



# IABA Annual Meeting

August 6<sup>th</sup> 2011  
Presentation of Solvency II

 **ERNST & YOUNG**  
*Quality In Everything We Do*

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QIS 5 Results

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Section 1

# Introduction to Solvency II

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# Introduction and background

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- ▶ Solvency II is the proposed new Europe-wide framework for prudential supervision of insurance
  - ▶ Principles based approach to supervision
  - ▶ Market consistent approach for valuing liabilities
  - ▶ Capital requirements linked to risk profile
  - ▶ Convergence of economic capital and regulatory capital
  - ▶ Lead supervisor for groups
  - ▶ Major focus on risk management
  - ▶ Significant disclosure requirements
  - ▶ Capital add-ons for deficiencies
  - ▶ Links to other reporting measures

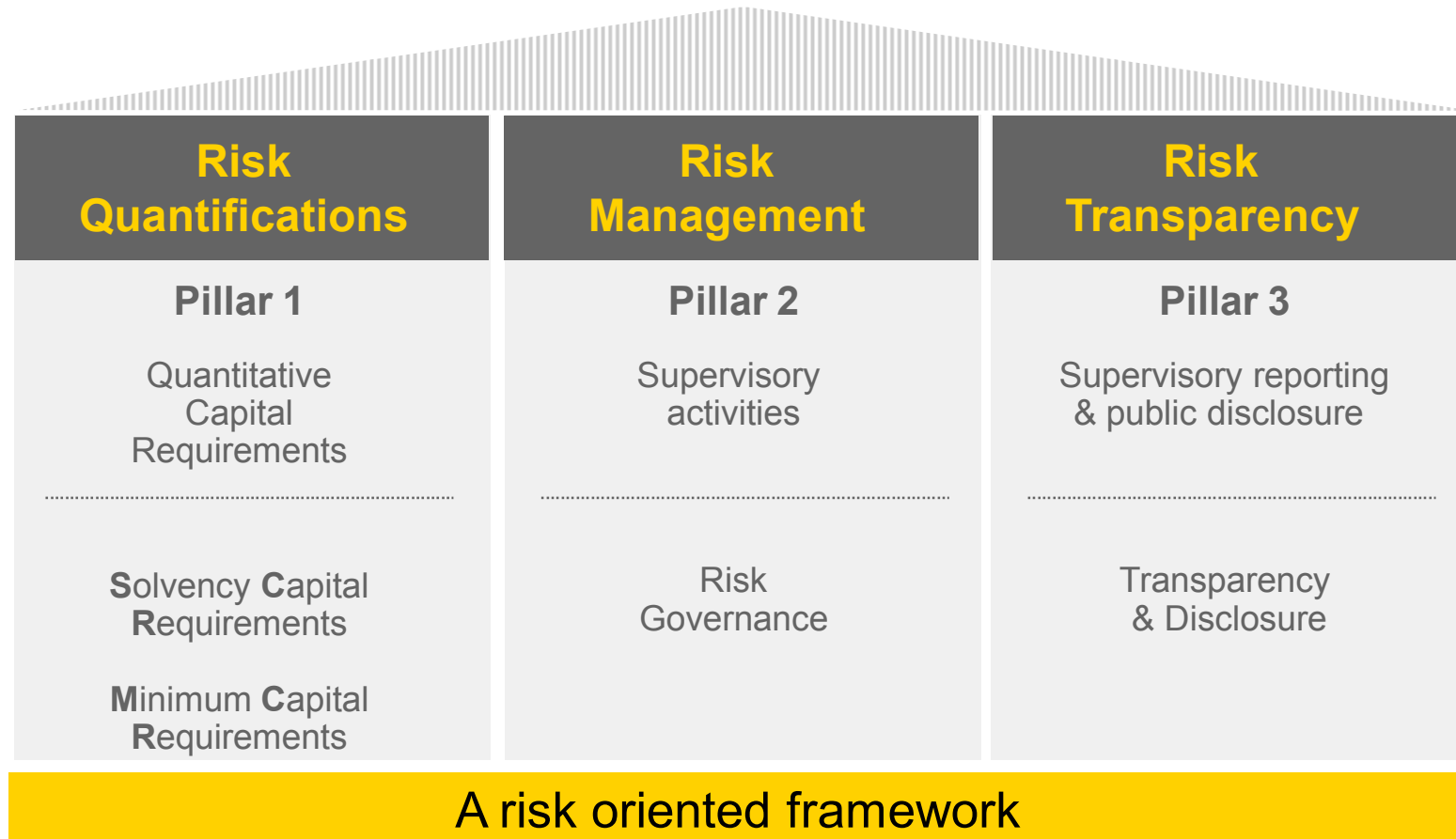
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# Overview of the Regulatory Process

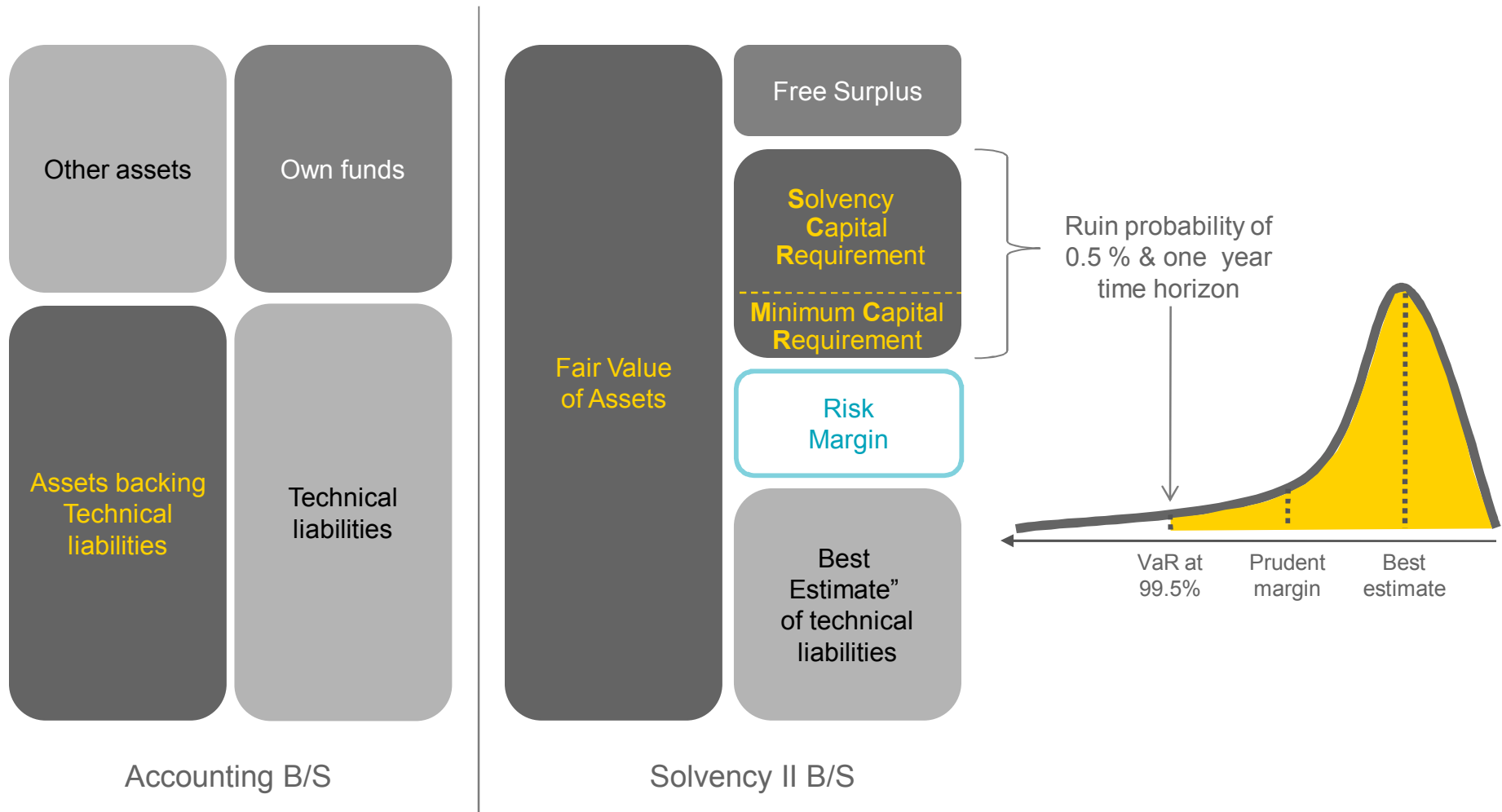
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- ▶ Level 1 Directive: the Directive formally passed into EU law on 22 April 2009. It sets the principles for Solvency II:
  - ▶ Qualitative requirements and supervision
  - ▶ Supervisory reporting and public disclosure
  - ▶ Promotion of supervisory convergence
  - ▶ Quantitative requirements
  - ▶ The principles will be further developed through implementing measures ('Level 2')
- ▶ Level 2: implementing measures
- ▶ Level 3: supervisory guidance with recommendations, guidelines and standards

# A 3-pillar structure

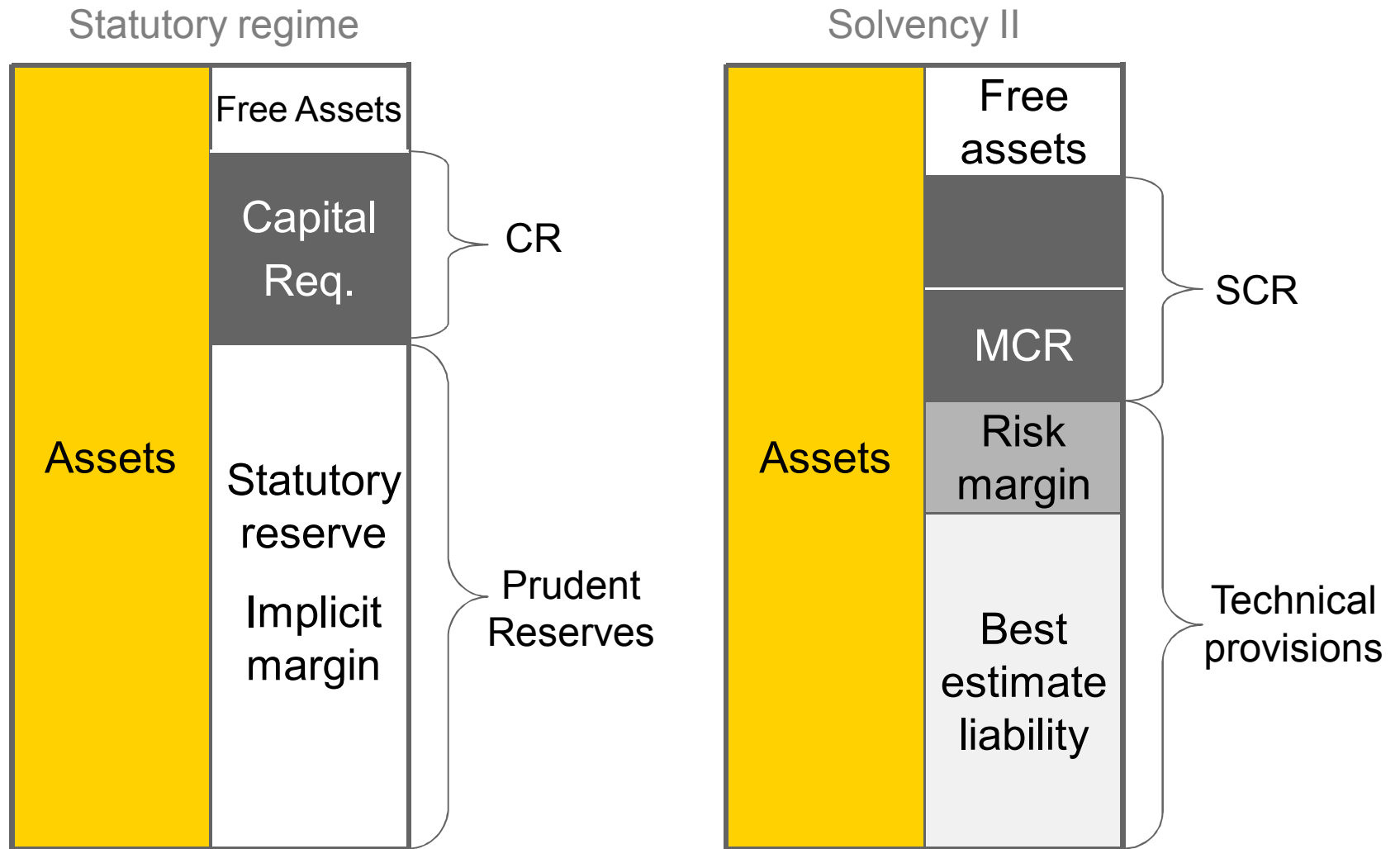


# A dynamic-based model



# Statutory regime versus Solvency II

A movement from implicit to explicit margins





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Section 2

# Solvency II

## 3 Pillars Approach

# Pillar 1

## Standard formula versus internal model

The basic Solvency Capital Requirement (SCR) may be calculated using either:

- ▶ Standard formula (which will be specific)
- ▶ Internal model (either 'partial' or 'full' and requires regulatory approval)

### Standard formula

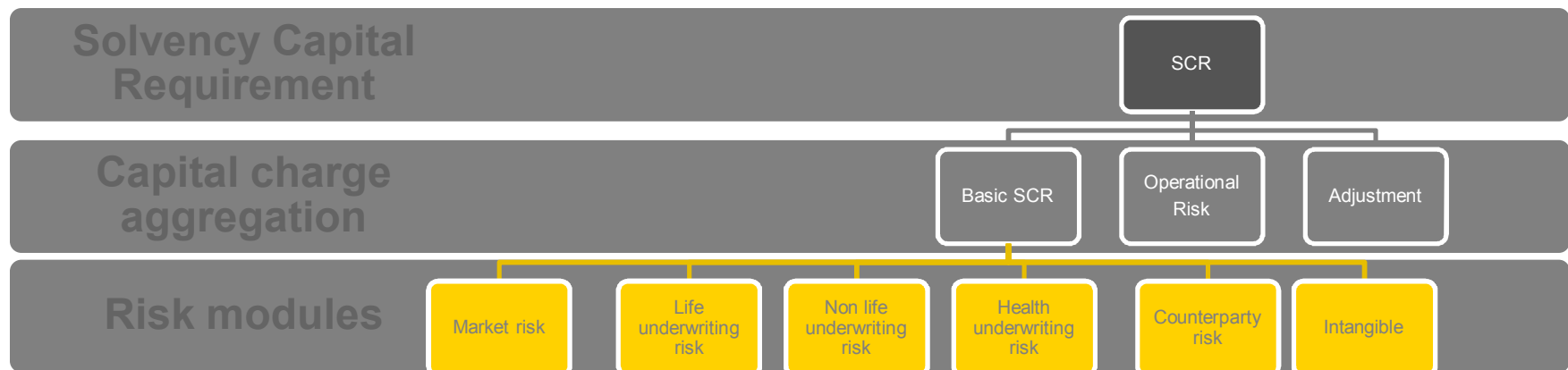
- ▶ Comprises individual risk modules, aggregated using correlation matrices
- ▶ Each of the risk modules will be calibrated using a Value-at-Risk (VaR) measure, with a 99.5% confidence level, over a one-year period
- ▶ Same design and specifications for risk modules used for all companies

### Internal model

- ▶ Should enable improved insight into the risk profile and capital requirements
- ▶ Could result in significant benefits to the management, governance and strategy of the company
- ▶ Could result in more efficient use of capital
- ▶ Challenges: regulatory approval, external and internal validation, resourcing constraints for model development

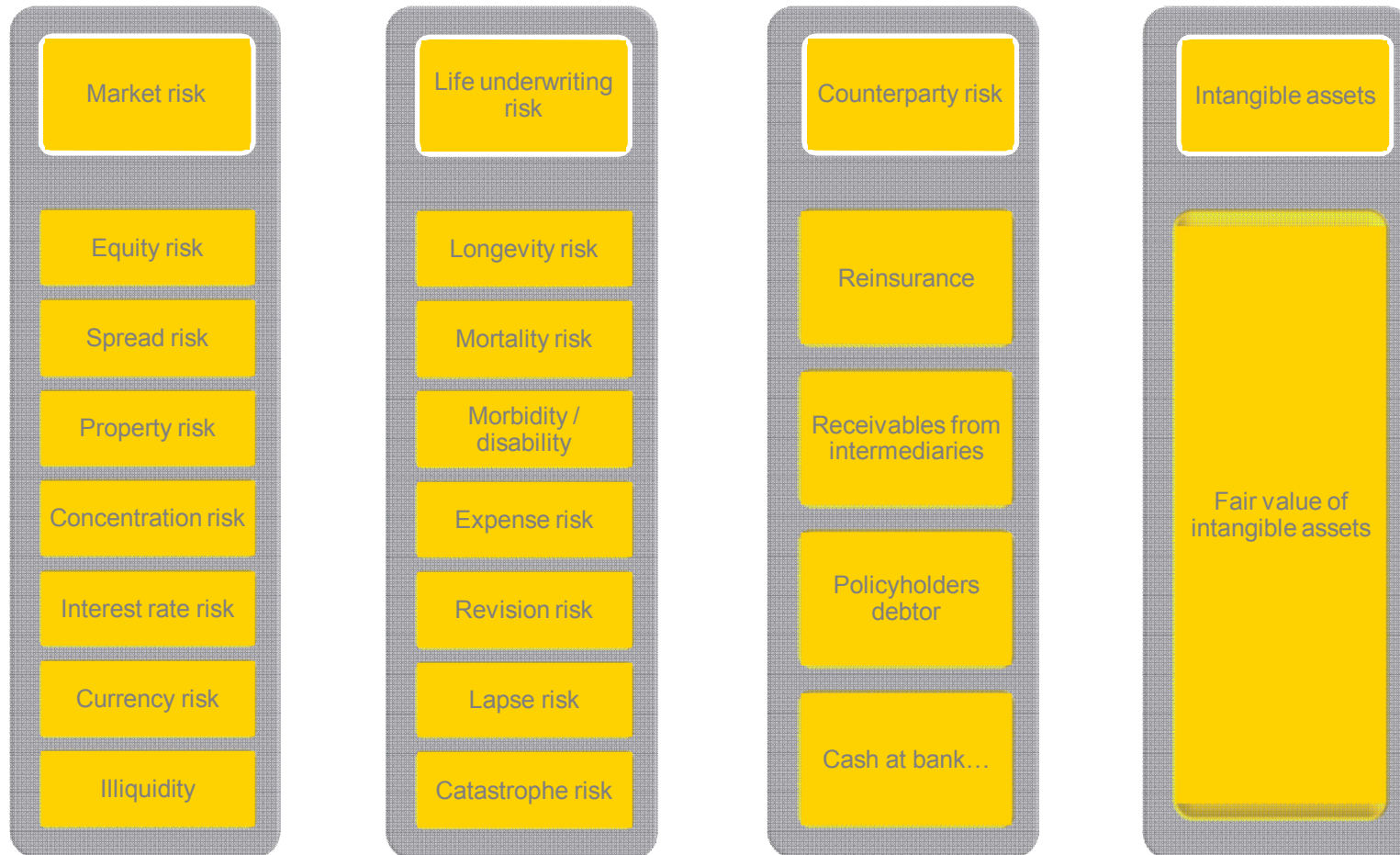
# Pillar 1

## Modular structure of the standard formula



# Pillar 1

## Life risk sub-modules

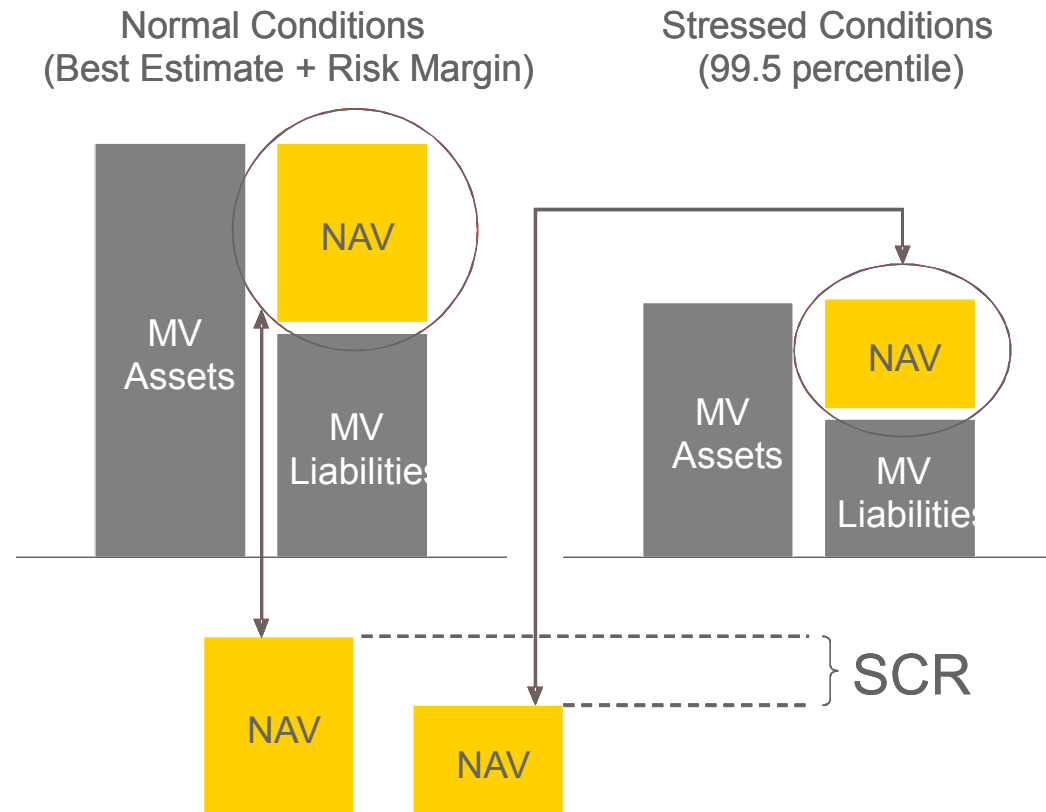


# Pillar 1

## How to calculate the SCR components

For the components that require a 'stress' calculation, the SCR is equal to the change in Net Asset Value pre and post stress (eg Equity drop, increase in mortality etc)

Factor based components are formulaic for certain risks



# Pillar 1

## Stresses for certain risks

Interest rate	<ul style="list-style-type: none"> <li>▶ The term structure is altered upward and downward</li> <li>▶ Altered term structure derived from current interest rate curve multiplied by <math>(1+sup)</math> and <math>(1+Sdown)</math>, varies by maturity</li> <li>▶ The capital requirement is the higher of interest rate up and down</li> <li>▶ The stress is assumed to be instantaneous</li> </ul>	Market risk – interest rate	$S^{up}(t)$	$S^{down}(t)$
		Maturity t (years)		
		0.25	70%	-75%
		1	70%	-75%
		2	70%	-65%
		...	64%...26%	-56%...-30%
		24	26%	-30%
		25	26%	-30%
		30+	25%	-30%
Equity	<ul style="list-style-type: none"> <li>▶ Base shock 39% for 'global' equities and 49% for 'other' equities</li> <li>▶ Symmetric adjustment dampener</li> <li>▶ 'Global' and 'other' equities are assumed to correlate at 75%</li> </ul>	Market risk - equity	Global	Other
		Equity shock	30%	40%
		Equity CorrIndex	Global	Other
		Global	1	
		Other	0.75	1
Property	<ul style="list-style-type: none"> <li>▶ Uniform 25% shock for all types of property</li> </ul>	Market risk – property`	Types of property	
		Property shock	25%	

# Pillar 1

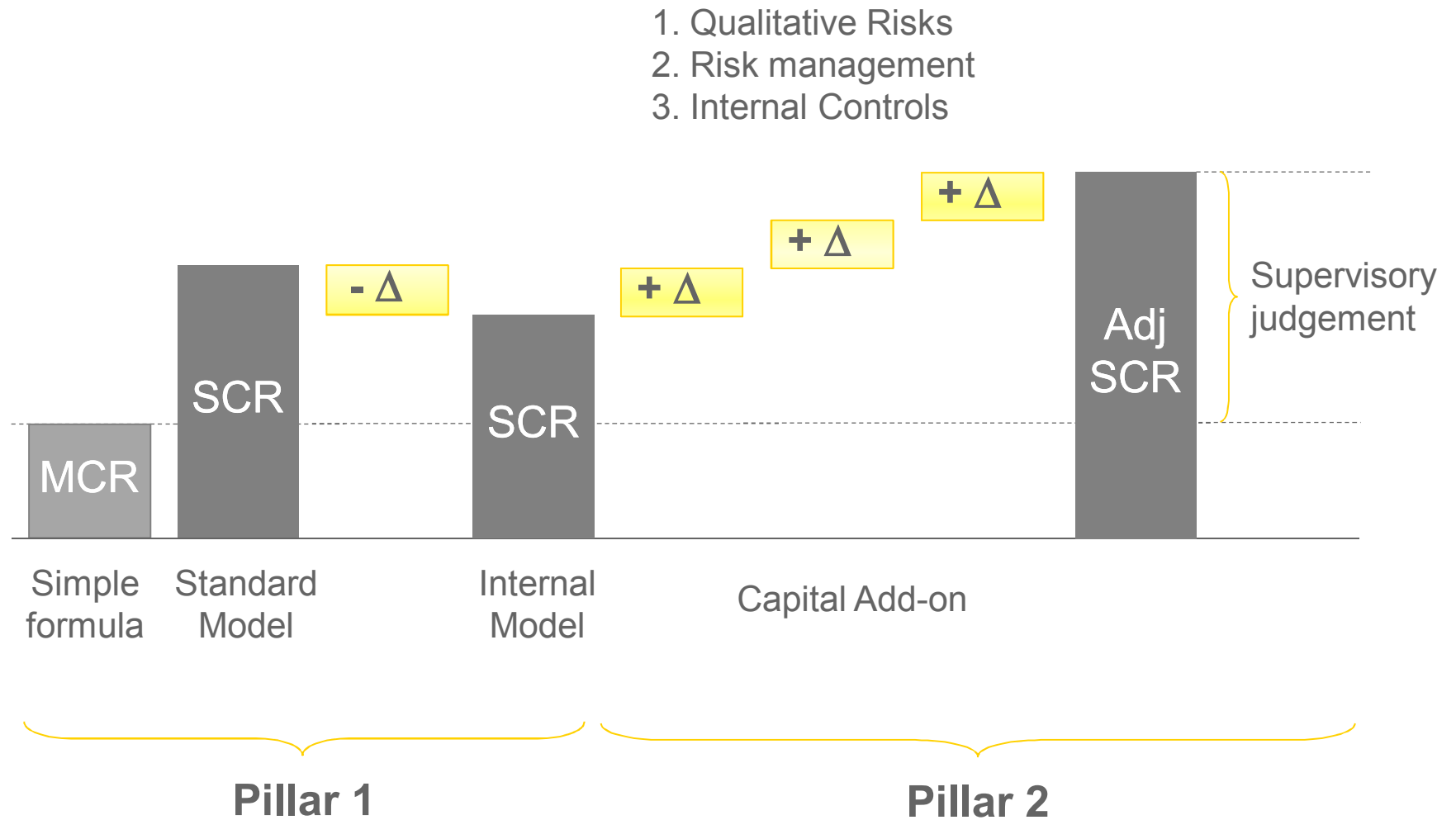
## Aggregation and impact of diversification on SCR

- ▶ To acknowledge the fact that the individual risks are not all expected to materialize at the same time the standard formula recognizes the benefits of risk diversification through the use of linear correlation techniques

### QIS 5 Correlation Matrix

	SCR mkt	SCR def	SCR life	SCR health	SCR nl
SCRmkt	100%	25%	25%	25%	25%
SCRdef	25%	100%	25%	25%	50%
SCRlife	25%	25%	100%	25%	0%
SCRhealth	25%	25%	25%	100%	0%
SCRnl	25%	50%	0%	0%	100%

# Pillar 2





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# Pillar 3 private disclosures

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## Private disclosures

- ▶ More frequent and extensive disclosures will need to be submitted to the regulator
- ▶ The level of content and detail disclosed to the regulator under Pillar 3 is expected to exceed current requirements and will significantly surpass public disclosure requirements
- ▶ Additional requirements for supervisory reporting (above those required for public disclosure)

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Section 3

# US Statutory, Solvency I and Solvency II

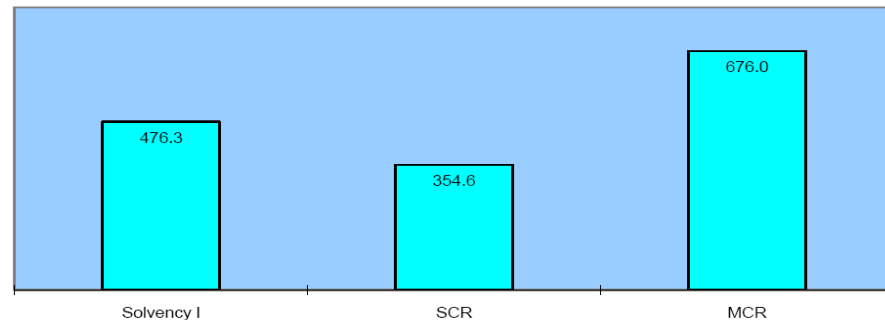
QIS5 results

# General principles

## US Statutory, Solvency I and Solvency II

	US Statutory	Solvency I	Solvency II
General Principles	<ul style="list-style-type: none"> <li>▶ Rules and formulaic based</li> <li>▶ Internal model to address some market risks (C3 Phase 1 and C3 Phase 2)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Rules and formulaic based</li> </ul>	<ul style="list-style-type: none"> <li>▶ Risk-based, economic-based and principle-based framework</li> <li>▶ Total balance sheet approach under normal and stressed condition</li> <li>▶ Rules based for the calculation of the Minimum Capital Requirement establishing a floor for regulatory capital</li> </ul>

Graph 3: Current regime and QIS5 surpluses (€bn) (solo)



Source: EIOPA (European Insurance and Occupational Pensions Authority) QIS5 report

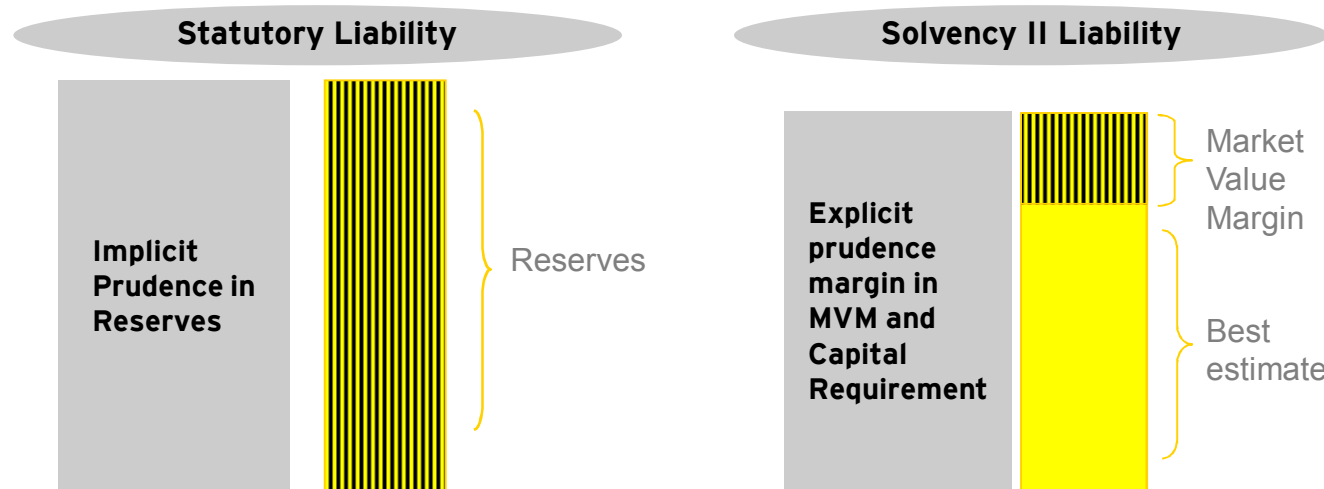
### Surplus change between Solvency I and Solvency II

- ▶ The surplus decrease between Solvency I and Solvency II is around 25%

# Liability

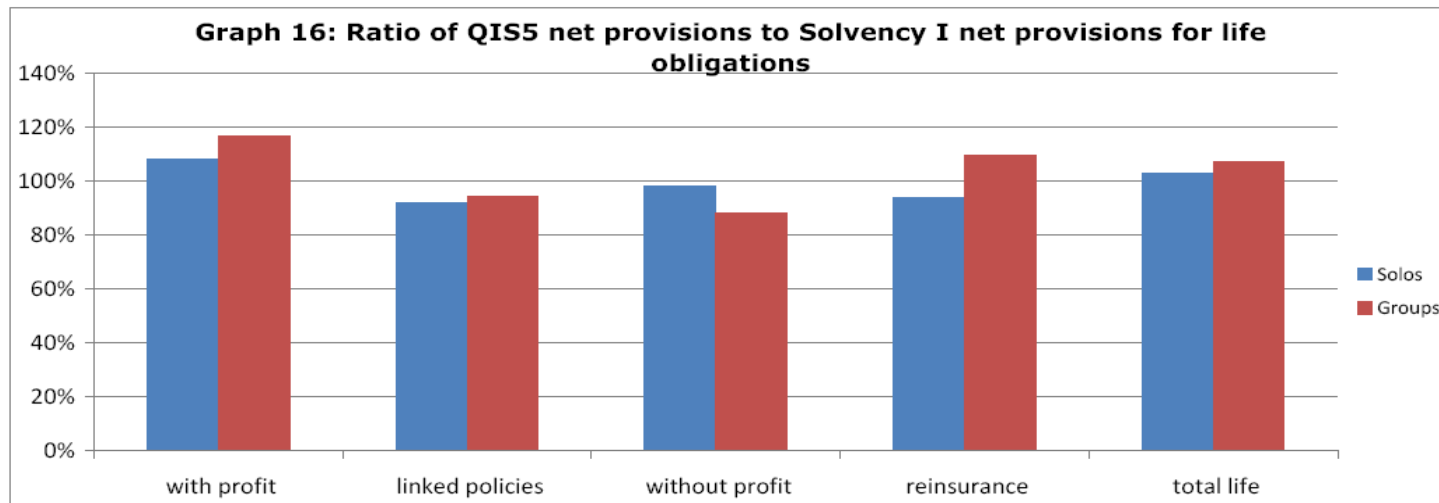
## US Statutory vs. Solvency II

	US Statutory	Solvency II
Liability	<ul style="list-style-type: none"> <li>▶ Life insurance reserves determined, using prescribed mortality and interest rate assumptions (usually conservative), which are locked in at issue</li> <li>▶ Non-variable annuity reserves also use a rules-based conservative approach</li> <li>▶ Variable annuity reserves are more principles based. Principles-based reserves are currently under development by NAIC for other lines of business (prospective business only).</li> <li>▶ All reserves are subject to an asset adequacy testing requirement</li> </ul>	<ul style="list-style-type: none"> <li>▶ Best estimate calculated as the average of the outcomes of all possible scenarios</li> <li>▶ Market consistent valuation using risk free rate plus liquidity premium</li> <li>▶ Risk margin captures the cost of non-hedgeable risks</li> </ul>



# Liability

## Solvency I vs. Solvency II



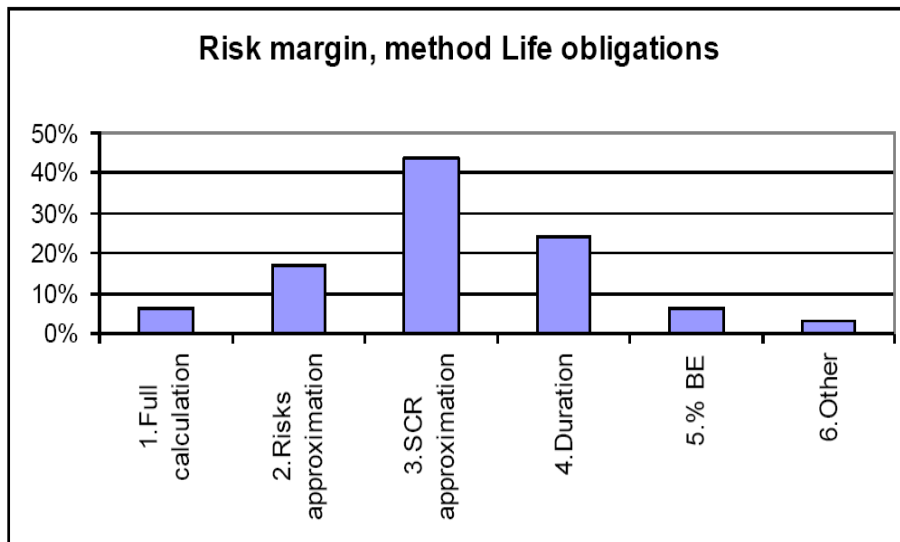
Source: EIOPA QIS5 report, Graph 16, page 45

## Technical provisions

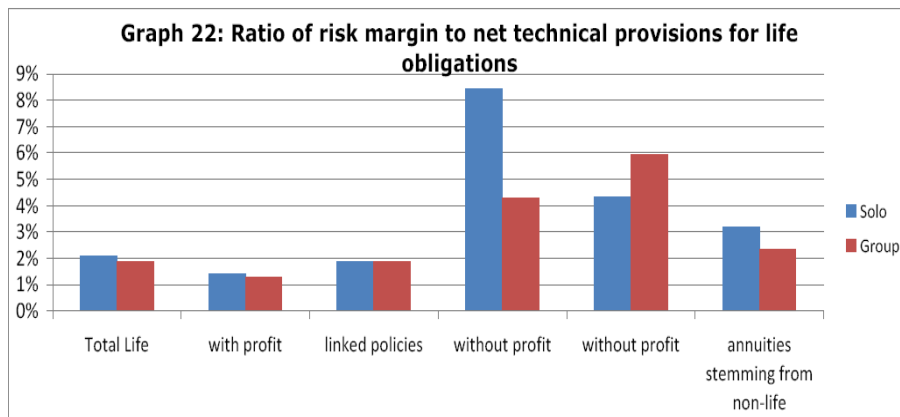
- ▶ Overall gross technical provisions for all lines of business (life and non-life) decreased by 1.4% from Solvency I to QIS5
- ▶ For life business net technical provisions in QIS5 increased in comparison with Solvency I
- ▶ The increase in the life technical provision (3% for solo entities) is caused by the decrease in the reinsurance recoverable as the gross technical provision has showed a slight decrease of 1%.
- ▶ The introduction of the illiquidity premium has decreased the technical provision by 1%. The application of the illiquidity premium to spot rates led to technical difficulties. Less than 10% of companies used 100% of the liquidity premium.
- ▶ The impact of management actions for life insurers ranged from 2%- 5% of the total technical provisions

# Liability

## Solvency I vs. Solvency II



Source: EIOPA QIS5 report, Graph 21, page 49



Source: EIOPA QIS5 report, Graph 22, page 50

## Risk margin

- ▶ Less than 10% of life companies across Europe used the full calculation approach for the valuation of the risk margin
- ▶ The majority of life companies used the proposed simplifications, with over 40% using the SCR approximation
- ▶ EIOPA (European Insurance and Occupational Pensions Authority) noted some supervisory authorities expressing a concern that the different methods could give divergent results, possibly leading to opportunities for regulatory arbitrage.
- ▶ There is currently also an issue with the use of simplifications where the best estimate is negative

# Solvency Capital Requirement

## US Statutory vs. Solvency II

	US Statutory	Solvency II
Risk identification	<ul style="list-style-type: none"> <li>▶ Interest rate, credit risk, affiliate, health, reinsurance, underwriting, business risk and asset/liability mismatch</li> <li>▶ Certain missing risks are currently under consideration by the NAIC</li> </ul>	<ul style="list-style-type: none"> <li>▶ Interest rate, equity, property, currency spread, concentration, counterparty, illiquidity, mortality, longevity, disability/morbidity, lapse, expense, revision, catastrophic, health, intangible and operational risk</li> </ul>
Statistical confidence level	<ul style="list-style-type: none"> <li>▶ No predefined calibration level</li> </ul>	<ul style="list-style-type: none"> <li>▶ Explicit calibration (99.5% over one year time)</li> </ul>
Capital Requirement	<ul style="list-style-type: none"> <li>▶ For most products, a generic formula is used. This formula applies predefined factors to amounts pulled from the statutory financial statement. For fixed annuities, there is also a cash flow testing requirement.</li> <li>▶ Variable annuity capital requirement is more principles based.</li> </ul>	<ul style="list-style-type: none"> <li>▶ The Solvency Capital Requirement (SCR) corresponds to the Value-at-Risk of the own funds subject to a confidence level of 99.5% over a one-year period</li> </ul>
Risk calibration	<ul style="list-style-type: none"> <li>▶ No predefined calibration level</li> </ul>	<ul style="list-style-type: none"> <li>▶ The parameters and assumptions used for the calculation of the SCR reflect the calibration objective of 99.5% over a one-year period</li> </ul>

# Solvency Capital Requirement

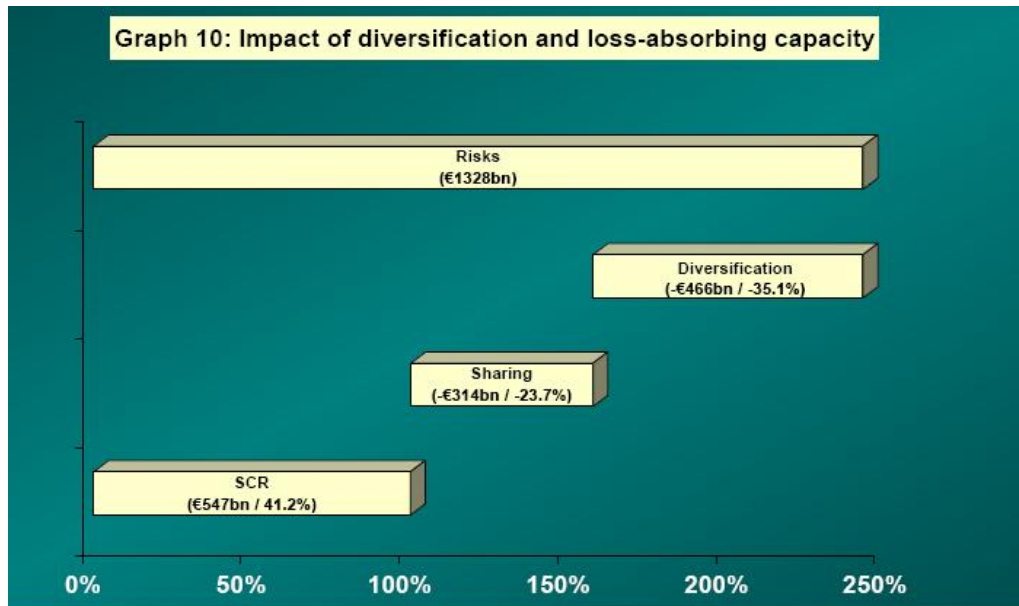
## US Statutory vs. Solvency II

	US Statutory	Solvency II
Aggregation	<ul style="list-style-type: none"> <li>▶ Simplistic covariance (assuming a covariance of either 0 or 1) calculation to the capital requirement related to each risk</li> </ul>	<ul style="list-style-type: none"> <li>▶ Multiple aggregation levels using correlation matrices</li> <li>▶ Single equivalent scenario should be used under which all of the risks covered by the standard formula occur simultaneously</li> <li>▶ Improved aggregation and risk interactions through internal models</li> </ul>
Diversification	<ul style="list-style-type: none"> <li>▶ Small recognition of the benefit of diversification across risk types</li> <li>▶ Improved methods for determining credits for diversifications of risks are currently under consideration by the NAIC (including the review of the correlation assumptions)</li> </ul>	<ul style="list-style-type: none"> <li>▶ The standard formula recognizes the benefits of risk diversification through the use of linear correlation techniques</li> <li>▶ Diversification benefit from different insurance activities</li> <li>▶ Diversification benefit is allowed in the calculation of the group solvency requirement</li> </ul>



# Solvency Capital Requirement

## Solvency II - Composition of the SCR (solo life and non-life)



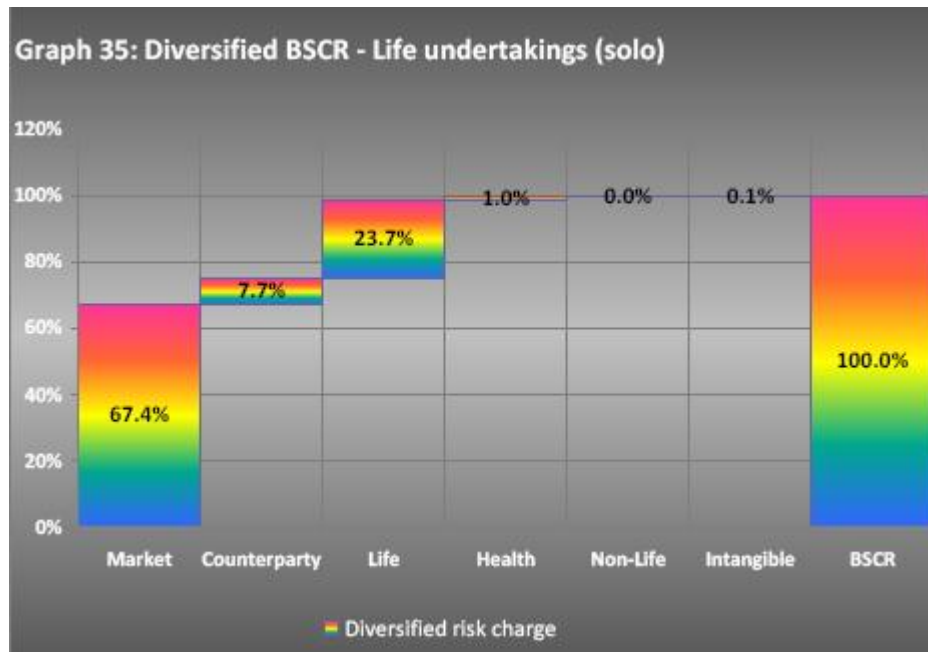
Source: EIOPA QIS5 report

### Composition of the SCR

- ▶ The figures presented in the graph are inclusive of all companies (Life, Non-Life, Health, etc.).
- ▶ Overall, the final SCR of €547bn is 41% of the sum of individual risks modeled. Using this overall risk reduction as a basis for calculating the reduction in individual risks gives a rough idea of the average real risk charges
- ▶ Groups internal model results showed a capital requirement of about 0.8 times the size of the capital requirement based on the standard formula calculation.

# Solvency Capital Requirement

## Solvency II - Composition of the SCR (solo life)



Source: EIOPA QIS5 report, Graph 21, page 49

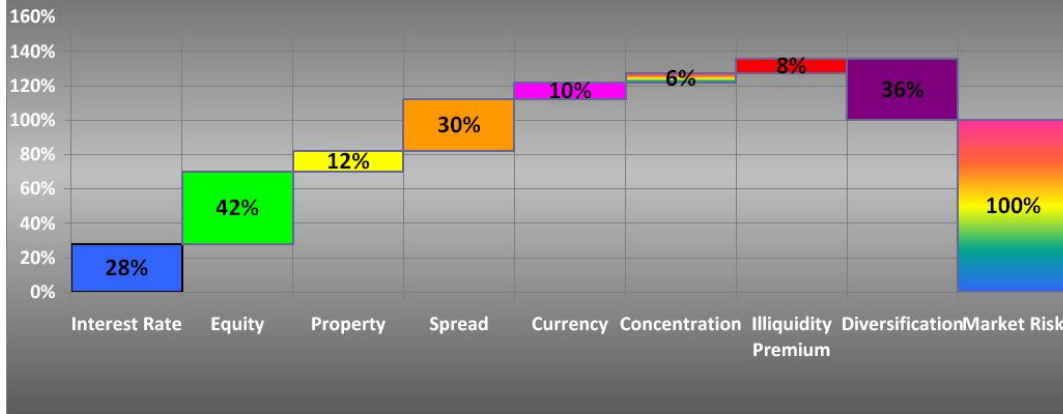
### Composition of the SCR

- ▶ Market risk is the largest component of the standard formula SCR

# Solvency Capital Requirement

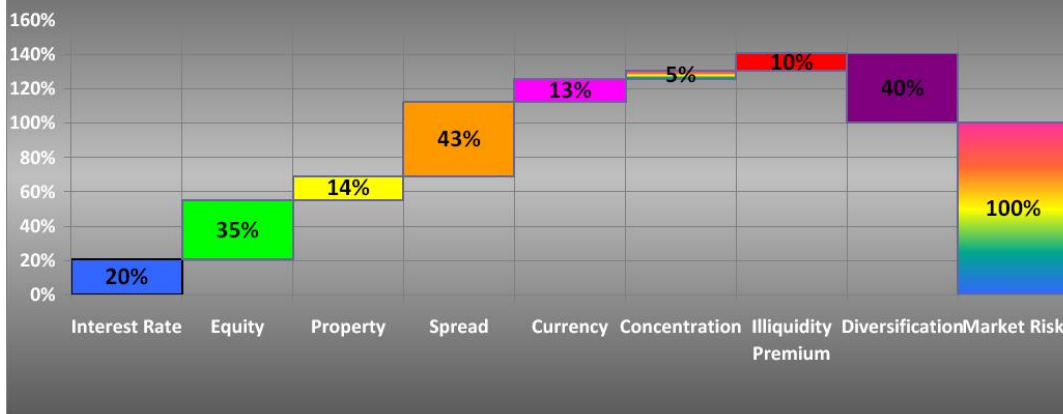
## Solvency II - Market risk (solo and group life and non-life)

Graph 37: Market Risk Composition (solo)



Source: EIOPA QIS5 report, Graph 21, page 49

Graph 37: Market Risk Composition (groups)



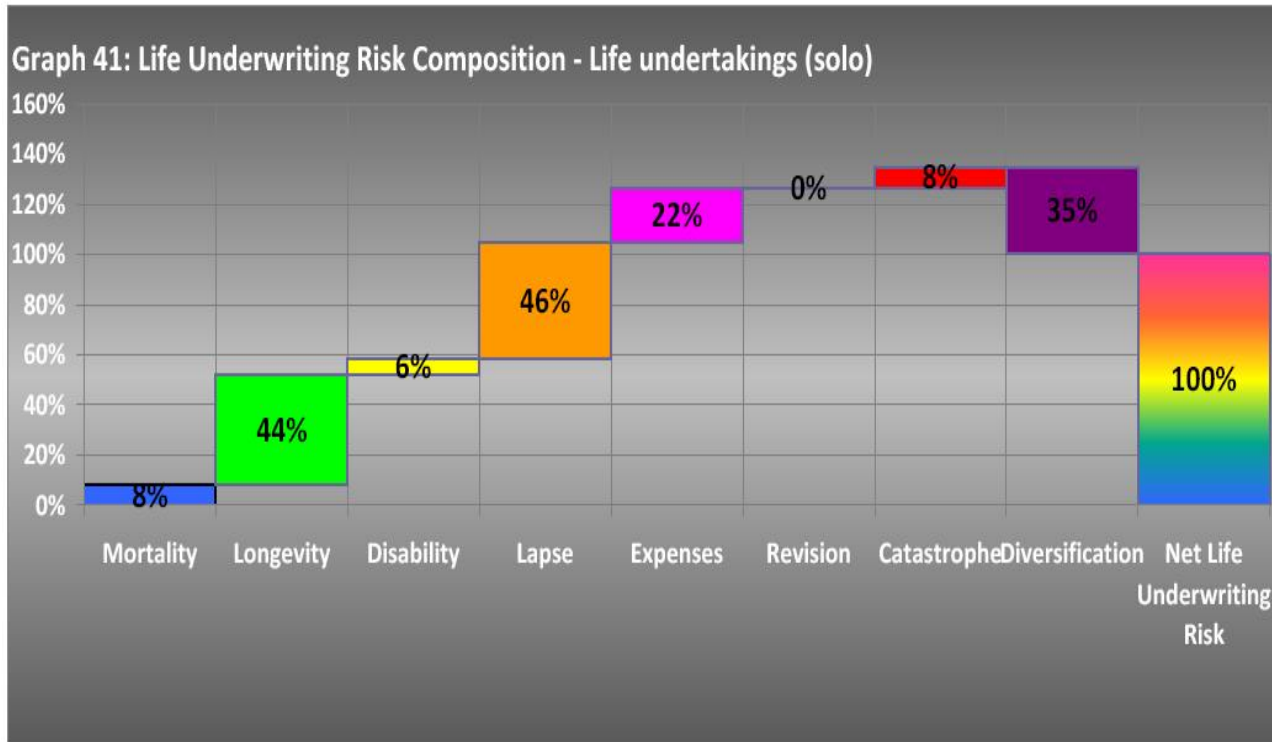
Source: EIOPA QIS5 report, Graph 21, page 49

### Market risk

- ▶ The graphs to the left consider all companies (e.g. Life, Non-life, Health, etc.)
- ▶ On spread risk, comments were made around the calibration of the module and issues around complexity for structured products and consistency of charge across different types of credit-risky assets
- ▶ There were also concerns raised by companies about the application of the look-through test for unit-linked business (particularly where it would be appropriate to apply proportionality).
- ▶ Certain companies and supervisors felt that the absence of equity and interest rate volatility stresses resulted in “perverse risk management incentives”. In most countries, volatility was one of the major additional risks included in internal models.
- ▶ In addition to this there were comments on the lack of recognition for geographical diversification within an asset class and the fact that the ratings-based approach to certain risks penalised companies in lower-rated countries.

# Solvency Capital Requirement

## Solvency II - Life underwriting risk



### Life underwriting risk

- ▶ Longevity and lapse risk accounts for the majority of life companies risk.

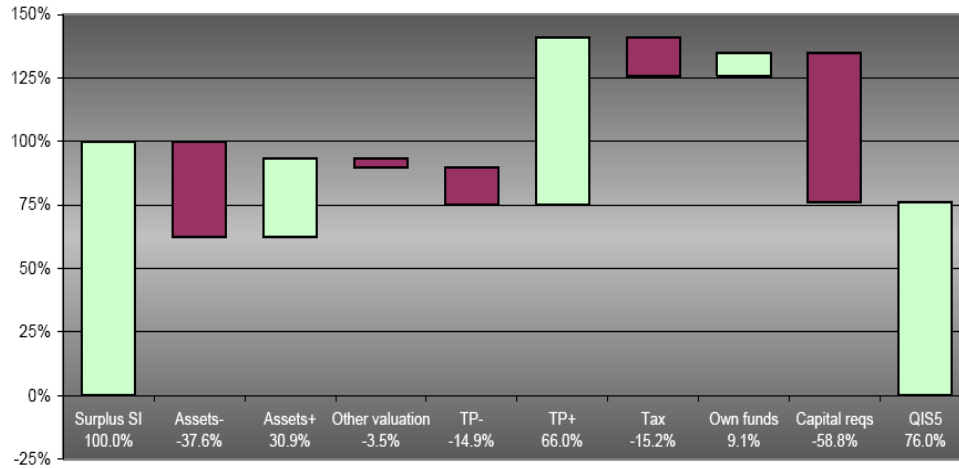
Source: EIOPA QIS5 report, Graph 41, page 78

All percentages above are expressed relative to Net life underwriting risk

# Available resources

## Solvency I vs. Solvency II surplus

Graph 8: Drivers of the surplus changes - EEA



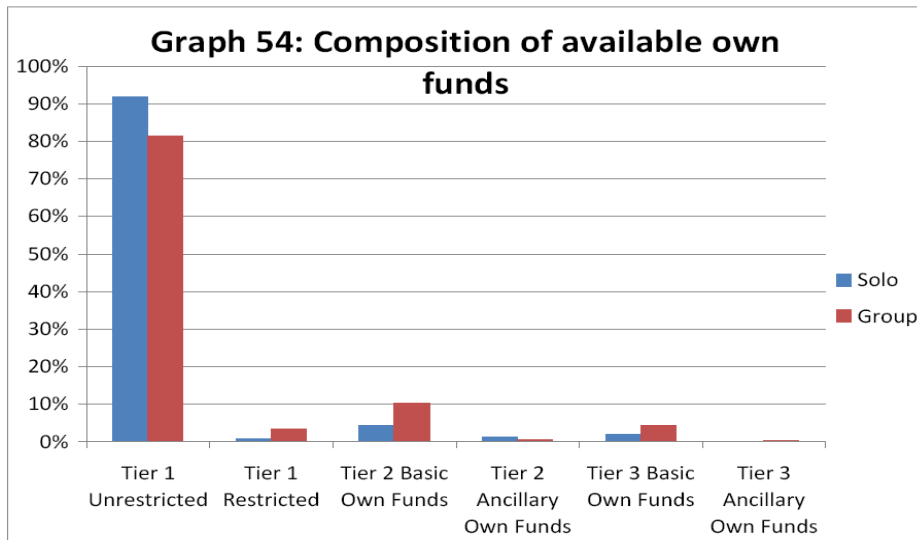
Source: EIOPA QIS5 report, Graph 60, page 132

### Main drivers of the surplus changes

- ▶ Combined impact of an increase in the level of own funds compared to Solvency I, a decrease in technical provisions; and, depending on the current accounting GAAP, increase in value of assets, as well as an overall increase in capital requirements.

# Available resources

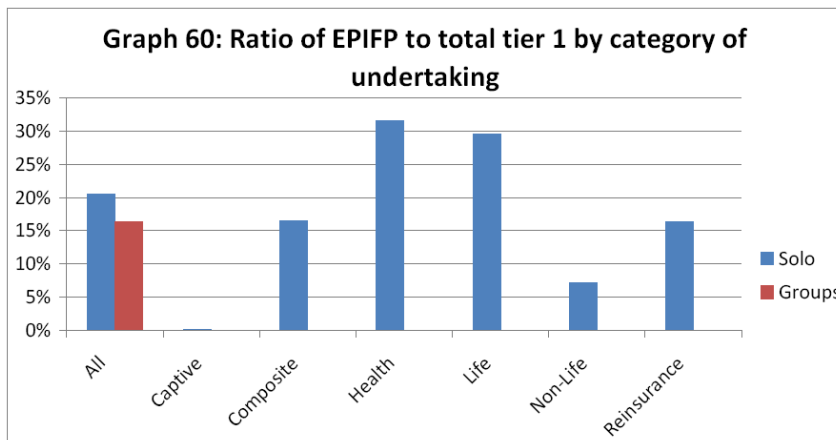
## Own Funds - Tiering and EPIFP



Source: EIOPA QIS5 report, Graph 54, page 120

### Own Funds

- ▶ Basic own funds (i.e., excess of assets over liabilities and subordinated liabilities) and ancillary own funds (i.e., items other than basic own funds which can be called up to absorb losses such as letter of credit) should be classified into three tiers depending on their permanent availability and their subordination
- ▶ The graph to the left considers all companies (i.e. Life, Non-Life, Health, etc.)
- ▶ Available own funds amounted to €921bn in total for all companies. Of this, €846bn represented the highest quality Tier 1.
- ▶ Ancillary own funds only represents 1.3% of the total.



Source: EIOPA QIS5 report, Graph 60, page 132

### EPIFP

- ▶ The weighted average percentage of EPIFP (Expected Profits in Future Premiums) to Tier 1 among solo companies was 20%



**Thank you**

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