



Greater Expectations

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Agenda

- Who am I?
- State of play:
 - Solvency II and parallel regimes
 - International Association of Insurance Supervisors regimes
 - IFRS Insurance Contracts Phase II
- Features: The Calculations
- Features: Governance and Connectivity
- What's next?

WHO AM I?

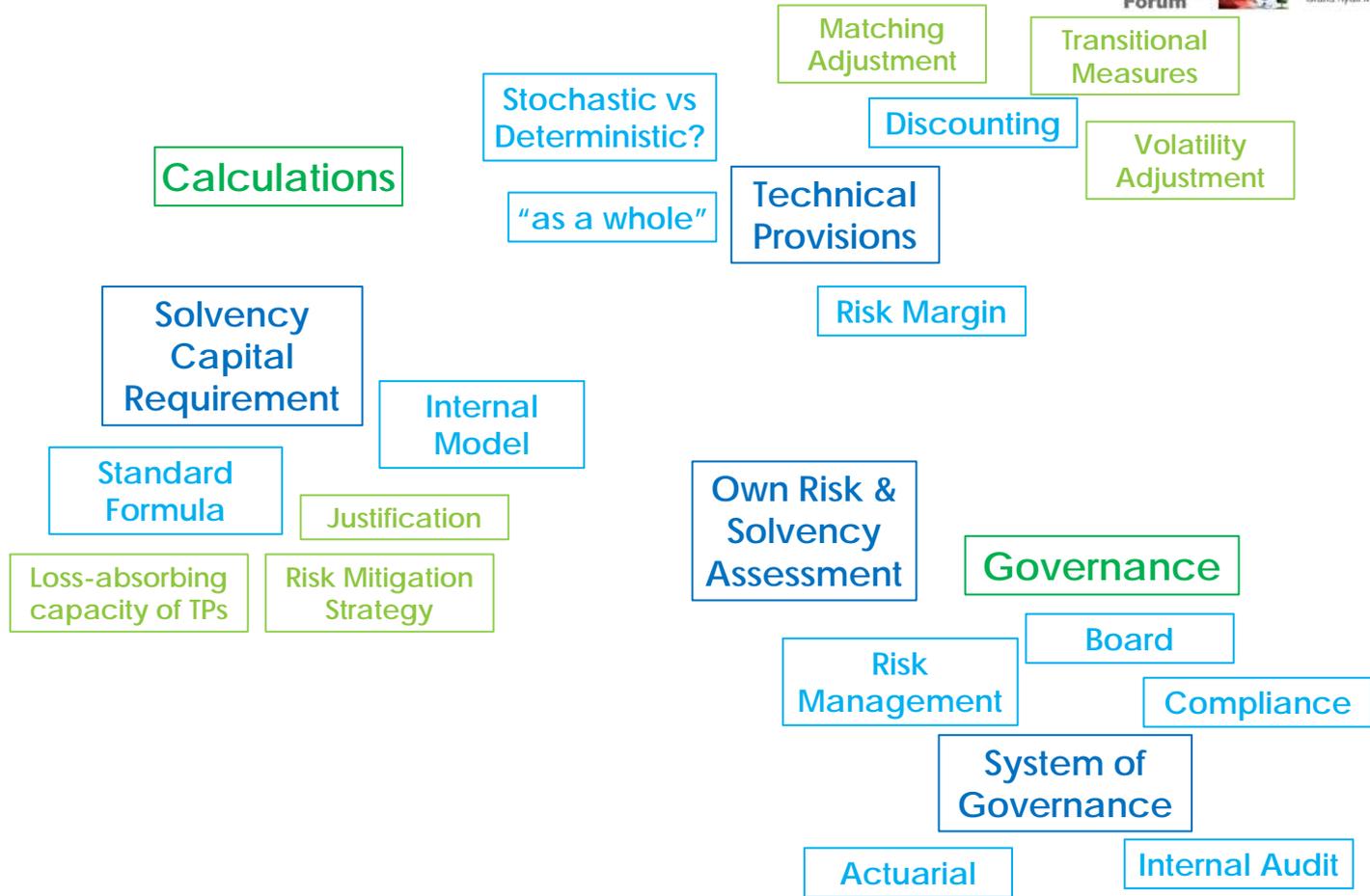
Who am I?

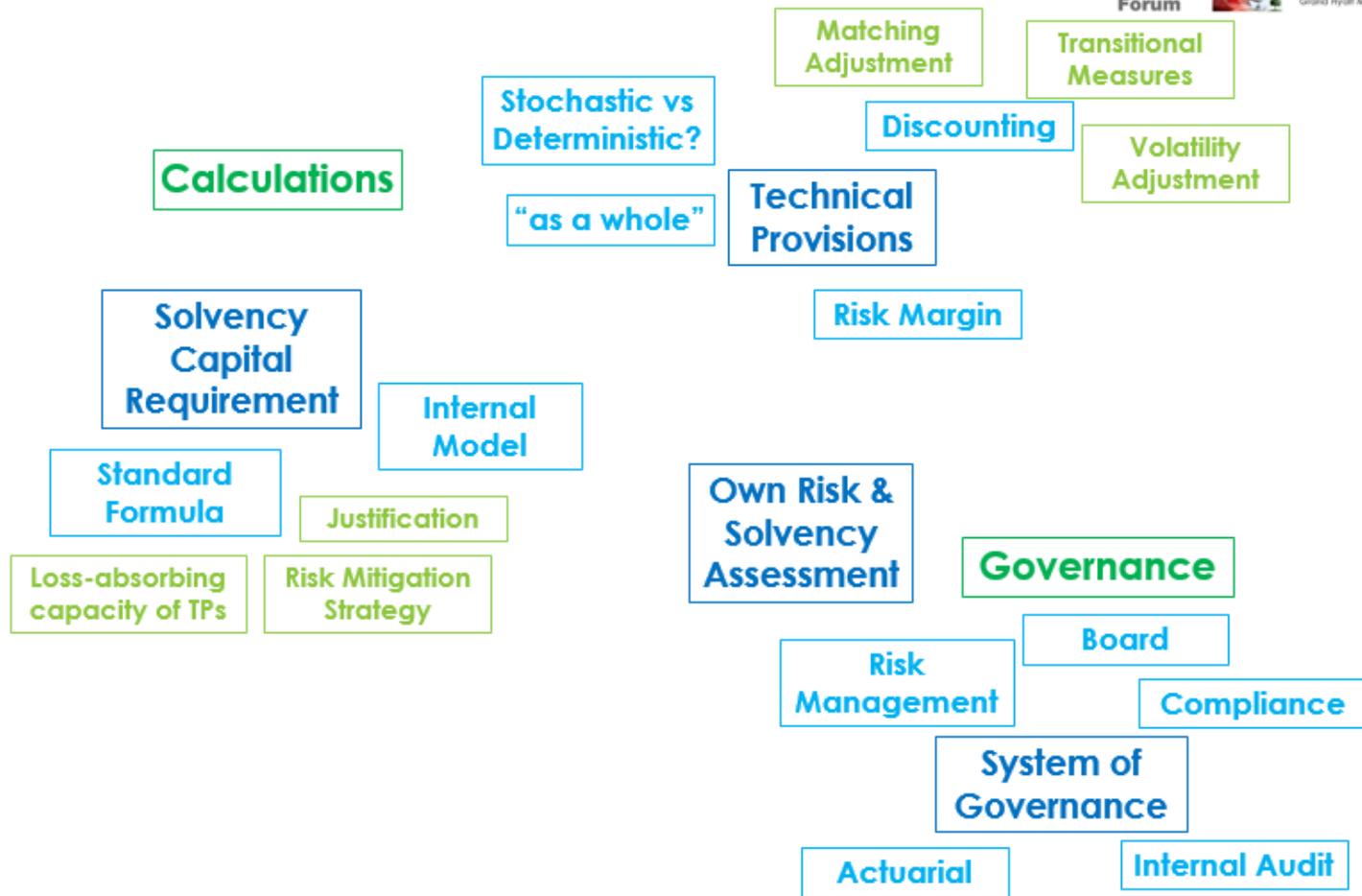
- I'm a UK actuary
- I work for FIS – we make the Prophet actuarial software
- I've worked for insurers, actuarial consultancies, and now a software company
- My job is to make our software better
- I go all over the world asking people what they need ...
- ... that we don't do yet
- I'm not a thought leader ...
- ... but I am a thought gatherer

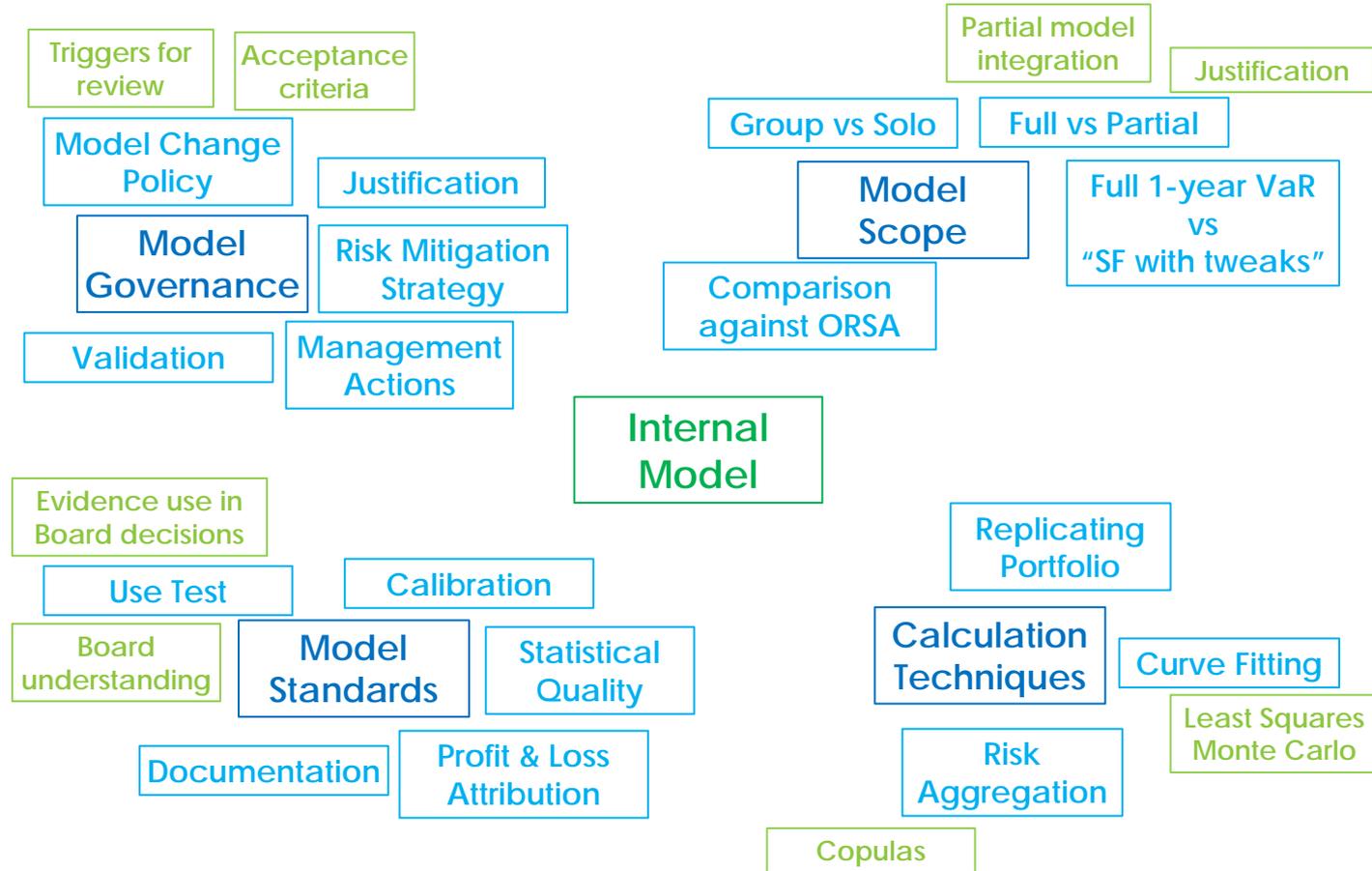
THE STATE OF PLAY

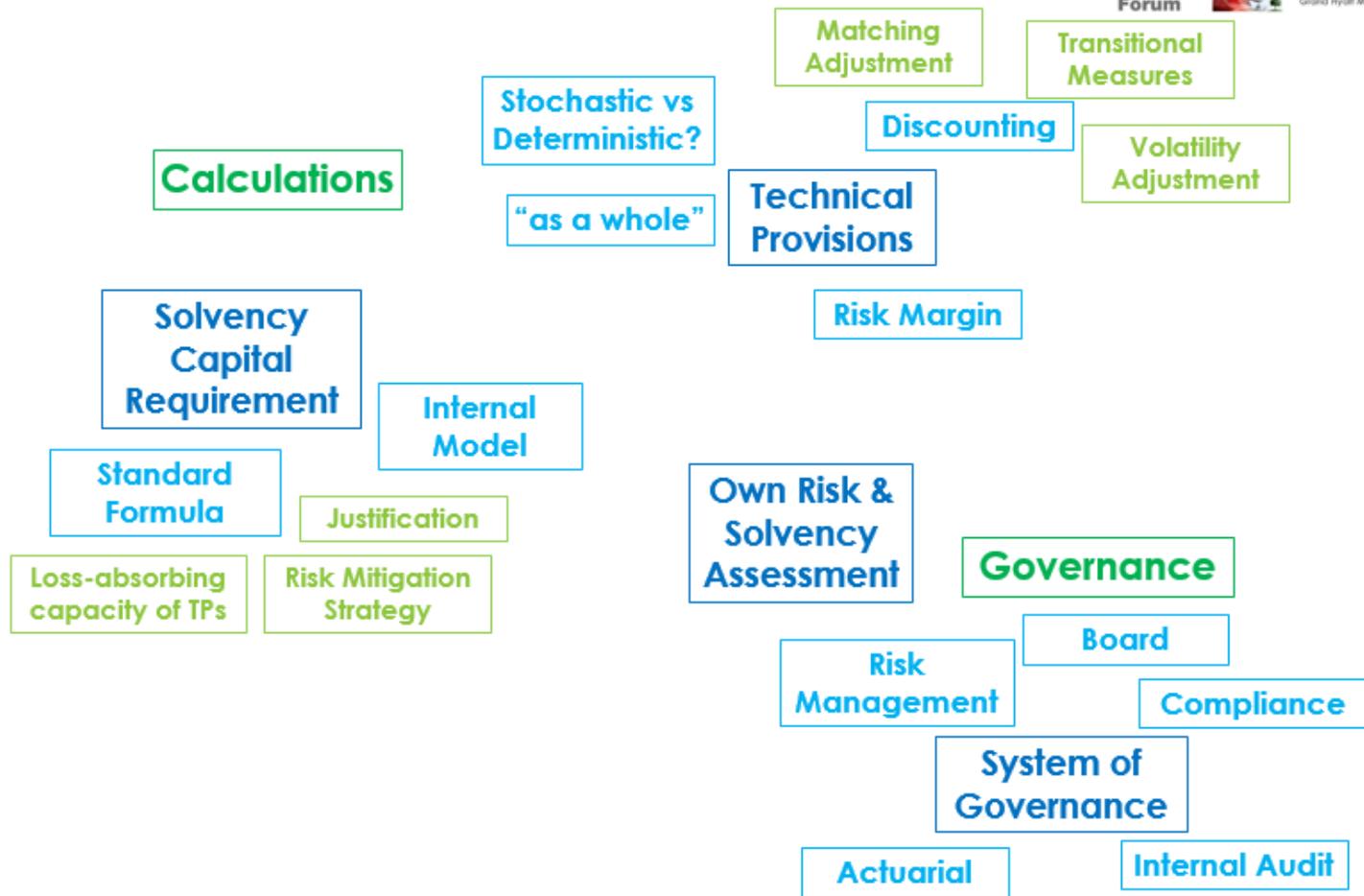
State of play on Solvency II

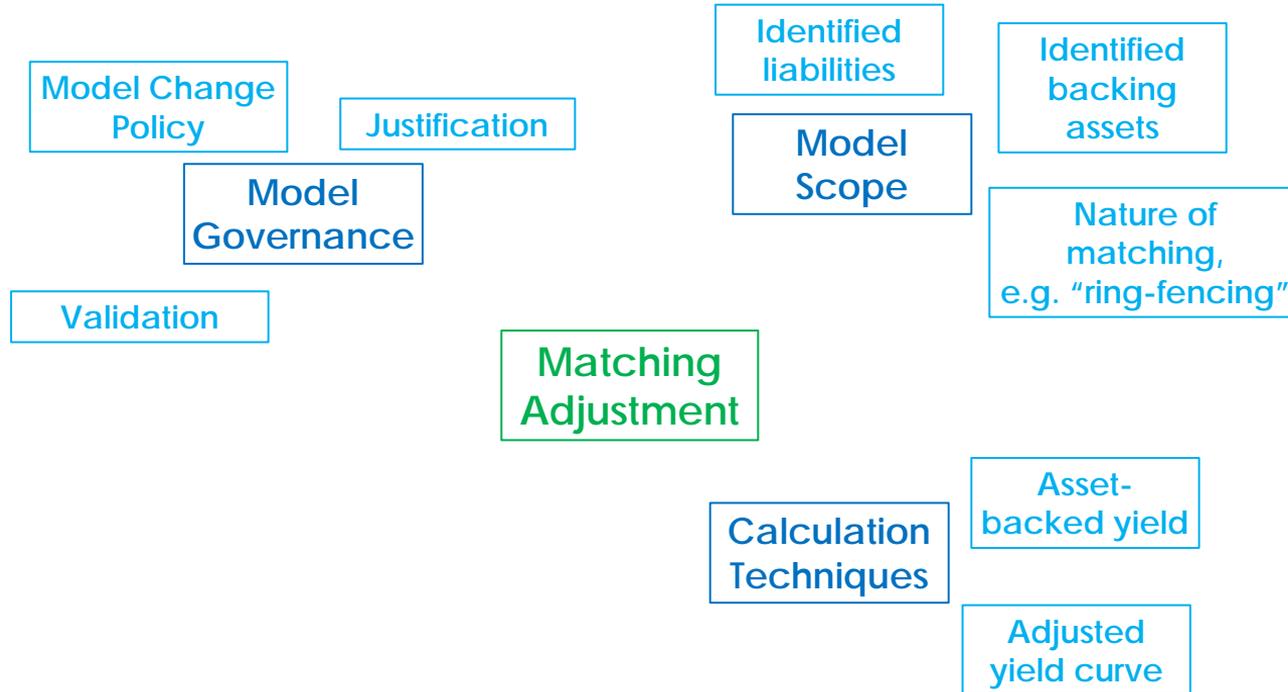
- Solvency II went live on 1 January 2016
- First quarterly returns for most firms are as at 31 March 2016 ...
- ... first annual returns for most insurers will be 31 December 2016
- No consensus yet on how Solvency II compliance is being assessed
- Will they focus on the gaps against Day One compliance?
- Or will they ask insurers how they will run their business in this new world?













State of play on Solvency II parallel regimes

- Risk-based capital regimes akin to Solvency II also coming into effect in:
 - China (C-ROSS, China Risk-Oriented Solvency System)
 - South Africa (SAM, Solvency Assessment & Management)
 - Mexico (New Insurance & Surety Institutions Law)
 - Australia (LAGIC, Life & General Insurance Capital Standards)
- Already there or thereabouts for Solvency II equivalence:
 - Bermuda
 - Brazil
 - Canada
 - Hong Kong
 - Japan
 - Switzerland
 - ... even the USA is doing an ORSA



International Association of Insurance Supervisors & the Financial Stability Board

- Two genuinely global regulatory regimes:
 - Globally Systemically Important Insurers (G-SII)
 - Common Framework (ComFrame)
- Both in consultation phase
- Both risk-based regimes, but both seemingly with even more emphasis on governance than Solvency II
- Both going live by the end of the decade



Globally Systemically Important Insurers

AEGON

Allianz

AIG

AVIVA

AXA

MetLife

PING AN

Prudential
inc

PRUDENTIAL
plc

Common Framework (ComFrame)

- Internationally Active Insurance Groups
- Large:
 - US\$50bn assets under management; or
 - US\$10bn gross written premium
- Internationally active:
 - Three or more territories; and
 - At least 10% of business outside home territory
- 50ish insurance groups in scope worldwide

State of play on IFRS Insurance Contracts Phase II

- New global insurance accounting standard ...
- ... existing standard is IFRS 4 ...
- ... so people often call this new standard IFRS 4 Phase II
- “Current” exposure draft dates back to June 2013
- Some big changes since then – US no longer co-operating with rest of the world
- Final IFRS standard may be this year, but no guarantees
- Expectations in Europe are for a 2020 implementation date
- Any later, and the waiver for applying IFRS 9 expires

FEATURES: THE CALCULATIONS

Future Fulfilment Cashflows

- Expected value of all future fulfilment cashflows
- Just a set of projected cashflows
- Challenge is it may not be the same set of cashflows for different purposes ...
- ... for example, different interpretation of boundary conditions ...
- ... and peculiarities such as “pre-policy” cashflows
- So a familiar concept, but plenty to decide in the approach to this calculation

Time Value of Money

- Discounting of expected future cashflows
- Choice of discount rate ...
- ... but discount rates must be traceable back to observable market data
- Risk-free yield curves, asset-backed returns ...
- ... plus or minus various modifications for credit risk, liquidity premium

Best Estimate Liability

- Combine Future Fulfilment Cashflows and Time Value of Money
- The amount you believe you need to hold in order to meet liabilities
...
- ... essentially with a 50/50 probability
- Give or take all the constraints and other deviations from economic reality
- Note Best Estimate Liability \neq Liabilities on best estimate assumptions
- Any non-linearity of results with respect to the risk factors, and the Best Estimate Liability effectively becomes a stochastic calculation

Solvency Capital Requirement

- Sufficient capital to have a >50/50 chance of meeting liabilities
- Solvency II – 99.5% one-year VaR, “1 in 200 year”
- “Standard Formula” approximates this as a series of stress tests at the projection start date
- Mechanism to aggregate capital from the individual stress tests ...
- ... standard formula reduces this to a correlation matrix
- Incorporate the impact of management and policyholder actions
...
- ... including the ability to absorb losses



Internal Model

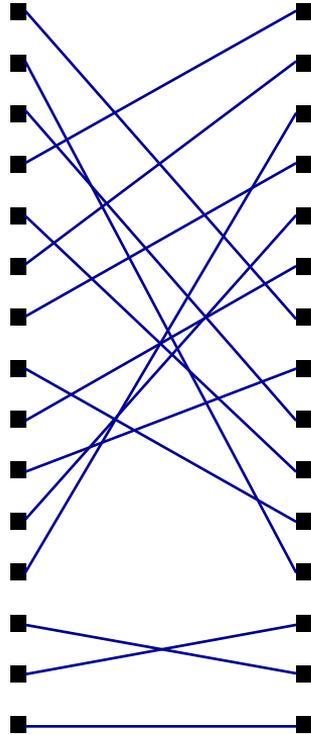
- If the Standard Formula SCR doesn't capture your risk profile ...
- ... you have additional risks not captured by the Standard Formula ...
- ... your business profile is not "average"
- Use of an internal model has to be justified ...
- ... additional requirements for internal model users are onerous ...
- ... model governance, "Use Test", documentation standards, etc

Internal Model

- Usually involves the creation of a loss distribution for the insurance entity ...
- ... generated by correlating large sets of results ...
- ... or obtaining results from correlated sets of risk factors
- More sophisticated aggregation of risk factors or risk capital to capture non-linearity ...
- ... copulas

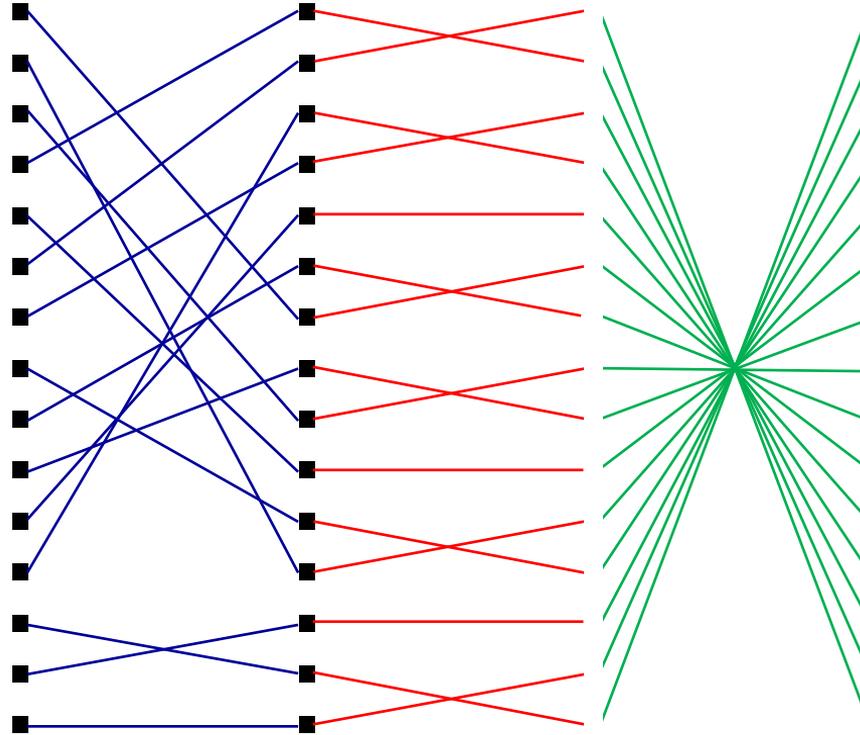


Aside – What's a copula for?





Aside - What's a copula for?



Risk Margin / Risk Adjustment

- Compensation for risk of fulfilling insurance liabilities
- IFRS proposes a range of acceptable techniques
 - Value at Risk (or variant such as tail VaR)
 - Cost of capital approach
- Cost of capital approach is theoretically required for Solvency II Day One
- Cost of capital approach is the more challenging calculation ...
- ... most European insurers have not done this properly for Solvency II



Contractual Services Margin

- Probably the most controversial calculation in the IFRS proposals ...
- ... 2013 exposure draft brought us closer to what is actuarially intuitive ...
- ... but the concept is simply not aligned with how actuaries view the world
- “Zeroise” future profits, then allow profit to emerge smoothly over time
- Calculation of CSM is just a formula ...
- ... biggest potential calculation hassle is different economic assumptions basis
- Practical pain point is passing CSM info from one valuation to the next ...
- ... storage and retrieval of BEL and CSM by policy is unlike anything in any other regime today

The Fundamental Interconnectedness of Things

- An IFRS 4 Phase II balance sheet in a Solvency II world
- Best Estimate Liability wrap around the cashflows on an IFRS basis ...
- ... discount using a yield curve or asset-backed returns
- IFRS Risk Adjustment based on Solvency II Solvency Capital Requirement ...
- ... revalue Solvency II BEL under a series of stresses, calculate risk capital for each stress, aggregate stress capital requirements ...
- ... project business forward in annual time steps on IFRS assumptions ...
- ... evaluate projected SCR on Solvency II assumptions ...
- ... using IFRS cost of capital basis on projected Solvency II SCR
- Contractual Services Margin ...
- ... incorporating “properly-calculated” Risk Adjustment into the zeroisation

FEATURES: GOVERNANCE & CONNECTIVITY



Why governance?

- Solvency II, ComFrame ...
- ... the risk-based regimes have explicit governance framework requirements
- On paper, IFRS Insurance Contracts Phase II is a calculation regime ...
- ... governance matters because the actuaries have to work with the accountants on this ...
- ... and the accountants say it matters
- Accountants want to see process and governance around their numbers ...
- ... actuarial mathematics is of little interest to them
- But this is actually great news for many actuaries ...
- ... everything we did for these risk-based regimes works for IFRS too

Why connectivity?

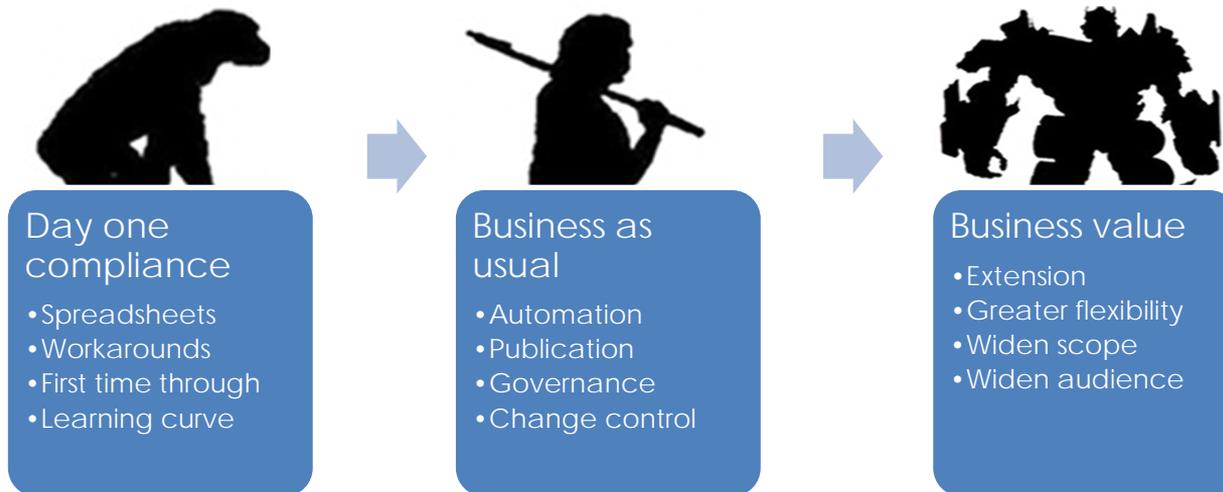
- Again, it's all about co-operation between actuaries and accountants
- Actuarial calculation results will need to be consumed by accounting systems ...
- ... on a greater scale than under previous regimes
- Accountants have the concept of "Priority 1 systems" ...
- ... if it feeds into the Accounts, it's a Priority 1 system ...
- ... if it feeds data into a Priority 1 system, then it must meet standards of a Priority 1 system
- So it's not just that data flow between systems must be facilitated ...
- ... data flow will also need to be automated and controlled

WHAT'S NEXT?



Evolving the Business Process

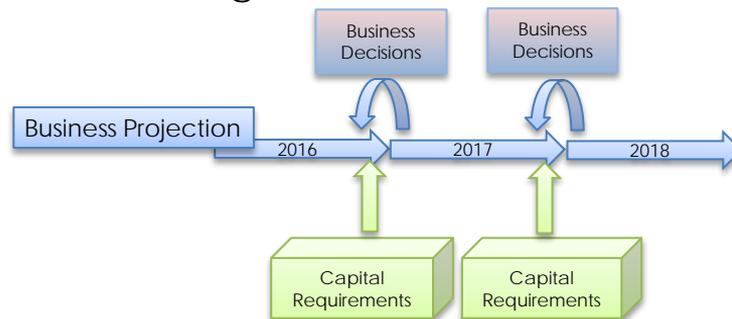
Three stages of implementing a new regulatory regime





Living in a risk-based capital world

- Once the new regime is embedded in the business ...
- ... the value is in using it to make decisions



- Decision-making inside the projection model:
 - What new business to write
 - Features from your risk management strategy
 - Offload an entire block of business
 - Corporate restructure

Conclusion

- True convergence, on an unprecedented global scale
- Demands on actuaries now go way beyond calculations ...
- ... and into areas of process, governance and control
- Recycling of calculation and governance tools is great news for insurers ...
- ... and for actuarial software providers!
- The scramble to Day One is over in many parts of the world ...
- ... the ability to extract value is just getting started

Questions?