

Standard Formula Assumptions

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Agenda

- **Market Risk**
- **Life Underwriting Risk**
- **Operational Risk**
- **Counterparty Default Risk**

Assumptions vs Suitability

The legislation requires check of „deviation from assumptions underlying the SF“. (Art 45, 1c) The assumptions are described in a document from EIOPA.

BUT The suitability of the formula for the company is something really different.

Suitability could mean:

- The value is risk sensitive (higher risk = higher risk charge)
- The formula motivates for good risk management
- The results is approximately 99.5% percentile

General

- Diversification effects through correlation matrices aggregation
- SCR are calibrated using VaR method for 99.5% over a one-year period
- Some risks are not included

Market Risk (1)

- Assumptions
 - Sensitivity to volatility not material

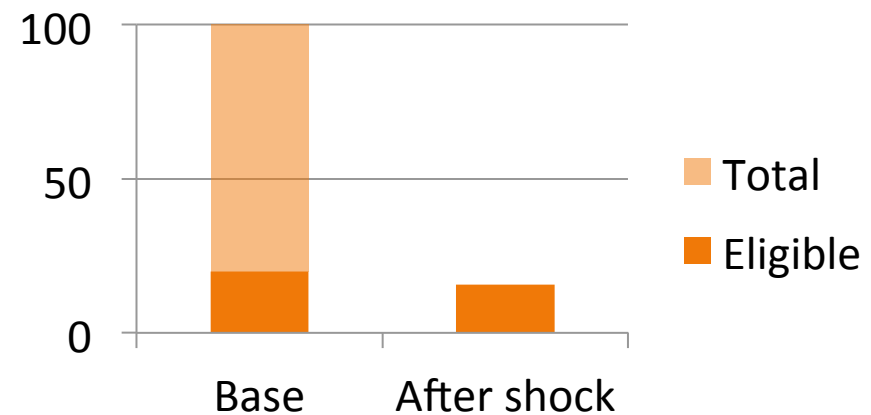
Interest Rate Risk

- Assumptions
 - No volatility and changes in the shape
 - No material inflation or deflation risk
- Suitability
 - Shock up at least 100 bps?
 - No shock down when the rates are negative

Market Risk (2)

Equity Risk

- Assumptions
 - Well diversified
 - Mean reverting behaviour
- Suitability
 - The diversification in case of limited number of equities
 - Investments in financial institution? Overstated if most of the value is deducted from OF



Market Risk (3)

Currency Risk

- Assumptions
 - Currencies pegged to € will fluctuate within a limited band
- Suitability
 - Same shock for all currencies?
 - Calibration of the currencies pegged to euro (especially 1 in 200)

Property Risk

- Assumptions
 - Exposures in third countries as risky as European market
 - Long left-fat tail and excess kurtosis distribution
- Suitability
 - Extremely simple (25% shock)

Market Risk (4)

Spread Risk

- Assumptions
 - All spreads increase => only shock up and no diversification
 - Diversified pool for high credit exposures
- Suitability
 - No sovereign bonds risk?
 - Impact of the volatility adjustment – could lead to perverse motivations

Concentration Risk

- Assumptions
 - No geographical nor sector concentrations
 - No risk when below the threshold
 - Portfolio does not deviate materially from EU average portfolio (e.g. more bonds than equities)
- Suitability
 - No sovereign bonds concentration risk?

Life&Health (1)

- Assumptions
 - The volatility risk is considerably lower than the trend risk (CZ riders where the contract boundaries should apply?)
 - Portfolio well-diversified with respect to: age, gender, ... and geographical location.
 - That may be very challenging for small companies

Mortality Risk

- Assumptions
 - The company has a system to restrict adverse selection
- Suitability

Longevity Risk

- Assumptions
 - The annual mortality improvements follow a normal distribution
 - The avg mort rate for a person does not increase by more than 10% each year
 - Suitability
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Life&Health (2)

Disability Morbidity Risk

- Assumptions
 - Portfolio well diversified in likelihood and change in severity
- Suitability

Lapse Risk

- Assumptions
 - Increase and decrease are symmetrical shocks
 - Options in reinsurance are immaterial
- Suitability
 - Any reasoning for the maximum of 3 scenarios?
 - Mass lapse uses „positive surrender strain“ only – but clients' behaviour is not driven by that
 - The worst option of non-persistency for the company should be used – even in case it is not a reasonable option for the policyholder

Life&Health (3)

Expense Risk

- Assumptions
 - Expenses are predominantly from: staff costs, commission, IT, land and buildings occupied
 - The inflation is broadly under control (in the country)
- Suitability
 - Do higher expenses really mean that your expense risk is higher and vice versa?

Revision Risk

- Assumptions
 - All annuities are independent and their annual amount is assumed to be constant.
 - Average proportions of contracts in different stages
- Suitability

Life&Health (4)

Life Catastrophe Risk

- Assumptions
 - Restricted to mortality
 - Not to be applicable to the portfolio with longevity risk
- Suitability
 - Both assumptions above seems to be not realistic

Operational Risk

Operational Risk

- Assumptions
 - Standardised level of risk management
 - UL characteristics are similar to other products
 - Acquisition expenses are related to commission and do not increase the operational risk
- Suitability
 - Does larger business mean that the operational risk is higher?

Counterparty Default Risk

Counterparty Default Risk

- Assumptions
 - Type 1 – the LGD are independent outside of a group and not independent within a group
 - Exposures not captured in Type 1 and Spread Risk should be captured by Type 2
 - The recovery rates for risk mitigation techniques reflect best practices
- Suitability

Links

EIOPA document

New web:

[https://eiopa.europa.eu/Publications/Standards/
EIOPA-14-322_Underlying_Assumptions.pdf](https://eiopa.europa.eu/Publications/Standards/EIOPA-14-322_Underlying_Assumptions.pdf)

Old web:

[http://archive.eiopa.europa.eu/fileadmin/tx_dam/files/publications/
technical_specifications/EIOPA-14-322_Underlying_Assumptions.pdf](http://archive.eiopa.europa.eu/fileadmin/tx_dam/files/publications/technical_specifications/EIOPA-14-322_Underlying_Assumptions.pdf)



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