



ESRB

European Systemic Risk Board

European System of Financial Supervision

EIOPA 2015 Pension funds EU-wide stress test scenarios

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Content

- The European Systemic Risk Board
- Systemic risks captured by the scenarios
- Vulnerabilities of EU pension funds
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European System of Financial Supervision and the European Systemic Risk Board

Macro

ESRB

European Systemic Risk Board

ESRB General Board

Micro-prudential

3 ESAs

European Supervisory
Authorities

ESRB Steering Committee

ESRB Advisory Technical
Committee

Joint Committee
of the ESAs

ESRB Stress test task-force

National Supervisors

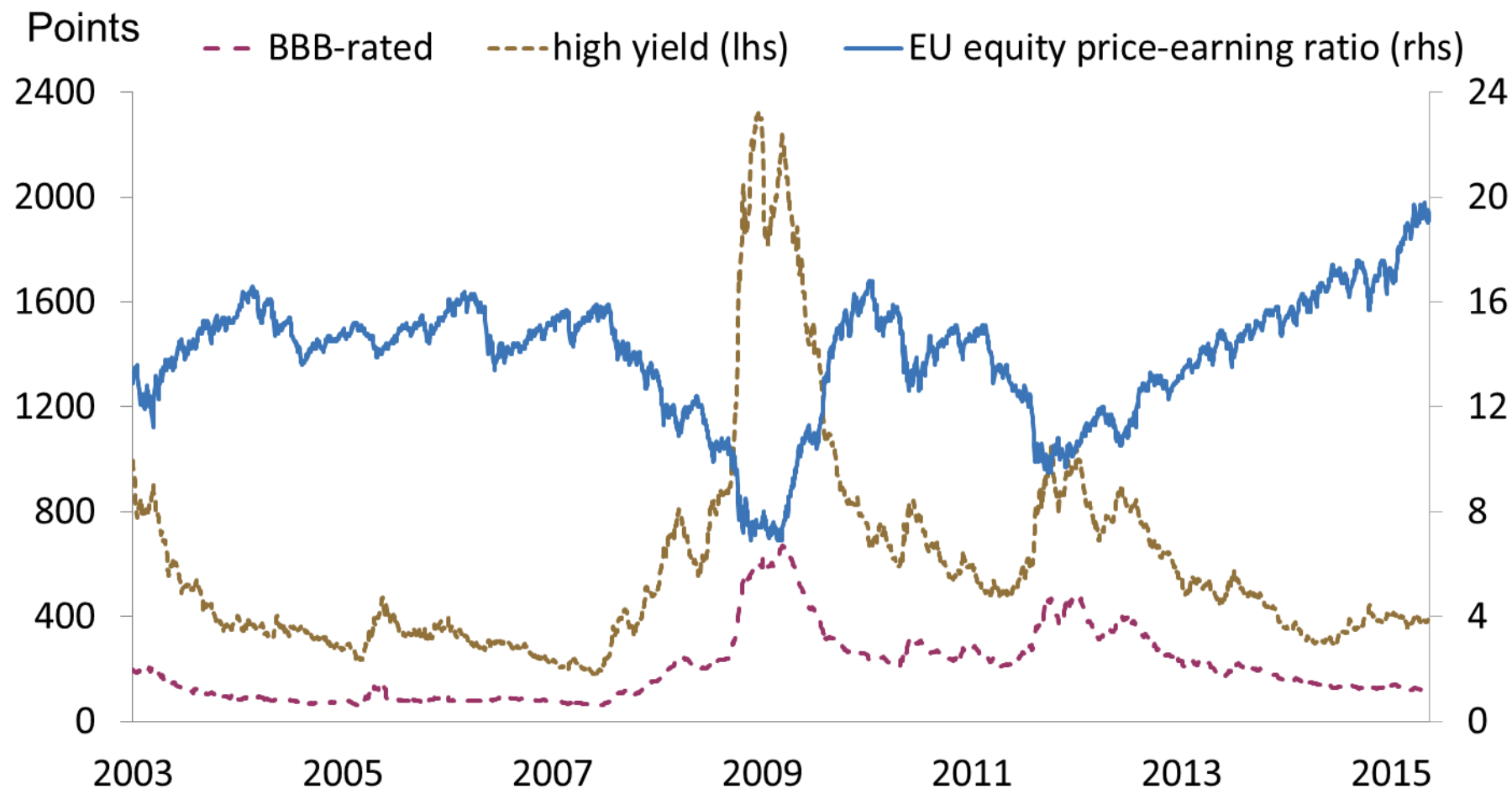
ESRB Secretariat



Risks and vulnerabilities

- Three main risks to the EU financial sector captured:
 - Global financial market repricing;
 - Weak economic outlook in the European Union;
 - Re-aggravation of the sovereign debt crisis.
- Key vulnerabilities of defined benefit pension funds:
 - ‘Double hit’;
 - Inflation
- Two scenarios: negative demand shock and negative demand and supply shocks.

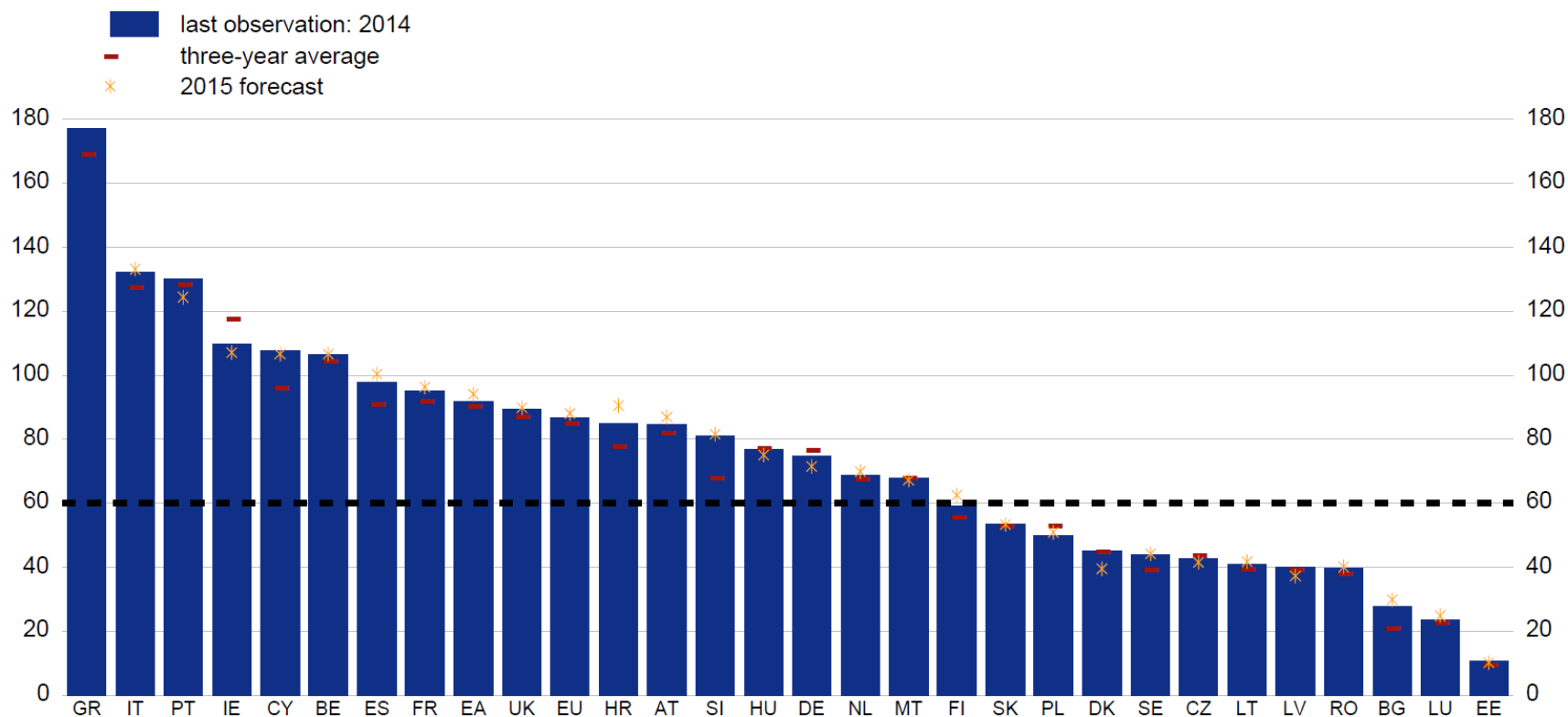
Global financial market repricing



Reaggravation of sovereign debt crisis

2.6 General government debt-to-GDP ratio

(EU; percentages)



Source: ESRB Risk dashboard

Scenario 1: negative demand shock

- An abrupt reversal in asset prices emanating from developed economies' equity markets. All main asset classes are affected.
- EU risk-free interest rates decline further below end-2014 levels.
- Sovereign credit spreads in the EU widen relative to swap rates, and 'safe haven' status of some sovereigns is weakened.
- Consumption and investment in the EU fall.
- Euro appreciates on the back of capital flows and falling interest rate differentials vs the US.
- Inflation expectations over the medium term fall while expected timing of inflation returning to target is not affected.



Scenario 2: negative demand and supply shock

- A negative supply shock in the oil market and other commodities in addition to an abrupt decline of prices across a broad spectrum of asset classes.
- EU economy relatively more strongly affected by the global turmoil than the US. The euro depreciates against the US dollar.
- Higher oil and import prices lead to an increase in inflation in the short term. Nominal wages grow in line with inflation.



Technical background of the calibration

- ECB financial shock simulator:
 - Non-parametric copula to capture co-movements across asset prices and tail dependence;
 - Based on Expected Shortfall concept;
 - Used to generate conditional shock scenarios with various markets as shock origin.
 - Previous applications include design of scenarios for EU-wide bank stress tests and insurance sector stress tests

Scenario 1: Shocks to asset prices

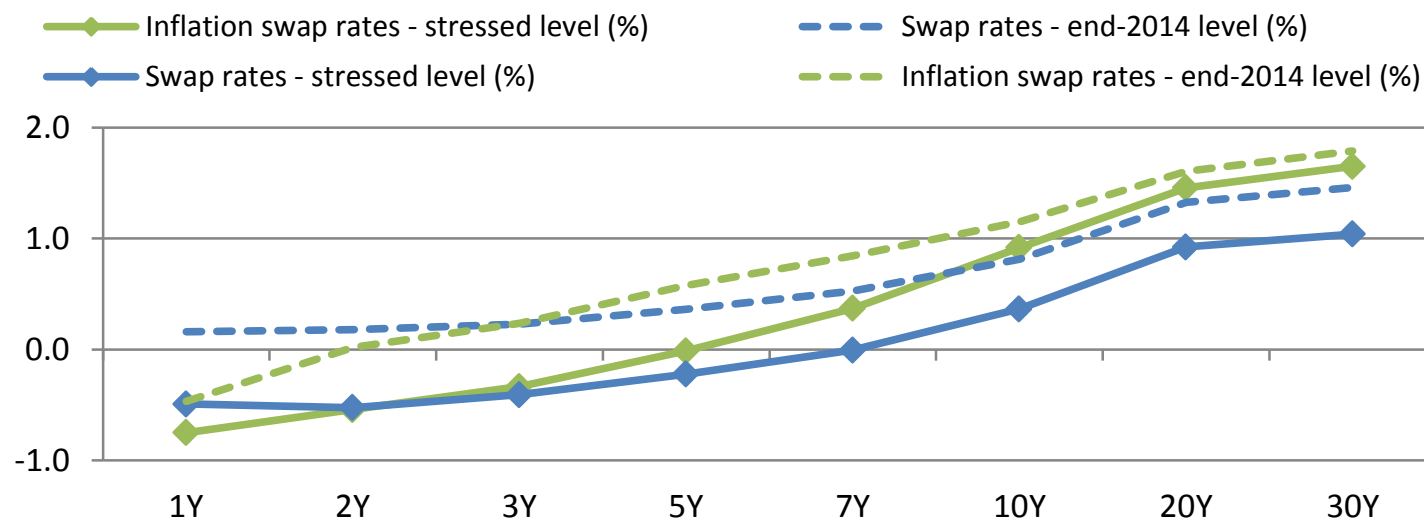
Shocks to stock prices,
funds, FX and commodities

Variable	Shock (%)
EUR-USD exchange rate	20
EU equities	-45
US equities	-30
EM equities	-18
Commodity prices	-35
Private equity	-42
Hedge funds	-12
EU REITs	-46
Global REITs	-35

Shocks to corporate bond spreads over
the swap rate

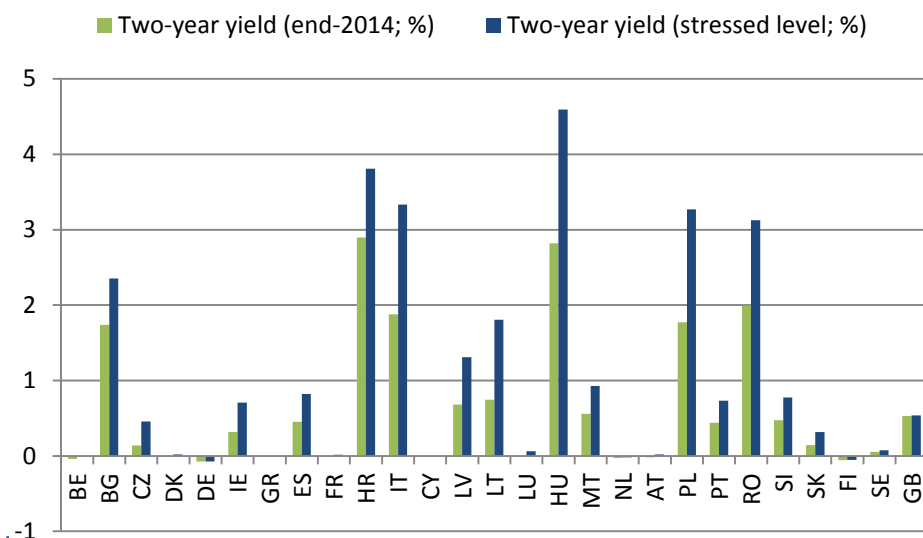
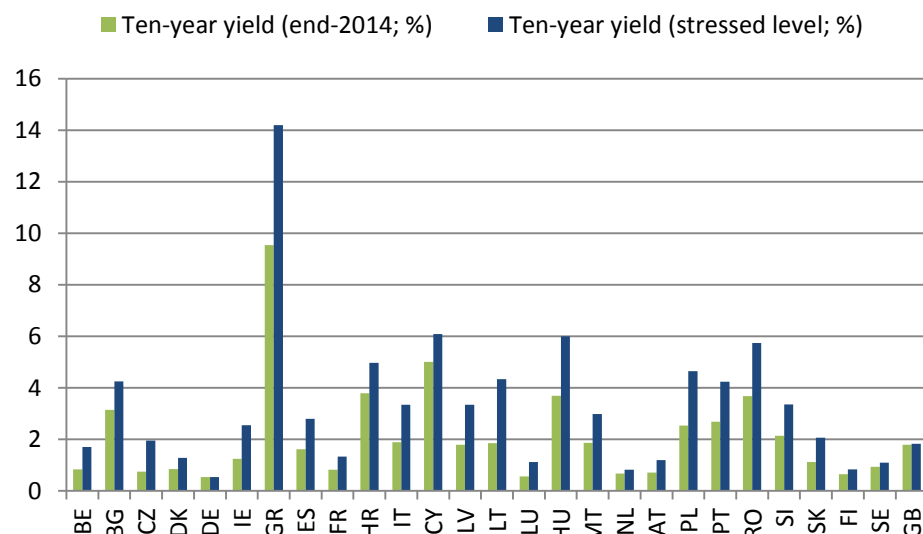
Credit rating	Non-financial corporate - shocks (bps)	Financials (unsecured) - shocks (bps)	Financials (covered bonds) - shocks (bps)
AAA	14	17	33
AA	29	36	41
A	51	82	72
BBB	90	251	91
BB	121	359	116
B<	156	498	139
unrated	173	560	150

Scenario 1: Shocks to interest rate and inflation swap rates



	1Y	2Y	3Y	5Y	7Y	10Y	20Y	30Y
Swap rates - shocks (bps)	-65	-70	-64	-58	-53	-45	-40	-42
Inflation swap rates - shocks (bps)	-28	-56	-57	-59	-47	-23	-15	-14
Swap rates - end-2014 level (%)	0.2	0.2	0.2	0.4	0.5	0.8	1.3	1.5
Inflation swap rates - end-2014 level (%)	-0.5	0.0	0.2	0.6	0.8	1.2	1.6	1.8
Swap rates - stressed level (%)	-0.5	-0.5	-0.4	-0.2	0.0	0.4	0.9	1.0
Inflation swap rates - stressed level (%)	-0.7	-0.5	-0.3	0.0	0.4	0.9	1.5	1.6

Scenario 1: Shocks to sovereign bond yields



Sovereign	Ten-year yield: shock (bps)	Two-year yield: shock (bps)
Belgium	87	3
Bulgaria	110	62
Czech Rep.	121	32
Denmark	44	3
Germany	0	0
Ireland	131	39
Greece	466	N/A
Spain	118	37
France	50	3
Croatia	119	91
Italy	146	145
Cyprus	109	N/A
Latvia	155	63
Lithuania	248	106
Luxembourg	56	6
Hungary	231	177
Malta	113	37
Netherlands	14	1
Austria	48	3
Poland	211	150
Portugal	155	29
Romania	206	114
Slovenia	121	30
Slovakia	94	17
Finland	18	0
Sweden	16	2
United Kingdom	3	1
EU average	65	31

Scenario 2: Shocks to asset prices

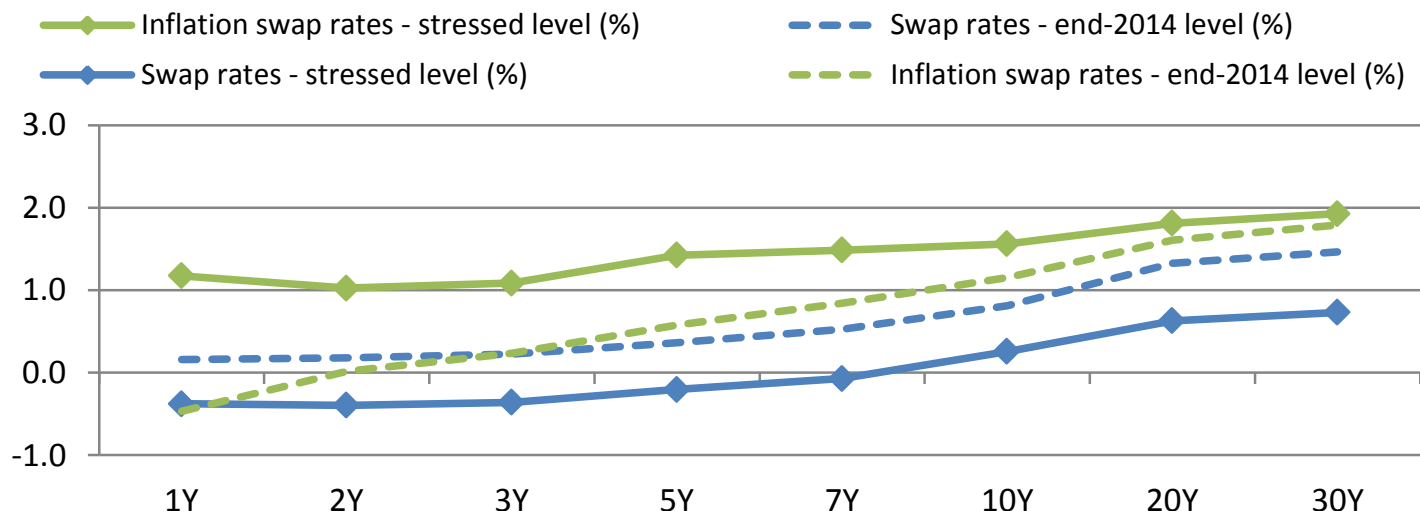
Shocks to stock prices,
funds, FX and commodities

Variable	Shock (%)
EUR-USD exchange rate	-2
EU equities	-33
US equities	-4
EM equities	-33
Commodity prices	53
Private equity	-38
Hedge funds	-10
EU REITs	-37
Global REITs	-63

Shocks to corporate bond spreads over
the swap rate

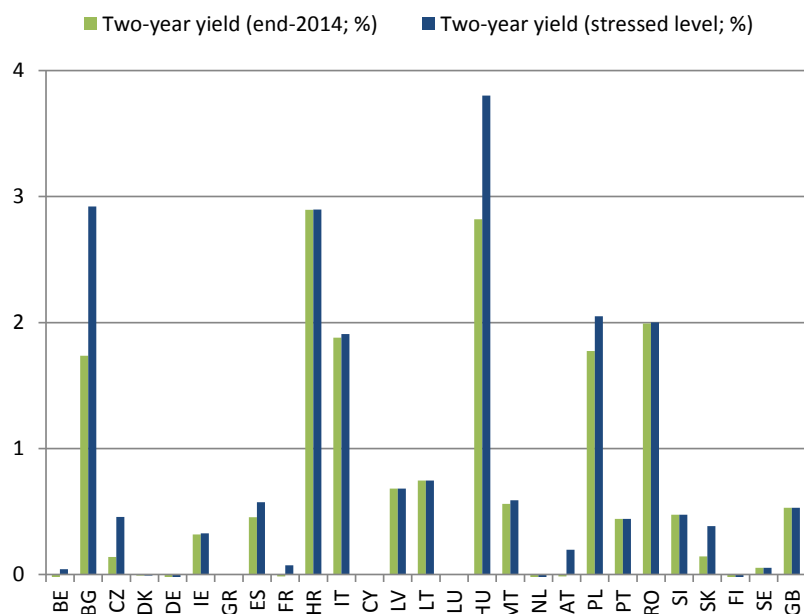
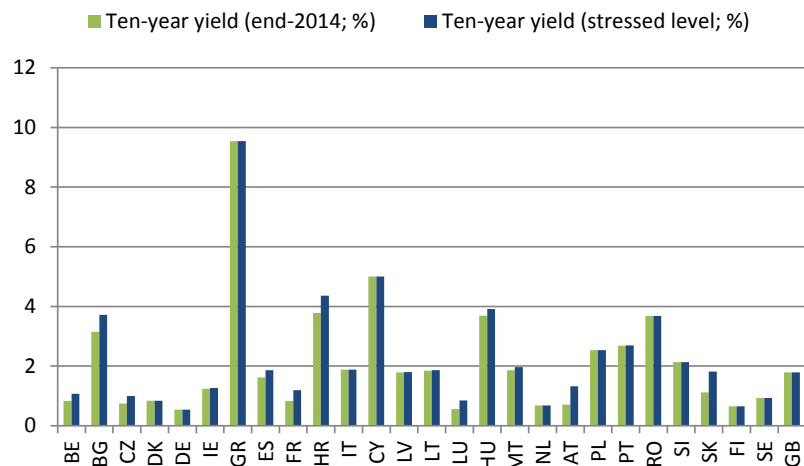
Credit rating	Non-financial corporate - shocks (bps)	Financials (unsecured) - shocks (bps)	Financials (covered bonds) - shocks (bps)
AAA	91	134	123
AA	124	130	142
A	127	166	249
BBB	135	337	313
BB	141	441	398
B<	147	579	472
unrated	150	639	512

Scenario 2: Shocks to interest rate and inflation swap rates



	1Y	2Y	3Y	5Y	7Y	10Y	20Y	30Y
Swap rates - shocks (bps)	-54	-58	-59	-56	-60	-55	-70	-73
Inflation swap rates - shocks (bps)	164	101	85	85	64	41	21	14
Swap rates - end-2014 level (%)	0.2	0.2	0.2	0.4	0.5	0.8	1.3	1.5
Inflation swap rates - end-2014 level (%)	-0.5	0.0	0.2	0.6	0.8	1.2	1.6	1.8
Swap rates - stressed level (%)	-0.4	-0.4	-0.4	-0.2	-0.1	0.3	0.6	0.7
Inflation swap rates - stressed level (%)	1.2	1.0	1.1	1.4	1.5	1.6	1.8	1.9

Scenario 2: Shocks to sovereign bond yields



Sovereign	Two-year yield: shock (bps)	Ten-year yield: shock (bps)
Belgium	8	24
Bulgaria	118	57
Czech Rep.	32	26
Denmark	0	0
Germany	0	0
Ireland	1	2
Greece	N/A	0
Spain	12	25
France	9	37
Croatia	0	58
Italy	3	0
Cyprus	N/A	0
Latvia	0	1
Lithuania	0	2
Luxembourg	0	29
Hungary	98	22
Malta	3	11
Netherlands	0	0
Austria	21	61
Poland	28	0
Portugal	0	1
Romania	1	0
Slovenia	0	0
Slovakia	24	71
Finland	0	0
Sweden	0	0
United Kingdom	0	0
EU average	10	14

Questions and answers

