

# Actuaries Summit

**Think Differently**



**Actuaries  
Institute**

21-23 May 2017 • Grand Hyatt Melbourne





# Stress and Scenario Testing Survey

Briallen Cummings  
Gerard Callaghan  
Georgina Hemmings

© KPMG

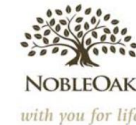
*This presentation has been prepared for the Actuaries Institute 2017 Actuaries Summit.  
The Institute Council wishes it to be understood that opinions put forward herein are not necessarily those of the  
Institute and the Council is not responsible for those opinions.*

# Introduction

- KPMG has recently undertaken a global survey on Stress and Scenario Testing given increasing client interest in this area and regulatory focus.
- 29 Life Insurance companies across Australia, Canada and New Zealand responded.

# Introduction

We thank all the participants for making the survey a success:



# Why Stress and Scenario Testing?

- On 19 August 2016, Geoff Summerhayes, Member, APRA presented insights from APRA's 2015 Life Insurance Stress Test.

“...overall we felt that the insurers would need to make improvements, including in some cases the procurement of resources and establishment of infrastructure, processes and procedures to do the stress test adequately.”

“...industry has in the past not necessarily viewed stress testing as part of its 'DNA'.”

# Background

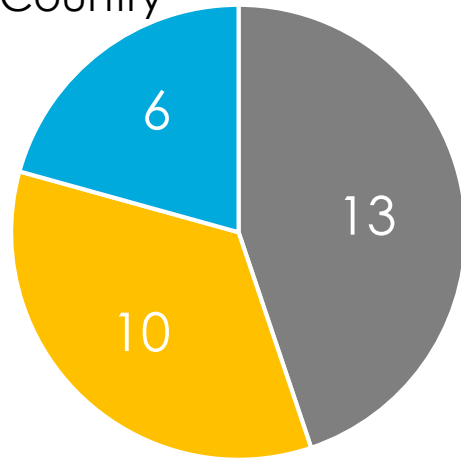
- Stress and Scenario testing is a developing area.
- The introduction of specific regulatory requirements has resulted in increased focus on Stress and Scenario Testing:

Country	Key regulatory requirements	Implementation date
Australia	LPS 110 (Capital Adequacy) CPS 220 (Risk Management)	January 2013 January 2015
Canada	OFSI Guideline E-18 (Stress Testing) OFSI Guideline E-19 (ORSA)	December 2009 January 2014
New Zealand	RBNZ Risk Management Program (Liquidity risks and contingency planning)	December 2012

# Participants

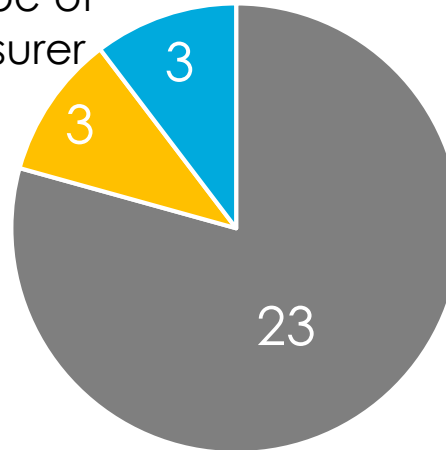
The 29 Life Insurers that participated can be segmented as follows:

Country



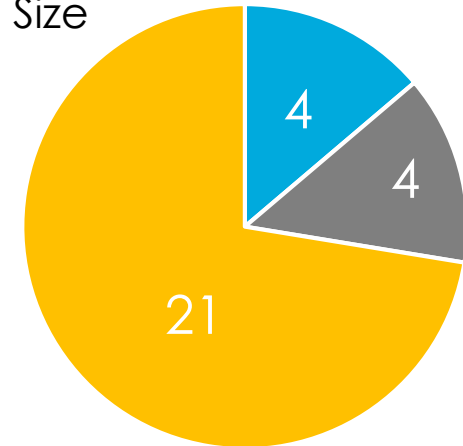
■ Australia ■ Canada ■ New Zealand

Type of Insurer



■ Direct ■ Reinsurer ■ Both

Size



■ Small (revenue <AUD100m)  
 ■ Medium (revenue <AUD1,000m)  
 ■ Large (revenue >AUD1,000m)

# Topics covered in the survey

The survey consisted of 43 questions covering a broad range of areas:

- 1. Purpose of Stress and Scenario Testing**
- 2. How are stress and scenario tests developed**
- 3. Use of reverse stress testing**
4. Types of scenarios
5. Management actions
6. Modelling of Stress & Scenario Testing
7. Operational considerations
8. Resourcing
- 9. Process improvements made and planned**
10. Use in recovery and resolution planning
- 11. Embedding Stress and Scenario Testing into the organisation**



# How is Stress and Scenario Testing valued by stakeholder?

Australia

Coy	Board	C-suite	Actuarial	Risk Management	Finance / Reporting
1	Valuable	Valuable	Valuable	Valuable	Somewhat valuable
2	Valuable	Valuable	Somewhat valuable	Valuable	Somewhat valuable
3	Valuable	Valuable	Fundamental to role	Fundamental to role	Valuable
4	Fundamental to role	Fundamental to role	Fundamental to role	Fundamental to role	Valuable
5	Valuable	Valuable	Fundamental to role	Fundamental to role	Fundamental to role
6	Valuable	Fundamental to role	Fundamental to role	Fundamental to role	Valuable
7	Valuable	Not valuable	Fundamental to role	Valuable	Somewhat valuable
8	Valuable	Valuable	Valuable	Fundamental to role	Valuable
9	Valuable	Somewhat valuable	Fundamental to role	Fundamental to role	Somewhat valuable
10	Fundamental to role	Fundamental to role	Fundamental to role	Fundamental to role	Fundamental to role
11	Fundamental to role	Valuable	Not valuable	Valuable	Somewhat valuable
12	Fundamental to role	Fundamental to role	Fundamental to role	Fundamental to role	Fundamental to role
13	Valuable	Valuable	Fundamental to role	Fundamental to role	Somewhat valuable

Fundamental to role	Highly valuable	Valuable	Somewhat valuable	Not valuable
---------------------	-----------------	----------	-------------------	--------------

# How is Stress and Scenario Testing valued by stakeholder?

## Canada

Coy	Board	C-suite	Actuarial	Risk Management	Finance / Reporting
1	Blue	Blue	Green	Green	Yellow
2	Red	Orange	Green	Yellow	Red
3	Yellow	Yellow	Blue	Blue	Yellow
4	Green	Green	Yellow	Blue	Yellow
5	Green	Green	Green	Green	Yellow
6	Blue	Blue	Green	Green	Yellow
7	Blue	Blue	Blue	Green	Blue
8	Blue	Blue	Green	Blue	Green
9	Blue	Blue	Yellow	Blue	Orange
10	Orange	Orange	Orange	Orange	Orange

Fundamental to role	Highly valuable	Valuable	Somewhat valuable	Not valuable
---------------------	-----------------	----------	-------------------	--------------

# How is Stress and Scenario Testing valued by stakeholder?

## New Zealand

Coy	Board	C-suite	Actuarial	Risk Management	Finance / Reporting
1	Valuable	Somewhat valuable	Fundamental to role	Valuable	Valuable
2	Fundamental to role	Fundamental to role	Highly valuable	Valuable	Valuable
3	Highly valuable	Valuable	Fundamental to role	Somewhat valuable	Somewhat valuable
4	Valuable	Valuable	Highly valuable	Fundamental to role	Fundamental to role
5	Fundamental to role	Valuable	Fundamental to role	Fundamental to role	Valuable
6	Fundamental to role	Valuable	Highly valuable	Valuable	Not valuable
	<b>Fundamental to role</b>	<b>Highly valuable</b>	<b>Valuable</b>	<b>Somewhat valuable</b>	<b>Not valuable</b>

# Presentation overview

- For today's presentation we have split results into two groups based upon the value the Board places on Stress and Scenario Testing.

	Highly valuable	Less valuable
What value does Board place on Stress and Scenario Testing?	Fundamental to performing role Highly valuable	Valuable Somewhat valuable Not valuable
Number of companies	15	14
Geographical location	Australia: 4 Canada: 7 NZ: 4	Australia: 9 Canada: 3 NZ: 2
Size	Large: 12 Medium: 2 Small: 1	Large: 9 Medium: 2 Small: 3

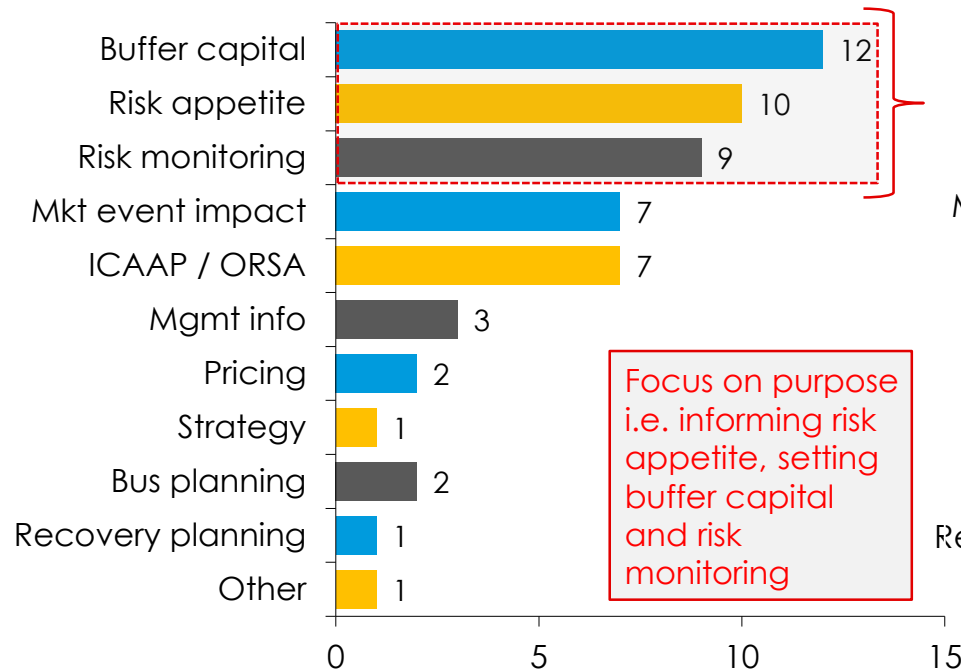


Section 1

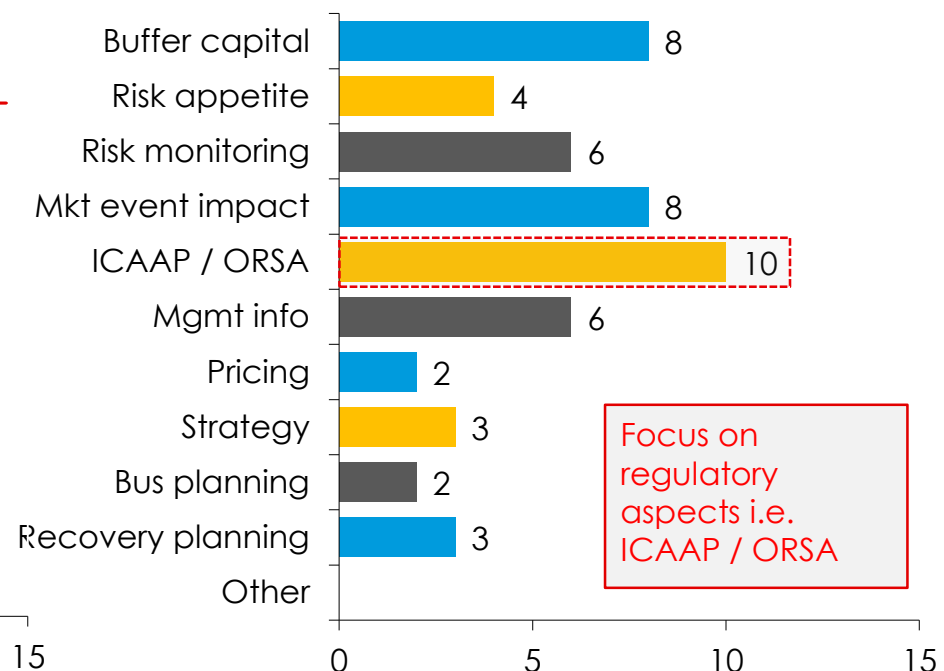
# PURPOSE OF STRESS AND SCENARIO TESTING

# How is stress testing used in decision making?

Highly valuable (15 Cos.)

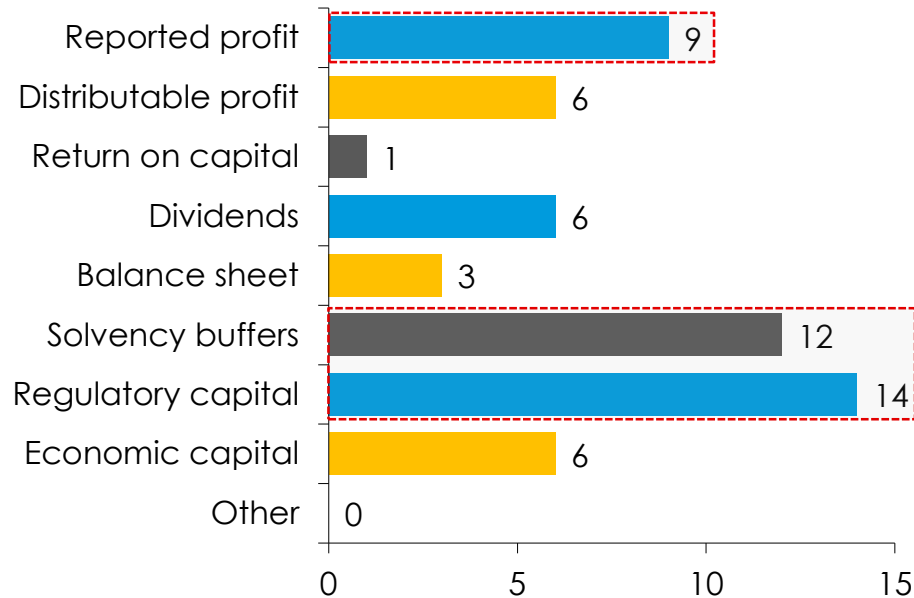


Less valuable (14 Cos.)

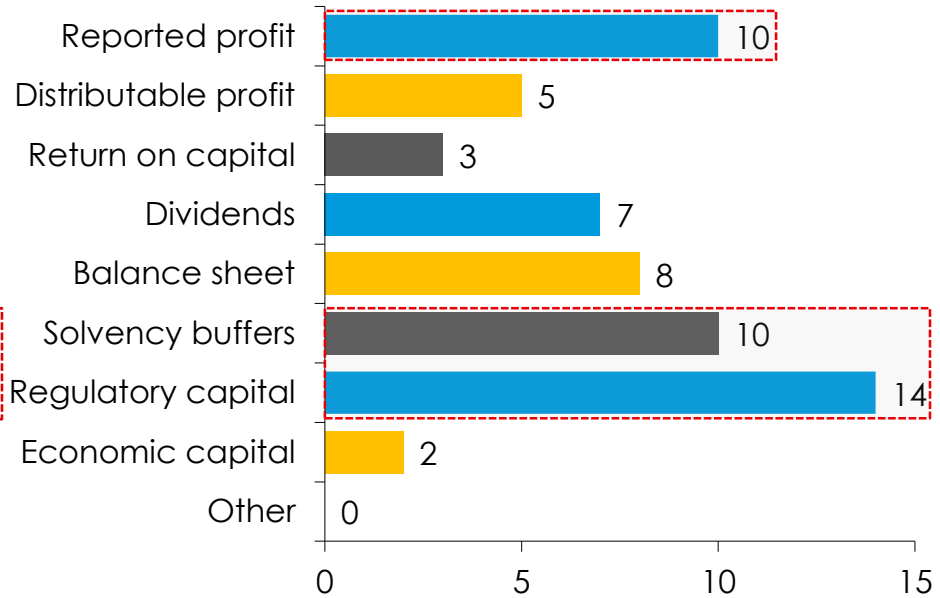


# What metrics are considered when assessing the impact of Stress and Scenario Testing?

Highly valuable (15 Cos.)



Less valuable (14 Cos.)





Section 2

# HOW ARE STRESS AND SCENARIO TESTS DEVELOPED?

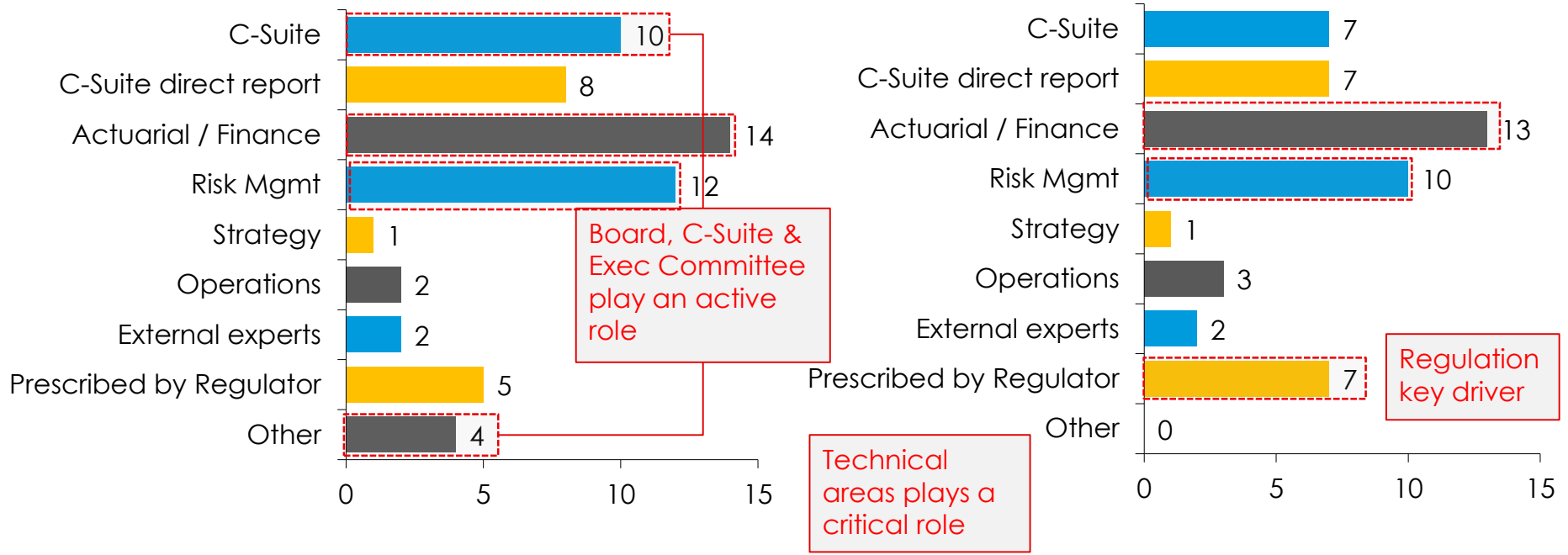




# Who is involved in developing stresses and scenarios?

Highly valuable (15 Cos.)

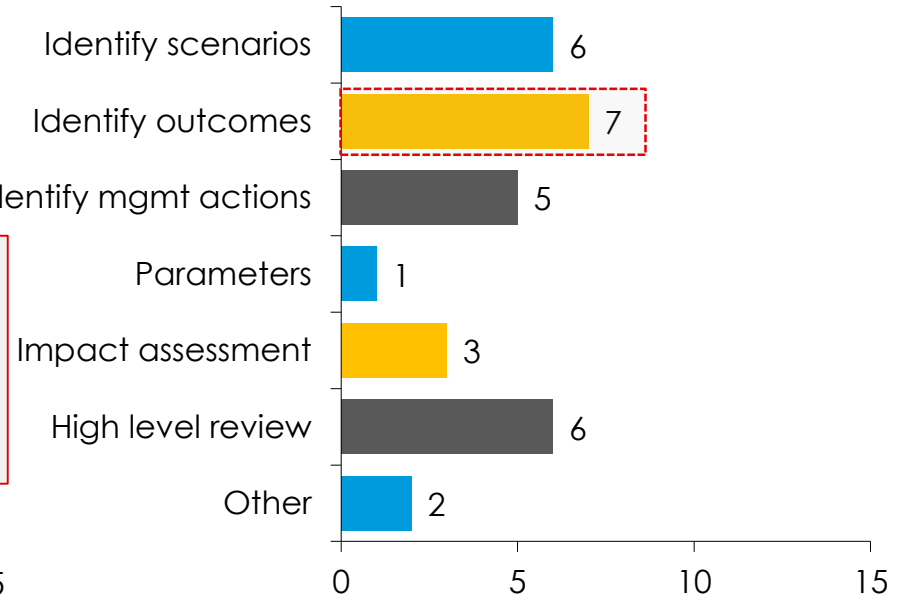
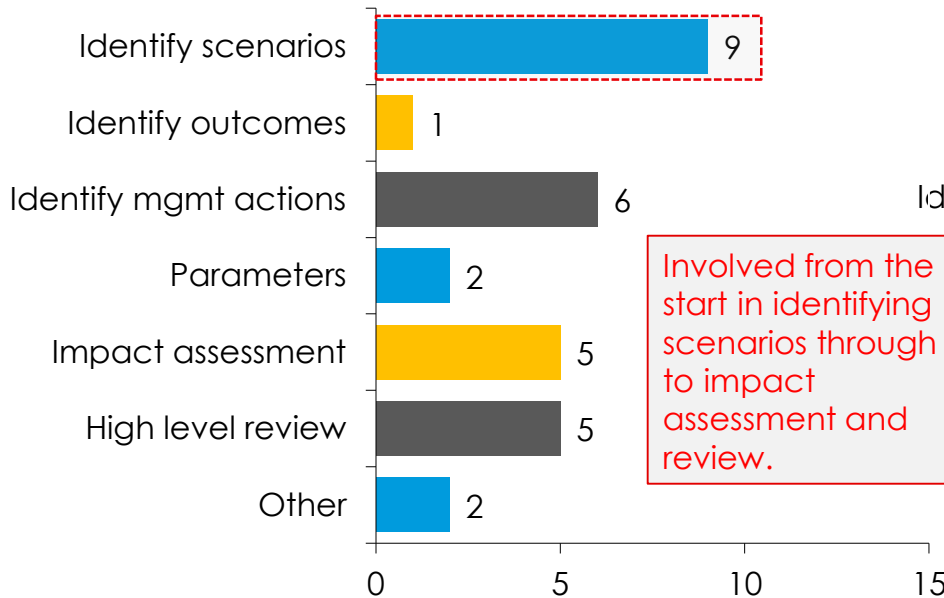
Less valuable (14 Cos.)



# What role do operational or non-technical teams play in developing Stress and Scenario Testing?

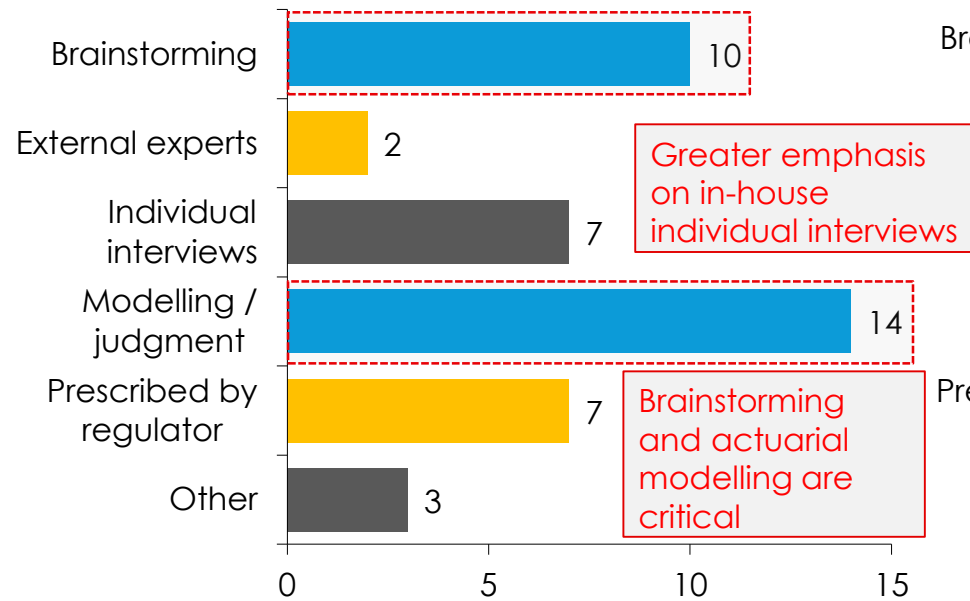
Highly valuable (15 Cos.)

Less valuable (14 Cos.)

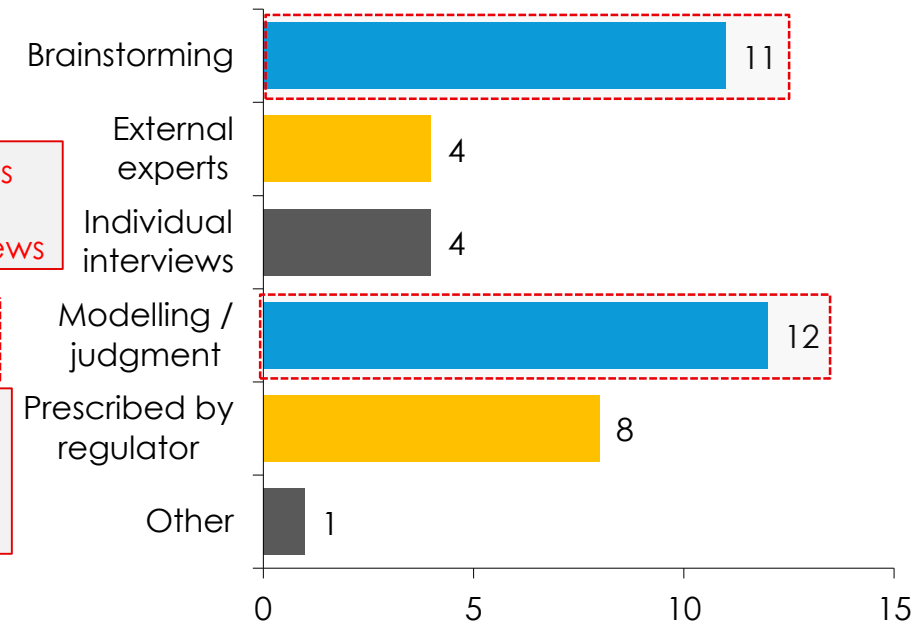


# What techniques are used to develop stresses and scenarios?

Highly valuable (15 Cos.)



Less valuable (14 Cos.)





# How many man days per annum are spent developing and reviewing Stress and Scenario Testing?

Highly valuable (14 Cos.)

87  
on average~

Less valuable (14 Cos.)

88  
on average



## Section 3

# REVERSE STRESS TESTING

# Reverse stress testing

	Highly valuable (15 Cos.)	Less valuable (14 Cos.)
How many perform reverse stress testing?	93% (14 Cos.)	79% (11 Cos.)
Average number of reverse stress tests	2 tests	5 tests

- Nearly all companies whose Boards value Stress and Scenario Testing highly perform reverse stress testing.
- They undertake fewer tests than their counterparts.

# Reverse stress testing

	Highly valuable (15 Cos.)	Less valuable (14 Cos.)
Allowance for management actions	47% (7 Cos.)	17% (2 Cos.)
Approach to development of reverse stress tests.	Scenarios allowing for interaction: 64% (9 Cos.)	Individual stresses / sensitivities: 55% (6 Cos.)

- Companies whose Boards value Stress and Scenario Testing highly are more likely to allow for management actions in reverse stress testing.
- They also tend to use scenarios more than individual stresses.





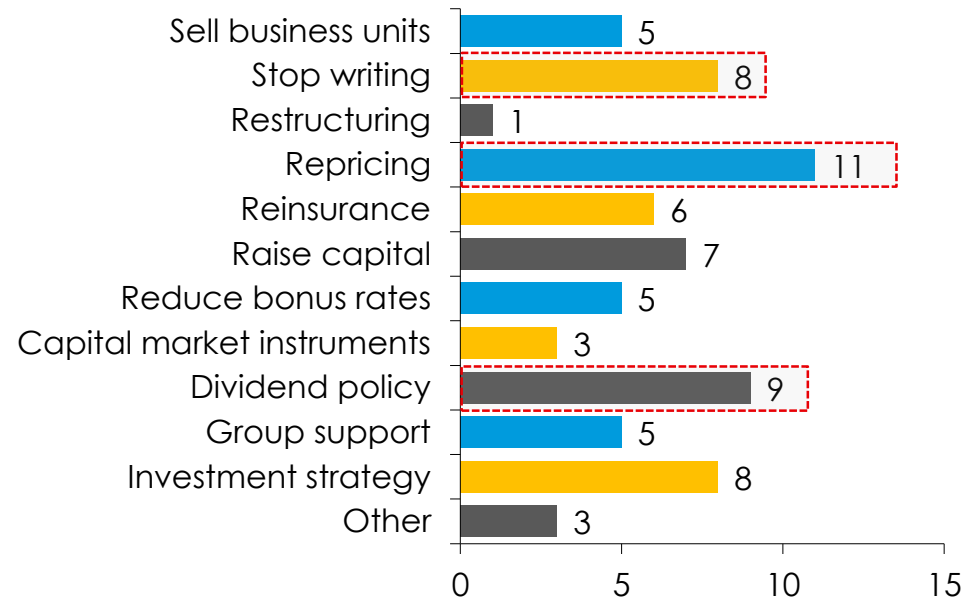
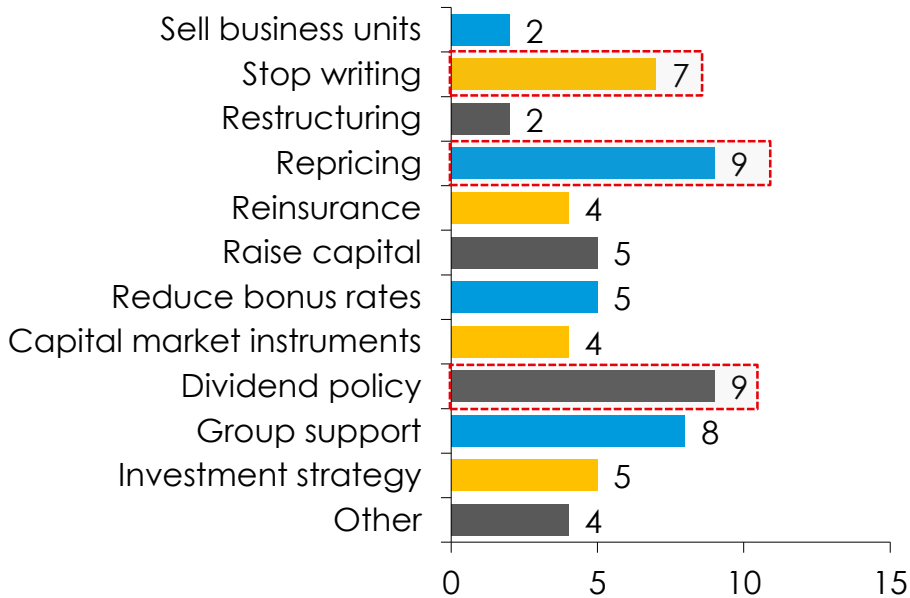
## Section 4

# MANAGEMENT ACTIONS

# What management actions are considered in Stress and Scenario Testing?

Highly valuable (15 Cos.)

Less valuable (14 Cos.)



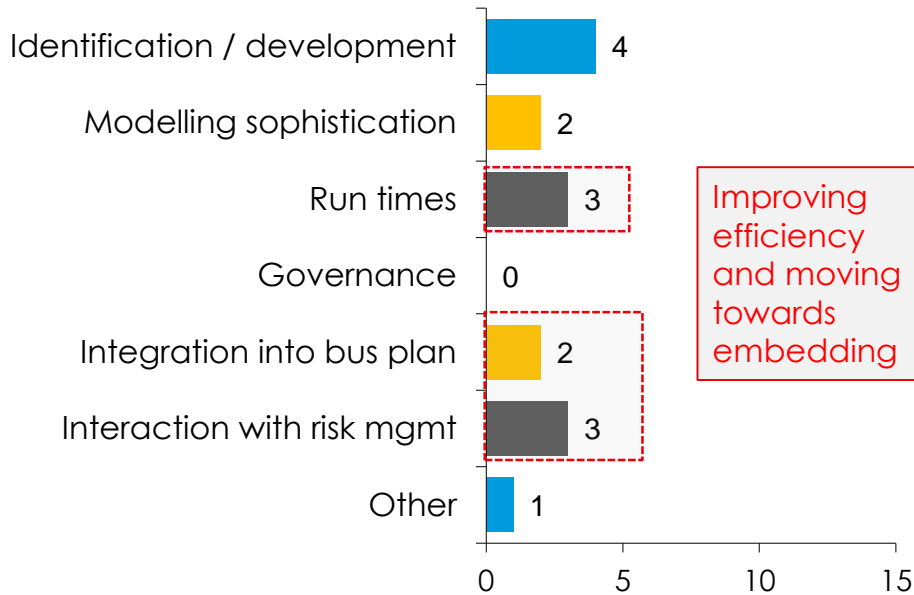


## Section 5

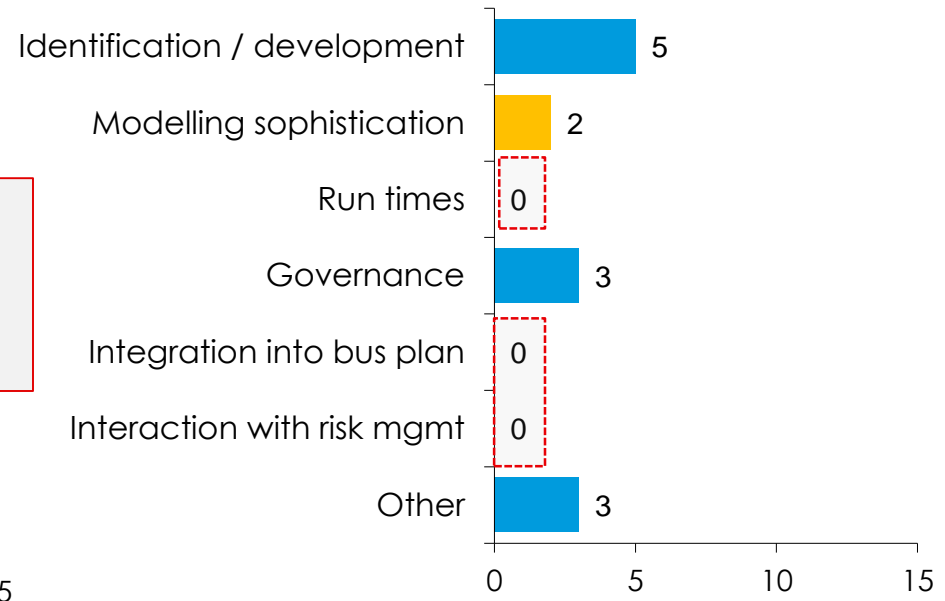
# PROCESS IMPROVEMENTS

# In the last year, what has been the biggest improvement?

Highly valuable (15 Cos.)



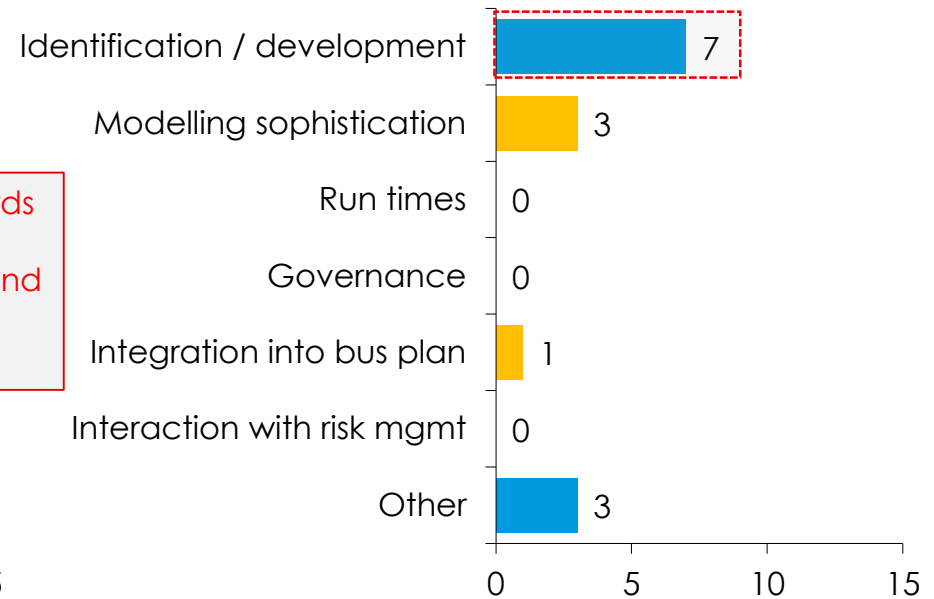
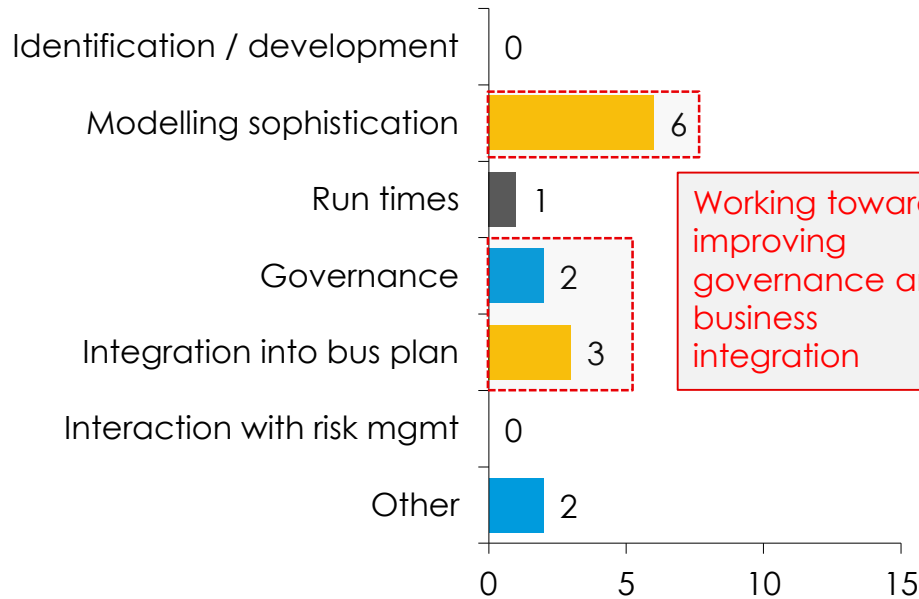
Less valuable (14 Cos.)



# In the next year, what is the main area of proposed improvement to Stress and Scenario Testing?

Highly valuable (15 Cos.)

Less valuable (14 Cos.)



## Section 6

# EMBEDDING STRESS AND SCENARIO TESTING

# How has Stress and Scenario Testing evolved since 2014 for Australian insurers

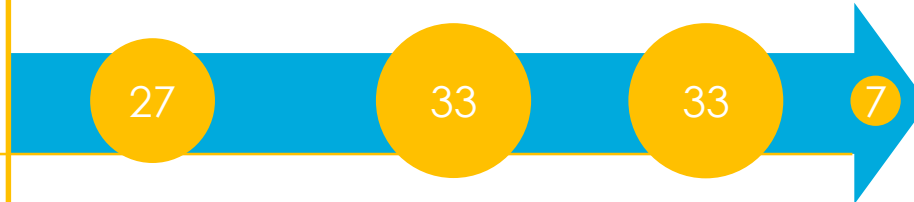
## Describe your current state

1. Compliance focused - basic analyses with limited Board/business involvement

2. Used to inform target capital, capital triggers and risk appetite

3. Used to inform and challenge business strategies

2014 KPMG ICAAP Survey (%)



2017 KPMG Stress and Scenario Testing Survey (%)



# Ways to get more value from Stress and Scenario Testing

## Identification & development

- Actively involve the Board, e.g. war gaming scenarios.
- Engage operational teams as needed to identify scenarios in addition to quantification and review.
- Range of methods, including brainstorming, individual interviews and experts.

## Communication & reporting

- Reduce length of reports.
- Clear and concise results presentation.
- Workshop presentations on industry trends and emerging risks.
- Communicate results more broadly, e.g. finance and reporting.

## Business integration

- Link to business planning, risk appetite, recovery and resolution planning,
- Use Stress and Scenario Testing to demonstrate the impact of management actions.
- Link scenarios to financial reporting variances.
- Introduction of internal / economic capital.

## Training

- Board and C-Suite training sessions.
- Training for non-technical teams in order to improve understanding.





Section 7

# QUESTIONS AND COMMENTS



THANK YOU