



**eiopa**  
EUROPEAN INSURANCE

AND OCCUPATIONAL PENSIONS AUTHORITY

# EU-wide insurance stress tests 2018

EIOPA REGULAR USE

Consultation with stakeholders  
Frankfurt, 16 April 2018

---

- The information contained in this presentation provides an overview of the 2018 EIOPA Insurance Stress Test exercise package
- The aim is to present the content of the package and to foster the discussion with the Stakeholders on the key aspects of the exercise
- The content of the presentation does not pre-empt any final decision on the Stress test package that will be made by the EIOPA Board of Supervisors

*This document is not designated for public disclosure and it should be distributed based on a "need to know" basis within your organisation. Please do not distribute it outside of your organisation without EIOPA's permission.*

# Agenda

	10:30 – 11:00	Registration and welcome coffee
1.	11:00 -11:15	<b>Welcome &amp; introductory remarks</b>
2.	11:15 – 11:30	<b>Stress Test exercise - Overview on the process and timeline</b>
3.	11:30 – 12:45	<b>Methodological approach for 2018 exercise</b> <b>Technical specifications and reporting templates</b>
	12:45 – 13:45	Lunch break
4.	13:45– 15:45	<b>Round table with Stakeholders: Exchange on the following topics for discussion:</b> <ul style="list-style-type: none"><li>• Process</li><li>• Methodologies</li><li>• Templates</li><li>• Technical specifications</li></ul>
5.	15:45 - 16:00	<b>Concluding remarks</b>
	16:00	End of workshop



**eiopa**  
EUROPEAN INSURANCE  
AND OCCUPATIONAL PENSIONS AUTHORITY

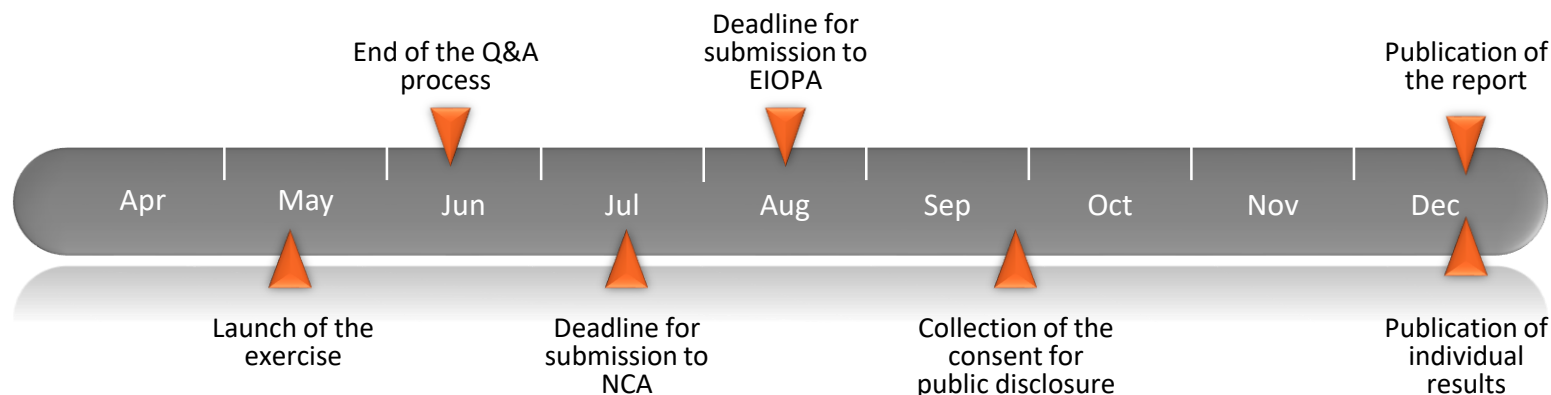
# Introduction and timeline

---

## Key elements of the 2018 Stress Test exercise (2018ST):

- No pass-fail exercise
- Focus on Groups
- Market + insurance specific shocks (3 scenarios):
  - Yield Curve Up (YCUp) → market + lapse shocks + provision deficiency
  - Yield Curve Down (YCDown) → market + lapse shocks + longevity shock
  - Natural Catastrophe (Nat-Cat) → series of events (Windstorms, Floods, Earthquakes)
- Quali-quantitative questionnaire on cyber risk
- Evaluation of balance sheet and capital position post-stress
- Enhanced transparency: Request for individual disclosure of balance sheet positions under stressed scenarios

# Process and Timeline



- **Milestones:**

- Launch of the exercise: 14 May 2018
- Deadline for submission from ST participants to NCAs: 16 July 2018
- Deadline for submission from NCAs to EIOPA: 16 August 2018
- Collection of the consent for public disclosure: end-September 2018
- Publication of the results: mid-December 2018

- **Time-frames:**

- Q&A: 4 weeks
- Calculation: 9 weeks
- Local validation: 4 weeks
- Central validation: 6 weeks



**eiopa**

EUROPEAN INSURANCE  
AND OCCUPATIONAL PENSIONS AUTHORITY

# Scope

---

Group	Country
Vienna Insurance Group AG	Austria
Ageas SA/NV	Belgium
KBC Group NV	Belgium
PFA Holding A/S	Denmark
Danica Pension	Denmark
Sampo plc	Finland
AXA	France
CNP Assurances	France
Crédit Agricole Assurances	France
BNP Paribas Cardif	France
Sogecap	France
Covéa	France
Groupe des Assurances du Crédit Mutuel	France
Groupama S.A.	France
Natixis Assurances	France
Allianz SE	Germany
Munich Re	Germany
HDI V.a.G.	Germany
R+V Versicherung	Germany
HUK-COBURG Versicherungsgruppe	Germany
Assicurazioni Generali S.p.A.	Italy
Intesa Sanpaolo Vita SpA	Italy
Poste Vita SpA	Italy
Unipol Gruppo Finanziario S.p.A.	Italy
Aegon N.V.	Netherlands
NN Group N.V.	Netherlands
Achmea BV	Netherlands
Storebrand ASA	Norway
Gjensidige Forsikring ASA	Norway
VidaCaixa, S.A.U de Seguros y Reaseguros	Spain
MAPFRE S.A.	Spain
Nordea Life Group	Sweden
Skandia	Sweden
Aviva plc	United Kingdom
Legal & General Group Plc	United Kingdom
Prudential plc	United Kingdom
Standard Life Aberdeen plc	United Kingdom
Scottish Widows/LBGI	United Kingdom
The Royal London Mutual Insurance Society Limited	United Kingdom
Phoenix Group Holdings	United Kingdom
ReAssure Limited	United Kingdom
RSA Insurance Group plc	United Kingdom

- 42 Groups:
  - top 30 EEA (re)insurance groups
  - 12 additional (re)insurance groups (ranking position 32 – 50)
  - 12 Courtiers directly represented
  - All large EEA countries covered
  
- Selection criteria:
  - Size
    - Total assets
  - Business coverage
    - Technical Provisions
    - Gross Written Premium
  - Geographical coverage



**eiopa**  
EUROPEAN INSURANCE  
AND OCCUPATIONAL PENSIONS AUTHORITY

# Methodological approach

---

- Bottom-up exercise
- Reference date: Year-End 2017
  - baseline (pre-stress) figures as per 31 December 2017
  - alignment with 2017 Annual Solvency II reporting expected
- One-off, fixed balance sheet approach:
  - instantaneous impact on asset prices of the market shocks
  - instantaneous shocks with permanent effect of the insurance specific shocks
  - series of nat-cat events
  - no management actions decided after the reference date allowed
- Entire in-force business to be considered
  - all entities within the perimeter of consolidation shall be stressed
  - UL/IL positions shall be stressed
- Same model used to assess capital position for the regular Solvency II reporting purposes

# Allowed simplifications and approximations



- Simplifications which do not distort interpretability and comparability of the results are allowed:
  - o Relevance of subsidiaries: materiality in terms of SCR contribution under baseline can be applied
  - o Relevance of risk driver: materiality in terms of change wrt SCR contribution under baseline can be applied
  - o Risk margin: scaling approach allowed (e.g. change in the Best Estimates)
  - o All simplifications and approximations shall be discussed upfront with Group Supervisors and disclosed in the explanatory note

# Non-allowed simplifications and approximations



- No simplifications or approximations allowed:
  - o LACTP & LACDT - Principle applied in the calculation of LACDT post stress shall be disclosed in the explanatory note
  - o LTG and transitional measures – impacts on TP, BOF, EOF and SCR shall be calculated and reported separately
  - o Transitional measures on TP shall be calculated under baseline and kept constant



**eiopa**

EUROPEAN INSURANCE  
AND OCCUPATIONAL PENSIONS AUTHORITY

# Scenarios

---

- Yield Curve Up
  - o Abrupt and sizeable repricing of risk premia in global financial markets leading to a tightening of financial conditions
  - o significant increase in lapses
  - o higher than expected inflationary pressures induce a shortfall in liability claims reserves
- Yield Curve Down
  - o prolonged low interest rate environment
  - o significant decrease in lapses
  - o Increase in the life expectancy
- Nat-Cat
  - o set of catastrophe events across Europe
  - o windstorm, earthquake and floods
  - o events are assumed to occur in a narrow timeframe

# Yield Curve Up (YCUp) Market shocks (1/3)



- Market shocks are assumed to represent one-off, instantaneous and simultaneous shifts in asset prices relative to their end-2017 levels
- Second level or contagion effects are out of scope, hence no impact on the creditworthiness of asset holdings and reinsurance recoverables (namely credit risk) have to be taken into account
- Shocks to asset classes:
  - o government bond yields
    - Geography: EU countries, CH, NO, US, JP, Other advanced economies, Emerging markets)
    - Maturity (1,2,5,10,20,30 years)
  - o corporate bond yields
    - Geography : EU, US, Asia
    - Type: Financial, Non-financial
    - Credit quality: AAA, AA, A, BBB, BB, B, CCC
    - In absence of a precise allocation the following proxies can be applied:
      - Bonds issued by corporations based in non-covered geographical areas shall be shocked according to the average shocks provided for larger geographical areas, i.e. EU, US, Asia
      - The shocks to CCC rating class shall also be applied to corporate bonds with lower ratings
      - Unrated bonds shall be shocked according to the shocks prescribed to the BBB-rated bonds

# Yield Curve Up (YCUp) Market shocks (2/3)



- Shocks to asset classes:
  - o RMBS yields
    - Geography : EU, US, Asia
    - Credit quality: AAA, AA, A, BBB
  - o equity prices
    - Geography: EU countries, CH, NO, US, JP, Other advanced economies, Emerging markets
    - Equities listed in countries whose shocks are not prescribed shall be shocked according to the average shocks provided for larger geographical areas, e.g. EU, EA, Other Advanced
    - In case of equity of companies listed in more than one stock exchange the average shock over all countries where the equity is listed shall be applied. Only the countries for which a shock has been specified as a part of the scenario description should be taken into account.
  - o real estate prices
    - Type: Commercial, residential
    - Country (EU countries, CH, NO, US, JP, Other advanced economies, Emerging markets)
    - Real estates located in countries that are not listed shall be shocked according to the average shocks provided for large geographical areas, e.g. EU, EA, Other Advanced Economies and Emerging Markets
  - o other assets prices
    - Type: private equity, hedge funds, REITs, commodities
    - Geography: EU, World

# Yield Curve Up (YCU<sub>p</sub>) Market shocks (3/3)



- Risk Free Rate:
  - o Shocks to SWAPs were used to derive the EIOPA risk-free rate curves (including UFR) via the Smith-Wilson model according to the following parameters:
    - last liquid point (LLP) defined coherently with the LLP used for the definition of the EIOPA risk-free interest rate term structures (e.g. EUR=20Y; GBP=50Y; CHF=25Y)
    - the ultimate forward rate (UFR) is kept unchanged with respect to the baseline
    - Credit risk adjustment is kept unchanged with respect to the baseline

# Yield Curve Up (YCU<sub>up</sub>)

## Insurance specific shocks (1/3)



- Insurance specific shocks encompass shocks to lapse and provision deficiency shocks
- Insurance specific shocks shall be applied to the entire in-force business of the group
- The application of the lapse shocks is subject to the following general side condition:
  - o If the application of the combination of the lapse stresses as specified in the following subsections should imply a positive marginal impact on the Solvency II own funds of a solo company belonging to a participating group (conditional to the situation after the application of the market shocks), then this positive marginal impact should be neutralised and capped to zero at solo level.
  - o Participating groups shall incorporate the effect of the cap for the consolidated group balance sheet post stress and when calculating the group SCR post stress.
  - o A separate line in the reporting template of the group own funds after stress requires participating groups to report the total amount of the caps applied at solo level (summed up across the group) outside the scope of the regular post-stress reporting items.

# Yield Curve Up (YCUp)

## Insurance specific shocks (2/3)

- Lapse shock
  - o “lapse” refers to any kind of policyholder lapse options
  - o two types of shocks on lapse rate should be applied
    - Instantaneous lapse event
    - Permanent increase in the lapse rate
  - o Instantaneous lapse event:
    - Applied to all product types uniformly
    - Lapse affect all non-mandatory insurances
    - specific information on the total sum of surrender values payed out as a consequence of the instantaneous shock shall be provided
  - o Permanent increase in lapse rate
    - shall be applied as a relative change to the best estimate assumptions on lapse
    - the permanent lapse up shocks are defined for representative product types

Type of product	Stress parameter
Term	No shock
Endowment	High
Annuities in deferral phase	High
Annuities in pay out phase	
if lapse in pay out phase possible	Medium
if lapse in pay out phase not possible	No shock
Unit linked	Medium
Disability	No shock
Health	No shock

# Yield Curve Up (YCUp)

## Insurance specific shocks (3/3)



- Provision deficiency shocks
  - o This uplift would be based on the assumption of an higher annual claims inflation than assumed for the existing best estimate of liabilities calculations:
    - non-life insurers assume that claims costs will increase by  $X\%$  per annum, due to the impact of inflation; they would then have to add a further  $Y\%$  reaching a  $(X+Y)\%$  for the post stress calculations

# Yield Curve Down (YCDown) Market shocks (1/3)



- Market shocks are assumed to represent one-off, instantaneous and simultaneous shifts in asset prices relative to their end-2017 levels
- Second level or contagion effects are out of scope, hence no impact on the creditworthiness of asset holdings and reinsurance recoverables (namely credit risk) have to be taken into account
- Shocks to asset classes:
  - o government bond yields
    - Geography: EU countries, CH, NO, US, JP, Other advanced economies, Emerging markets)
    - Maturity (1,2,5,10,20,30 years)
  - o corporate bond yields
    - Geography : EU, US, Asia
    - Type: Financial, Non-financial
    - Credit quality: AAA, AA, A, BBB, BB, B, CCC
    - In absence of a precise allocation the following proxies can be applied:
      - Bonds issued by corporations based in non-covered geographical areas shall be shocked according to the average shocks provided for larger geographical areas, i.e. EU, US, Asia
      - The shocks to CCC rating class shall also be applied to corporate bonds with lower ratings
      - Unrated bonds shall be shocked according to the shocks prescribed to the BBB-rated bonds

# Yield Curve Down (YCDown) Market shocks (2/3)



- Shocks to asset classes:
  - o RMBS yields
    - Geography : EU, US, Asia
    - Credit quality: AAA, AA, A, BBB
  - o equity prices
    - Geography: EU countries, CH, NO, US, JP, Other advanced economies, Emerging markets
    - Equities listed in countries whose shocks are not prescribed shall be shocked according to the average shocks provided for larger geographical areas, e.g. EU, EA, Other Advanced
    - In case of equity of companies listed in more than one stock exchange the average shock over all countries where the equity is listed shall be applied. Only the countries for which a shock has been specified as a part of the scenario description should be taken into account.
  - o real estate prices
    - Type: Commercial, residential
    - Country (EU countries, CH, NO, US, JP, Other advanced economies, Emerging markets)
    - Real estates located in countries that are not listed shall be shocked according to the average shocks provided for large geographical areas, e.g. EU, EA, Other Advanced Economies and Emerging Markets
  - o other assets prices
    - Type: private equity, hedge funds, REITs, commodities
    - Geography: EU, World

# Yield Curve Down (YCDown) Market shocks (3/3)



- Risk Free Rate:
  - o Shocks to SWAPs were used to derive the EIOPA risk-free rate curves (including UFR) via the Smith-Wilson model according to the following parameters:
    - last liquid point (LLP) defined coherently with the LLP used for the definition of the EIOPA risk-free interest rate term structures (e.g. EUR=20Y; GBP=50Y; CHF=25Y)
    - the ultimate forward rate (UFR) is derived from the liquid part of the RFR curves by keeping the 1 year forward rate constant based on the information available within the two last market rates captured in the EIOPA risk free rate curve. As such, the low yield market characteristics of the stressed curve in the YCdown scenario are also translated into the extrapolated part of the risk free discounting curve
    - Credit risk adjustment is kept unchanged with respect to the baseline

# Yield Curve Down (YCDown)

## Insurance specific shocks (1/3)



- Insurance specific shocks encompass shocks to lapse and provision deficiency shocks
- Insurance specific shocks shall be applied to the entire in-force business of the group
- The application of the lapse shocks is subject to the following general side condition:
  - o If the application of the combination of the lapse stresses as specified in the following subsections should imply a positive marginal impact on the Solvency II own funds of a solo company belonging to a participating group (conditional to the situation after the application of the market shocks), then this positive marginal impact should be neutralised and capped to zero at solo level.
  - o Participating groups shall incorporate the effect of the cap for the consolidated group balance sheet post stress and when calculating the group SCR post stress.
  - o A separate line in the reporting template of the group own funds after stress requires participating groups to report the total amount of the caps applied at solo level (summed up across the group) outside the scope of the regular post-stress reporting items.

# Yield Curve Down (YCDown)

## Insurance specific shocks (2/3)

- Lapse shock
  - o “lapse” refers to any kind of policyholder lapse options
  - o Permanent decrease in lapse rate
    - shall be applied as a relative change to the best estimate assumptions on lapse
    - the permanent lapse up shocks are defined for representative product types

Type of product	Stress parameter
Term	No shock
Endowment	High
Annuities in deferral phase	High
Annuities in pay out phase	
if lapse in pay out phase possible	Medium
if lapse in pay out phase not possible	No shock
Unit linked	Medium
Disability	No shock
Health	No shock

# Yield Curve Down (YCDown)

## Insurance specific shocks (3/3)



- Longevity Shock
  - o To be applied as a relative change to the best estimate assumptions on mortality
  - o age-independent stress parameter of X% shall be applied to all life insurance products

- The nat-cat scenario is made of a series of events
  - o Those perils are on top of all the events which occurred in 2017
  - o They are spread across the year instead and not instantaneous
  - o Each event taken separately is very likely, the whole scenario is based on attrition
  - o The total combined gross loss for the events across Western Europe should be around €50Bn with an aggregate exceedance probability a little higher than 100 and 200
  - o Inclusion of additional US events **under discussion**
  - o Calibration has been conducted with the help of RMS
  
- Multiple events spread across European Regions
  - o 4 windstorms primarily impacting U.K., France, Germany (+ Netherlands, Belgium, Denmark); target loss in the range of €20Bn
  - o 2-3 earthquakes primarily impacting Italy and the South of France / Monaco; target loss close to €15Bn
  - o 2 floods primarily impacting the Danube and Elbe river basins with targeted loss around €15Bn



**eiopa**  
EUROPEAN INSURANCE  
AND OCCUPATIONAL PENSIONS AUTHORITY

# Templates

---

- A combination of Solvency II QRT, known ad-hoc template and innovations
- Based on Solvency II QRT templates
  - o Simplified balance sheet figures (S.02.01.01.01)
  - o Own funds details (S.23.01.04.01 and S.23.01.04.02)
  - o Capital requirements, reporting sheets are to be filled in depending on the use of an (partial) internal model (S.25.0X.04.01 and S.25.0X.04.02)
  - o Impact of the LTG (S.22.01.04.01)
  - o Duration of technical provisions (S.38.01.10, excl. Nat Cat )
- Past ad-hoc (only YCU and YCD)
  - o Assets template: same structure used both in 2014 and 2016 to detail positions
  - o Liabilities description: simplification of the S.12.01.01 already used in 2016
  - o Lapse: a qualitative questionnaire to measure methodological differences and a quantitative assessment similar to the one used in 2016

# Templates for validation (under discussion)

- The request of additional information to allow a better understand the application of the prescribed shocks at group level is **under discussion**
  - o S.32.01.04 – Undertaking in the scope of the group – **NEW** wrt the shared version -
    - Template to be collected at Group level
    - Type of entity, Relevance in terms of Total balance sheet, % of capital share, Method of consolidation in the Group solvency calculation
  - o Increase of the detail in the S.23.01.04 (Own Funds) – **AMENDED** wrt the shared version -
    - Template to be collected at Group level
    - Own funds aggregated when using the D&A and combination of method
      - Operating in equivalent countries reporting on book-value principles
      - Operating in equivalent countries reporting on market-value principles
    - SCR for undertakings included via D&A
      - Operating in equivalent countries reporting on book-value principles
      - Operating in equivalent countries reporting on market-value principles
  - o Increase of the detail in the S.25.xx (SCR templates) – **AMENDED** wrt the shared version -
    - Template to be collected at Group level
    - SCR for undertakings included via D&A
      - Operating in equivalent countries reporting on book-value principles
      - Operating in equivalent countries reporting on market-value principles

# Templates for validation & analysis (under discussion)



- The request of additional information to allow a better understanding of the application of the prescribed shocks at group level **is under discussion**
  - o S.13.01.01 – Cash flows
    - Template to be collected at solo level for the most relevant solos
    - Not used for releasing indicators but for analysis and validation (diff-diff and benchmarking)
  - o Liabilities characteristics (simplified mix of S.14.01.01 and S.14.01.01.03)
    - Template to be collected both at Group and solo level
    - Will be used to assess vulnerabilities and their change in distribution post stress
    - Cross validations with cash flows are also planned
  - o Lapses (S.41.01.11 with enhanced granularity)
    - Template to be collected at Group and solo level
    - Basis for validation checks built with both cash flows and liabilities characteristics
    - Not to be used as public indicators (neither individual or group)



**eiopa**  
EUROPEAN INSURANCE

AND OCCUPATIONAL PENSIONS AUTHORITY

# Open points

---

- Concept of “relevant solos”
  - o The sample of solo undertakings to be included in the solo reporting templates shall cover a minimum of 90% of the contribution (re)insurance undertakings to the total group balance sheet reported at year-end 2017
  - o In order to avoid small solo undertakings to be added to these reporting templates, a reduction of the total balance sheet coverage to 75% is allowed, if the 90% threshold can only be reached by adding solo undertakings with a balance sheet total below EUR 100 Mio.
  - o Reference for calculation: S.32.01.04\_C0090 [Undertakings in the scope of the group Total Balance Sheet (for (re)insurance undertakings)]

# How to approach D&A solo entities (1/2)

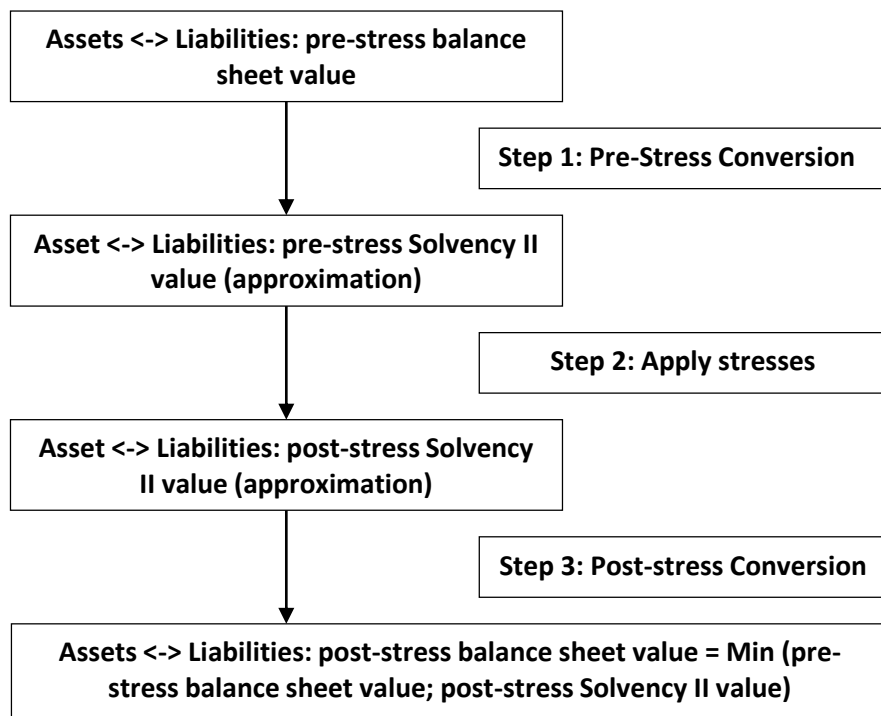


- The entire in-force business shall be stressed
  - o Entities consolidated via accounting method: No issue
  - o Insurance entities consolidated via D&A operating in:
    - EU countries → SII principles shall be applied
    - non-equivalent countries → SII principles shall be applied
    - equivalent countries with local market value-based local principles → local principles shall be applied
    - equivalent countries with local book value-based local principles → refer to the next slide
  - o Non-insurance entities e.g. credit institutions: apply a stress on the participations

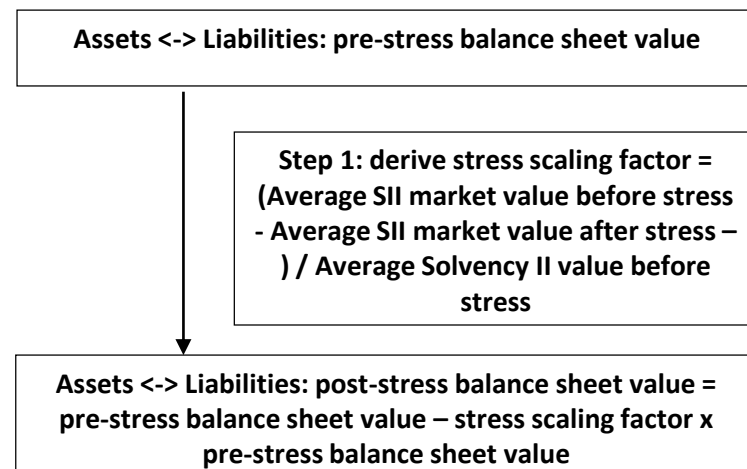
# How to approach D&A solo entities (2/2)

- For solo entities aggregated via D&A and operating in equivalent jurisdictions under book value based regimes the following 3 options are **under discussion**:

## Option 1



## Option 2



## Option 3

