

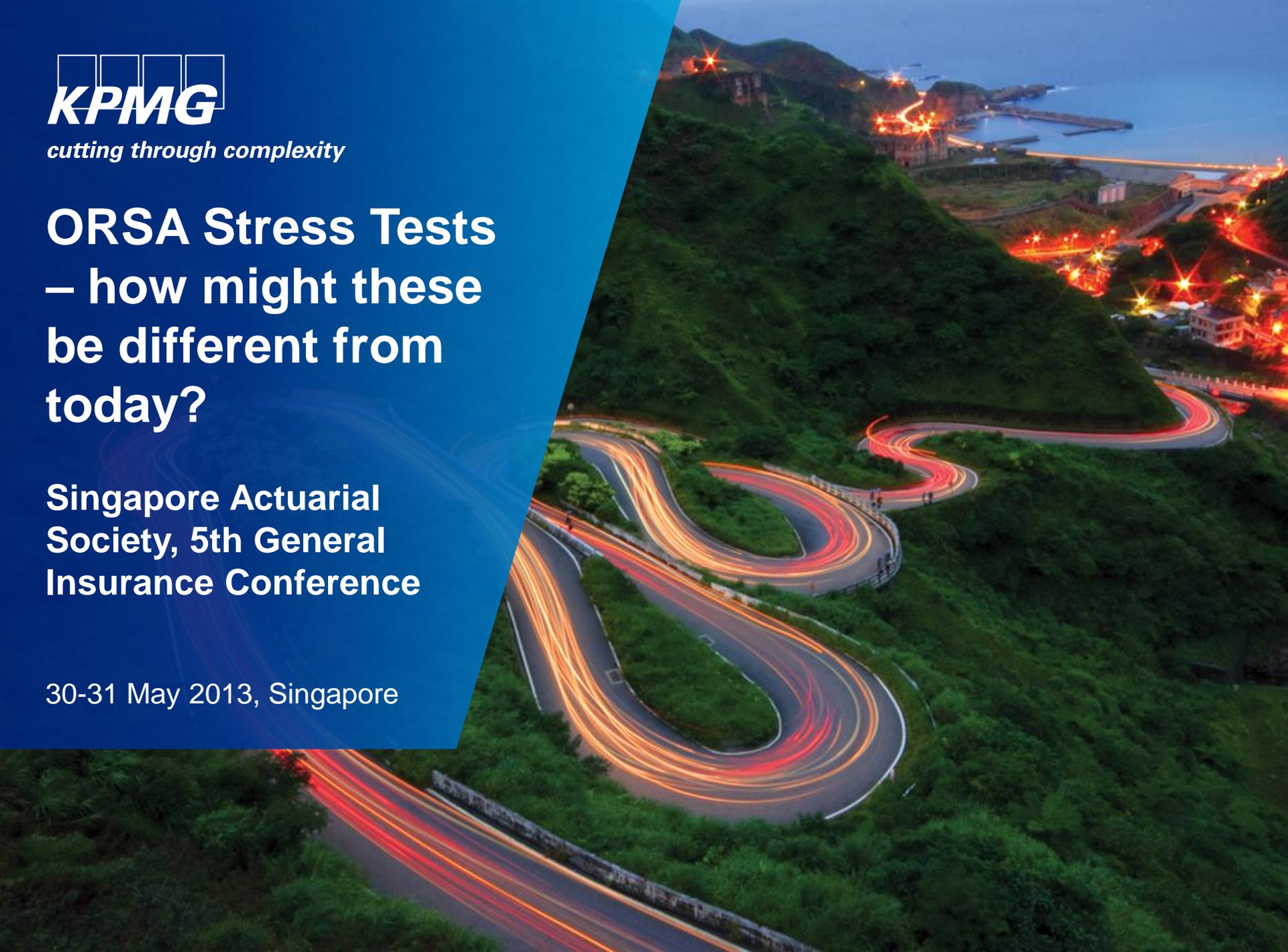


cutting through complexity

ORSA Stress Tests – how might these be different from today?

**Singapore Actuarial
Society, 5th General
Insurance Conference**

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Holistic overview of regulatory stress tests and the three categories of insurer stress tests

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Reverse stress testing – a new way of thinking?

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Current and future stress test environment – Singapore case study

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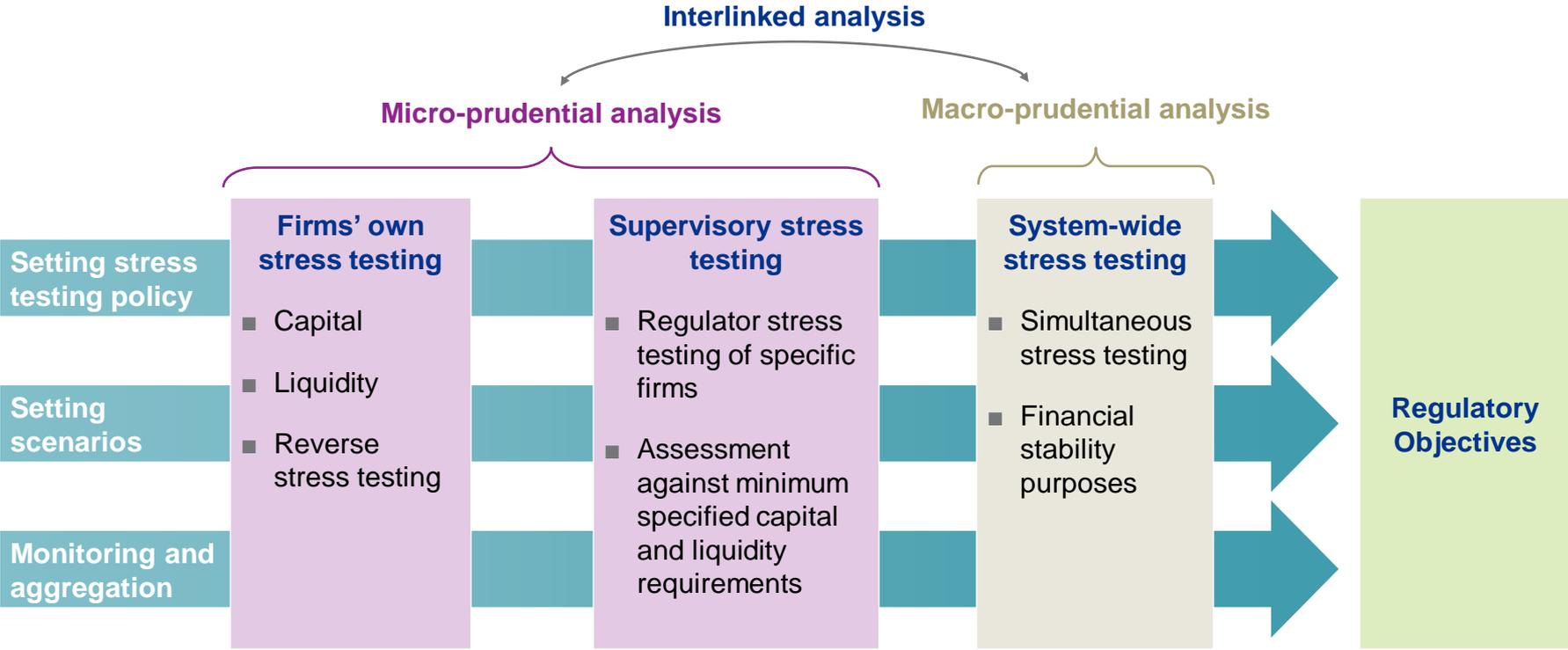
Singapore stress tests and IAIS ICP 16 ORSA compared

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In summary

A regulator's holistic approach to stress testing

Regulators expect 3 types of stress testing to be undertaken



Source: UK FSA

The three components of insurer stress testing

The three components (Reference stresses, Scenario testing and Reverse stress testing) lie at the core of the stress and scenario testing framework

Component	What is the component	Why do we need the components?
Reference stresses	<ul style="list-style-type: none"> ■ A single parameter (or combination of parameters) stress, constant over time. ■ Represent a range of adverse developments over one-year or instantaneously. 	<ul style="list-style-type: none"> ■ Allows for standard comparison of risk exposure and changes over time over time, of risks across the Group. ■ It informs management on the impact of changes in economic and business conditions. ■ Provides a basis for assessing management actions to mitigate individual risks.
Scenario testing/ analysis	<ul style="list-style-type: none"> ■ A forward looking assessment of adverse changes in a combination of macro economic and non-economic key indicators. ■ The analysis should be informed by historic analysis and expert judgement. 	<ul style="list-style-type: none"> ■ To understand quantitatively and qualitatively the firm's exposure to macro (systematic) scenarios which represent a combination of events. ■ To estimate the associated impacts of such scenarios which could adversely affect the business, accompanied by an assessment of the likelihood of occurrence.
Reverse stress testing	<ul style="list-style-type: none"> ■ An iterative process to identify the type and severity of an event or combination of events which could cause the business model of the firm to fail, either at the BU or Group level. 	<ul style="list-style-type: none"> ■ To develop a complete understanding of the circumstances under which the business model fails. ■ To estimate of the likelihood of occurrence of such a scenario. ■ If required, strengthen the points of failure.

Reverse stress testing – a new way of thinking?

1

Current position
– financial
strength, going
concern



2

Future position
– assume
failure occurs at
some point in
the future

3

Gain an understanding of circumstances under which the business model fails
(i.e. of BU or of the group):

- What situations could have happened that could have caused this?
- Over what time period could this have occurred?
- Assessment of vulnerabilities – which elements of the balance sheet are more vulnerable to shocks?
- How likely are these events to have occurred?
- Do we need to strengthen these points of failure? If so, how?
- Do we need to re-visit our set of management actions, if reality starts to play out similar to circumstances that have given rise to these failure scenarios?
- Under a group scenario, what does this say about our capital allocation processes, fungibility of capital, intra-group cash flows and transactions, or risk monitoring systems and capabilities?

Case study: current Singapore stress test requirements

Stress test to be conducted for each relevant insurance fund under the following scenarios:

Ⓢ **Base Scenario:**

- Best estimate assumptions
- Consistent with the insurer's business plan over the same period
- Incorporating future expectations over the projected period

Ⓢ **Short-term Stress Scenario:**

1. Macroeconomic – change in credit spreads, yields, FX, etc
2. Insurance-related – focus on insurance losses due to:
 - Higher than expected claims inflation
 - Increase in number of reinsurer defaults
3. Self-selected – insurance-related, investment-related or a combination of both

Ⓢ **Short-term Stress-to-Failure Scenario** – a combination of factors that would most likely cause the company to fail, such as:

- Level of capital falling below a regulatory required level
- Wind-up as a result of off-balance sheet exposures

Source: Singapore stress test requirements

Case study: overview of MAS consultation on ERM (with a focus on the ORSA stress test requirements) (1/2)

🕒 Highlights from the consultation paper:

“The insurer shall perform its own risk and solvency assessment (‘ORSA’), at a minimum, annually, to assess the adequacy of its risk management, and current and projected future solvency position with a time horizon which is consistent with that used in its business planning. When undertaking its ORSA, the insurer shall document the rationale, calculations and action plans arising from this assessment”

“The insurer shall ensure that its Board and senior management take responsibility for the ORSA”

“The insurer shall undertake periodic, forward-looking continuity analysis...”

“In carrying out its continuity analysis, the insurer shall conduct stress testing for each relevant insurance fund...”

“...shall also apply reverse stress testing to identify scenarios that would be the likely cause of business failure... and the actions necessary to manage this risk”

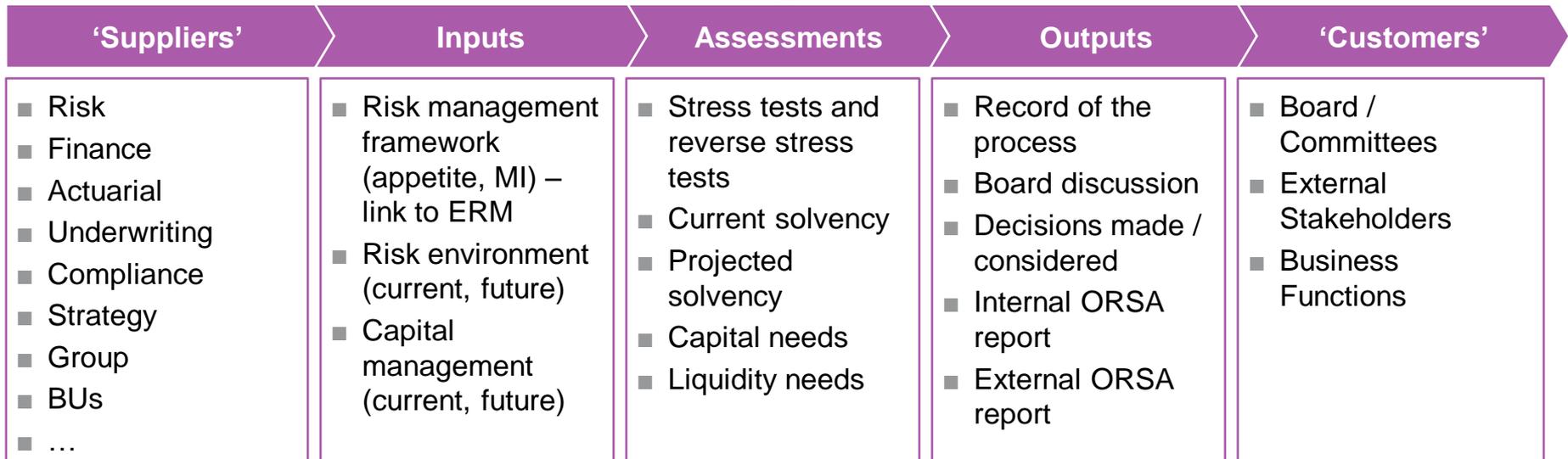
Case study: overview of MAS consultation on ERM (with a focus on the ORSA stress test requirements) (2/2)

- ④ Some aspects of the consultation paper relating to continuity analysis and stress & scenario tests:
 - There is an onus on reflecting the insurer's **own** scenarios and particular vulnerabilities in its business model
 - The insurer should be able to justify its scenario selections and basis of assumptions
 - Consistency with the business plan and strategy
 - Appropriateness of data is key, including third party data
 - The ability to withstand continuous adverse developments over the period of projection need to be analysed...
 - ... but the impact of management actions should be considered and included in the analysis
 - Reverse stress testing – combination of risk factors that would most likely lead to business failure – could be qualitative as well as quantitative in nature
 - Interdependency of risks should be assessed
 - Overall, a focus on ***what have we learned?***

Singapore stress test requirements and the IAIS ORSA compared

Component	Current Singapore requirements (direct general insurers)	Potential ORSA principles (note not necessarily aligned to current MAS proposals – comments are presented with reference to IAIS ICP 16)
Application (non-life sector)	<ul style="list-style-type: none"> ■ Direct general insurers 	<ul style="list-style-type: none"> ■ Direct and reinsurance companies ■ There are group aspects to the ORSA and ORSA stress tests
Who designs / performs?	<ul style="list-style-type: none"> ■ Actuary, with underwriter, senior management and Board review/ deliberation 	<ul style="list-style-type: none"> ■ ORSA processes owned by the Board and Senior Management, with involvement (where appropriate) of multiple functions and a suitably experienced individual such as a CRO and the risk function, who reports to or is a member of the Board
Time horizon of stress tests	<ul style="list-style-type: none"> ■ Short-term: one-year period ■ Longer-term: three-year period 	<ul style="list-style-type: none"> ■ “An insurer should be able to demonstrate an ability to manage its risk over the longer term under a range of plausible adverse scenarios” – in line with the longer-term business planning cycle?
Mandated vs. self-selected scenarios	<ul style="list-style-type: none"> ■ Combination 	<ul style="list-style-type: none"> ■ ICP 16 arguably focuses on tailored, self-selected scenarios, though in practice we are likely to see a combination of approaches
Reverse stress testing	<ul style="list-style-type: none"> ■ Yes – ‘stress to failure’ scenario 	<ul style="list-style-type: none"> ■ Likely to be an expanded requirement under the ORSA
Timing of performance of stress tests	<ul style="list-style-type: none"> ■ Once annually, based on the 31 December balance sheet position 	<ul style="list-style-type: none"> ■ Annually* and as required / as appropriate – perhaps similar to ad-hoc regulatory requests during the financial crisis

The future ORSA stress test process?



In summary

- ④ Stress test standards for GI insurers in Asia are likely to increase – they are a key part of the IAIS ERM and ORSA standards
- ④ Key focus areas:
 - Board involvement and ownership
 - link to supporting better Board strategy, not just an after-thought
 - the ORSA can be value-adding for the business, enhancing the quality of decisions (and planned decisions)
 - a combination of reference stresses, scenario analysis and reverse stress tests
 - tailored to the insurer's particular business model
- ④ ORSA stress tests will be nothing completely new for many, however the emphasis and application within the organisation may be different
- ④ There are other examples – see EU Solvency II, Australia's ICAAP, Malaysia's ICAAP, PRC DST...



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Thank you

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