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Balance sheet and capital projections – pros, cons, and practicalities

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Agenda

- Drivers for projection capabilities
- What firms need to have in place
- Approaches to projections – assets, liabilities, capital requirements
- Practical challenges and application
- Conclusions
- Q&A

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1. Drivers for projection capabilities

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Drivers for projection capabilities

- Regulatory drivers
  - EIOPA – level 3 guidelines for ORSA
  - PRA – feedback on ORSA's reviewed
- Internal uses
  - Capital management and planning
  - Business planning
  - Strategic decision making
  - Risk management and monitoring
  - Management information
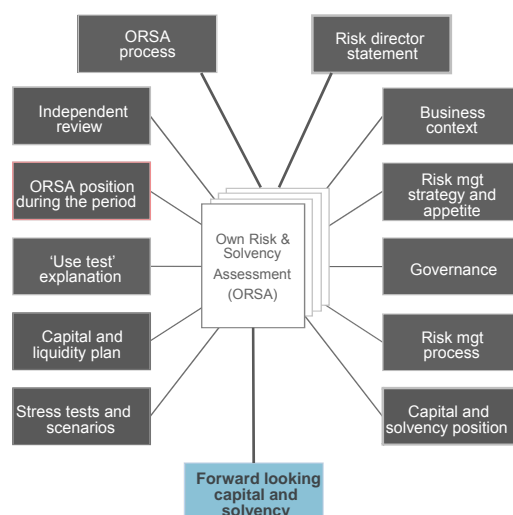
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Regulatory drivers

1. Solvency II Level 3 Guidelines

- Relevant guidelines are:
    - Guideline 8: Forward-looking perspective of the overall Solvency needs assessment
    - Guideline 10: Continuous compliance with regulatory capital requirements
- Key requirements are that:
    - Assessment of overall solvency needs is forward looking
    - Analysis is needed on whether the firm complies on a continuous basis with the regulatory capital requirements
    - Material future changes to risk profile are considered
    - The quality, quantity, and composition of Own Funds is considered over the whole business planning period

2. PRA feedback on ORSAs (June 2015)

- Major weaknesses highlighted in
    - Forward-looking assessments
    - Stress and scenario testing, including application of this to forward-looking assessment

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2. What firms need to have in place

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Requirements of a solution

- Projection of Solvency II balance sheet
- Projection of SCR – Pillar 1 / Pillar 2 basis
- Own funds quality, quantity, and composition
- Multi-year time period (3+ years)
- Allowance for new business plans
- Impact of external factors
- Impact on Own Funds and SCR of stress testing and scenario analysis
- Practical and efficient process
- Consistency / interaction with other business processes

Balancing pragmatism and accuracy

- It is key to strike a balance between technical accuracy and simplicity of process
- A straightforward process will aid clarity of message, support good management understanding, and avoid spurious accuracy

"Beware of geeks bearing formulas"
Warren Buffet

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Example output

Market value balance sheet	YE 2014	P1 2015	P2 2016	P3 2017
Total assets	7,514.1	7,664.2	7,816.4	7,971.5
Total technical provisions and other liabilities	6,292.0	6,413.7	6,537.3	6,663.3
Total own funds	1,222.1	1,250.6	1,279.1	1,308.2

Stand-alone SCR	YE 2014	P1 2015	P2 2016	P3 2017
Market risk	605.6	617.6	629.9	642.3
Credit risk	206.8	206.8	206.8	206.8
P&C risk	204.0	208.1	212.2	225.5
Life risk	331.7	338.4	345.1	386.6
Business risk	74.2	75.7	77.2	80.5
Operational risk	20.0	20.4	20.8	21.2
Total stand-alone SCR	1,296.8	1,318.9	1,341.4	1,405.0

Diversified SCR	YE 2014	P1 2015	P2 2016	P3 2017
Market risk	342.7	349.8	357.0	354.9
Credit risk	120.6	119.8	119.0	115.6
P&C risk	62.3	63.5	64.7	68.7
Life risk	171.0	175.0	179.1	213.4
Business risk	22.7	23.1	23.6	25.0
Operational risk	20.0	20.4	20.8	21.2
Tax	0.0	0.0	0.0	0.0
Total diversified SCR after tax	664.7	675.7	686.9	718.2

Solvency ratio	YE 2014	P1 2015	P2 2016	P3 2017
Base case	184%	185%	186%	182%

Pillar 2 requirement

Pillar 1 requirement

- The volume of results to be produced significantly increases, particularly if projecting multi-year

	P1 2015	P2 2016	P3 2017
Base	185%	186%	182%
Scenario 1	146%	152%	154%
Scenario 2	124%	130%	134%
Scenario 3	198%	199%	199%
Scenario 4	-5%	7%	22%
Scenario 5	113%	120%	125%

- Being able to see how future solvency is affected under different scenarios is key to risk management

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3. Projection approaches

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Projection approaches

- There is no single approach to projections:
    - Many possible solutions
    - Need to align to a firm's business and risk profile, which will be different between firms
    - Need to support intended uses of projections, which will be different between firms
    - Variability between SF and IM firms for SCR
    - Variability between BU and Group approaches within firms
- We will explore approaches for assets, liabilities, and SCR
- Risk Margin and MCR will not be covered in detail

Asset projection approaches

- In theory, assets are relatively simple to project

- Ensuring consistency with liabilities so that the projected balance sheet remains internally consistent is key

- Primary approaches are:

  1. Simple movement assumption, e.g. moves in line with BEL

  2. Scaling from base assumptions, e.g. asset specific growth assumptions and new business allowance

  3. Output from full cashflow / ALM model

Liability projection approaches

- For most companies, existing capabilities for BEL modelling are reasonably sophisticated, and there is greater infrastructure to be leveraged

- However, where additional development is required it may be complex

- Key issues are treatment of new business and handling of out-of-model adjustments

- Primary approaches are:

  1. Simple movement assumption, e.g. moves in line with assets

  2. Proxy modelling, e.g. replicating portfolios

  3. Existing model results and scaling from base assumptions

  4. Full actuarial model output, including new business

SCR projection approaches

- Detailed projection of the SCR can be complex and computationally intensive

- A combination of approaches may be appropriate here, allowing for material risks to be dealt with via an advanced approach, while simple approaches are used for less significant risks

- Development of particular SCR projection approaches may require amendments to the asset / liability calculation infrastructure

- Primary approaches are:

    1. Simple movement assumption, e.g. moves in line with BEL
    2. Simple duration based formula
    3. Quadratic equation
    4. Risk driver approach
    5. Re-calculation using future model outputs

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4. Practical challenges and application

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Example objectives and practical application decisions

Objectives	Practical application decisions
• What is real goal – trends or scientific accuracy • Key areas for management decisions • Granularity of results required – by product, by risk, a combination or neither • Inclusion of risk limit projections for monitoring risk appetite • Inclusion of P&L impacts	• Frequency of calculation • Ability to perform ad-hoc calculations and flexibility for use outside ORSA • Ability to make late changes • Platform to use • Ease of results interrogation and analysis

Conflicting objectives => need for balance between pragmatism and robustness

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Selected challenges

Scope and basis	Granularity and functionality	Technical methodology	Consistency of process / analysis
• Pillar 1 / Pillar 2 basis • Treatment of risks not covered by Pillar 1 • Treatment of group structure • Selection of scenarios for stress and scenario testing	• Granularity of assumptions and calculations • Stress and scenario testing functionality • Speed and efficiency of process	• Selection of projection approach • Variation of approaches by class of business • Treatment of new business • Treatment of manual adjustments • Real world vs risk free discounting • Ability to explain outputs	• Consistency with t=0 results • Consistency between asset, liability, and SCR projections • Analysis of change • Consistency with other business processes (e.g. business planning, risk appetite monitoring)

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5. Conclusions

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Conclusions

- Firms need to be able to perform projections

- Variety of approaches are possible and needs to be appropriate for the firm objectives and business / risk profile

- Practical as well as technical challenges – and many of these conflict so need pragmatism

- Expectation that firms will get better!

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Questions

Comments

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Appendix – Maturity profile

Criteria	1. Innocent	2. Aware	3. Developing	4. Advanced	5. Market leading
Balance sheet projection	► Own funds projected only, rather than assets and liabilities separately ► Simple scaling or risk driver used to project own funds	► One of assets or liabilities is projected forward reasonably robustly but other is scaled from this ► Lack of allowance for risk-free/real-world differences ► New business allowed for but future volumes not sufficiently challenged	► Incorporates realistic new business projections ► Explicit investment growth assumptions ► Assets and liabilities modelled separately but consistently ► If using replicating portfolios, not enough testing on forward-looking suitability ► Simple approach to tax ► No income statement/P & L	► Reasonably robust methodology for projecting balance sheet forward ► Full ALM may be used, but model run time is long and results difficult to investigate ► Some modelling performed of projected tax assets ► Basic income statement produced	► Income statement available showing source of Own Funds movement ► Tax modelling thought through ► Potentially modelled through full ALM solution, but results easily interrogated
SCR projection	► Individual risks not modelled separately, SCR projected as a whole	► Key risks have some focus but lack of ranking and consideration of robustness/pragmatic balance ► Lack of reconciliation of initial SCR to internal model	► Individual risks projected forwards ► Risk drivers used; driver selection is sensible but lack back testing of appropriateness ► No assessment of impact of non-linearity on certain risks	► Individual risks projected forwards ► Combination of approaches used e.g. Taylor Series for interest rate risk ► Lack of back-testing on risk drivers	► Individual risks projected, with material ones given most consideration ► Where risk drivers are used, thoroughly back-tested ► t=0 approach used efficiently

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Appendix – Maturity profile

Criteria	1. Innocent	2. Aware	3. Developing	4. Advanced	5. Market leading
Stress and scenario testing	► No stresses or scenarios devised or agreed upon	► Stresses set but not well articulated whether they assume recovery or not ► No flexibility on 'what if' scenarios for possible management actions ► SCR is not re-calculated post-stress	► Stresses set but are generic market risks and not tailored to company risk profile ► Lack of 'follow on' thought e.g. impact on new business from recession scenario ► Lack of scenarios or scenarios are generic ► Possible management actions difficult to model ► Re-calculation of SCR is not robust	► Range of market and insurance stresses, plus well defined scenarios but calibration not subject to debate ► Converting scenarios into shocks well thought through ► Management actions, both planned and potential, can be modelled albeit slowly.	► Range of qualitative and quantitative stresses, devised after consideration of risk profile ► Management actions assumed can be backed up with evidence ► Potential future management actions can be efficiently modelled ► SCR re-calculated after shock
Process	► Minimal co-ordination or integration with business planning process ► No documentation of methodology	► Basic documentation of methodology but lacks detail ► Performed at same time as business planning	► Documentation is available but not "SII standard" ► Linked into business planning cycle but capital output not used in decisions ► Lack of governance over production	► Results feed back into business planning cycle ► Documentation good quality ► Accountability clear for sign-off	► Clear examples of how results influence decisions ► Documentation to SII internal model standards ► Results are challenged

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