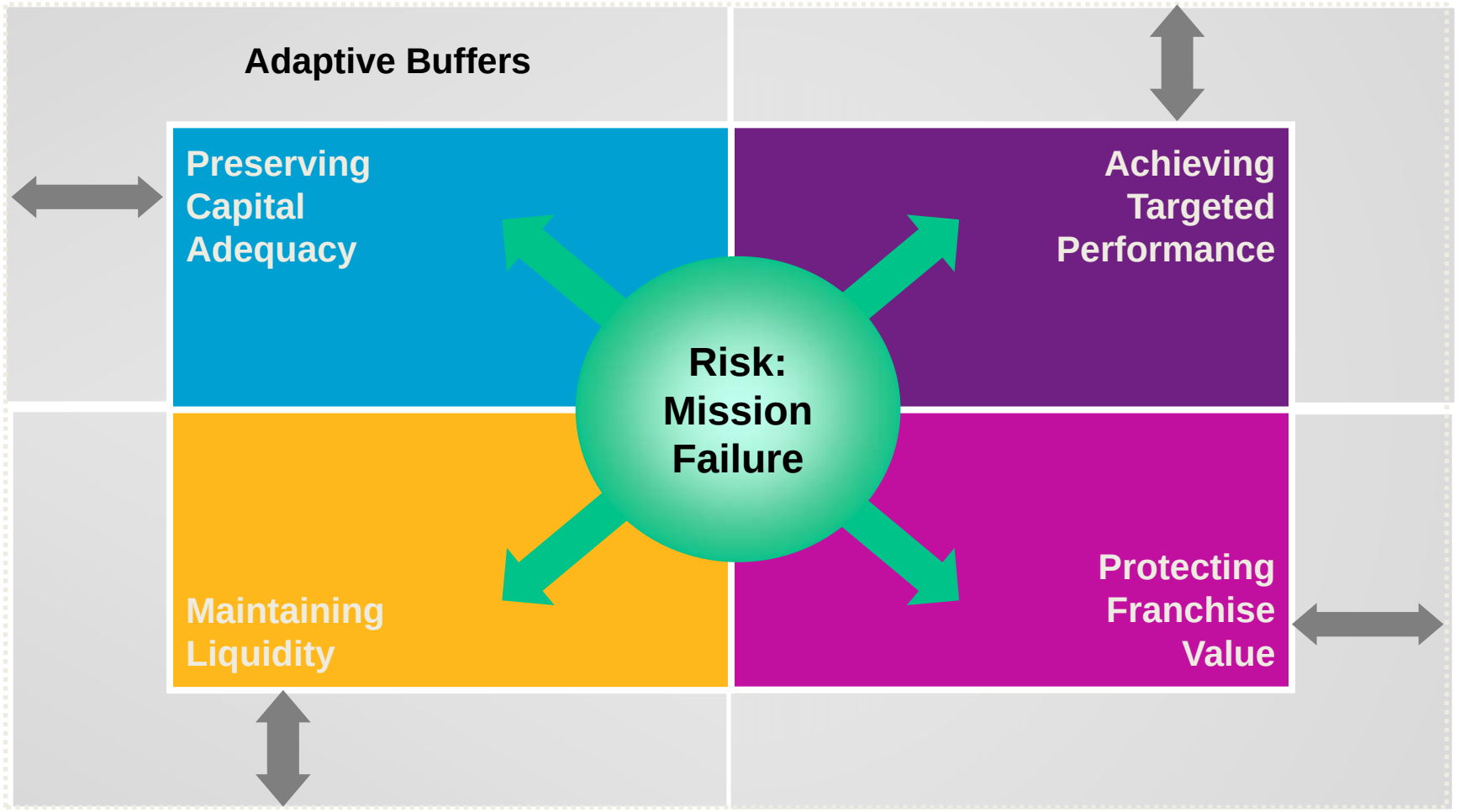
Example Risk Appetite statements

Category	Risk Appetite
Preserving Capital Adequacy	▪ High probability (> 95%) of achieving and maintaining a minimum rating equal to A
	▪ Maintaining a sufficient economic capital to ensure the survival of the company with a 99.5% level of confidence, on a one year basis (1-200)
	▪ High probability (>95%) of achieving and maintaining a minimum BCAR equal to 190%
	▪ Company has zero tolerance for regulatory breaches
	▪ Maintaining RBC ratios relative to peer companies
Achieving Targeted Performance	▪ Provide a return on equity (ROE) of 500 basis points above the risk-free rate at 10 years
	▪ The average growth in 5 years should be greater than 5%
	▪ Achieve an average combined ratio over the cycle of 95%, ranging from 88% to 103%
	▪ Rate of growth of policyholder surplus at all legal entities higher than growth in premium
	▪ Achieve and maintain a minimum market share equal to 15%
	▪ As a minimum, the value of the portfolio of financial investments year after year should be preserved

Example Risk Appetite statements (continued)

Category	Risk Appetite
Liquidity	▪ Maintaining a relevant level of liquidity to meet both expected cash outflows and unexpected cash needs under stressed conditions. Having credit lines only to be used in the event of extreme adverse scenarios
Franchise Value	▪ We have minimal appetite for material threats to our reputation and we will always treat our customers fairly and act with integrity.
	▪ The adequacy and integrity of the staff will be ensured
	▪ The company operates so as to maintain and strengthen confidence in its brand in the market
	▪ The outsourcing of services or processes will not raise the level of risk and the responsibility will be retained by the company
	▪ Less than 3% voluntary leavers over any 12 month period
	▪ Employees observe an ethical behavior in their daily activities according to the Code of Conduct

Four quadrants for risk strategy, tolerances, buffers

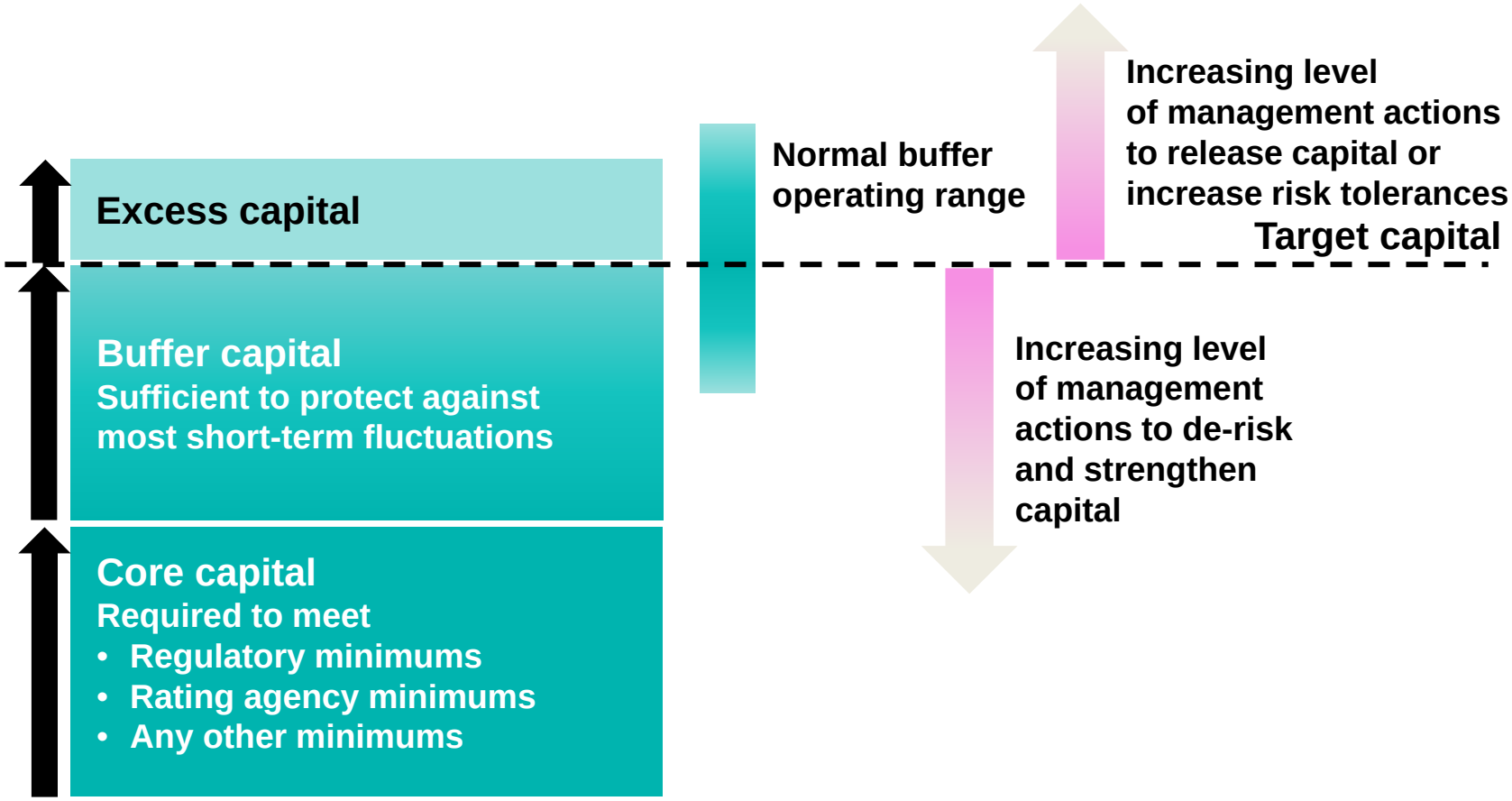


Examples of Adaptive Buffers

Risk Quadrant	Example Adaptive Buffers	Priority
Loss of actual or perceived financial strength	▪ Cat reinsurance/hedging programs	**A**
	▪ Capital above minimum requirements	**A**
	▪ Better-than-peers relationships with rating agencies	**B**
	▪ Better-than-peers relationship with regulators	**C**
Financial non-performance	▪ Maintaining target pricing margins above minimum	**A**
	▪ A 'bank' of historical performance above minimum	**A**
	▪ Earnings protection reinsurance	**A**
	▪ Better-than-peers model risk management practices	**A**
	▪ Better-than-peers monitoring of claim experience trends	**B**
	▪ Better-than-peers shareholder communications	**C**
Loss of intangible franchise value	▪ Better-than-peers customer satisfaction	**A**
	▪ Aggressiveness on patents and other intellectual property protections	**A**
	▪ Better-than-peers talent management of analytics and technology workers	**A**
	▪ Better-than-peers identification of emerging data sources and technology	**A**
	▪ Better-than-peers engagement of workforce	**B**
Liquidity problem	▪ Liquid assets in excess of expected cash needs	**B**
	▪ Bank liquidity facility	**C**

Capital adequacy framework with buffer capital

Risk tolerance describes willingness to risk depletion of buffer



Recap on key points about risk appetite

- Risk is fundamentally the failure to deliver on the mission
- Convenient to organize mission-failure risk around four quadrants:
  - Preserving capital adequacy
  - Achieving targeted performance
  - Maintaining liquidity
  - Protecting franchise value
- Adaptive buffers are resources that provide a cushion to absorb bumps in the road
  - Buffers can be financial or non-financial forms of capital
- Risk tolerances are expressed in terms of the likelihood of adverse events consuming the buffers
- The benefit is the identification of the business elements that are mission critical, enabling the development of risk management programs that will assure the organization is resilient to adversity

Tying Risk Limits to Risk Tolerances

Link between risk tolerances and risk limits

- Risk tolerances are enterprise-level metrics that quantify the amount of aggregate risk that a company is willing to accept
  - Usually it is expressed in probabilistic terms, time horizons and mission impairment impacts
- In contrast risk limits are more granular and help to implement the risk tolerances
  - They are often expressed employing practical metrics that are measurable and relevant to managers based on authority levels, like underwriting or claim settlement authority
- Effective risk limits help management execute its plan while staying within chosen risk tolerances
- Several practical issues become apparent
  - How to move down from the enterprise all-risk-driver view to specific individual risk drivers
  - How one tests if the risk limit metrics have the right linkage to the enterprise risk tolerances?

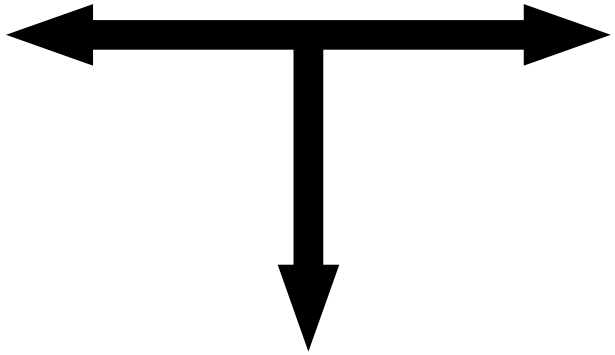
How risk budgets can help

- Risk budgets are essentially a top-down exercise in which senior management actively deploys the total risk-taking capacity of the enterprise to the various risk drivers/business units
  - When the capacity has been allocated, actual levels of deployment can then be actively monitored to assure they stay within agreed upon targets
- In essence risk budgets are the highest-level set of risk limits imposed on each business portfolio
  - They can focus on either specific risk drivers that are problematic, or
  - They can focus on the total risk budget for a business unit, without specifying budgets by risk factor

Risk budgeting can help create the linkages between enterprise risk tolerances and local risk limits

Risk Tolerances

- Enterprise level
- Cover all risk drivers
- Expressed in probabilistic terms; mission impairment impacts related to consumption of buffers



Risk Budgets

- Allocation of required buffer to risk drivers and business portfolios
- Allocation based on relative propensity to consume buffer

Risk Limits

- Local level
- Relate to specific risk drivers or specific business portfolios
- Expressed using practical metrics relevant to local managers

Implementing risk tolerances may require an alternative implementation of enterprise risk models

- A risk measurement model is a system that measures the financial impact of risk drivers on a business portfolio
  - The enterprise model is the special case
- First-generation models were built at the business unit level first and then aggregated to the enterprise level
  - This approach produces accurate results, yet it is cumbersome to maintain and run
- For a risk model to be useful it should produce results near real-time and be transparent, and flexible
- Enterprise models could leverage the business unit models through the use of loss functions to proxy the business results
  - The loss functions are capable of being updated as the business and environment changes

Risk Appetite Case Study

Common characteristics

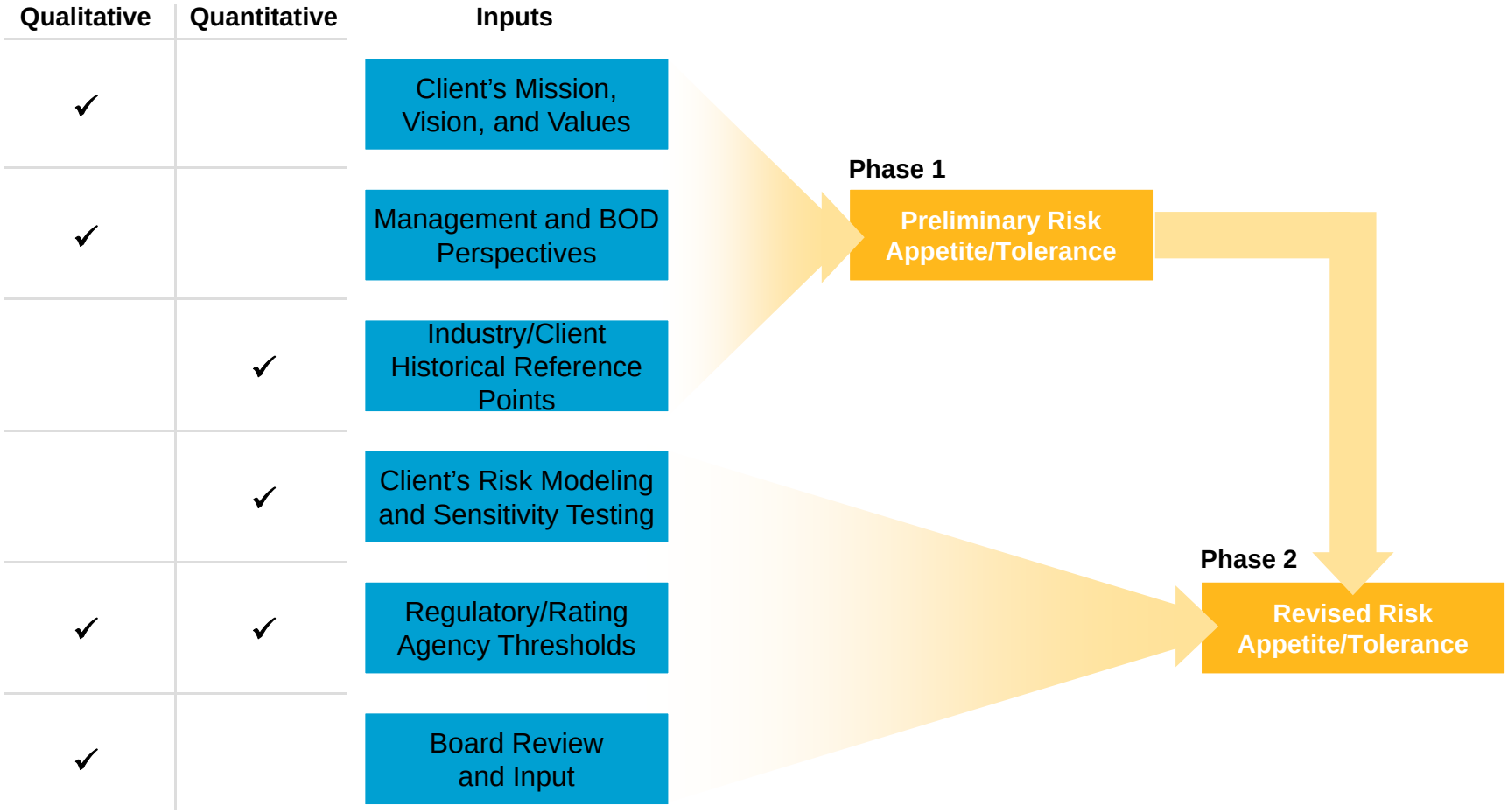
- Board members with varied backgrounds and different industries
- No/minimal Board engagement
- No common definition or understanding of “risk”
- No common perspective on amount of risk currently being accepted
- No common perspective on desired amount of risk to accept
- No risk appetite or risk tolerance statements

Common objectives

- Establish a common foundation of risk
- Develop preliminary risk appetite and risk tolerance statements
- Validate and refine the preliminary risk appetite/tolerance statements

Risk appetite can be defined using a combination of qualitative and quantitative inputs

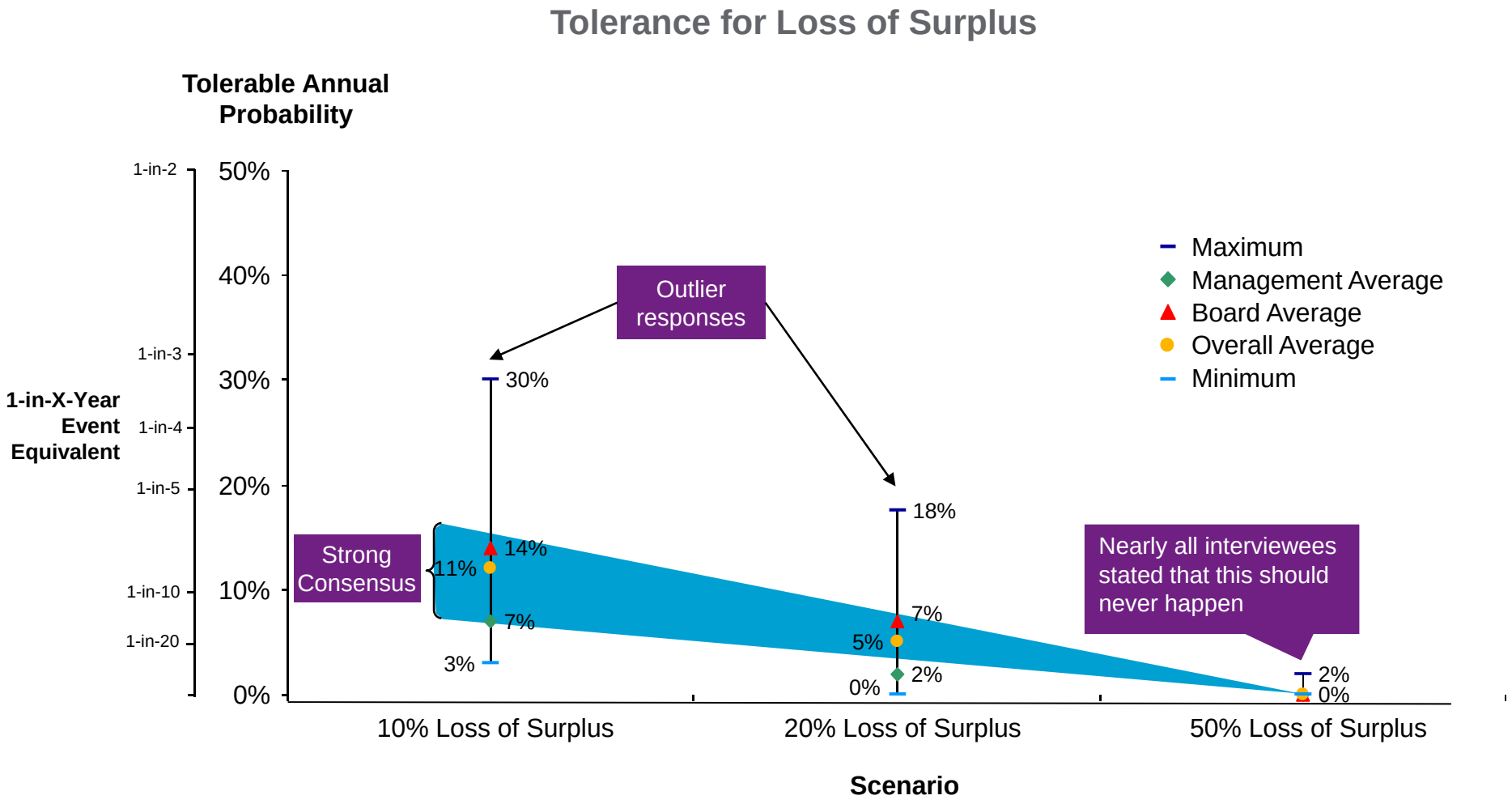
Approach to Defining a Company's Risk Appetite/Risk Tolerance



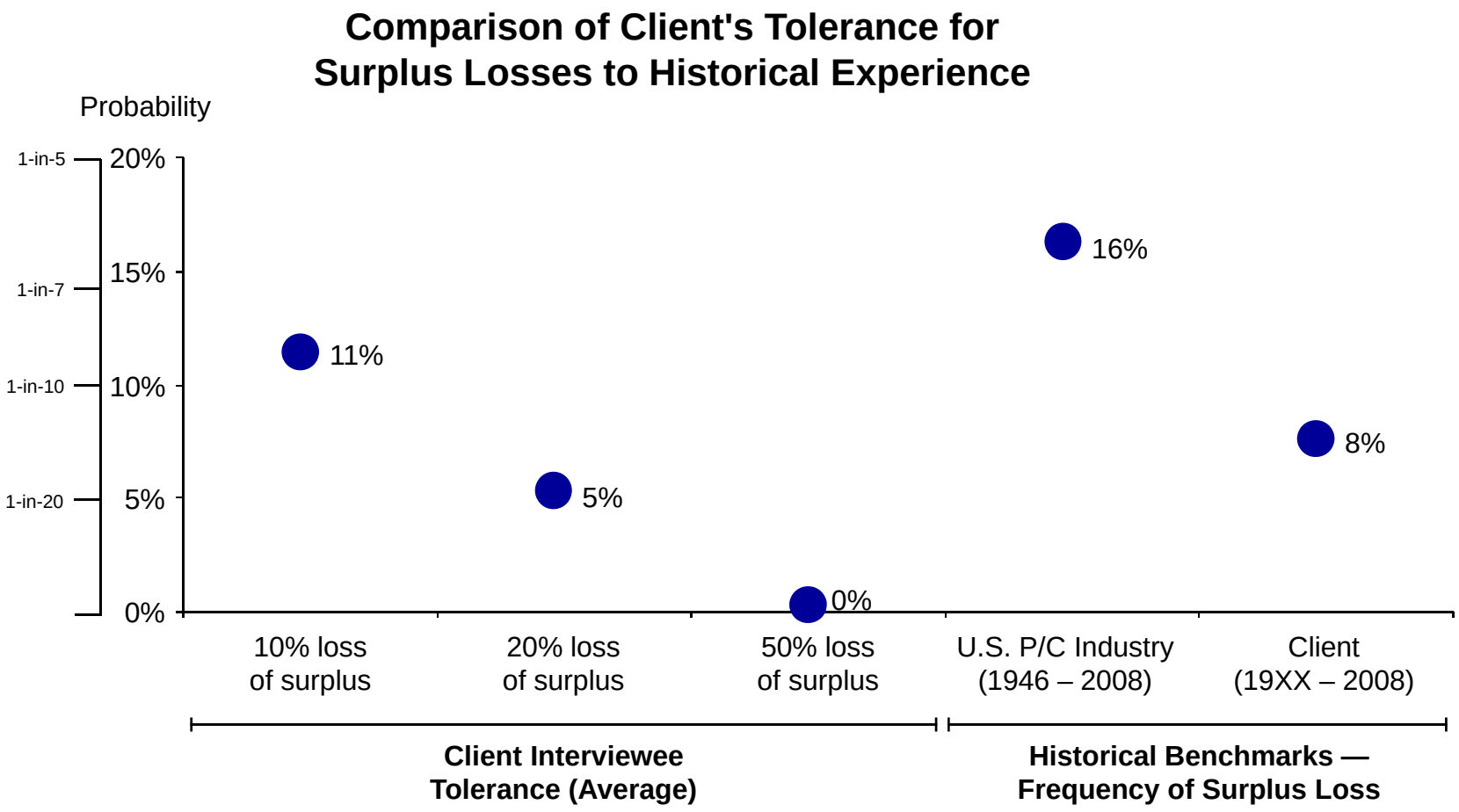
An initial phase might be aimed at establishing a common understanding and risk vocabulary

1. Capture existing perspectives on risk
2. Measure how much uniformity there is among the group
3. Use a common set of questions
4. Play back the results

For example, participants might be asked about their willingness to sustain various levels of surplus declines…

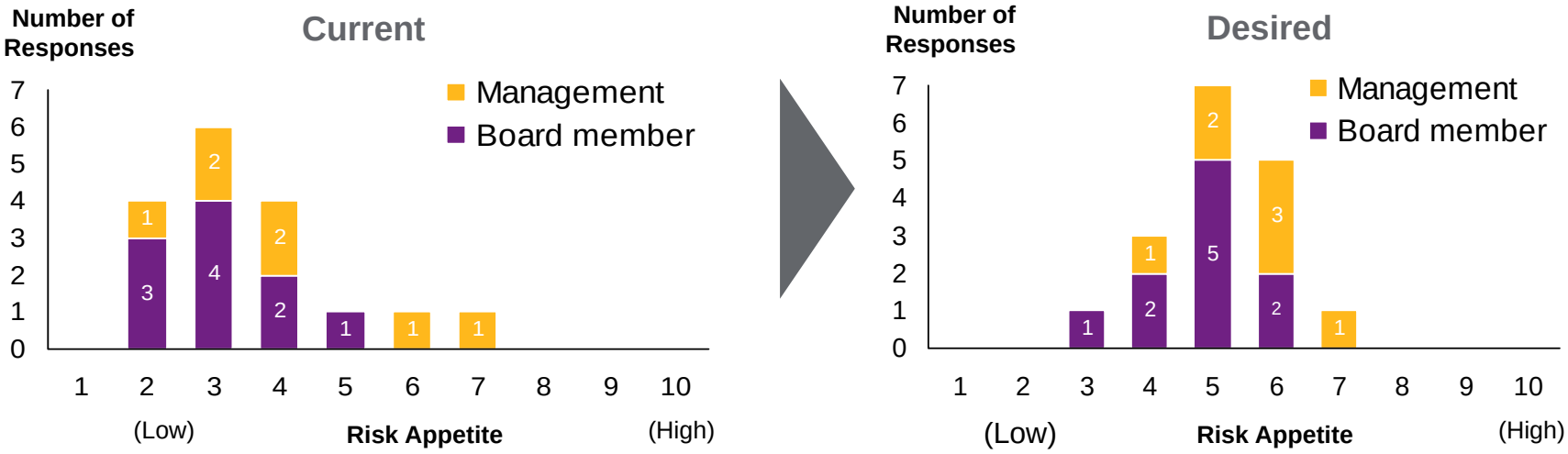


…and the responses can be compared to the historical experience for both the industry and company



Some questions can be aimed at comparing the perceived current and desired risk appetites

Client's Risk Appetite



Average Scores

	Current	Desired
Management	**4.1**	**5.6**
Board	**3.1**	**4.8**

This interview/feedback approach can lay the foundation for developing a risk appetite statement

- Consistent vocabulary
- Consistent appetite for risk
- Preliminary risk appetite statement

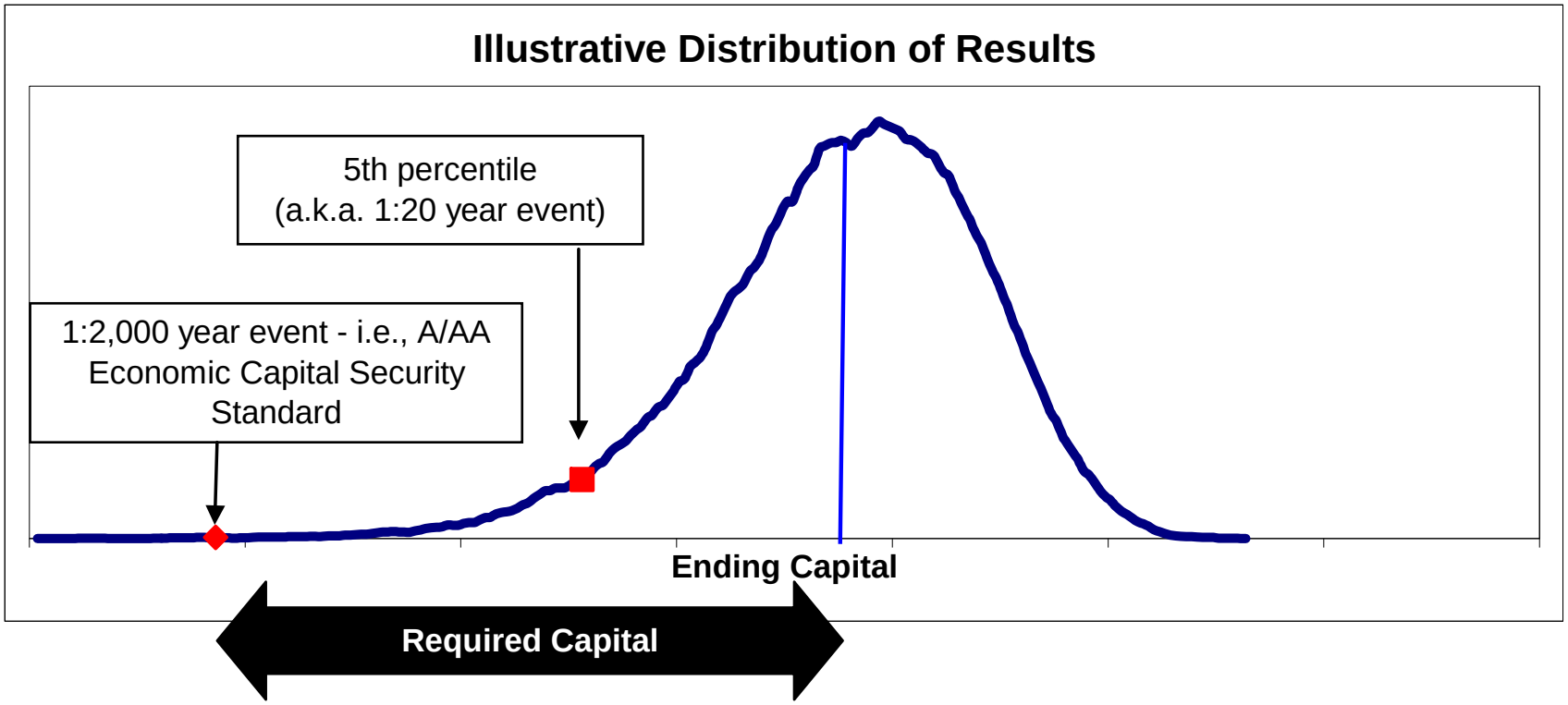
Additional phases involve validation and refinement

In subsequent phases:

- Quantify the existing risk
  - Compare results with the preliminary risk tolerances
  - Some incompatibility is inevitable
- Refine the preliminary risk appetite statement
- Develop plan to move from existing to target
- Establish risk monitoring and reporting processes
- Establish risk limits
- Refine risk modeling/quantification

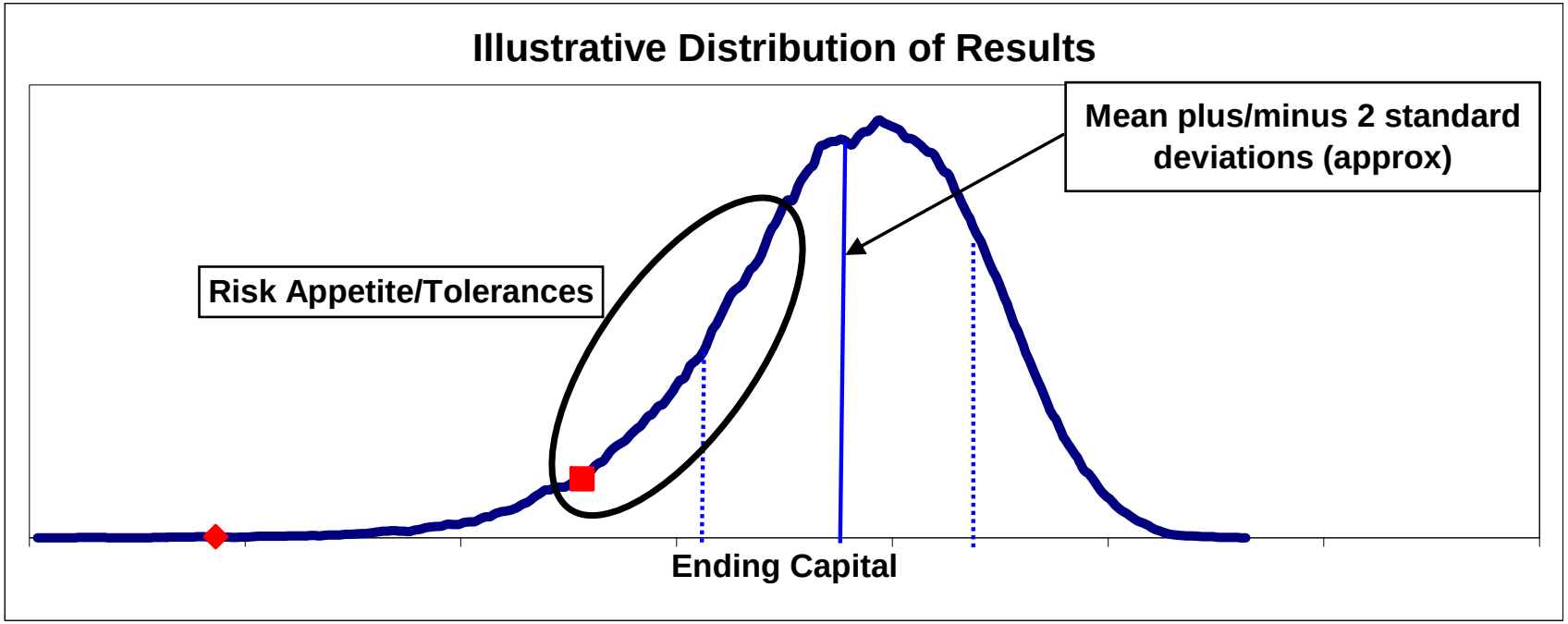
Risk Tolerances/Limits

Economic capital usually focuses on remote tail events…



- Economic capital analysis, for valid reasons, emphasizes remote risks and scenarios that threaten company solvency
- These analyses are usually performed using a one-year market consistent methodology or using a runoff methodology as in a multi-year dynamic financial analysis model.

… Risk appetite/tolerances, usually emphasizes less remote occurrences.



- Many insurers focus on 10, 20 or 50 year return periods for setting risk tolerances
- When practical these processes often leverage their economic capital models to monitor risk positions

Sample Risk Tolerance

Risk	Maximum 1:20 Year Hit to Economic Capital	Modeled Risk Position	Risk Dashboard
Catastrophe Exposure	10%	7.3%	In compliance
Non-Cat Pricing Risk	12.5%	11.1%	Caution >80% of limit
Equity Risk	5%	6.2%	Risk position exceeds established limit
Interest Rate Risk	15%	6.7%	In compliance

Annually

Monthly and on demand

From Tolerances to Limits

Focus on risk drivers that are material to the enterprise and risk limits that have the potential to alter the shape of the enterprise's overall portfolio-level risk profile.

- Geographic concentrations of property catastrophe risk exposure
- Investment risk exposure
- Mismatch between the term structure of assets and liabilities
- Concentrations in insurance product lines / UW risk exposure

Challenges linking tolerances and limits

Once enterprise risk tolerances are established, implement processes and controls (e.g. local risk limits) to manage enterprise risk profile.

- Enterprise risk tolerances relate to the impact of all risk drivers in combination, but control of specific risk drivers is dispersed. How does one move down from the enterprise all-risk-driver view to specific individual risk drivers that are to be controlled via risk limits?
- Each BU (may) contribute to enterprise's exposure to an individual risk driver. How does one coordinate risk limits across multiple business units?
- Risk limits are usually set using metrics that are accessible to local managers. How does one translate from these metrics to risk tolerances?
- How to test risk limits for appropriate linkages to enterprise risk tolerances?

Risk Limits Case Study

CASE STUDY

Mutual insurer linking risk tolerances and risk limits

- Company was a mutual insurer
- As first step building bridge between risk tolerances and risk limits, allocated key adaptive buffers to risk driver / business unit in proportion to respective propensity to consume that buffer.
  - Illustrates relative importance of each risk driver to mission risk
  - Provides basis for allocating the cost of buffer to portfolios and risks
- Initially concerned that catastrophe exposure might grow disproportionately
- Want to understand how growth in TIV by state affects risk appetite/limits
- Several challenges needed to be addressed
  - Running CAT models with alternative exposure assumptions can take days
  - Running a capital model can take hours
- The solution entailed achieving near-real-time risk monitoring through mathematical functions, which assisted the company with its decision making.
  - Local risk limits were linked to global risk budgets using a cat loss distribution which was consistent between models

Multiple runs of the risk measurement and enterprise risk model

- Risk driver = CATS
- Risk limits = TIV
- Risk budget= CAT risk at 40% of the total risk
- Risk tolerance = Buffer against capital loss