Solvency II Benchmark

Observed practices for Standard Formula across Europe

28 June 2018

Objectives, approach and limitations

Objectives and approach

The objective of this document is to provide an overall picture of the practices observed across Europe in the implementation of the Solvency II Standard Formula (pillar 1). It focuses on some key topics such as contract boundaries, valuation of options and guarantees, use of surplus funds, etc.

The benchmark is based on expert judgment of generally observed practices on the following representative panel of countries :

- Belgium
- Czech Republic
- Denmark
- France
- Germany
- Greece
- Ireland
- Italy
- Luxembourg
- Netherlands
- Poland
- Spain

In the following pages we provide an summary of the practices observed followed by a more detailed comparison per topic.

The order of the countries lists in the following pages is generally from "most conservative" to the "less conservative" in the implementation of the Standard Formula, this order is subject to interpretation.

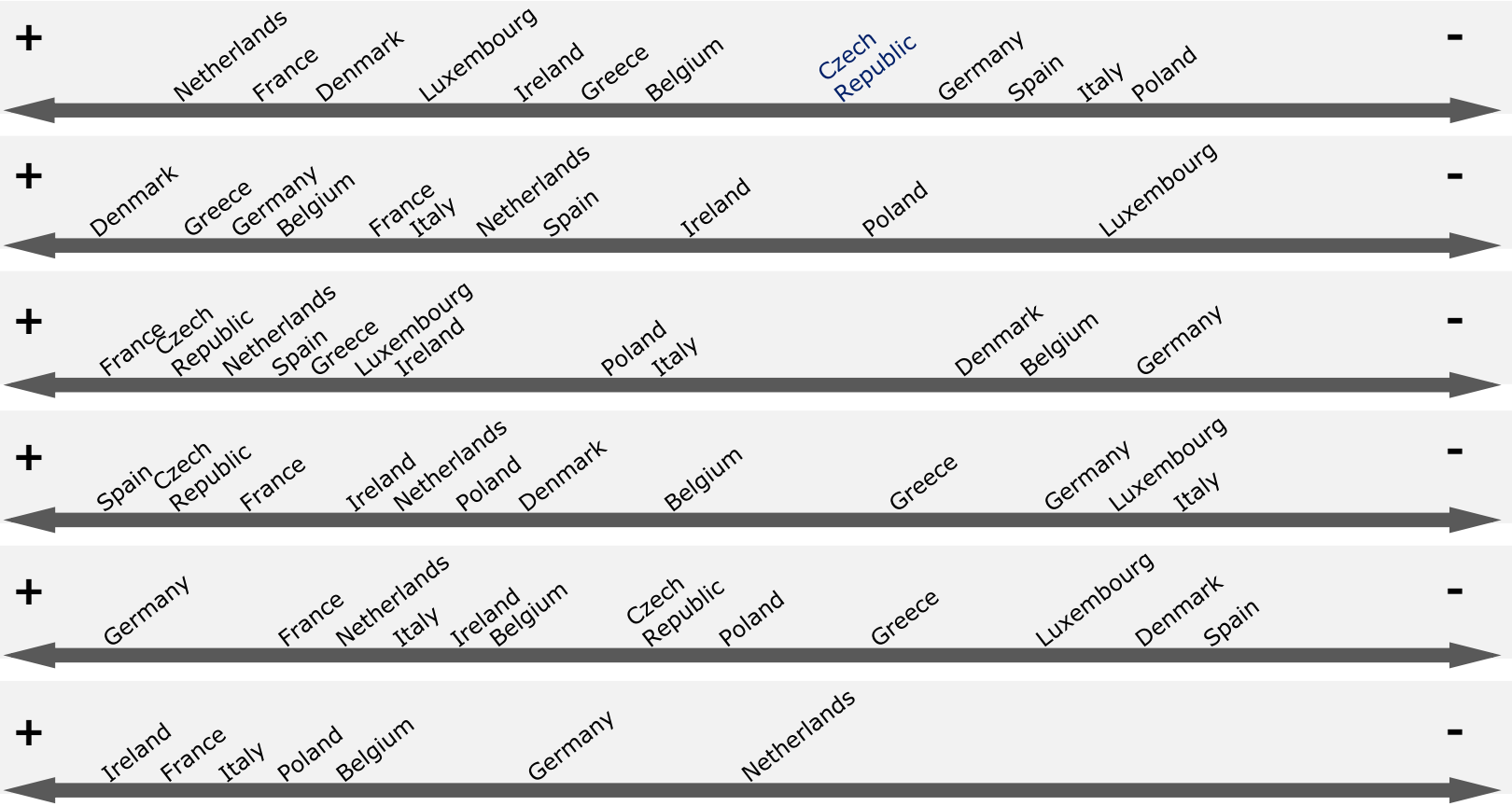
Limitations

- For each country, the practices noted in this document represent practices generally observed by local professionals and may not reflect exhaustively the approaches used. They reflect the best knowledge of practices used to date.
- Where a ranking of approaches has been indicated it should be read solely for the topic considered and without taking into account the application of transitional measures.
- The comparison related solely to the standard formula of Solvency II, it does not cover Internal Model users.

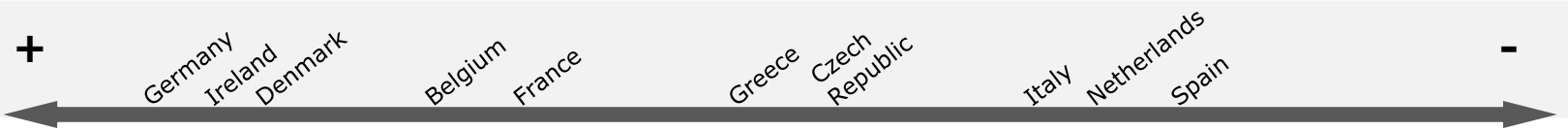
Executive summary

Over the panel considered, we observe that the implementation of Solvency II, a principle based Directive, has led to discrepancies in the methods / approaches used in practice by country depending on either emerging market practices or local supervisors guidance / requirements. We have summarised below for the main topics considered in the comparative, the relative "conservatism" or "prudence" of the different countries or when applicable the operational impact (i.e. effort needed) of the approach.

From a more to a less « conservative » approach



From more to less justification required by the supervisor



Contract boundaries – Savings & pensions business

There is no homogeneous treatment of contract boundaries Some countries exclude all future premiums whilst others take into account future premiums assumptions.

Question : Which future premiums are taken into account inside contract boundaries for savings and pensions business?

	Non Unit linked savings business	Unit linked business
Luxembourg	No future premiums are included in the contract boundaries	
France	No future premiums unless there is a guarantee and the insurer is enable to reprice	
Netherlands	Most of the time repricing is not possible and future premiums until the pension age (65) are within the contract boundary	For group pension contracts, the contract boundary is fixed at the earliest between the date at which contract can be lapsed or made paid-up (typically 1, 5 or 10 years)
Denmark	Future premiums are within the contract boundary for products that include a guarantee	
Ireland	Future premiums over the life time of the policy are within the contract boundary	Only future premiums of products with guarantee are within the contract boundary (until the guarantee date)
Greece	Future premiums are included upon terms of contract only for long term policies	Policies with term of renewable premiums are considered short term policies
Belgium	Yes for products with a pre-determined guarantee	
Czech republic	All premiums until the term of the contract are within the contract boundary	
Germany	Regular premiums, dynamic premium increases, Zulagen (additional premiums for state subsidised contracts) are within the contract boundary	
Spain	Future regular contractual premiums are within the contract boundary	
Italy	Recurrent single premiums, future annual premiums and additional instalments are within the contract boundary, with lapse/paid up assumptions	
Poland	Regular premiums are within the contract boundary	All premiums until the term of the contract are within the contract boundary

Contract boundaries – Protection business

Future premiums within the contract boundary tend to be limited to premiums until the first renewal/repricing.

Question : Which future premiums are taken into account inside contract boundaries for protection business?

	Protection business
Netherlands	Approaches vary with some companies limiting to one-year (due to option for portfolio-level repricing at renewal date) and other using renewal/lapse assumptions and considering premium cash flows beyond the first renewal date For mortgage protection, the contract boundary is equal to the period of the underlying mortgage (normally 30 years) regardless of interest reset date of the mortgage
Denmark	Future premiums are within the contract boundary for products that include a guarantee
France	No future premiums unless there is a guarantee and the insurer is enable to reprice
Ireland	Market practice is to treat the next review date as the contract boundary However, majority of protection policies do not have a review date (Term assurance, Whole of life, mortgage protection) and thus the contract boundary is the term of the contract
Greece	Future premiums are included upon terms of contract only for long term policies Policies with term of renewable premiums are considered short term
Czech Republic	Premiums until the first renewable period are within the contract boundary
Belgium	Future premiums are projected insofar the related tariff (e.g mortality table and interest guarantee) are known at the reporting date.
Germany	Protection business is typically single premium business
Luxembourg	For individual insurance (mortgage insurance/fixed term insurance) the contract boundary is fixed as a part (respectively 67%/100%) of the duration of the contract. For group insurance (death/disability) the contract boundary is fixed to one year according to the "resiliation" clause.
Spain	Contract boundaries for protection business often apply on the next renewal date unless the company can demonstrate that it will not be able to modify the premium or benefits Some companies have modified their contractual terms to give up on their right to modify premium or benefits
Italy	Annual premiums are usually within the contract boundary, taking into account lapse assumptions
Poland	All premiums until the term of the contract are within the contract boundary

Deferred tax and recoverability

Deferred tax recoverability often depends on projected future profits (with or without future new business) with some countries applying either a 10 years limit or a limit equal to the strategic plan period.

Question : How is tax recoverability assessed? What is the timeline of future profits used if any, timeline of future business included if any, the economic assumptions used, etc.?

	Denmark	Greece	Germany	Belgium	France	Italy	Netherlands	Spain	Ireland	Poland	Luxembourg
Reply	Tax has to be recovered within the strategic planning period for the SCR scenario	when DTA is driven by Accumulated tax losses , recoverability is assessed based on the future tax profits Tax losses can be used for the following 5 years form the year when these have been recognised	Expected future tax payments (ie timeline of future profits more or less)	Before 2017 LAC DT was capped the to the amount of the DTL on the BS Now, LAC DT is a function of the company's maximum capacity and the SII ratio	Limited to the strategic plan (3 to 5 years)	The time line for future profit has to be within 10 years with a decreasing coefficient or recoverability	Tax has to be recovered in a period around 10 years (9 years loss carry forward is allowed in the Netherlands) Economic assumptions should reflect the post-shock situation and consider actions required to recapitalise	Future profits from future new business (including renewals from existing business not projected for BEL calculations) in a timeline up to 10 years	Limited to the projected future profits in the business	Future profits over the whole projection	DTA is limited to the corporate tax applied to the BSCR
Time limit	Strategic plan, expected to be 3-5 years	None	Strategic plan	Strategic plan	Strategic plan, expected to be 3-5 years	10 years	10 years	10 years	None	None	NA
NB included?	Yes	NA	Yes for the strategic plan period	Yes	No	No	Yes	Yes	No	No	NA

Use of surplus funds to calculate the solvency ratio

The majority of countries have not used any surplus funds. Some countries have included reserves for bonuses or profits not distributable to shareholders in surplus funds.

Question : What is included in the surplus funds used to assess the coverage of the SCR? Are any liabilities allocated to the surplus fund?

France	Czech republic	Netherlands	Spain	Greece	Luxembourg	Ireland	Poland	Italy	Denmark	Belgium	Germany
None	None	None	None	None	None	None	Mostly none However, subordinated loan from parent companies were included in a few instances	None In the future, accumulated profits which have not been made available for distribution could be used	Certain local surplus funds are allocated to own funds	The surplus funds can include amongst other, the Be GAAP fund for future dotations, which can be split between the own funds and the liabilities under Solvency II	Roughly equivalent to unallocated RfB (Reserve for Premium refund/bonuses, which are not allocated to specific contracts) plus terminal bonus fund adjusted for some discounting and double counting in CF projection Surplus funds account for around 30% of own funds

Expenses projected in the S2 calculation

All expenses related to the insurance operations, excluding acquisition costs and non recurring expenses, are projected in the BEL and SCR calculations. Practices to project expenses tend to vary with companies with a trend to model investment expenses as a % of funds and to use per policy expenses for operating expenses combined with fixed expenses or a minimum level of expenses.

Questions :

1. Which expenses are projected in the BEL and SCR calculations? Are some expenses excluded from the projections? Which ones?
2. Are expenses projected per policy, as a % of funds and/or as a fixed amount?

	Spain	Czech republic	France	Ireland	Netherlands	Poland	Denmark	Belgium	Greece	Germany	Luxembourg	Italy
1	All expenses except those considered as non-recurring	Acquisition and administration expenses One off expenses are excluded	Acquisition and administration expenses One off expenses tend to be excluded	All expenses allocated in the insurance operations Non-recurring project expenses and expenses that are not to be allocated to the insurance operations are excluded	All expenses allocated in the insurance operations*, including investment expenses Non-recurring project expenses and expenses that are not to be allocated to the insurance operations are excluded	Administration and commissions / acquisition expense which are spread over time Initial acquisition expenses and extraordinary expenses are excluded	All, except new business	Recurring expenses Claims handling expenses are sometimes separately accounted for and projected in function of the number of events (eg surrenders)	Operating expenses	Renewal, claims handling, investment, renewal commissions Partially Initial commissions for premium increases One off expenses and initial expenses are excluded	All expenses related to the maintenance, to distributors remuneration and to third parties Acquisition expenses and one off expenses are excluded	All expenses, except acquisition costs that are excluded
2	Varies by company	Varies by company	Varies by company Supervisor requires justification of the approach used, in particular for per policy expenses	Per policy used to cover non-investment administration costs Investment expenses as a % of funds	Operating expenses per policy and to a certain extent for the fixed part as fixed amounts Investment expenses as a % of funds	Varies by company	Varies by company but per policy is most common	Mostly, administration expenses are projected per policy but also sometimes as a percentage of the mathematical provisions Mostly, investment expenses are projected as a % of mathematical provisions or the assets under management	The number of employess per section, volume of the premiums per Lob or product is the main criteria	Varies by company	Maintenance expenses: per policy with a minimum; Distributors expenses: % of funds; Third parties: % of funds or per policy following the agreements with the outsourcers	Varies by company

* In case of closed or near-to closed books allowance is made that not all expenses can be assumed to be variable and a certain block-shaped run-off of fixed expenses is assumed

Strategic equity and real estate type investments

The 22% stress test for strategic equity tends to be used for strategic participations or subsidiaries.

For real estate type investments a look through approach tends to be used to calculate the SCR.

Questions :

1. What is the scope of the application of the 22% stress test for strategic equity?
2. How is the SCR calculated for real estate type investments (eg real estate investment trusts)?

	Netherlands	Spain	France	Italy	Czech republic	Belgium	Luxembourg	Denmark	Ireland	Germany
1	Equity investments in companies that exceed 5% to 10% in value and/or are considered to be strategic investments eg from a distribution perspective	All participations at individual level, and to participations consolidated by equity method at Group level	Used for strategic participations			Controlled fully owned subsidiaries Generally, The strategic nature is evidenced by the fact that a controlling stake has been acquired in the past and that goal is to invest on a long time horizon	Some financial holdings where look-through is not permitted /strategic participations	Used for most subsidiaries	Not applied	Applied for strategic participations
2	At equity	Standard equity module (stress of 25%)	Mostly Look-through approach	Look-through approach	Standard property shock	For fully controlled real estate entities, a look through approach is applied with a 25% SCR Property Shock on the underlying assets	Look-through is applied : 25% on the real estates and the interest rate shock on the leverage	Without look-through at entity level and consolidated for Group	Within property investment funds, the individual property assets are shocked at 25%	Standard equity module (stress of 25%)

Valuation of options and guarantees

Most countries use stochastic valuation for business with guarantees with the exception of Denmark, Greece, Luxembourg and Spain.
For Unit Linked business, most countries do not use stochastic modelling when there are no guarantees.

Questions :

1. For business with guarantees, do companies value BE and SCR stochastically?
2. For UL business, do companies value BE and SCR stochastically?

	Germany	France	Netherlands	Italy	Ireland	Belgium	Czech Republic	Poland	Greece	Luxembourg	Denmark	Spain
1	Yes	Yes	Yes	Yes	Yes	Yes	Yes, except for few small sized companies	Yes, except for few companies where immaterial where model use is Black & Scholes	No, in most cases a closed formula is used (Black and Scholes)	Deterministic approach is usually applied and stochastic approach in a lesser extent	No but will change after the EU has required a more strict implementation of the directive	No, low impact of cost of guarantees
2	Yes	Yes	No, unless there is a guaranteed return	Mainly no	No	No	No, unless there are guarantees	No	No, in most cases a closed formula is used (Black and Scholes)	Deterministic approach is usually applied and stochastic approach in a lesser extent	No, guarantees are rare	No

Methods used to value options and guarantees

Where stochastic models are used, only Germany has a "market standard" model and most countries take into account negative interest rates.
For convergence purposes, the maximum number of scenarios appear to be 5'000 There is no homogeneous treatment of the convergence differences, with some countries allocating the convergence difference to either BEL or own funds.
ESGs models, H&W, CIR or LMM+ tend to be calibrated on current market rates.

Questions :

1. Is there a market standard model to measure the TVOG?
2. Do the models used in the market allow for negative interest rates?
3. How many scenarios are generally used to ensure convergence?
4. How is the convergence difference handled? Is it allocated to BEL, own funds, a combination?
5. What are the types of models mostly used for ESGs?
6. What are the calibrations mostly used for ESGs?

	Ireland	France	Italy	Poland	Belgium	Germany	Netherlands
1	No	No	No	No	No	BSM used by small/medium companies which include an ESG using a 1 factor Hull White model for interest rates and a geometrical Brownian motion for equity and property There is a quarterly "suggested" calibration of the model provided by the German actuarial association	No
2	Yes without minimum	Yes with or without minimum depending on companies	Yes without minimum	Yes without minimum	Yes without minimum	Yes with or without minimum depending on companies	Yes with a minimum level
3	2'000 – 10'000	1'000-5'000	1'000-5'000	500-1'000	Depends on companies	1000	1'000 – 5'000
4	The convergence difference is added to the unit-liability or BEL	BEL or own funds depending on the sign of the difference*	From no allocation to full BEL allocation	BEL or own funds depending on the sign of the difference*	Depends on companies	Varies by company, allocation to both own funds and TP, full allocation to TP and separate item in SII balance sheet	Added to BEL
5	LMM+	LMM+, H&W, CIR	LMM+, H&W, CIR	LMM+, CIR	H&W	LMM+, H&W, CIR, HW	H&W, LMM+ and CIR
6	Risk neutral calibrations	Risk Neutral calibrations	Risk neutral calibrations	Risk neutral calibrations	Risk neutral calibrations	Risk neutral calibrations	Risk neutral calibrations

* prudent approach to increase BEL or reduce own funds

Volatility adjustment (for standard model users)

In some countries the use of a volatility adjustment is subject to regulator's approval.

Questions :

1. What are the conditions of use of the VA?
2. What is the type of volatility adjustment (fixed, variable)?

	Luxembourg	Poland	Germany	Ireland	Denmark	Belgium	France	Greece	Czech republic	Italy	Netherlands	Spain
1	Not used	Not used	Approval by the supervisor	Approval by the supervisor	Application and approval of the regulator	Company need to notify to the regulator	Needs to be documented and documentation needs to be available for the supervisor	As specified by EIOPA	If used conditions are set by the EIOPA	Used by almost all the companies	VA is used by almost all companies to determine technical provisions for the non-UL business	Used for business other than matching adjustment portfolios or UL
2	Not used	Not used	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed