

Our changing future:

QIS3 : How will Solvency II change life insurers' balance sheets?

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Solvency II – why it is important now



- Solvency II will replace all existing statutory solvency reporting for life and non-life insurers across the EU.
- Insurers' published capital positions will change – there will be winners and losers.
- The approval process is long & complex.
- Above all Solvency II is a negotiation.
- The philosophy of the balance sheet calculations is almost set in stone.
- Work to fix the methods and calibration is well underway.
- QIS3, the third pan-European Quantitative Impact Study is the principal conduit for industry input during 2007.
- QIS3 runs from 2 April to 29 June.

Agenda

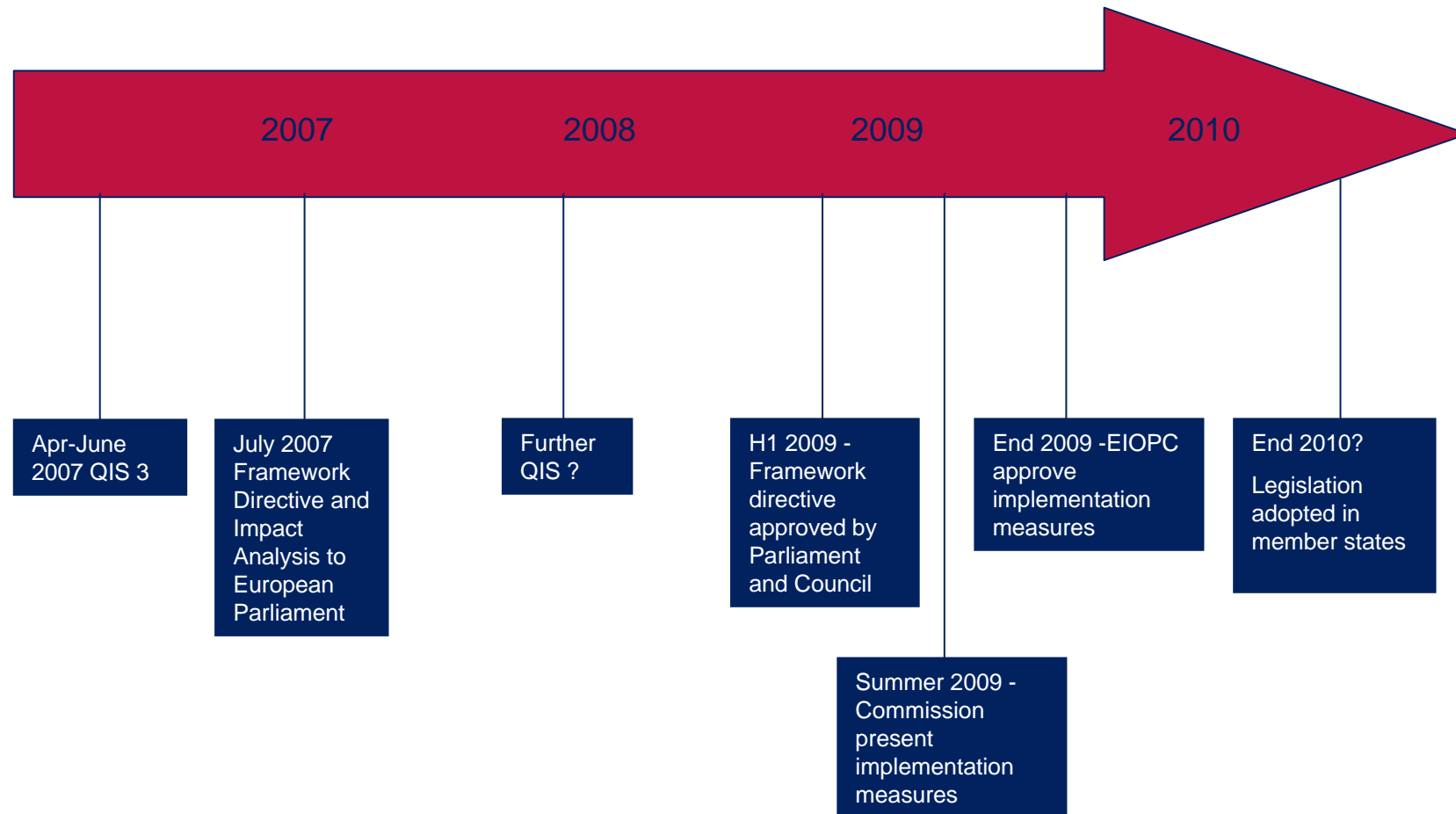
- Solvency I
 - Solvency II
 - Process & Timeline
 - Structure of New Balance Sheet
 - QIS2
 - What was it?
 - What did we get out of it?
 - QIS3
 - Why QIS3?
 - What's changed since QIS2?
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Solvency I

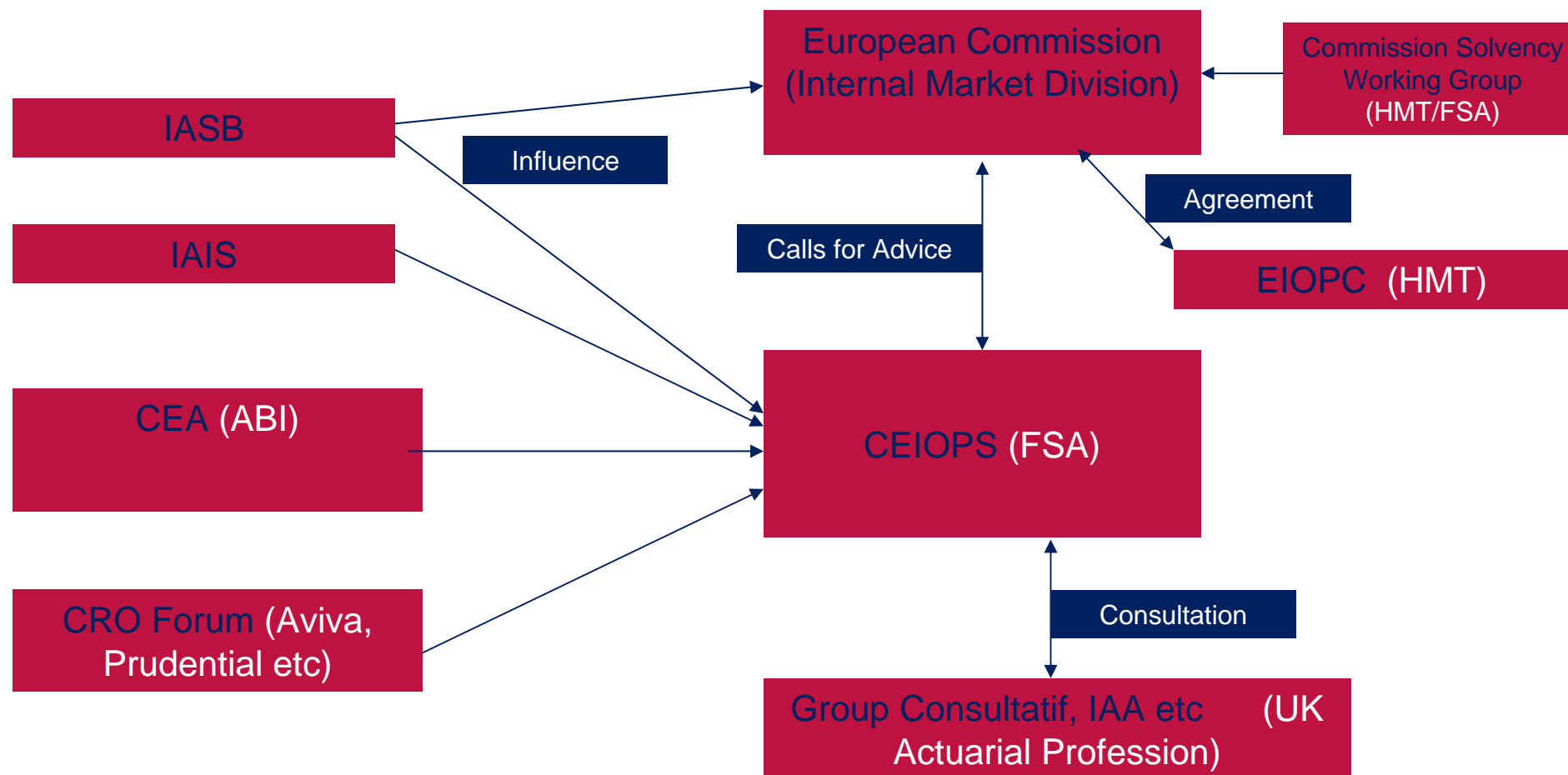
- Has been in force since First EU Directive in 1970s
- Suitable for its time
- Not suitable now:
 - Regulatory capital requirements not aligned with risk
 - Therefore, limited incentive for good risk management
 - FSA super-equivalence & lack of harmonisation across Europe



Solvency II - Process & Timeline



Solvency II - Process & Timeline



Solvency II - Structure

Pillar 1

Measurement of Assets, Liabilities and Capital

Principles for the valuation of assets and liabilities, and the calculation of capital requirements.

Pillar 2

Supervisory Review Process

To help ensure that insurers have embedded the monitoring and management of risks into the running of their business.

Pillar 3

Market Discipline and Disclosure

Requirements that allow capital adequacy to be compared across institutions.

Solvency II - Structure – Pillar 1: Technical Provisions



- Technical provisions will be based on fair/market consistent value.
- Where risks are non-hedgeable the liabilities should be valued on a best-estimate basis with the addition of an explicit risk margin.
- The risk margin will be calculated using a Cost of Capital approach.
- The contribution to the value of the liabilities from the explicit risk margin for non-hedgeable risks, is a difference between Solvency II and the current ICA regime. All other things being equal, this would lead to a reduction in Free Capital under Solvency II relative to the current position.

Solvency II - Structure – Pillar 1: MCR



- The Minimum Capital Requirement (MCR) represents the “ultimate regulatory intervention point”.
- It is a hard limit.
- Similar role to current LTICR + RCR in UK.
- The structure of the MCR is a bit uncertain but is likely to be calibrated to a 90% one year VaR.
- There is a risk that the MCR approach eventually adopted could result in the MCR moving differently to the SCR, ie a new “twin peaks”.
- The UK and others are lobbying for an alternative where the MCR as a fixed percentage of SCR.

Solvency II - Structure – Pillar 1: SCR



- The Solvency Capital Requirement (SCR) is the level of capital below which a firm will need to submit a recovery plan for approval.
- There will be a “ladder of intervention” between SCR and MCR.
- The SCR is not intended to be a hard target – the response of the supervisor will be proportionate to the size of the breach.
- The SCR will be calibrated to a ruin probability of 0.5% over one year (i.e. it is a 99.5% VaR).
- The SCR can be calculated using a standard formula or (subject to approval by the national supervisor) an internal model.
- This approach is likely to be similar to the current ICA regime except that the SCR is part of Pillar 1 and will be subject to public disclosure.

Solvency II - Structure – Pillar 1: Adjusted SCR



- National Supervisors will have the power to adjust the SCR...
- ...due to perceived deficiencies in a firm's internal model,
- ...or because a firm has used the standard formula approach but the Supervisor feels the firm's risk profile is significantly different from that underlying the standard formula SCR.
- Such capital add-ons will be the exception not the rule.

Solvency II - Structure – Pillar 2: Supervisory Review Process

- **IRCA – Internal Risk and Capital Assessment**

- The IRCA is a firm's own view of its capital needs given its strategy & risk profile.
- Firms will have to have risk appetite policies and limits in place
- The process needs to be owned by the Board
- Detailed documentation will need to be prepared covering:
 - the SCR calculation result
 - the policy on maintenance of adequate solvency capital and
 - an analysis of difference between firm's own assessment of capital needs and the capital required by the standard formula SCR

- **SRP – Supervisory Review Process**

- The SRP should aim to review the IRCA and the calculation of the SCR
- The SRP should seek comfort
 - that the firm has considered all material risks
 - that appropriate risk management systems and controls are in place and
 - that appropriate risk mitigation policies are in place and are effective

- **Capital add-ons could be imposed if the firm's risk profile is significantly different from that underlying the SCR or if governance is significantly weaker than required by the Directive**
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Solvency II - Structure – Pillar 3: Market Discipline & Disclosure

- Solvency and Financial Condition (SFC) Report, covering:
 - Insurer's business, corporate structure and external environment
 - Governance structure and Risk management processes
 - Level of MCR and SCR, including separate disclosure of any capital add-on
 - Qualitative description of internal model
 - The amount and explanation of any breach in the MCR and SCR during the year

Key industry concerns are (i) firms should not be forced to disclose commercially sensitive information, (ii) disclosure of SCR breach could mean SCR becomes a hard target and (iii) disclosure of capital add-ons could cause disquiet in marketplace.

QIS2 - What was it?

- **What & When was QIS2?**
 - 2nd Quantitative Impact Study assessing structure & practicality of calculations required to create Solvency II balance sheet.
 - Completed by firms in first half of 2006 for submission to FSA by 31st July 2006
 - **Who participated in QIS2?**
 - 514 firms from across EU, including 16 UK Life firms (15 Large & 1 Small)
 - These 16 firms represented a 65% share of UK Life market
 - CEIOPS considers the results to be representative of large firms
 - **Headline results for UK Life Firms**
 - required capital seen to increase for firms writing with-profits business
 - required capital seen to increase for firms specialising in Institutional Class III business
 - required capital seen to reduce for firms specialising in linked or protection business
 - the ratio of the cost-of-capital provisions to the 75th percentile provisions was in a narrow range of between 99% and 101%
 - views were generally that a scenario approach to the SCR was more suitable than a factor based approach, and almost all firms derived a lower overall capital figure from their internal model calculation compared to the SCR.
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QIS2 - What was it?

- **Headline results for UK Life Firms**

- It was noted that the size of the K factor is very specific to the business written
 - UK Life firms felt that the most appropriate way to assess the effect of profit sharing on the type of business written here is to model realistic management actions in a wide range of adverse market risk scenarios.
 - strong concerns expressed about the suitability of the MCR
 - concerns expressed about the calibration of some shocks (eg equity risk) & questions raised about a number of the assumed correlations.
 - Most participating groups provided figures for main legal entity. Some groups also provided separate figures for other significant legal entities within the group.
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QIS2 - What did we get out of it?

What did we get out of QIS2?

- A contribution to the development of the people & processes that will be required to report under Solvency II when it is implemented
 - An appreciation of the issues (as previously described)
 - The opportunity to feedback & influence the development of the structure & parameterisation of the calculations
 - Deepened relations with FSA, HMT, CEA, EC
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QIS3 - Why QIS3?

Why participate in QIS3?

- A contribution to the development of the people & processes that will be required to report under Solvency II when it is implemented
 - An appreciation of the issues (as previously described)
 - The opportunity to feedback & influence the development of the structure & parameterisation of the calculations
 - Technical provisions – may end up too prudent or diverging too far from IFRS Phase II.
 - SCR – calibration, with-profits specification & details of standard formula.
 - SCR – divergences between Internal Model, scenario-based SCR and factor-based SCR have a corresponding impact on potential Cost of Capital risk margins on top of best estimate value of liabilities
 - MCR – Need MCR more risk sensitive e.g. %SCR
 - Own Funds (or Available Capital)
 - Groups – concern that firms should be allowed to make full allowance for diversification benefits across different Group companies and that the Group Supervisor should have the lead role in supervising pan-European Groups.
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Agenda

- **What has improved since QIS2**
- Which areas are still weak in QIS3
- Which areas are new in QIS3
- Internal models
- QIS3 treatment of WP business
- Potential impacts

What has improved since QIS2 ?

- The readability of the specification
- Scenarios agreed as standard approach for market & insurance risks
- Margin for non-hedgeable risk is on a cost-of-capital basis
- Key correlation factors have been reduced
- Equity shock has been reduced
- Improved approach to risk-absorbency in with-profits business
- Market risk on with-profits business is now “hedgeable”
- “Size” factors have been removed
- Can exclude free capital from SCR calculations.

Which areas are still weak in QIS3 ?

- New formula proposed for Minimum Capital Requirement, but
 - Market risk capital is asset-based only
 - Allowance for WP business unlikely to work
 - No obvious link to EC standard of 90%ile for the MCR
- Longevity risk calibration appears harsh
- Main persistency scenario is practically difficult
- New lapse catastrophe scenario appears harsh
- Currency risk scenario is clumsy
- Credit spread & concentration risk calculation is complex and non-intuitive. Op risk calculation is too simplistic.
- Cost-of-too-much-capital margin

Which areas are new in QIS3 ?

- Submission segregated into business lines
- Definitions for eligible capital tiers will be tested for first time
 - MCR must be backed by tier 1 and tier 2 capital
 - SCR may be backed by a mix of tiers 1, 2 and 3
- Treatment of Groups
 - Primary supervision will be at group level by the local regulator.
 - CEIOPS Autumn CP gave little credit for diversification.
 - HMT put forward a more aggressive approach to diversification.
 - CEIOPS propose that each sub must hold $MCR + 50\% * (Solo\ SCR - MCR)$.
 - CEIOPS propose that group support must be backed by an external 3rd party guarantee.

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- **Internal models**
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- Potential impacts

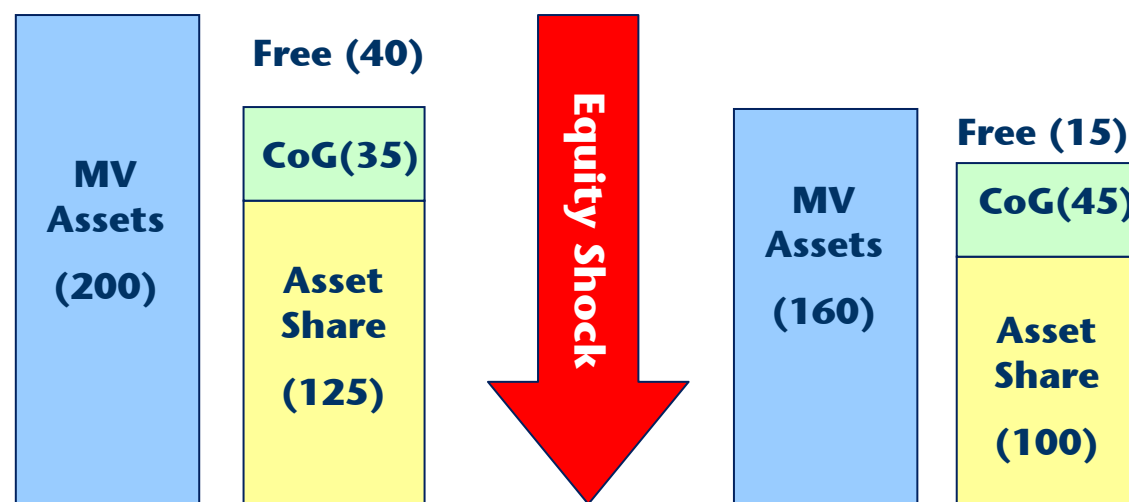
What do we mean by “Internal Models”?

- A firm may seek approval to calculate the 99.5%ile 1-year Statutory Capital Requirement using their own model instead of the “standard approach”
- Standard approach is designed to be achievable for all types of firms.
- Internal models provide scope for firms to reduce their capital requirements through demonstrating that the models they use to run their business can calculate a 99.5%ile 1-year capital requirement to the required standard.
- ICA models will not automatically be recognised as internal models.
- Models will be tested against a use test, a calibration test and a statistical quality test.
- Paul Sharma of FSA chairs the CEIOPS workstream which is defining the criteria for a harmonised internal model approval process.
- Progress in this area is limited by the proportion of people involved who have seen or used something approaching an internal model.
- FSA will use QIS3 in UK as a field study to inform CEIOPS work.

Agenda

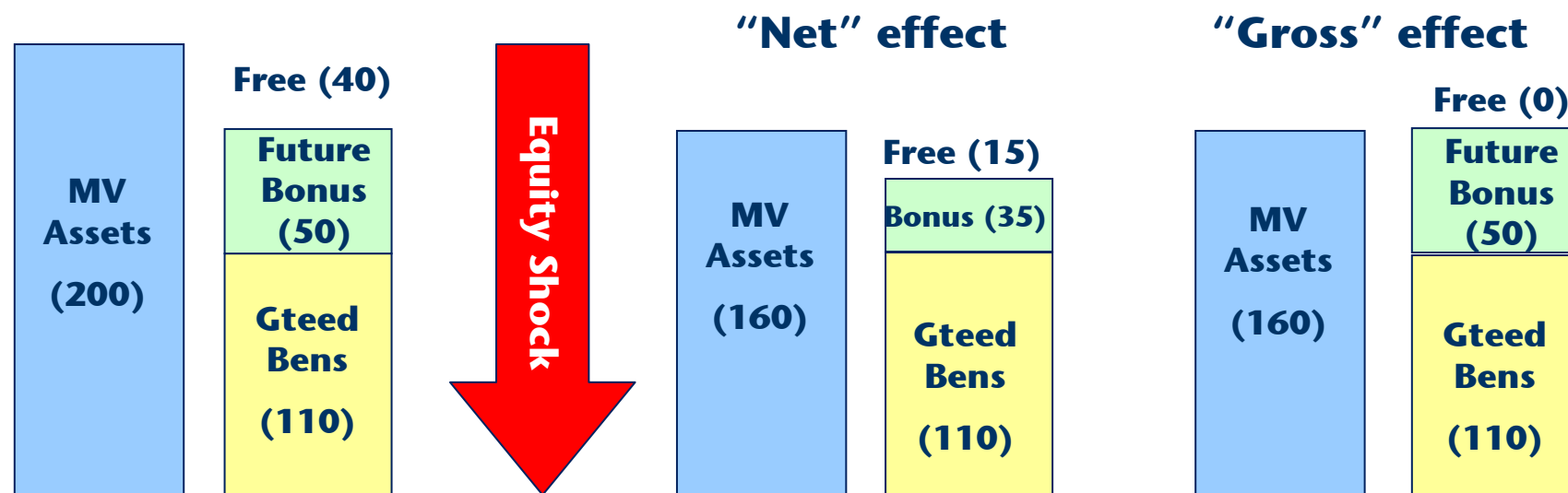
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- **QIS3 treatment of WP business**
- Potential impacts

UK presentation of risk absorbency of WP



- WP liability is made up of Asset Share plus Cost of Guarantees
- Under stress, asset share falls and cost of guarantees rises
- Free capital reduces from 40 to 15, ie $\Delta NAV = 25$

Sol II presentation of risk absorbency of WP



- WP liability is a guaranteed benefit plus potential future bonus
- "Net" of risk-absorbency, liability falls under stress. $\Delta NAV = 25$
- "Gross" of risk-absorbency, it doesn't. $\Delta NAV = 40$
- Reduction for profit-sharing (RPS) = $40 - 25 = 15$

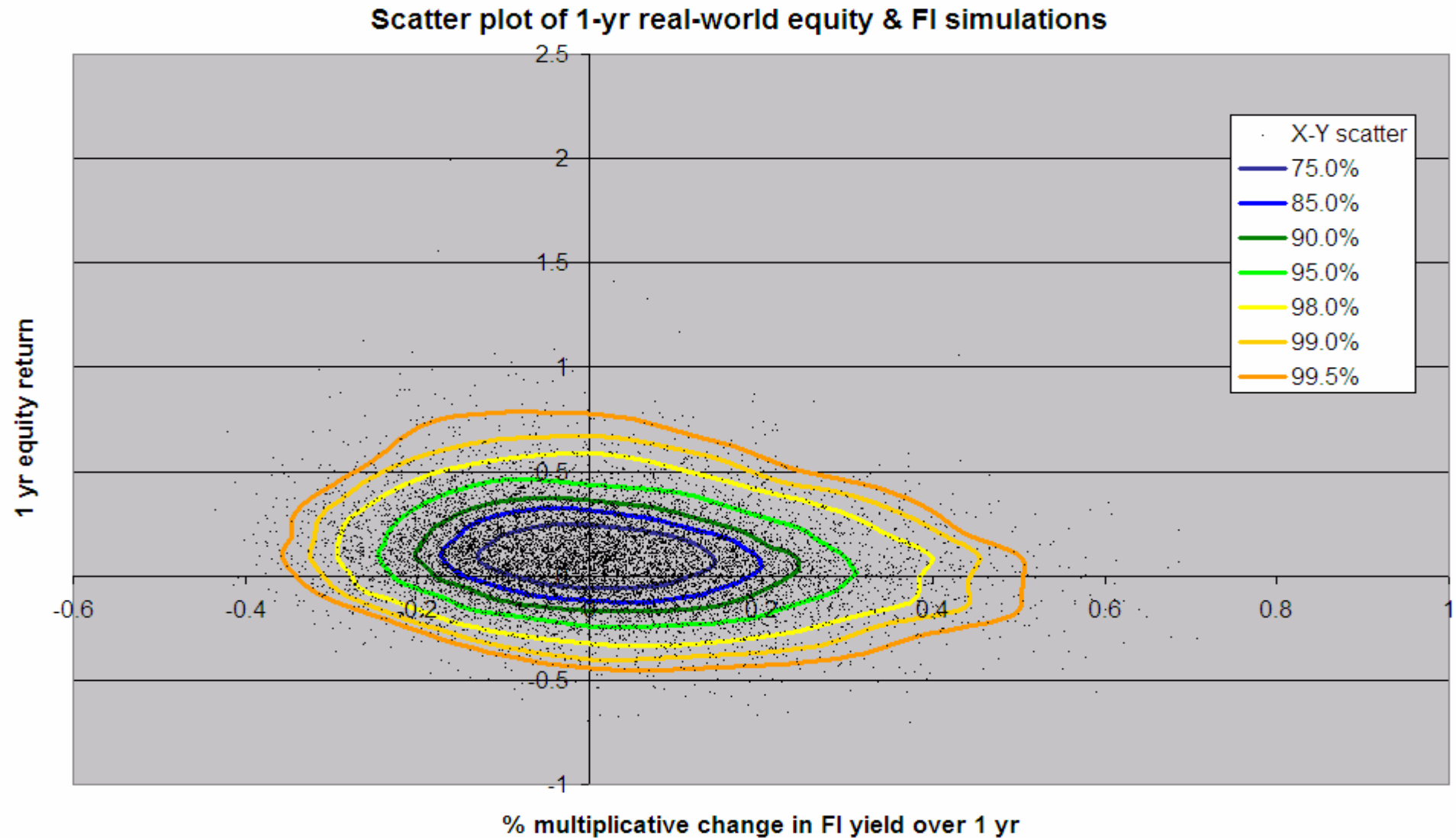
Aggregation of WP capital requirements

- Calculate ΔNAV for each risk scenario.
- Usual UK approach is to aggregate the “net” capital requirements using matrices to get “net SCR”.
- QIS3 requires us to
 - aggregate the “gross” requirements to get “gross SCR”.
 - aggregate the reductions for profit sharing to get an “aggregate RPS”
 - *Net SCR = Gross SCR – min(agg RPS, TP future bonus)*
- QIS3 method will be time-consuming.
- But clearer than QIS2 and better than pre-test QIS3.
- Aim to show that method doesn’t lead to “double-counting”.

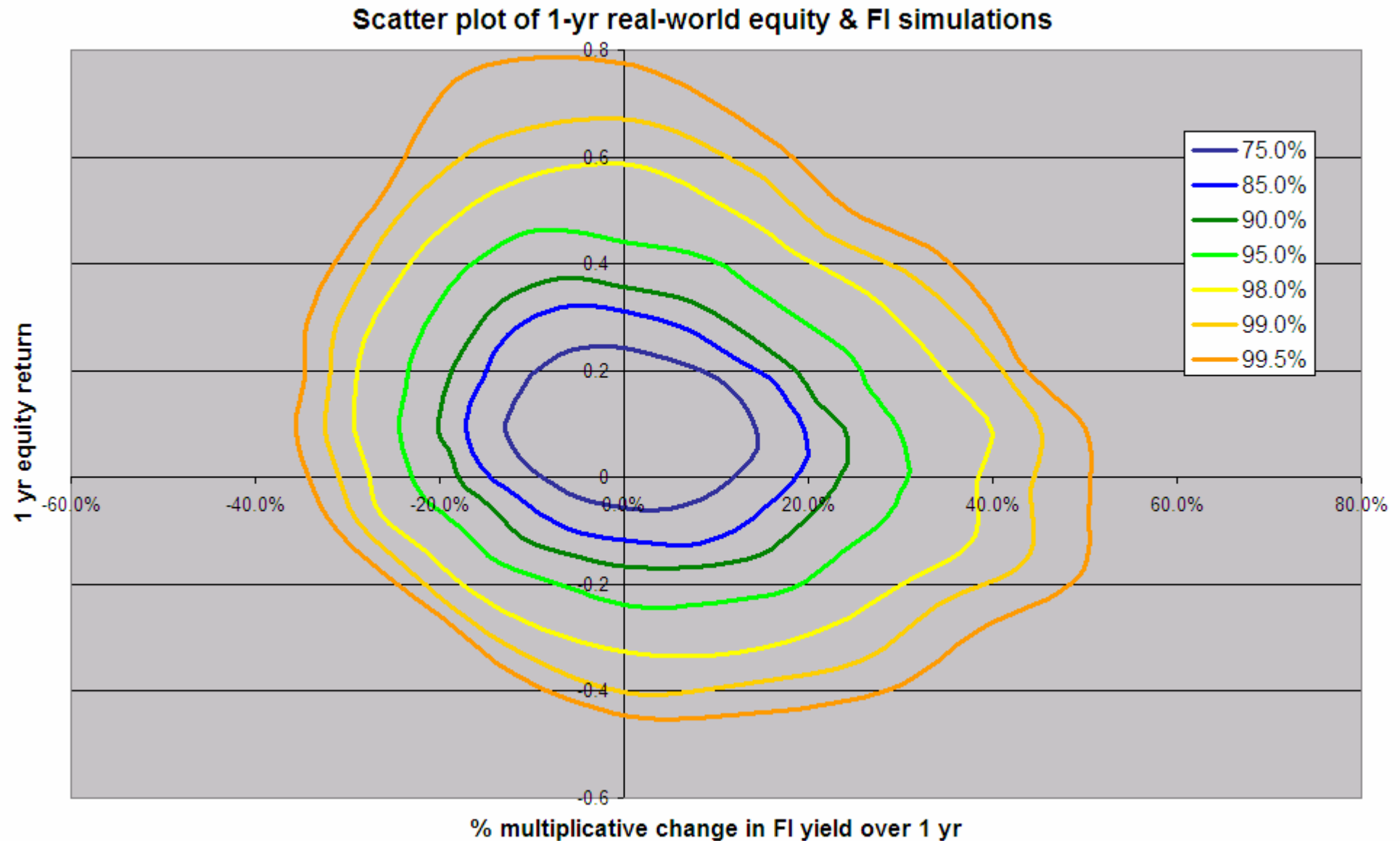
If time permits

- Does “net” and “gross” free capital move similarly?
- Do UK and continental WP business behave similarly?
- Can the same correlation matrix be used for UK and continental WP business?

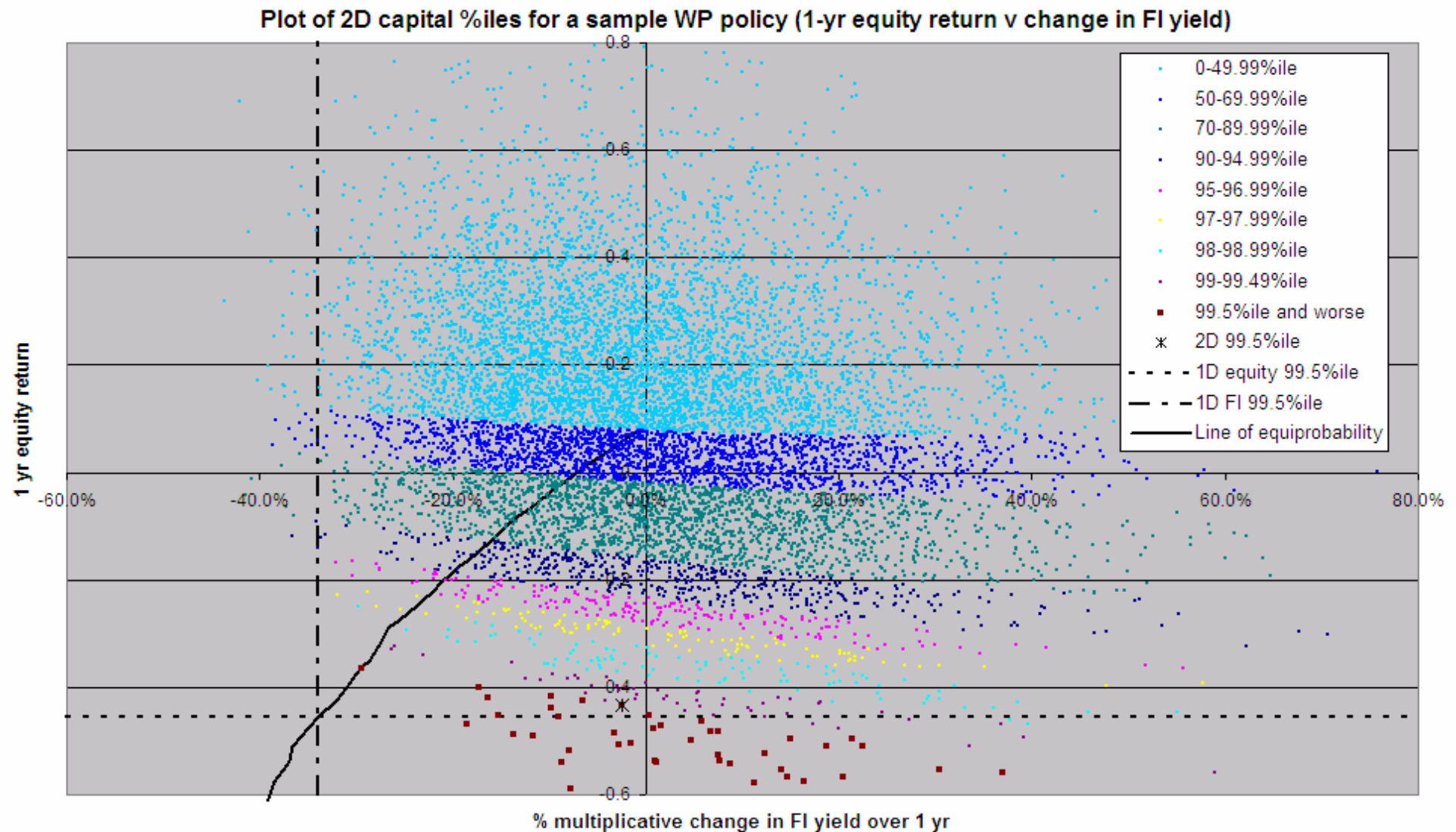
Event probabilities for underlying risk drivers (1)



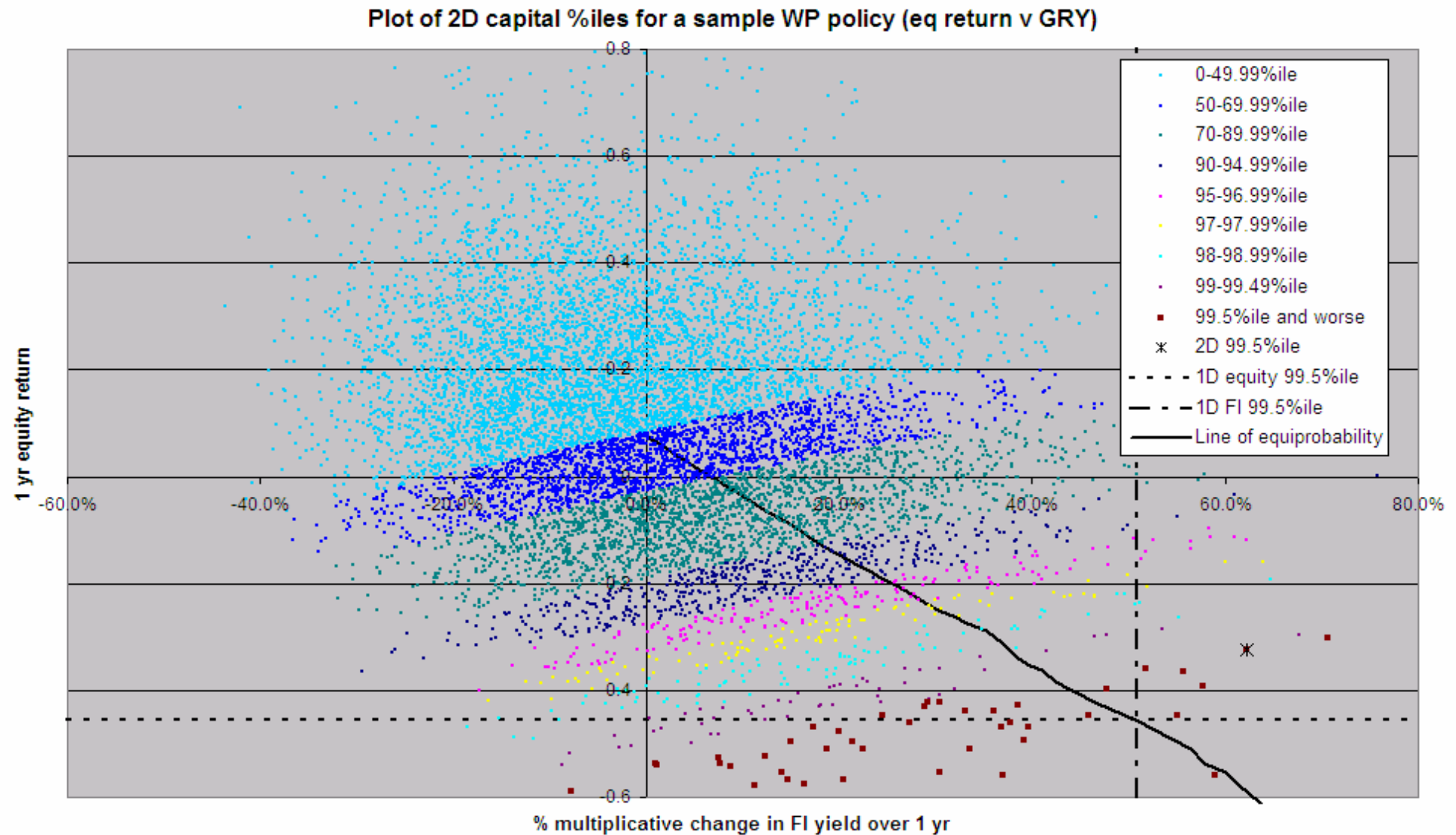
Event probabilities for underlying risk drivers (2)



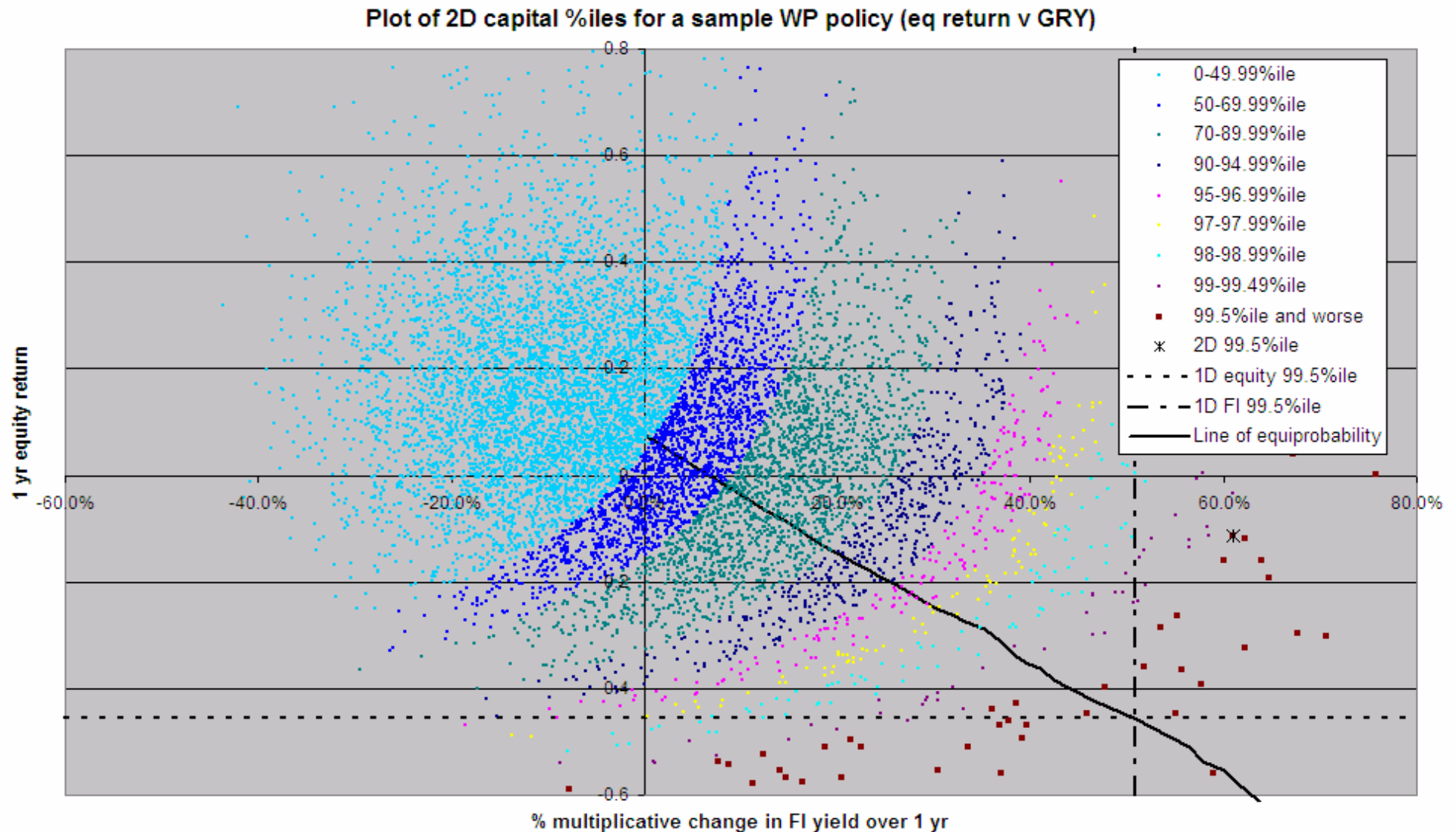
%ile plot for capital requirements – UK WP (net)



%ile plot for capital requirements – UK WP (gross)



%ile plot for capital requirements – German WP (net)



Summary of findings

- Bidirectional shocks can affect “net” and “gross” results in opposite directions.
- The mix of equity & FI risks in UK & continental WP business is quite different.
- Using 1-dimensional shocks plus correlation matrices does not assess the most likely least solvent scenarios.
- %ile event probability contours are different from %ile capital requirement contours.

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Potential impacts of QIS3

- It will show that the proposed MCR does not work.
- It will show which products become more/less capital intensive under Solvency II.
- It may show that the net/gross WP runs are unnecessary.
- The data gathered will be used by CEIOPS as a key input to their ongoing calibration work;
- But the balance of technical detail and political compromise is hard.
- If unchallenged the QIS3 calibration may set in stone.
- As QIS2 results were marred by variable calibration, QIS3 will give the first true quantitative assessment of the impact of Solvency II.

Potential impacts of Solvency II

- “Statutory peak” valuation systems become redundant
- PVIF calcs will become less significant as the only margins in technical provisions will be cost-of-capital on non-hedgeable risks.
- Long lead time to develop internal models to hit a moving target.
- One-off release of surplus could have tax consequences
- Will feed into the IFRS II and MCEV debates
- Does market-consistency mean no liquidity premium on annuities?
- Will credit for diversification across groups lead to increased M&A?
- It will mean CHANGE
- Opportunities for UK firms and the UK Profession

Bibliography

The whole QIS3 pack including specification, output template, calibration papers etc can be downloaded from:

<http://www.ceiops.org/content/view/118/124/>

The Groupe Consultatif website has a Solvency II area:

<http://www.gcactuaries.org/solvency.html>

The CEA website also has a Solvency II area:

<http://www.cea.assur.org/> then click on Latest News / Solvency II in the menu on the left-hand side.

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Your questions