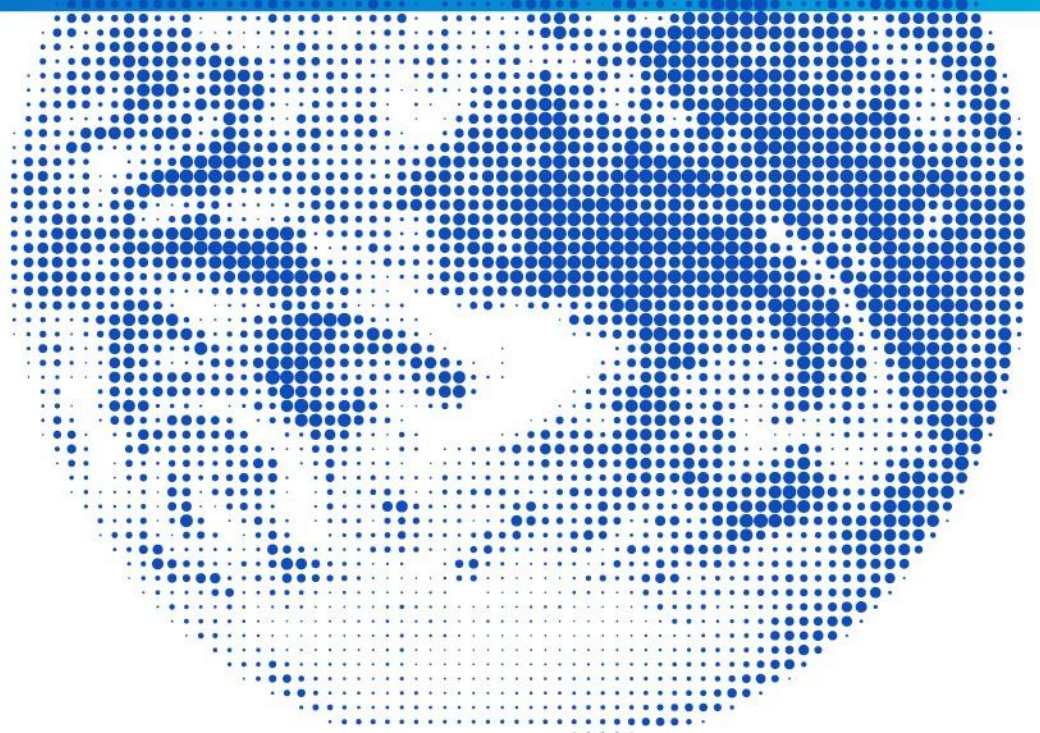


Too big to fail – Too small to worry about?

An actuarial perspective on systemic risk



Key messages

1. To prevent public bailout, designation of systemically important **institutions** is neither necessary nor sufficient. It is better to focus on **activities**.
2. An undistorted **economic view** on assets and liabilities is utmost helpful in deciding how to preserve value in resolution.
3. There is no good one-size-fits-all **resolution strategy** in insurance.

Table of Contents / Agenda

- Introduction and Overview 4
- Avoiding Public Bailout and Reducing Systemic Disruption 9
- Preserving Value in Resolution 14
- Systemic Risk Events 16
- Appropriate Resolution Strategies 19

Introduction and Overview

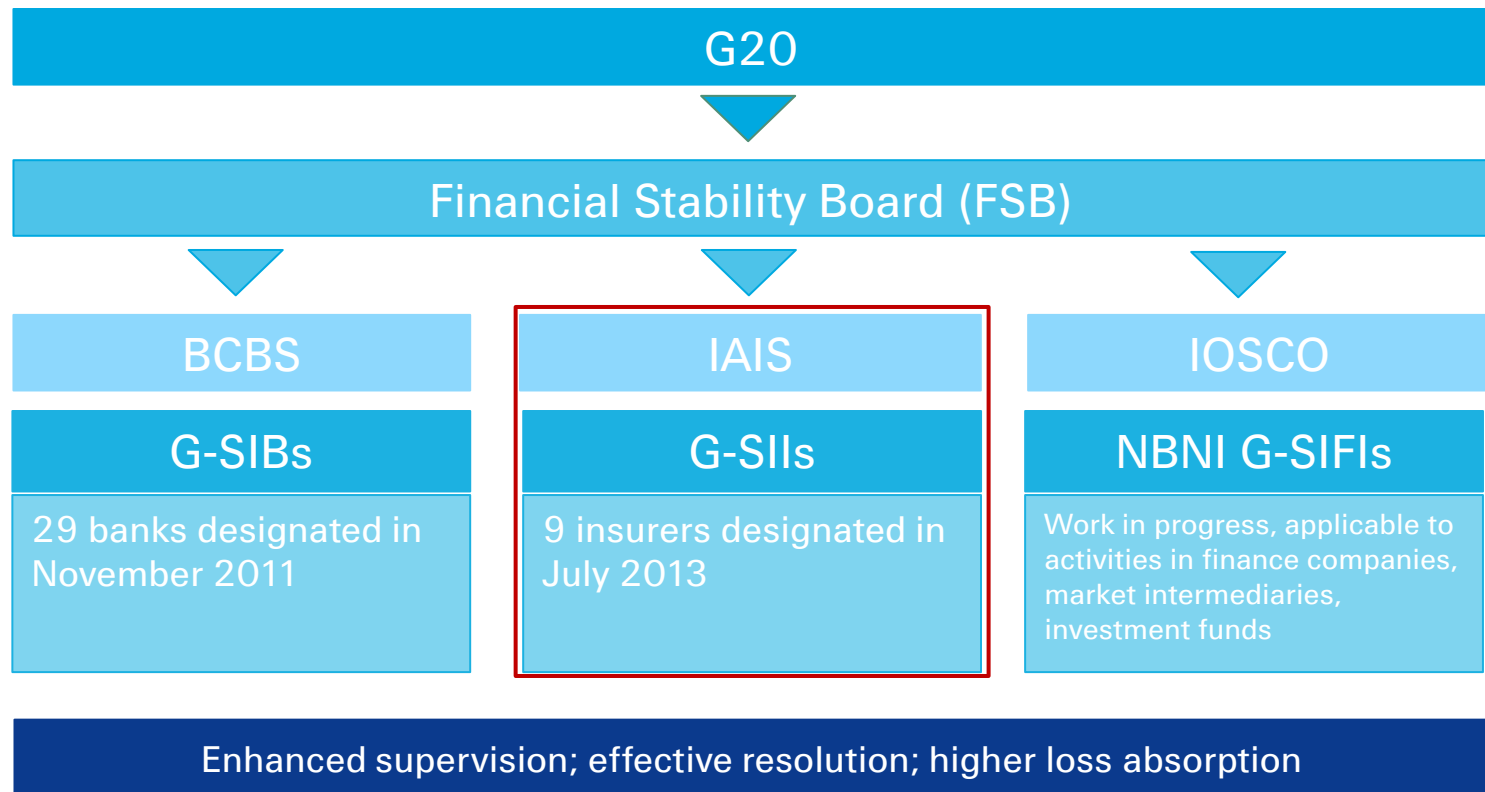
Introduction

- "Too Big to Fail" is a term that became popular during 2008 financial crisis
- It stands for the fact that certain – almost exclusively banking – activities cannot be abruptly discontinued without jeopardising financial stability
- As a consequence institutions that had performed these activities on a sufficiently large scale needed to be bailed out using trillions of USD tax payer money
- Even though the overwhelming part of this has been paid back, the public perception has been disastrous – amplified by the fact that excessive, not at all risk adjusted "performance" compensation had been paid to individuals that were responsible for engaging in these high risk activities
- It has therefore become a clear objective of politics to avoid such a situation
- This presentation reflects the personal opinions of the author. The positions are not necessarily shared by the Swiss Actuarial Association or by Swiss Re, the employer of the author.

Too Big to Fail in Insurance in the 2008 Banking Crisis

- Insurers with wholesale banking operations, mainly AIG
 - USD 182 bn have been provided to AIG, primarily to support its very sizable (USD 2.7 tn) book of long and short positions in Credit Default Swaps CDS in its financial products division. This was linked to a variety of counterparties that may have ended up in trouble if AIG FP would have failed. This is an example of a contagious activity that was amplifying systemic risk. Notably it is debatable if this could have effected policyholders as the AIG holding had provided guarantees of USD 440 bn.
 - Moreover AIG FP was engaging in investing proceeds of securities lending (USD 43.7 bn) (including securities of operating insurance companies) partly into illiquid assets. The bail out has avoided significant write downs by AIG's securities lending counterparties and significant mark-to-market losses for policyholders
- Bankassurance, e.g. Fortis, ING
 - Significant amounts (USD 60bn +) have been spent on bankassurers to rescue their banking activities
- Insurer with limited banking activities needed limited support from the public sector (USD 8 bn) mainly to cover investment losses from mortgage back securities and corresponding losses from variable annuity guarantees

Avoiding "Too Big to Fail" – Systemic Risk Regulation focusses on institutions instead of activities



FSB: Financial Stability Board
BCBS: Basel Committee on Banking Supervision
IAIS: International Association of Insurance Supervisors
IOSCO: International Organization of Securities Commissions

G-SIBs: Global Systemically Important Banks
G-SIIs: Global Systemically Important Insurers
NBNI G-SIFIs: Non-bank Non-insurers Global Systemically Important Financial Institutions

Overview and Embedding of "Too Big to Fail" for insurers

| | Business as usual | Severe Stress | Systemic Risk Events |
|---|--|---|---|
| Character | Few companies are in recovery, Few small companies are in resolution | One or few large or many small companies are in resolution | Many large and many small companies are in resolution |
| Typical return period | | 10 to 100 years | 10'000 years or more |
| Scenarios | | 2008 type of stress potentially combined with catastrophe events (Nat Cat, Mortality, Terror, Cyber, ...) | Large volcanos, large asteroids, or severe lethal epidemic (incl. market stress) |
| Exposing activities | | Typically idiosyncratic: <ul style="list-style-type: none"> • Certain banking (i.e. non-insurance NI) activities • New catastrophe prone line (e.g. Cyber) written excessively and naïvely • Excessive non-hedgable financial promises especially when combined with liquidity promise | Typically systemic: <ul style="list-style-type: none"> • Any mortality cover • Local risk concentration in P&C |
| Objective 1 Avoid public bailout | Do nothing | Analyse "critical functions" – narrow scope <ul style="list-style-type: none"> • Ensure appropriate, effective risk mitigation is in place to ensure that the risk of disruption becomes bearable | Currently not in focus <ul style="list-style-type: none"> • Issues rarely handled by statutory or contractual means |
| Objective 2 Reduce systemic disruption | Do nothing | Analyse "critical functions" – wider scope <ul style="list-style-type: none"> • Ensure appropriate, effective risk mitigation is in place to ensure that cross impact to customers and other stakeholders in the wider economy is minimised | <ul style="list-style-type: none"> • Significant government activity to redistribute value and minimise spill-over expected |
| Objective 3 Preserve value in resolution | Benefit from resolution reporting | Analyse material legal entities – widest scope <ul style="list-style-type: none"> • Optimise resolution procedures by proper planning and collaboration of authorities | <ul style="list-style-type: none"> • International collaboration necessary, but no evidence for sufficient preparation |

While Too Big to Fail relates to the red box only, the current discussion are all over the place

Avoiding Public Bailout and Reducing Systemic Disruption

| | | | |
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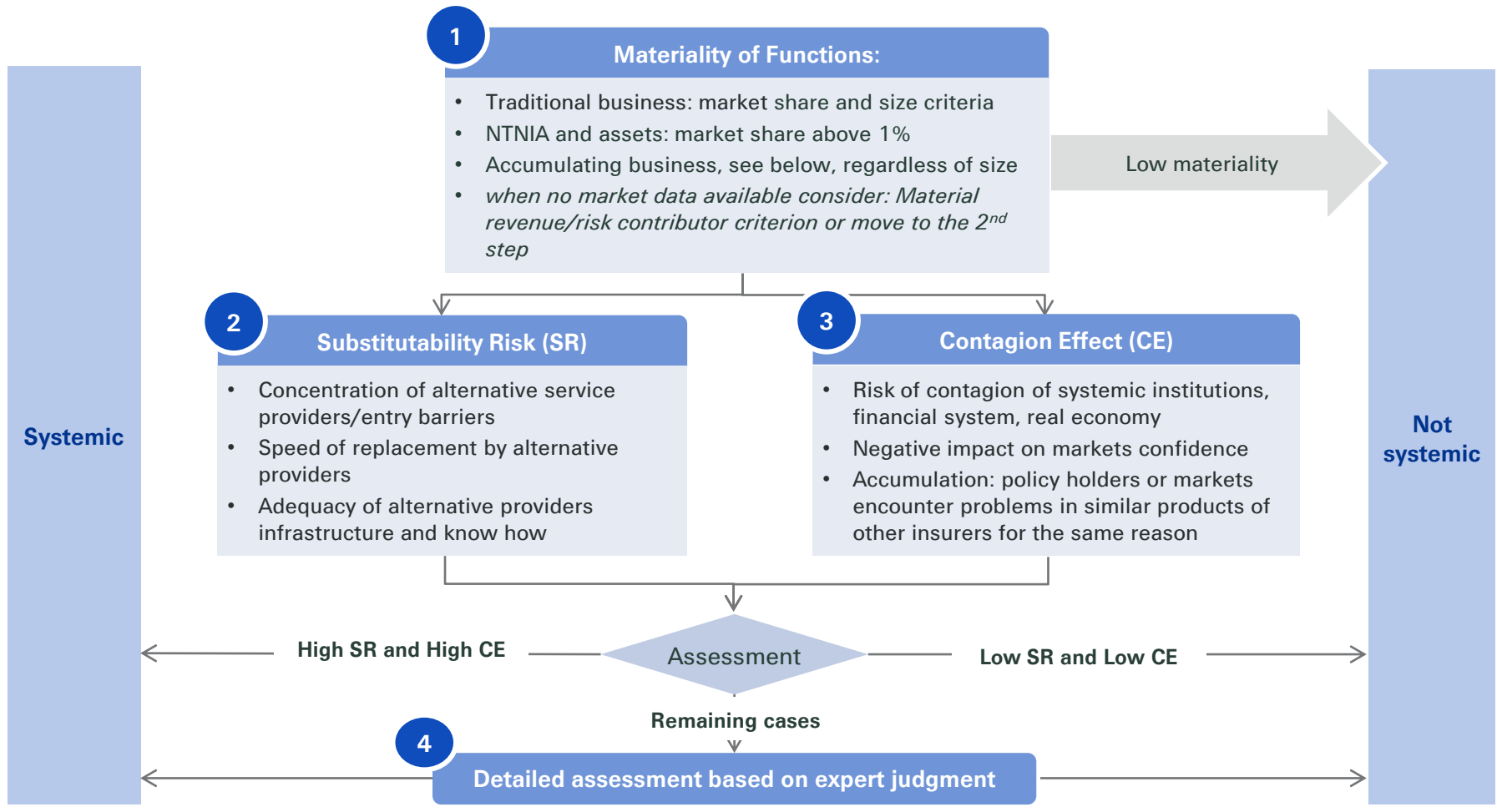
Critical Functions

- Abrupt discontinuation of certain activities, so called "critical functions", poses an unbearable risk to financial stability
 - Therefore critical functions need to be continued even at the cost of bailout
- What is deemed an "unbearable risk" is a **political** decision
 - There is an increase sensitivity to avoid moral hazard i.e. that individuals speculate that their company is being bailed out
 - Therefore the scope of systemic risk regulation has been widened to include **reducing systemic disruption** and **preserving value in resolution**
 - However, the latter inevitably moves the focus from activities to companies
 - There is not much hope that proper differentiation will be reintroduced

Critical Functions

A example assessment methodology

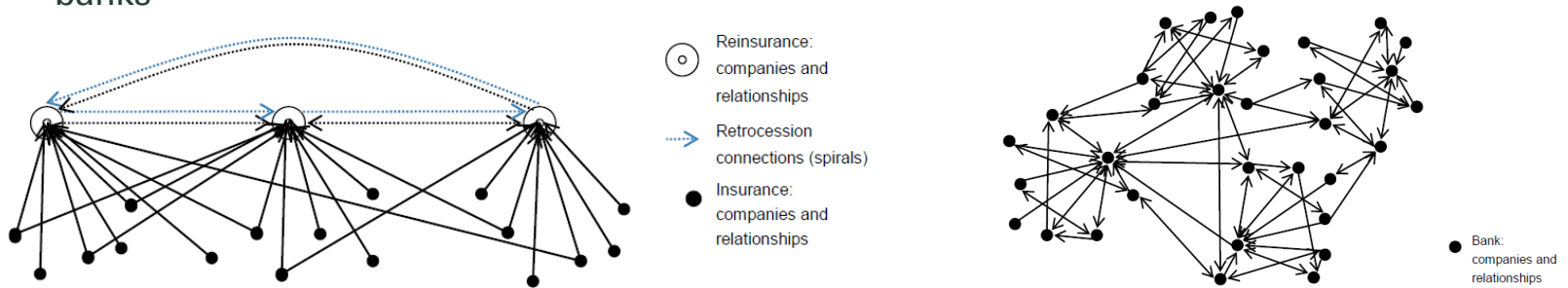
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In insurance only very few or even no activities will potentially qualify as critical functions

- This is due the fact that in traditional business
 - Only large or locally large companies can have large market shares
 - Substitutability risk exists only in small or protected markets
 - Contagion risk is almost always low due to directed risk transfer in insurance as opposed to banks¹⁾



- Critical functions in traditional business can be easily made non-critical using international diversification, if not prohibited by protectionism
- Mainly non-traditional non-insurance activities (NTNIA) and providing accumulating business, e.g. busine involving exposure to non-hedgable market risks, are potentially critical functions

1) Illustrations from "Assessing the potential for systemic risks in the insurance sector", FINMA Working Paper 2010, Marc Radice, http://www.finma.ch/e/finma/publikationen/Documents/wp_juni2010_systemische-risiken-im-versicherungssektor_20101004_e.pdf

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Risk Mitigation and Conclusion

- Potentially critical functions are thoroughly scrutinised judging if their failure could cause an unbearable risk of systemic disruption
- If so, appropriate risk mitigation measures need to be implemented to ensure that the residual risk of disruption becomes bearable
- The cost of the measures is reducing the profitability of the activity
- Potentially the activity needs to be reduced or avoided, e.g. as it may be unprofitable
- In case of products involving non-hedgable market risk, this maybe conflicting with a political desire to maintain offering of these products

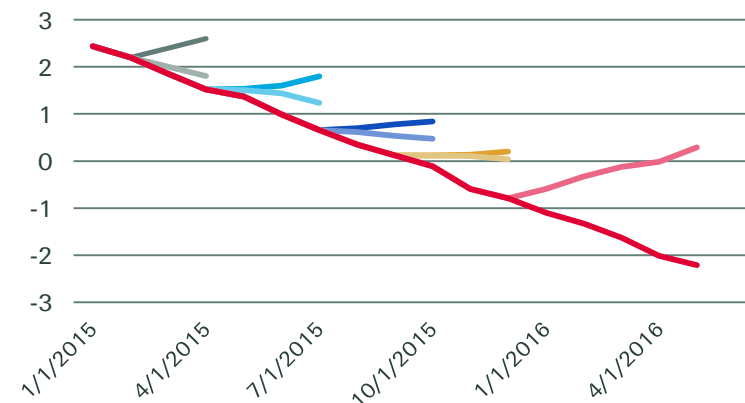
- In insurance, Too Big to Fail can be avoided by proper identification and appropriate mitigation of corresponding *activities* – however all insurers need to be in scope
- Designation of systemically important *insurers* with size as a decisive criterion seems inappropriate – none of non-banking related public bailouts would have been avoided
- Protectionism and pressure to offer products with non-hedgable guarantees are at odds with avoiding systemic risk – no technical solution exist to pure political issues

Preserving Value in Resolution

| | | | |
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Optimal Strategy and Timing of Supervisory Intervention in Recovery and Resolution to Ensure Value Protection

- Resolution in insurance is very significantly slower than in banking
- Of course, value preservation can be fostered by operational efficiency supported by transparent recovery planning and resolution reporting
- Moreover an optimal intervention strategy to preserve value in recovery and resolution is needed, because the interests of shareholders, management, and policy holders are no longer as aligned when the company gets closer to the point of non-viability
- Between the first possible intervention level (here 2.2) and the point of non-viability (here 0) increasingly conservative de-risking strategies seem appropriate
- These de-risking strategies will involve exchange of assets and liabilities at market consistent values.
- The valuation approach for regulatory purposes must therefore be market consistent
- Else the de-risking process is charged with undue impairment risk



Market consistent valuation is a prerequisite to making well founded decisions to preserve value in recovery and resolution

Systemic Risk Events

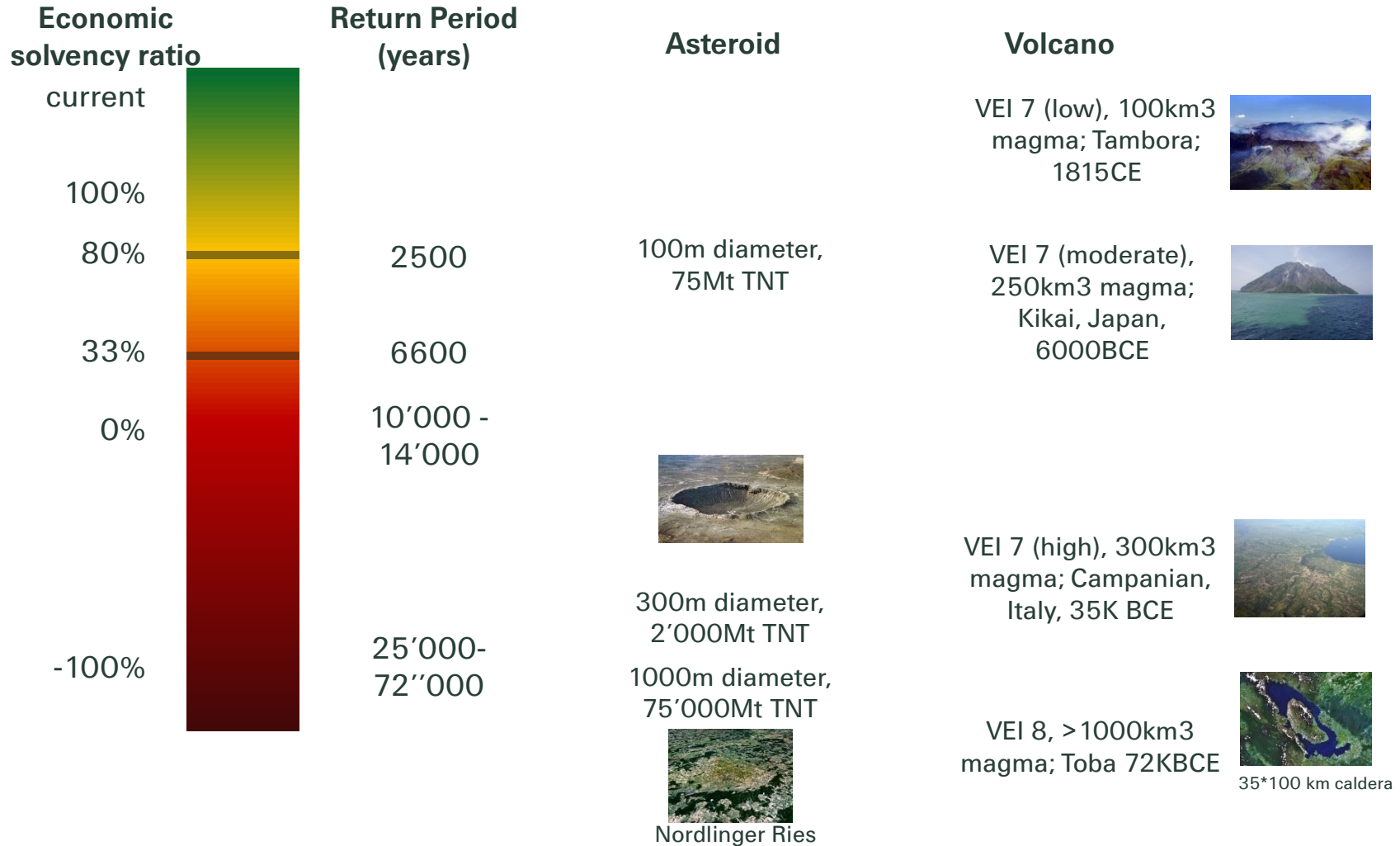
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Systemic Risk Events - Characteristics

- With return periods of 5000 year and beyond, the events themselves become systemic
 - Good parsimonious capital models will not necessarily reflect these events appropriately – in the Solvency II VaR measure they have no impact and even in the SST TVaR measure their contribution is less than 2%
 - Extreme mortality events (5-20 per mille) have a very strong systemic impact. Causes include
 - strong lethal epidemic
 - volcano eruption
 - asteroid impact
 - Extreme mortality events likely coincide with strong financial market shocks
 - Opposed to events of war, there are rarely contractual or statutory limits of liability
- Without precautionary measures, Systemic Risk Events have the potential to wipe out a large part of the insurance industry and leave a weak economy without protection
 - Corresponding measures have to be implemented prior to the event

Systemic Risk Events – Examples

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Mt: Megatons; as a reference: Largest hydrogen bomb ever tested was 50Mt (Tsar Bomb)
 VEI: Volcanic Explosivity Index; VAI 8 = supervolcanic eruption (Yellowstone, Toba,...)

Appropriate Resolution Strategies

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Resolution Strategies

- Undertakings with activities exclusively in the domain of one single resolution authority
 - Traditional resolution lead by the local resolution authority without material involvement of other authorities
 - By far the most numerous case
 - Corresponds to a "multiple point of entry" in banking terms
 - Undertaking with significant international business involving more than one resolution authority
 - To preserve the value of international diversification during resolution and run-off, affected resolution authorities need to collaborate effectively under the lead of the home authority
 - International capital transfer needs to be possible when honouring contracts
- Preserving value in international resolution requires a Single Point of Entry approach to preserve diversification value
 - Corresponding preparations have to be implemented prior to the event