

The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance.

# CHALLENGES OF ESTABLISHING AN ECONOMIC CAPITAL FRAMEWORK FOR DIVERSE COMPANIES

ACTUARIES' CLUB OF THE SOUTHWEST

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# AGENDA

- ECONOMIC CAPITAL - DEFINED
- FIT INTO ENTERPRISE RISK MANAGEMENT
- MODEL BUILD
- ULTIMATE OBJECTIVES
- MULTI-INDUSTRY CHALLENGES

# ECONOMIC CAPITAL - DEFINED

ECONOMIC CAPITAL: THE AMOUNT OF CAPITAL AN ORGANIZATION REQUIRES TO SURVIVE OR TO MEET A BUSINESS OBJECTIVE FOR A SPECIFIED PERIOD OF TIME AND RISK METRIC, GIVEN ITS RISK PROFILE (ASOP 46)

EXAMPLE: HOW MUCH CAPITAL DO I NEED TODAY TO BE SOLVENT A YEAR FROM NOW WITH A 99.5% PROBABILITY?

<b>How stringent is the objective?</b>
<b>What is the time period?</b>
<b>How are results measured?</b>
<b>What is included in the risk profile?</b>

# ALTERNATIVE DEFINITION

ANOTHER DEFINITION OF ECONOMIC CAPITAL: THE ECONOMIC VALUE OF ASSETS LESS ECONOMIC VALUE OF LIABILITIES (AVAILABLE ECONOMIC CAPITAL):

## CAN BE USEFUL:

- WHAT BUSINESSES YOU SHOULD BE WRITING
- WHAT YOUR BUSINESS IS WORTH
- ALLOCATE CAPITAL TO BUSINESS LINES

## WILL NOT ANSWER ALL QUESTIONS:

- CAN YOU REMAIN IN BUSINESS
- CALCULATION RULES UNCLEAR

FOR THIS DISCUSSION WE WILL USE DEFINITION ON PRIOR SLIDE

# ENTERPRISE RISK MANAGEMENT PROCESS



## Possible Evaluation Techniques

- Economic Capital Model
- Scenario Tests
- Stress Tests

Of these, Economic capital model is the most complex method

Why would you choose the most complex approach?

# WHAT TYPE OF MODEL TO BUILD?



# STARTING THE JOURNEY

- RISK IDENTIFICATION
- INVENTORY EXISTING RISK MODELS
- DESIRED OUTPUT
- MODEL STRUCTURE
- SOFTWARE TO MODEL RISKS / COMBINE RESULTS
- TEAM COMPOSITION

# BUILDING A TEAM

## REGARDLESS OF MODEL COMPLEXITY

- HIGHLY ANALYTICAL
- COMFORTABLE WITH AMBIGUITY
- CREDIBLE WITH BUSINESS PARTNERS

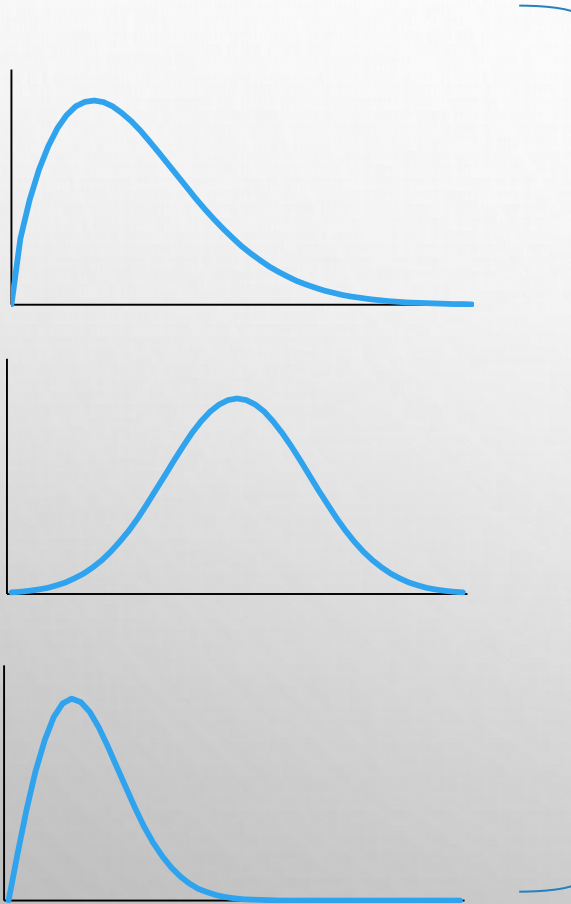
## WITH MORE COMPLEX MODEL

- FULL TIME TEAM
- STATISTICAL SKILLS
- IT/DATABASE/PROGRAMMING SKILLS



# ECONOMIC CAPITAL MODEL STRUCTURE

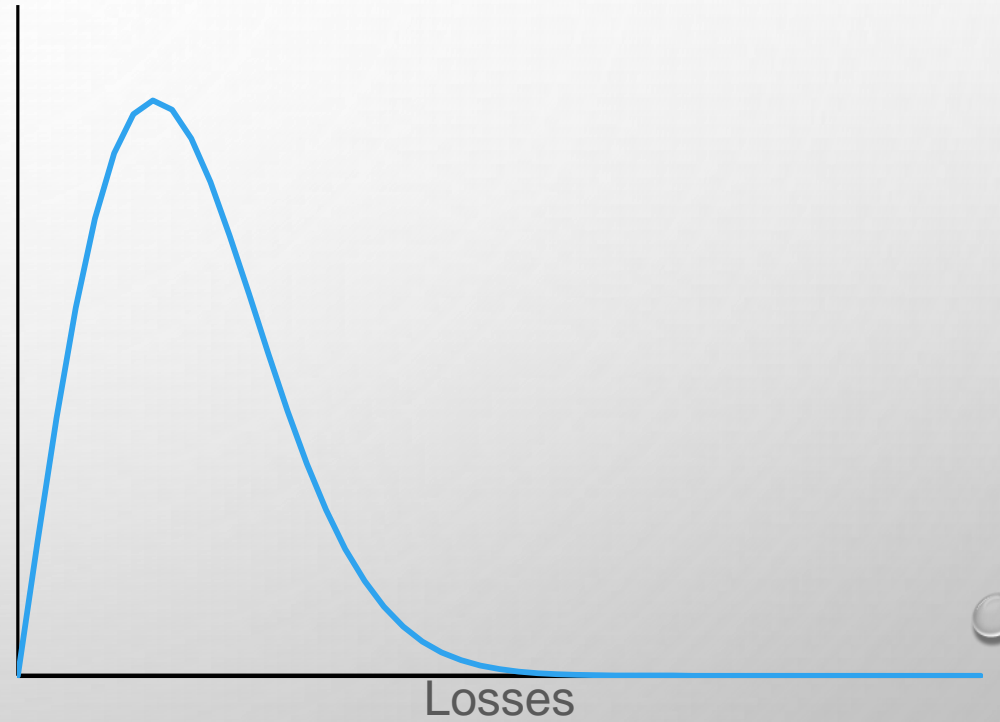
Individual Risks



Combine  
Risks



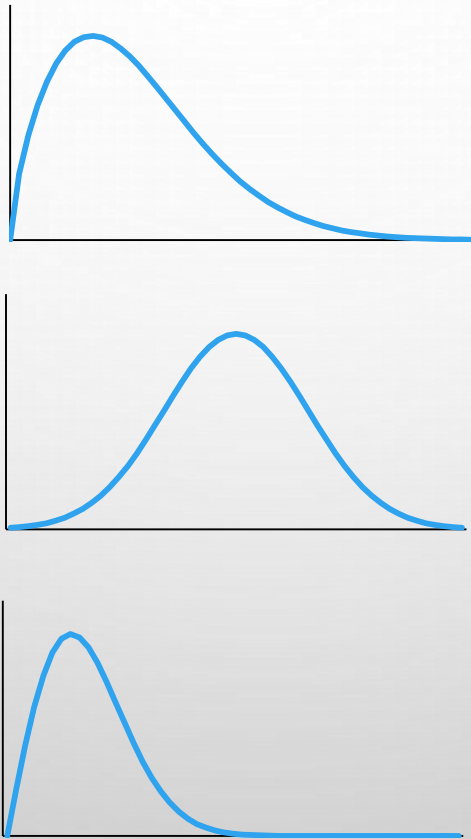
Company Risk Profile



# WAYS TO COMBINE RISKS

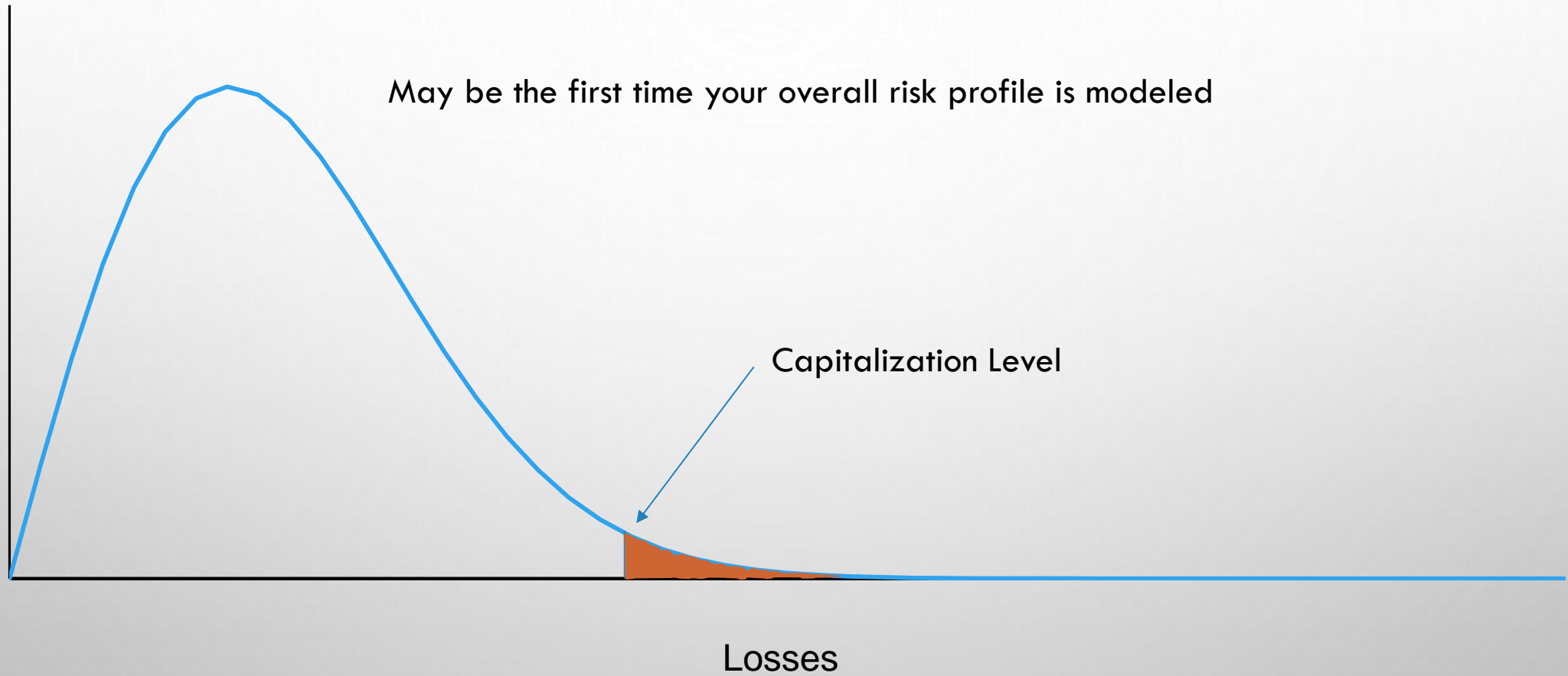
Define Relationships among risk drivers and model risks using resulting drivers

Individual Risks



Combine Risks using correlations, copulas, professional judgment

# YOUR COMPANY'S RISK PROFILE

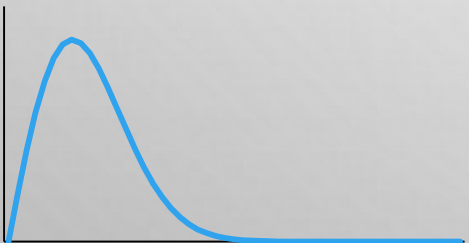
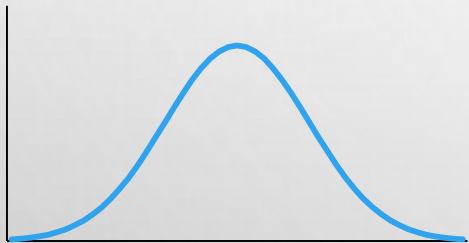
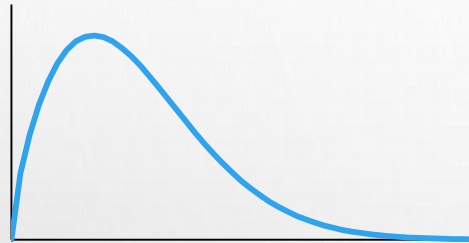


# COMMUNICATING THE RESULTS

- COMMUNICATE THROUGHOUT THE PROCESS
- NOT ALL BUSINESS RISKS ARE CAPITAL RISKS
- USE METRIC AND FINANCIAL FRAMEWORK THAT ARE MEANINGFUL
- TAILOR COMMUNICATION TO EACH AUDIENCE
- BE HONEST ABOUT MODEL STRENGTHS AND WEAKNESSES

# WAYS TO USE OUTPUT

Individual Risks



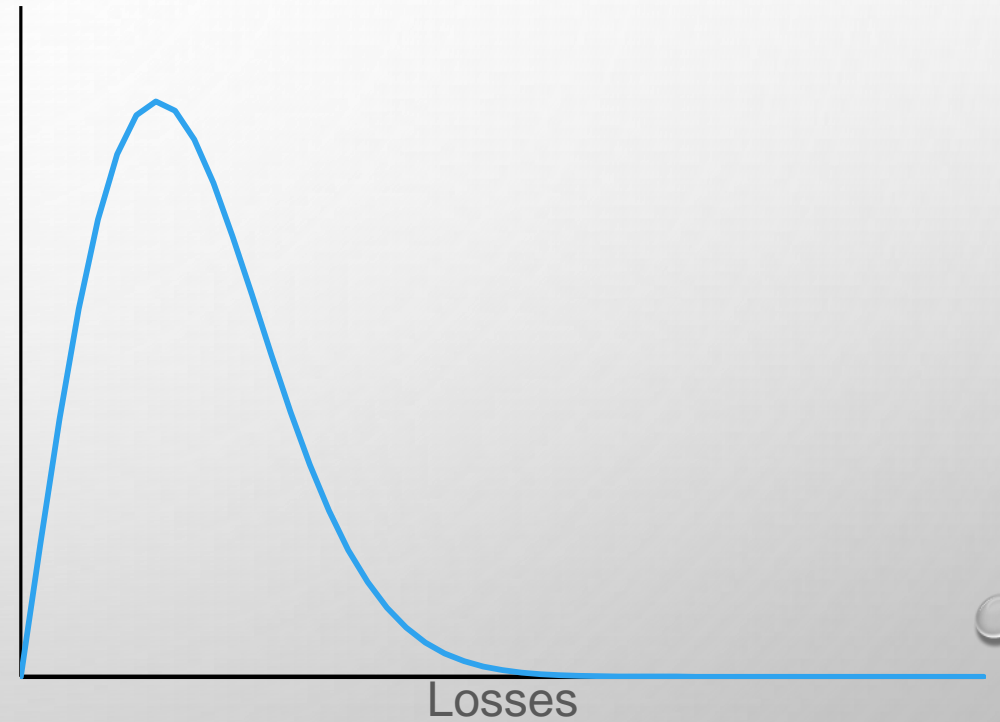
Combine  
Risks

- RELATIVE SIZE OF RISKS
- DIVERSIFICATION BENEFITS
- WHAT RISKS ARE CONSTRAINING
- BY RISK REPORTING
- SENSITIVITY TESTS

# WAYS TO USE OUTPUT

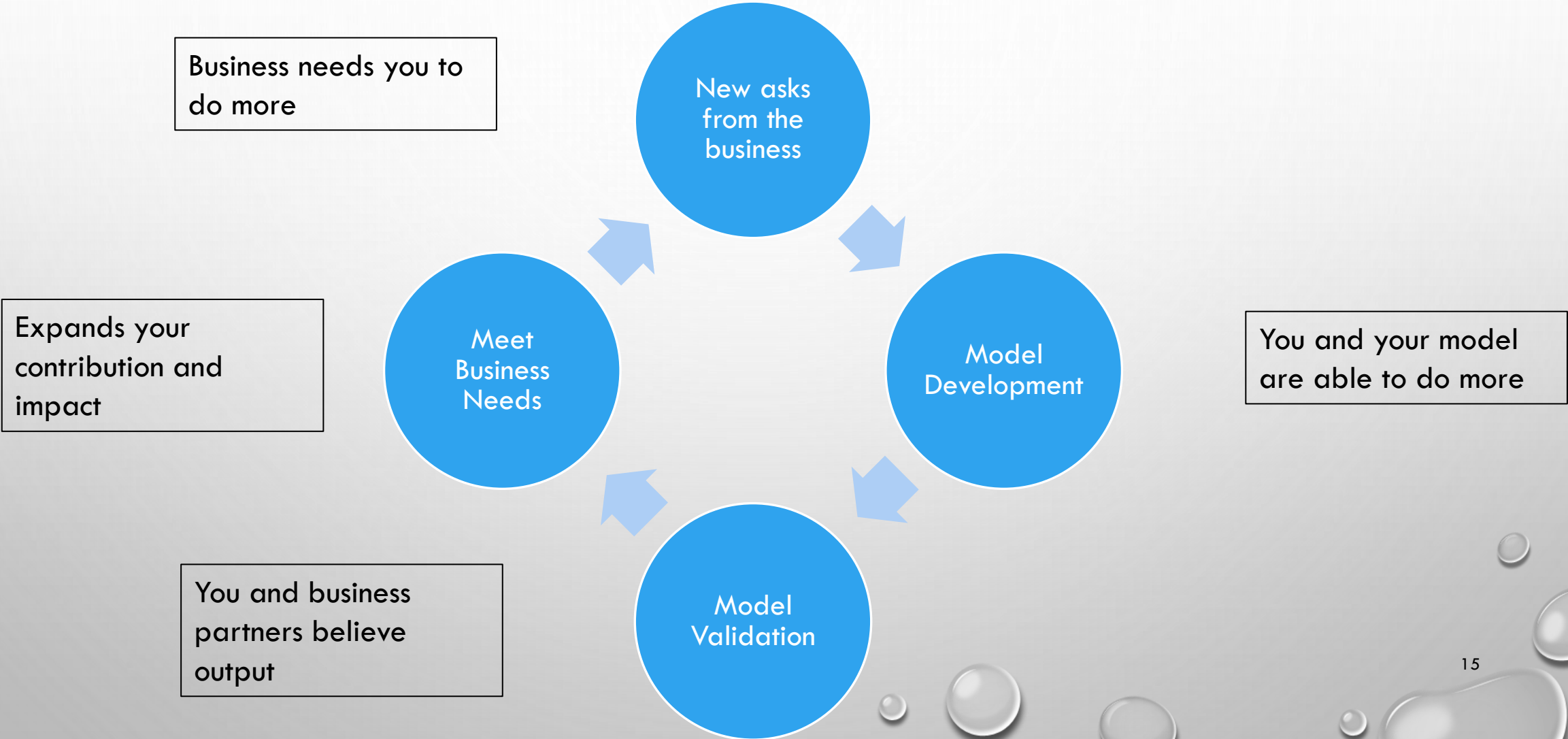
- CAUSES OF TAIL EVENTS
- DISTRIBUTION AROUND EXPECTED
- IMPACT OF CAPITALIZATION CHANGES
- CHOOSING RISKS TO HEDGE
- SENSITIVITY TESTS

Company Risk Profile

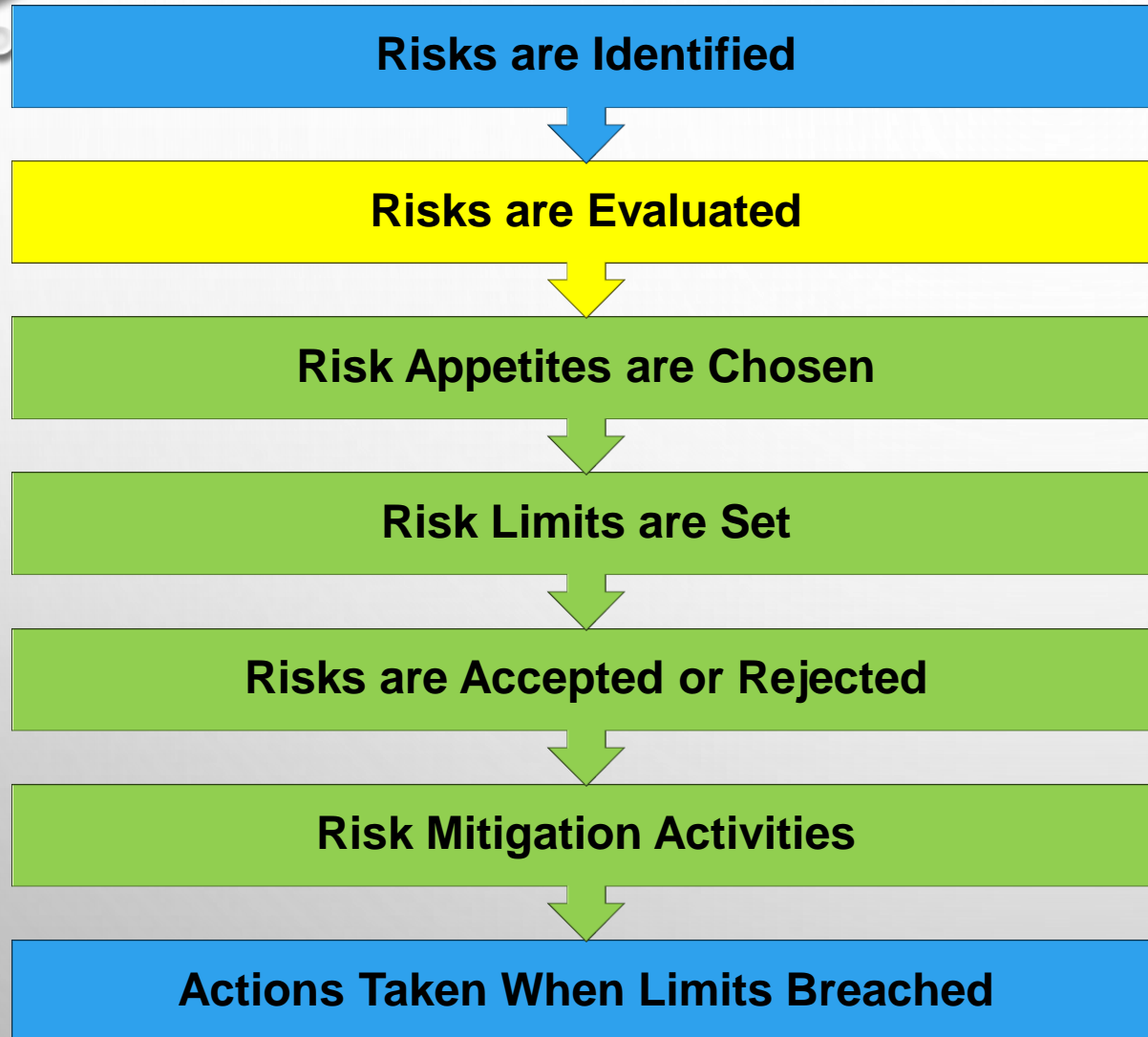




# WHERE YOU WANT TO WIND UP



# ENTERPRISE RISK MANAGEMENT PROCESS



- A Good Model Can Influence and Inform Much of the ERM Process
- How much risk can we take on?
  - When do risks become constraining?
  - Which risks are we rewarded for taking?
  - What mitigation strategies are most effective?



# MULTI-INDUSTRY CHALLENGES

## RISK MODELS ACROSS INDUSTRIES

- MORE RISKS
- THE SAME RISK CAN BE VIEWED OR MODELED DIFFERENTLY
- CORRELATION OF CROSS INDUSTRY RISKS
- POSSIBLE MITIGATIONS: FOCUS ON DRIVERS, COMMUNICATE

## SOFTWARE

- PROVIDERS AND SOLUTIONS FOCUS ON ONE INDUSTRY
- WILL LIKELY NEED INTERACTION WITH MULTIPLE PLATFORMS
- POSSIBLE MITIGATIONS: FLEXIBILITY, COMBINE BEST IN CLASS

# MULTI-INDUSTRY CHALLENGES

## MODEL DESIGN

- STOCHASTIC OR DETERMINISTIC MODEL
- ADDED RISK DRIVERS
- LEGAL ENTITIES / CAPITAL MOVEMENT
- POSSIBLE MITIGATIONS: CLEAR OBJECTIVES, SET PRIORITIES WITH PARTNERS

## BUILDING A TEAM

- FEW CROSS INDUSTRY EXPERTS
- BREADTH OF RESPONSIBILITIES STRETCHES FOCUS
- CAREER PATHS
- POSSIBLE MITIGATIONS: LEVERAGE BUSINESS PARTNERS, PROVIDE CAREER BROADENING OPPORTUNITY

# THANK YOU

## CONTACT INFORMATION

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## REFERENCES

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