EUROPEAN INSURANCE
AND OCCUPATIONAL PENSIONS AUTHORITY

Methodological principles of insurance stress testing

Stakeholders Meeting
Frankfurt am Main, 23 July 2019

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Introduction

Dimitris Zafeiris
EIOPA Head of Risks and Financial Stability Department

Background

- Lessons learned from the previous exercises (excerpt):
  - Timeline in a ST exercise is constrained
    - No time for sound theoretical discussions
    - Potential "political" biases
    - pressure to publish the Technical Specification as soon as possible
  - Interactions with stakeholders and participants
    - Beneficial on both side
    - Constrained in time
- General enhancement of the EIOPA approach to Stress Test
  - From assessment to supervisory tool

Action taken

General enhancement of the EIOPA approach to stress testing by a methodological and operational standpoint:

- Operationally, a reduction of the frequency of the EU-wide ST exercises is under consideration
- Methodologically EIOPA drafted a Discussion Paper with the following aimed at:
  - Set out common methodological principles and guidelines for the EIOPA EU-wide ST exercise to be used in future assessments
  - Engage with stakeholders in a structured way to collect feedback on key elements of a ST exercise
- Focus of the Discussion paper:
  - Bottom-up stress test methodology
  - Not included: top-down approaches, multi-period approaches, liquidity stress test, climate change related scenarios

Structure of the Discussion Paper

1. Introduction
   - Background
   - Purpose of the Discussion Paper
   - Scope of the Discussion Paper
   - Structure of the Discussion Paper
2. Stress test process and objectives
   - Stress Test process
   - Stress Test objectives
   - Approaches
3. Scope
   - Groups
   - Solos
   - Synthetic groups
4. Scenario design
   - Definition of scenarios
   - Requirements of the scenario design
   - Derivation of the scenarios
5. Shocks and their application
   - Market shocks
   - Insurance specific shocks
   - Other impacts on the balance sheet stemming from the revaluation of the positions against shocks
   - Simplifications
6. Data collection and validation
   - Data collection and reporting templates
   - Data validation principles

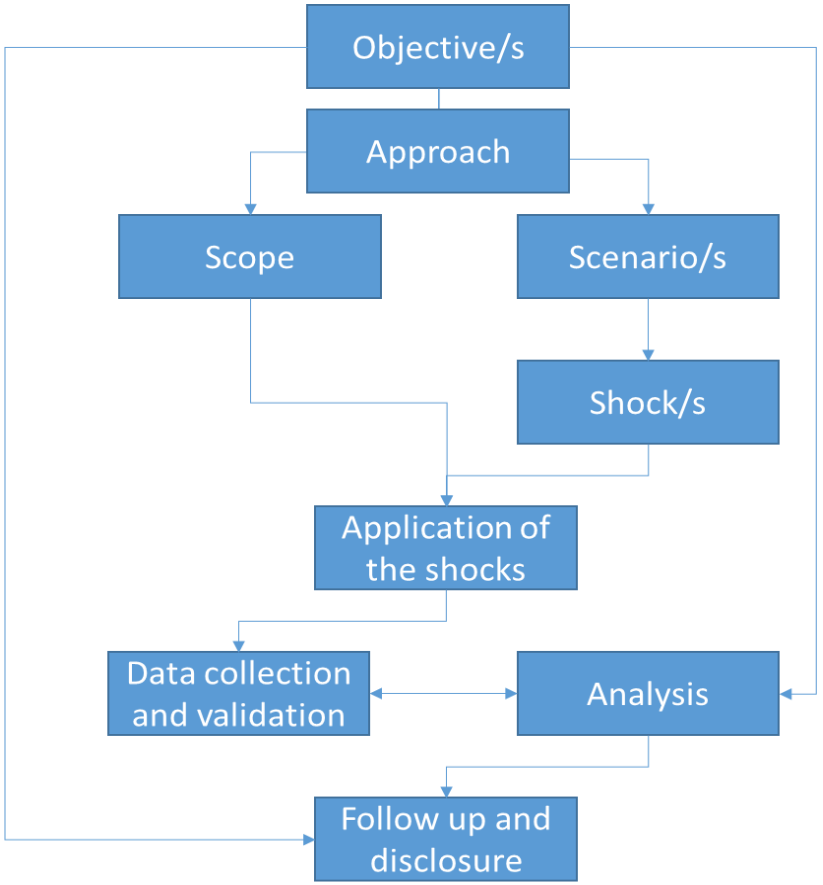
The Discussion Paper contains a set of questions to guide the feedbacks. Of particular interest are contribution to the treatment of the management actions, the regression techniques, application of the shocks to lapses, post-stress risk margin and climate change related risks

Stress Test Process and Objective

Matteo Sottocornola
EIOPA

Elements of a Stress Test

- The stress testing process consists of several elements which are:
  - Self contained
  - with strong interlinkages
  - can not be considered in insolation



Q: What are your views on the presented stress test elements and their relations? Please elaborate on any relevant elements that have not been covered

Objectives

- Microprudential objectives: to assess the resilience of individual insurers or insurance groups to adverse scenarios providing supervisors with information on whether these insurers are able to withstand severe shocks and take remedial actions if necessary:
  - Assess individual sensitivity to specific shocks
  - Assess individual vulnerabilities to adverse economic and financial conditions, which can be used to trigger inspections or issue recommendations
  - Assess individual capital adequacy under adverse scenarios
  - Enhance understanding of insurance sector vulnerabilities
  - Foster individual risk management and stress testing capabilities
- Macroprudential objectives: to assess the system-wide resilience to financial, economic and insurance shocks and the potential spill-over to other markets generated or amplified by the insurance sector
  - Assess resilience of insurance sector and of individual insurers that, due to their nature, scale and complexity, might generate or amplify systemic events against stress scenarios;
  - Assess potential spill-over effects to other parts of the financial system and the real economy stemming from common reactions of insurers against stress scenarios.

Q: What are your views on combining a microprudential stress test with a quantitative assessment of post-stress reactions by insurers?

Approaches

- Recalculation of the baseline: comparability of the pre and post stress situation is key and can be hindered by changes in:
  - the structure of the entity under scrutiny
  - the estimation model
  - the simplifications
- Time horizon: so far only instantaneous shocks but other options are available
  - Instantaneous stress scenarios
  - Instantaneous stress scenarios complemented with specific scenario components stretched out over a longer time horizon
  - Multi-period stress scenarios
- Management Actions: treatment depends on the ST objectives
  - Reactive post-stress management actions
  - Embedded management actions

Q: What are your views on the definition and recalculation of the baseline for stress test purposes

Q: What are your views on the different time horizon approaches for stress tests purposes?

Q: What are your views on the treatment of management actions in the context of a stress test exercise?

Wrap-up

	Vulnerability of the industry (Micro/Macro)	Sensitivity to shocks (Micro)	Spill-over analysis (Macro)
Recalculation of the baseline	In principle not needed, however this depends on the allowed simplifications	Advised, in case simplifications / approximations are used in the calculation of the post-stress position (materiality principles apply)	In principle not needed, however this depends on the allowed simplifications
Time horizon	All the approaches can be applied	One period instantaneous shocks	All the approaches can be applied, though multi-period more appropriate
Management actions	No limitation to the embedded management actions. In principle reactive post-stress management actions not allowed If considered the impact shall be reported separately	Limitation to embedded management actions (limit/keep constant certain assumptions in the baseline model) Reactive post-stress management actions not allowed	No limitation to the embedded management actions. Reactive post-stress management actions allowed to assess systemic implications (impact both with and without post-stress management actions)

Scope

Silvia Sacco
IVASS

Scope

- The scope is one of the cornerstones of the ST framework and it is strictly related to the objective assigned to a ST exercise

	Advantages	Disadvantages
Solo	• Target specific business lines • Country/jurisdiction analysis • Easy to compute the market coverage • Easier application of the shocks and validation (no consolidation at group level needed) • More useful as an input to micro-supervision	• No diversification effect accounted • Less informative from a financial stability perspective • Potential limitation in evaluating the impact of reactive post-stress management actions
Group	• Impact on the systemic groups (more informative/useful from a financial stability perspective) • Account for full diversification effects • Easier to assess the impact of reactive post-stress management actions if needed	• High complexity in the application and assessment of the shocks (simplification and approximation) • No country based assessment • Harder to validate the data
Synthetic group	• Assess the impact of the scenarios according to the aggregating principles (e.g. geography, business lines) • Allow to approximate the vulnerabilities of groups reducing the complexity	• Potentially difficult to calculate (these are ad hoc calculations to aggregate part of the total group) • Synthetic groups do not reflect a legal entity like a solo undertaking or a group • Intra-group dynamics partly applicable

Market coverage and metrics

- Coverage and metrics could be given by

	Life	Non-life	Undifferentiated
Local jurisdiction	• Reference: Size of the life local market • Exposure: size of the Life business • Metric: TP life (w/wo UL/IL); others: TA (w/wo UL/IL), GWP	• Reference: Size of the non-life local market • Exposure: size of the non-Life business • Metric: Preferred: GWP non-life, others: TP non-life, TA;	• Reference Size of the local market • Exposure: size of the company • Metric: TA (w/wo UL/IL); other GWP, total TP (w/wo UL/IL)
EU-Wide	• Reference: Size of the EU market • Exposure: size of the Life business • Metric: TP life (w/wo UL/IL); others: TA (w/wo UL/IL), GWP	• Reference: Size of the EU market • Exposure: size of the non-Life business • Metric: GWP non-life, others: TP non-life, TA;	• Reference: Size of the EU market • Exposure: size of the company • Metric: TA (w/wo UL/IL); other GWP, total TP (w/wo UL/IL)

- Specific approach to define the market coverage at EU level of groups operating globally

Q: What is your view on the appropriate scope / metrics for a stress test exercise?

Scenario Design

Patty Duijm
DNB

Scenario design

- Stress scenarios are **severe but plausible hypothetical situations** that can adversely affect the balance sheet and solvency position of insurance undertakings
- A scenario originates from a narrative. The narrative describes the state of the shocked variables and should elaborate on the adverse developments to be taken into account in the design
- Main elements:
  - Derivation of the scenario: forward vs backward looking
  - Consistency with the Solvency II framework
  - Structure: from single risk factors to combined scenarios

Derivation: forward vs backward looking

	Advantages	Disadvantages
Historical approach	• Provides a benchmark • Consistency and plausibility of the scenarios may be more easily achieved.	• History is no guarantee for the future • A purely historical approach would not allow for a partly forward looking perspective • Limited flexibility
Forward-looking approach	• More conceivable future scenarios when not limited to historical data • More flexibility in design	• Requires an adequate justification • Requires a higher degree of expert judgement

- A mixed approach emerges as the preferred options to strike the right balance between the evolution of the market and the consistency of the shocks

Consistency with Solvency II

	Advantages	Disadvantages
Adjust UFR as part of the scenario	• More consistent with the narrative for the scenario • Less burdensome for undertakings	• Scenario is not consistent with the SII framework • Impact of UFR cannot be assessed specifically
UFR kept unchanged in the scenario with marginal impact of adjustment of UFR is requested separately	• Scenario would be consistent with SII • Allows to assess the impact of the UFR independent of the other shocks	• More burdensome for undertakings • Scenario may be less consistent with the narrative

- SII offers a common ground for the design and execution of a ST exercise. However, some elements (e.g. the risk free rate curve) might not fully reflect the narrative of a ST scenario

Structure: from single risk factors to combined scenarios

	Advantages	Disadvantages
Single risk factors	• Easier to implement / validate • Enhanced comparability of the results • The approach allows the estimation of the likelihood of the prescribed shock	• The explanatory power of the results can be seen as limited • Rather narrowed for a stress test exercise
Single scenarios	• Relatively simple in design • It allows for the design of several scenarios consisting of single risk factors with different likelihoods	• It may not seem real to infer the key determinants among risk factors • The explanatory power of scenarios can be superior to single factor sensitivities
Combined scenario	• Higher explanatory power as it covers inter-dependencies between different risk-drivers	• The interaction between different risk drivers can be very complex • Hard to disentangle the marginal effects of the prescribed shocks

- The choice on single-shock, single scenario and combined scenario shall be strictly related to the objective of the exercise

Wrap-up

- A hybrid approach for scenario development is preferred above a purely historical or a pure forward looking approach
- Consistency with the SII framework is desired, however changes in the approach to derive the risk free rate curve are advised to better reflect the market conditions depicted by the narrative
- If the UFR is kept unchanged with respect to the baseline, information on the sensitivity to UFR changes under stressed scenarios (if applicable) can be collected
- The choice on single-shock, single scenario and combined scenario shall be strictly related to the objective of the exercise

Q: What are your views on the historical versus forward looking approach? Do you envisage additional advantages / disadvantages on top of the ones listed?

Q: What is your view on the consistency of the scenarios with the Solvency II framework versus market compatible scenarios for the purpose of a stress test, in particular for the treatment of the RFR parameters?

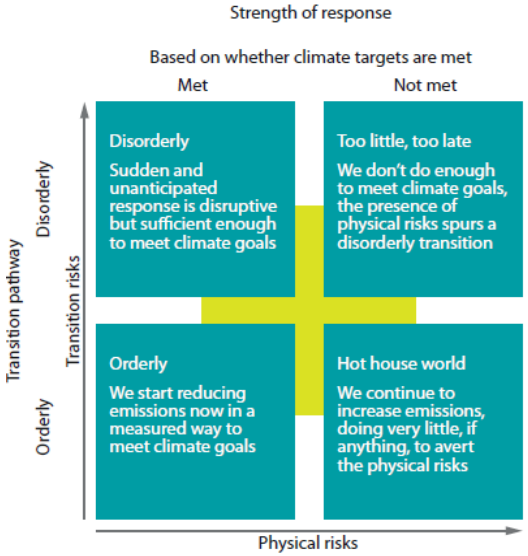
Q: What are your views on using single risk factors, single scenarios or combined scenarios for the purpose of a stress test?

Climate change assessment

Dinant Veenstra
EIOPA

Climate risk

- ESG elements increasingly important for risk management and supervision, also for stress testing. Focus here on climate-related risks.
- Impact of climate-related risks can broadly be divided into:
  - Physical risks (losses resulting from extreme climate change-related weather events and/or longer term climate-induced shifts)
  - Transition risks (losses due to the transition towards a low-carbon economy)



- Main challenge for stress testing: how to incorporate long-term climate related risks in stress test time horizon?

Climate risk

- Option 1: Long-term climate stresses
  - Explore different climate transition paths to assess the vulnerability of insurers to climate related risks (both transition and physical risks) and to help understand how different firms are managing difficult-to-assess risks.

Advantages	Disadvantages
Assess vulnerabilities for different climate scenarios, even if they take a long time to materialize	Long-term horizon typically not compatible with stress test time horizon
More realistic in terms of scenario materialization	Very assumption driven, no commonly accepted methodology yet available

- Option 2: Short-term climate stresses
  - Incorporate climate-related stresses for physical and transition risks within the typical stress-testing time horizon (1-3 years).

Advantages	Disadvantages
Short-term horizon compatible with the format of traditional stress tests	No common agreed methodology to calibrate the climate-related shocks
Assess real stressed impacts due to sudden increase in physical and/or transition risk	Short-term horizon less compatible with long-term climate-change transition scenarios

Climate risk - Open issues

Q: What is your view on the possible approaches to climate stress testing?

Q: What would be appropriate metrics to assess transition risk in assets (e.g. GHG intensities, sector exposures, Climate Value at Risk)?

Q: What level of granularity would be needed in your view (i.e. industry level, underlying technology level, asset level)? Please distinguish between different asset categories if possible (i.e. equities, government bonds, corporate bonds, real estate)?

Q: How could climate related shocks be calibrated (please distinguish between physical risks and transition risks in your answer)? What data sources could be considered?

Q: Do you have any further considerations on the inclusion of climate related risks in EIOPA's stress testing framework?

Q (for future work): How to incorporate other ESG elements in stress testing, such as general environmental degradation unrelated to climate (e.g. water/air pollution, biodiversity loss, resource scarcity) and social risks (e.g. human rights violations)?

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Shocks and their application
Market Shocks

Oliver Jauch
BaFin

Market shocks

- The set of market shocks does not introduce shocks to additional markets. It introduces:
  - Additional clarification on the application of the shocks
  - Some questions on the treatment of specific Balance sheet items (e.g. loans and mortgages)
- The potential market shocks (prices/yields) applicable follows:
  - government bond yields
  - corporate bond yields
  - equity prices
  - swap rates
  - residential real estate prices
  - commercial real estate prices
  - loans and residential mortgage-backed securities (RMBS) yields
  - other assets prices (private equity, hedge funds, real estate investment trusts (REITs), commodities)
- Shocks to Type 1 exposures for the treatment of reinsurance recoverables are proposed (downgrade of the counterparties)

Market shocks open issues

Q: What are your views on the calibration and application of the shocks to fixed income assets? Do you think that the proposed specifications are sufficiently detailed?

Q: What are your views on treating Equity unlisted [R0120] according to the shocks prescribed to listed equities?

Q: What are your views on the treatment of property, plant and equipment held for own use?

Q: Are RMBS yields the proper index to treat Loans and mortgages ([R0230])? Is an additional granularity needed to treat the sub-items of the loan and mortgages category (i.e. Loans on policies, Loans and mortgages to individuals, Other loans and mortgages)? If yes, please provide suggestions for fitting indices

Q: What is your view on the shocks to type 1 Exposures? Do you consider the shocks to counterparties sufficiently specified?

Shocks and their application
Insurance shocks - Life

Oliver Jauch
BaFin

Insurance shocks - Life

- Potential insurance shocks apply to the following risk categories:
  - Longevity/mortality risk
  - Lapse/surrender risk
  - Expense risk
  - Other life risks:
    - Disability/Morbidity risk
    - Revision risk
    - Pandemic risk
- Without imposing further side conditions some of the life insurance shocks could have a positive or negative impact on specific key metrics (such as OF) depending on the characteristics of the in-force business and on the economic financial conditions
- For this reason specific clustering approaches for the application of these shocks could be considered in order to control the direction of the expected impacts

Longevity / mortality

- Longevity/mortality shocks reflect the risk of loss or of adverse change in the value of insurance liabilities resulting from changes in the level, trend, or volatility of longevity/mortality rates.

- Longevity/mortality provided shocks often encompass changes in all the risk drivers mentioned above. In such a context shocks are usually applied to the best estimate mortality assumptions.

- Uniform stresses to best estimate mortality assumptions might not appropriately reflect the characteristics / exposures of company specific liabilities. Therefore it could be considered to apply different shock levels to e.g. age groups, genders or types of product

Q: What are your views on the calibration and application of the mortality/longevity shocks?

Lapse / Surrender

- Lapse shocks reflect the risk of loss or of adverse change in the value of insurance liabilities resulting from changes in the level (both upward and downward as well as a mass events) or volatility of the rates of policy lapses, terminations, renewals and surrenders
- Lapse shocks can be modelled as instantaneous lapse events as well as permanent changes in lapse rates (or a combination of both)
- Expected impact:
  - If the lapse shocks are applied assuming instantaneous payment (mass event) then some specific asset items will decrease and the relevant TP will decrease. OF or AoL can increase or decrease depending (amongst others) on the characteristic of the life portfolios.
  - If the lapse shocks are applied as a permanent change of the BE assumption, the asset items in the SII balance sheet at the reference date will not change while the relevant TP will increase/decrease depending (amongst others) on the characteristic of the life portfolios.
- Marginal impact of the lapse shock depends on several conditions, including amongst others:
  - contract specific features
  - capital market situation
  - cross-subsidisation effects across the in-force business
  - modelling approaches in the company specific stochastic valuation and risk measurement models

Lapse / Surrender

Bucketing of the in-force portfolio aims to avoid / control potential positive marginal impacts

- "Uniform approach"
  - Emphasis on the empirical evidence of the sensitivity of policy holder lapse behaviour to movements in capital market
  - Homogeneous application of the shock to the whole in-force portfolio
  - Need for additional side conditions such as a "cap" on the marginal impacts to prevent positive effects on the capital position
- "Standard Formula Approach":
  - Links the application of a lapse shock to single products or homogenous risk groups directly to its impact on the TP
  - Embedded in the SII Standard Formula framework and based on the concept of "surrender strain"
  - Theoretically appealing but burdensome to be applied in ST context
- "Classification approach":
  - Links the shock level for lapse rates to specific product characteristics / features:
  - **Option 1**: Link certain product characteristics to higher or lower lapse sensitivity
  - **Option 2**: Classify the portfolio of the life products by a perspective based on the "rational investment behaviour" of policyholders (e.g. linked to levels of surrender penalties and guaranteed rates)
  - Potential need for additional side conditions on the marginal impacts to prevent positive effects on the capital position

Lapse / Surrender

Product types based bucketing

Type of product	Characteristic	Sensitivity
Term insurance	Main goal is protection against biometric risk	o
Endowments	Build-up of capital in combination with a protection against mortality risk	**
Annuities in deferral phase	Build-up of capital in combination with protection against longevity risk	**
Annuities in pay out phase	De-saving process providing protection against longevity risk	If lapse in pay out phase is possible: * Otherwise: o
Pure unit linked contracts (without financial guarantees)	Build-up of capital where the return is directly linked to the return of a capital market product such as an index Combination with a protection against mortality or longevity risk possible	o (assuming correlation with the capital market movements). The presence of additional features shall be considered
Unit linked contracts with financial guarantees	Build-up of capital where the return is linked to the return of a capital market product such as an index but with additional guarantees provided by the insurance company Combination with a protection against mortality or longevity risk possible	*
Disability	Main goal is protection against biometric risk	o
Health	Main goal is protection against biometric risk	o

o = low/no sensitivity, * = medium sensitivity, ** = high sensitivity

Lapse / Surrender

Penalty-based bucketing

	Low penalty rate (<10% on surrender value)	High penalty rate (>10% on surrender value)
Contract AND Fiscal penalties	*	o
Contract OR Fiscal penalty	**	*
No penalties	***	

Guaranteed rate bucketing

Technical rate	Low (<RFR_5 - 100bp)	Medium (RFR_5-100bp<x< RFR_5+100bp)	High (>RFR_5+100bp)
Sensitivity	**	*	o

Combined guaranteed rate / penalty-based bucketing

Penalties				
	Contract AND Fiscal	o	o	o
	Contract OR Fiscal	**	*	o
	No penalties	***	**	o
		Low (RFR_5 - 1%100bp)	**Medium (RFR_5-100bp<x< RFR_5+100bp**	**High (>RFR_5+100bp)**
		Technical rate		

o = low/no sensitivity, * = medium sensitivity, ** = high sensitivity, *** = very high sensitivity

RFR_5 = post-stress Risk Free Rate maturity 5 years

Open issues

Q: Can you suggest any time-series to be used to calibrate the shock to lapse?

Q: What are your views on the described approaches to the application of the lapse shocks?

Q: What are the main theoretical and operational issues you envisage in the application of the "standard formula" approach?

Q: What are the main theoretical and operational issues you envisage in the application of the classification approach based on product characteristics (option 1 in the classification approach)?

Q: Does the proposed classification approach based on product characteristics fits your liability portfolio? If not please suggest a different classification.

Q: What are the main theoretical and operational issues you envisage in the application of the classification approach based on guaranteed rate / penalties (option 2 in the classification approach)?

Q: Is the technical rate a proper reference to assess the level of the guarantee? If not do you have other suggestions?

Q: What are proper thresholds to be applied to the technical rate?

Q: What is in your view a proper criteria to classify the penalties?

Q: Do you have other suggestion to classify the life portfolio in the light of a lapse shock?

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Shocks and their application
Insurance shocks – Non-Life

Silvia Sacco
IVASS

Non-life insurance shocks

- Non-life underwriting risk is the specific insurance risk arising from non-life insurance contracts. It relates to the uncertainty about the results of the insurer's underwriting. This includes uncertainty about:
  - The amount and timing of the eventual claim settlements and expenses in relation to existing liabilities
  - The premium rates which would be necessary to cover the liabilities created by the business written
  - The frequency and severity of cat-events
- The potential non-life insurance shocks to be considered are the following:
  - Provisions deficiency shock (claims and expense inflation)
  - Cat-event shocks (both Nat-cat and man-made catastrophes with shock to recoverability of the ceded losses)

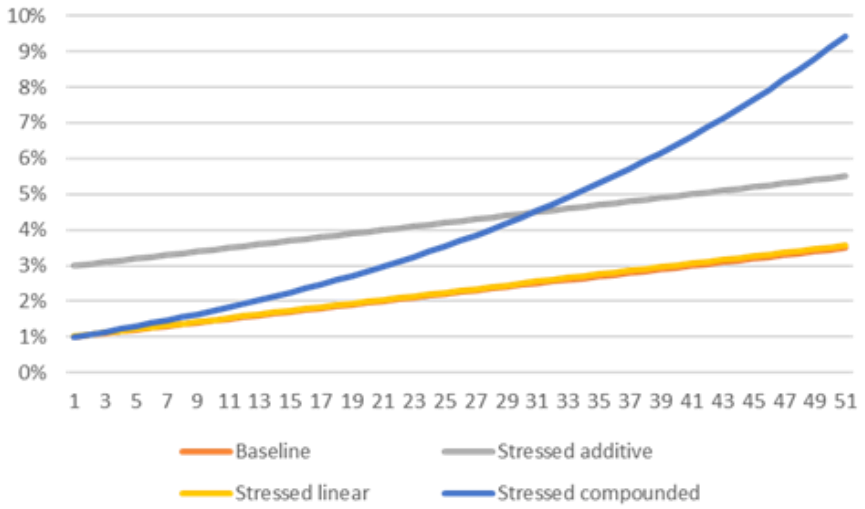
Provisions deficiency shock: claims and expense inflation

- A provision deficiency shock assumes an increase in the insurance provisions caused by a higher than expected increase of the cost of claims (both outstanding and future claims) and expenses, which modifies the best estimate assumptions
- Shocks are prescribed as a percentage uplift to the annual claim and expense inflation assumed for the calculation of the best estimate under baseline scenario

Additive approach $i_t^S = i_t^B + s$

Linear approach $i_t^S = (1+s)i_t^B$

Compounded approach $i_t^S = i_t^B * (1+s)^t$



i_t^S inflation rate at year t under stressed scenario; i_t^B inflation rate at year t under baseline scenario; s inflation shock

Catastrophe risk

- Calibration approach: Due to the specificity of the risk the definition of an event-based scenario should rely on external data provider or, alternatively, a standard formula approach could be followed.

	Advantage	Disadvantage
Standard Formula	• Easy to be implemented by participants (easy to be validated as well) • The approach allows for a similar severity of the impact of the shock for all participants notwithstanding the geographical distribution of their exposures to Cat events • The approach avoids the need for participants that don't have an internal model to calculate Cat losses	• It consist in a pure replication of the standard formula computation (only with different parameters) not giving any real additional insight on the vulnerability of the insurance sector • It does not allow for the evaluation of the impact of a specific set of Cat events on the European insurance sector (namely a specific earthquake or windstorm)
Event-based scenario	• The approach will allow for the evaluation of the impact of a specific set of Cat events on the European insurance sector (namely a specific earthquake or windstorm) providing additional insights on the resilience of the sector to the Cat risks	• The approach could be expensive and challenging for undertakings / groups that do not have an internal model for computing Cat losses. • Medium/small undertakings could not have enough granular and sufficient data to feed into the model • The approach doesn't allow for a similar severity of the shocks for all participants

Catastrophe risk

- The computation of the impacts of the prescribed cat events on the balance sheet and solvency capital requirement of an insurance undertaking depends on the two main elements:
  - The approach to the settlement of the claims;
  - The assumption made on the reinstatement of the reinsurance treaties
- Claim disbursement
  - The instantaneous disbursement which implies the instantaneous payment of the claims and no impact on the technical reserves;
  - The full reserve approach which implies no payment of claims, hence no impact on the assets and effect of the prescribed shocks fully on the TP.
- Reinsurance Treaties
  - Insurers are supposed to account of the risk mitigation techniques in place at the reference date including the use of proportional and non-proportional reinsurance treaties in place
  - In case reinsurance treaties in-force at the reference date allow for reinstatement, reinstatements (including potential related cost) shall be taken into account between the events
  - Potential restriction on reinsurance recoverables due to reduction in creditworthiness of reinsurers

Q: What is your view on the Scenario based approach versus the Standard formula based approach?

Q: What is your view on the approaches to the application of the Shocks: claim disbursement; full reserve?

Q: What is your view on the options presented on the treatment of the reinsurance recoverables?

Simplifications

Fabrice Borel-Mathurin
ACPR

Simplifications

- Perimeter
  - Participants are expected to re-evaluate their balance sheet items against the provided yield curve and the specific shocks (if any)
  - In principle, shocks shall be applied to the entire in-force business
  - Based on relevance and materiality criteria, participants can be allowed to reduce the perimeter of application of the shocks to a subset of their activities
  - Limitation to the application of scaling approach prescribed (TA, BE, EOF, SCR)
- Loss Absorbing Capacity of Deferred Taxes
  - In the post-stress scenario undertakings should:
    - recognise and value deferred taxes in relation to all assets and liabilities that are recognised for solvency or tax purposes
    - calculate LACDT in accordance with the baseline model
  - Simplifying and reducing the subjectivity involved in the calculation of LACDT would be possible by capping LACDT to the amount of net DTL on the base case balance sheet
- Regression techniques for liabilities or own funds
  - Use baseline models with slight deviations Vs full recalibration
  - Any intermediate approach available to be suggested?

Q: What are your views on the proposed simplifications for the post-stress LACDT? Do you agree with the rough assessment of the post-stress LACDT with the net DTL?

Q: What are your views on the possible simplifications for the use of regression techniques post-stress?

Simplifications

- Long Term Guarantees and Transitional measures
  - Calibration of the LTG measures shall be assumed unchanged with respect to the baseline if not differently specified.
  - However if the shocks prescribed under stress scenario trigger a material change in the LTG measures, their values are recalibrated according to the EIOPA methodology. In details:
    - The impact, in absolute terms, of the Transitional measure on the TP shall be calculated in the pre-stress scenario and then kept constant in the post-stress scenario
    - The transitional measure on the risk-free interest rates shall be re-evaluated under the stressed scenarios and applied consistently with the baseline case
    - Transitional measures on Equity shall be applied consistently with the baseline scenario;
    - Matching adjustments shall be re-evaluated under stressed scenarios and applied consistently with the baseline case
    - Recalculated VA are provided by EIOPA under the stress scenarios
    - Symmetric adjustment mechanism to the equity risk charge under stressed scenario is provided by EIOPA
- Calculation of the post-stress risk margin
  - The post-stress RM shall be computed, as a default option, using the same method used for the calculation of the year-end balance sheet
  - 1-notch down approach: Participants may be allowed to use the method immediately following in the hierarchy of methods listed in guideline 61 (EIOPA Guidelines on the valuation of technical provisions), the one that they use regularly for the production of the year-end financial statements

Q: What are your views on the proposed simplifications for the use of LTG and transitional measures?

Q: What are your views on the proposed simplifications for the calculation of the post-stress risk margin?

Simplifications

- Consolidation
  - In principle the balance sheet and the capital need at group level under stressed scenarios shall be estimated according to the consolidation method used for the standard year-end reporting without any simplification
  - Potential simplifications might be applied to the calculation of the post-stress positions of solos according to the principle of materiality
  - Group consolidated-based approach should guarantee a calculation of the post-stress group balance sheet with enough precision to fill in the ST reporting templates. The group consolidated-based approach did exclude any approximation via sensitivity analysis and all simplifications should consist in, for example, grouping liabilities in tractable quantities instead of breaking them down at solo level
  - Drawbacks of group consolidated-based approach:
    - Design of the exercise: difficulties in prescribing homogeneous and widely applicable guidance on the definition of the model-points
    - Calculation: difficulties in producing the cash-flows stemming from the model points approximating homogeneous portfolio of liabilities
    - Validation: difficulties in assessing the post-stress best estimates via the provided cash flows

Q: What would be in your view a proper approach to define model points?

Q: What would be in your view a proper approach to validate the best estimate produced via model points

Q: Do you envisage any other approach to simplify the consolidation at group level?

Data collection and validation

Fabrice Borel-Mathurin
ACPR

Data collection

- Principles of data collection and restrictions
  - The design of the reporting templates, as well as the data to be collected from the participants should be in line with the goals of the exercise and should serve in identifying vulnerabilities and risks
  - The set of templates used to report the results under the baseline and stressed scenarios should be as close as possible to the SII QRT reporting templates
  - In case an ad hoc template and/or new data points are needed, this needs to be thoroughly justified and will be subject to discussion in terms of costs and benefits
  - The information requested in the ST may be quantitative and/or qualitative
  - A key aspect in the data request is to distinguish between data needed for the analysis of the results and disclosure and data needed for validation
- Templates for core solvency analysis purpose
  - Participants shall fill in the reporting templates in the spreadsheets provided, published together with the technical specifications and the technical information
  - The reporting templates are usually grouped around the baseline situation and each of the prescribed scenario(s)

Validation

- Quality assurance methodology: validation layers
  - Level 0: Consistency and completeness check;
  - Level 1: Consistent application of shocks (Closed-form formulas validation)
  - Level 2: Benchmark analysis against peer-levels
  - Level 3: Proprietary in-house model of analysis

- Level 3 examples of validation checks
  - Possible framework for the control variable "base RM"

Approach	Advantage	Disadvantage
SII framework	• Already in use and supervised • No special specification to be given • No baseline recalculation • Flexible in terms of implementation from baseline to adverse scenario	• Lack of comparability. • The choice of the model impacts the magnitude of the RM
More restrictive than SII	• Better comparability since the same formula is used for all participants • Validation made simple	• One-Fits-All model not easily defined (see under) • Needs a baseline re-calculation to be fully used

Open issues

Q: What is your view on the overall approach of validation and the different types of validations?

Q: What is your view on the approach used for the validation of the Best Estimate under stressed situation using cash flow values and their evolution under stressed situation? Which additional parameters would you suggest to improve the framework?

Q: What is your view on a common approach for the Risk Margin estimation even used in Baseline calculations? Which drawback would you envisage if a "Base RM" is used as a control variable?

Q: Do you have any further considerations on validations which could improve the level playing field?

Next steps

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EIOPA

Consultation process

- How to contribute:
  - Use the file "Template for comments" available on the EIOPA website in the consultation page: https://eiopa.europa.eu/Pages/News/EIOPA-publishes-Discussion-Paper-on-Methodological-Principles-of-Insurance-Stress-Testing.aspx
  - Please return the filled template via email to the following address: eiopa.stress.test@eiopa.europa.eu
  - Instructions are provided at page 2 of the Discussion Paper and in the first page of the Template for comments
  - Please submit the filled template for comments in the same format (.docx) or in another MS.Word compatible format
- When to contribute:
  - The discussion paper will be consulted with Stakeholders from 22 July 2019 to 18 October 2019
- What EIOPA will do with the received contributions:
  - Comments will be used to improve the document Methodological principles of insurance stress testing
  - Comments received will be published (upon consent) on the EIOPA website
  - Personal contact details (such as name of individuals, email addresses and phone numbers) will not be published
  - Information on Data Protection is provided at page 2 of the Discussion Paper and in the first page of the Template for comments

Future work

Within the context of general enhancement of its Stress Test Framework EIOPA is planning to work on:

- Enhance the "bottom-up" approach by developing:
  - A climate change- based Stress Test Scenario encompassing both transition and physical risks
  - An approach to assess the liquidity position of the (re)insurance undertakings under adverse conditions
  - A multi-period framework
- Develop a Stress Test "top-down" model based on the QRT data

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Thank you