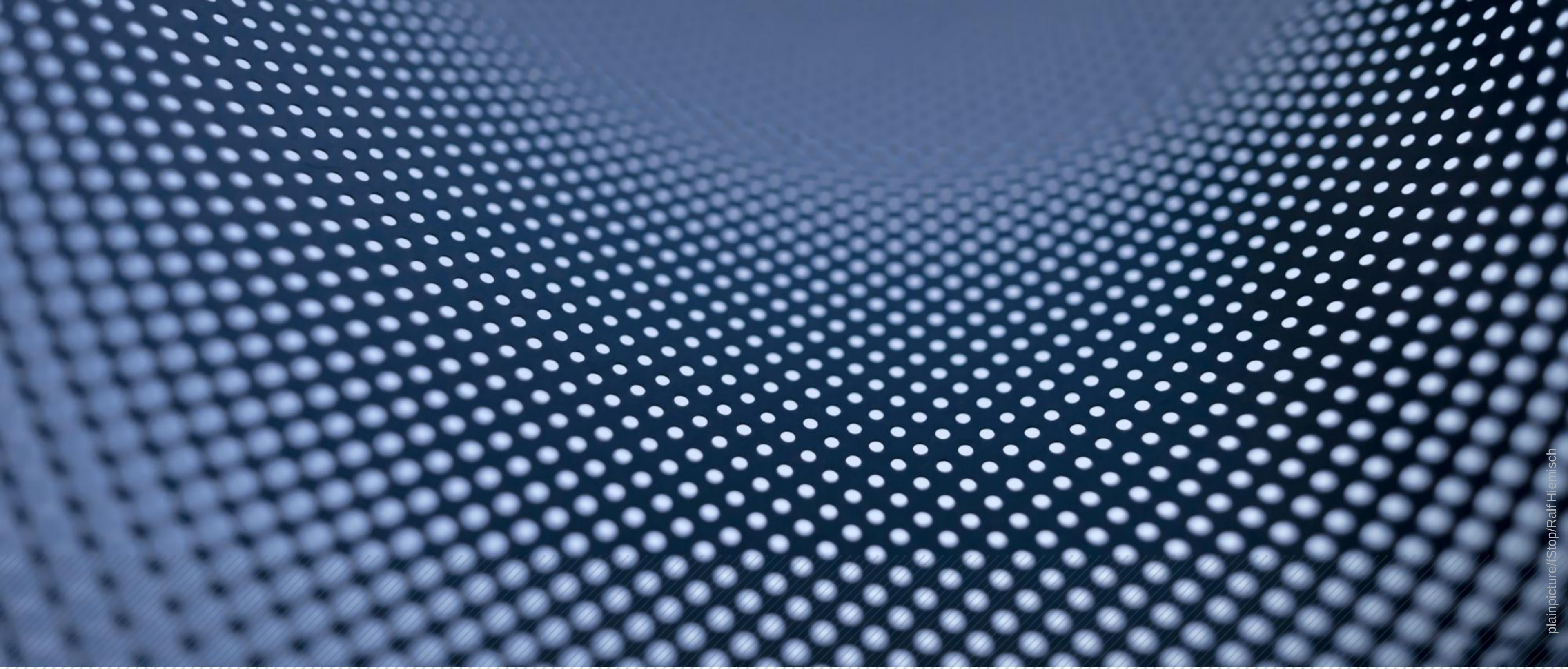

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Briefing on Solvency II

London, 30 November 2015

Munich RE

Agenda

Munich RE

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Solvency II capitalisation ratio and target capitalisation 33

Impact on the insurance industry 39

Munich Re well prepared for the introduction of Solvency II and business opportunities it presents

Munich RE

Solvency II framework	Munich RE	
Risk-based supervision	Certified full internal model deeply embedded in risk and business management – Full Group internal model approved without terms & conditions	✓
Insurers' business models are adequately reflected	Focus on profitable underwriting and liability-driven investments – well diversified risk profile clearly recognised	✓
Changing capital requirements through final calibration	Capitalisation remains very strong – SII ratio (end of 2014) has even increased	✓
High degree of transparency	Extensive reporting to the regulator, the capital markets and the public	✓
Uniform regulatory framework enhances comparability across the industry	Active participation in efforts to harmonise Solvency II terminology	✓
Business opportunities for reinsurers, driver of product innovation	Market-leader position in structuring complex tailor-made solutions	✓

Munich Re welcomes Solvency II standards for risk-based capitalisation

The road to Solvency II on the final straight

Munich RE

- Solvency II regime becomes fully applicable on 1 January 2016
- Preparatory phase 2014–2015 successfully concluded
- Level 1, 2 and 3 documents finalised and mainly approved
- Currently being transposed into national law
- Further regulatory requirements (ComFrame, HLA, ICS) being prepared

Issues outstanding/under discussion

- National interpretations (e.g. audit review of solvency position)
- Equivalence not yet decided for several countries
- Application and approval of dynamic volatility adjustment in internal models

Review

- Review of ultimate forward rate in 2016
- Review of standard formula by 2018
- Annual review of long-term-guarantee measures

New regulatory framework implemented – ongoing developments not expected to significantly affect Munich Re's Solvency II capitalisation ratio

Holistic, principle-based approach of Solvency II has been followed by Munich Re

Munich RE

1 Quantitative requirements

- Group internal model successfully used since 2002
- Model reflects diversified business model of global reinsurance – standard formula primarily developed for primary insurance
- Full internal model includes operational risk
- Improved Solvency II capitalisation ratio underlines prudent model calibration

2 Qualitative requirements

- Risk management deeply rooted in Munich Re
- Key functions implemented
- Internal policies finalised
- ORSA[1] embedded in business planning process since 2012
- Strong operational and security & continuity management (e.g. Internal Control System)

3 Disclosure

Reporting to the public

- Risk report (included in Annual Report)
- Solvency II reporting as from 2017:
  - Solvency & Financial Condition Report
  - Quantitative Reporting Templates (QRTs)

Reporting to the regulator

- Regular Supervisory Report/Internal Risk Report
- Additional QRTs (quarterly/annual)
- ORSA Report

Three pillars of Solvency II deeply entrenched in Munich Re's management approach

[1] ORSA: Own risk and solvency assessment.

Approval process started well after model results were used in relevant management processes at Munich Re

Munich RE

2009	2010	2011	2012	2013	2014	2015	
		★ Approval of New Re's internal model by FINMA[1] in Switzerland		★ Internal model recognised by S&P via M-Factor	★ "Trial" application submitted to BaFin[2]	★ Official application submitted to BaFin in May 2015	★ **Full Group internal model approved without terms & conditions**

Pre-application process
Review of all individual risk categories / on-site visits by regulators / written feedback including follow-up

Preparation of application package
Full package consisting of approximately 15,000 pages

Informal model change phase
No further BaFin review for models already fulfilling all requirements

Extensive review of internal model by BaFin and other European regulators ensures high quality of model results

[1] Swiss regulator. [2] German regulator.

Munich Re Group's internal model captures all relevant risks globally

Munich RE

Application of Munich Re Group's internal model

Group internal model

Internal model applied to legal entities

- Internal model covers all risks of Munich Re Group ("full internal model")
- Use of internal models at entity level for selected companies in Europe (MR-AG, MR of Malta, DKV, ERGO Property-casualty, ERGO Direkt and New Re according to SST[1])
- Use of standard model for other European legal entities
- Majority of capital is in legal entities using internal models

Efficient allocation of capital within Munich Re Group remains key under Solvency II

[1] Swiss Solvency Test.

Main features of application of Solvency II methodology at Munich Re

Munich RE

Own funds (OF) / Solvency capital requirement (SCR)

- Munich Re Group's own funds and SCR based on consolidated accounts – no use of lower, statutory capital requirements via deduction and aggregation method (e.g. US subsidiaries)
- High quality of Munich Re Group's own funds
- SCR based on full internal model
- Conservative approach adopted (e.g. for loss-absorbing capacity of deferred taxes, treatment of government bonds)
- Profit and loss attribution (reflecting changes in own funds) used for validation of internal model and value-based management

Application of transitionals and LTG measures

- Currently no optional long-term-guarantee measures considered (e.g. transitionals, volatility adjustment (VA), matching adjustment (MA)) – final decision to be taken at year-end 2015

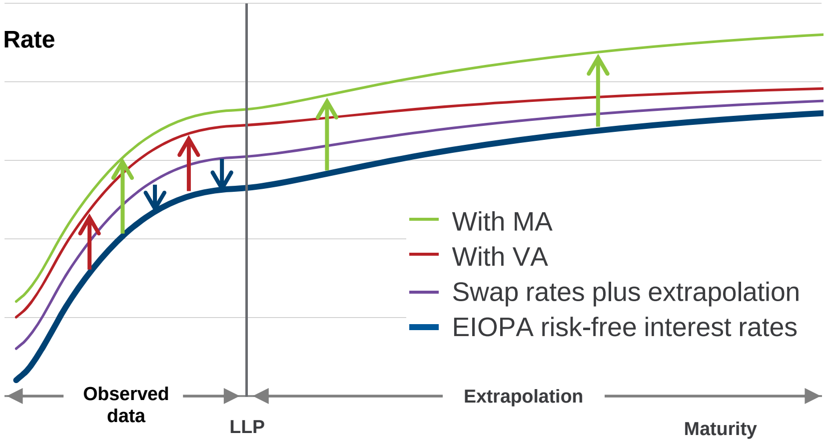
Grandfathering

- Grandfathering partly used for subordinated liabilities

Straight-forward implementation reflects high maturity of Munich Re's internal model

EIOPA risk-free interest rates applied without optional elements

Illustration of long-term-guarantee measures



Adjustments

bps[1]

	2012	2013	2014
Credit risk adjustment (CRA)	–20	–10	–10
Volatility adjustment (VA)	40	20	18

Application at Munich Re

EIOPA risk-free interest rates

- Swap rates adjusted for credit risk (CRA) up to last liquid point (LLP)
- Extrapolation: Risk-free interest rates extrapolated to ultimate forward rate (UFR) starting from LLP

Euro (current expectation)	LLP	Convergence	UFR
	20 years	40 years	4.2%

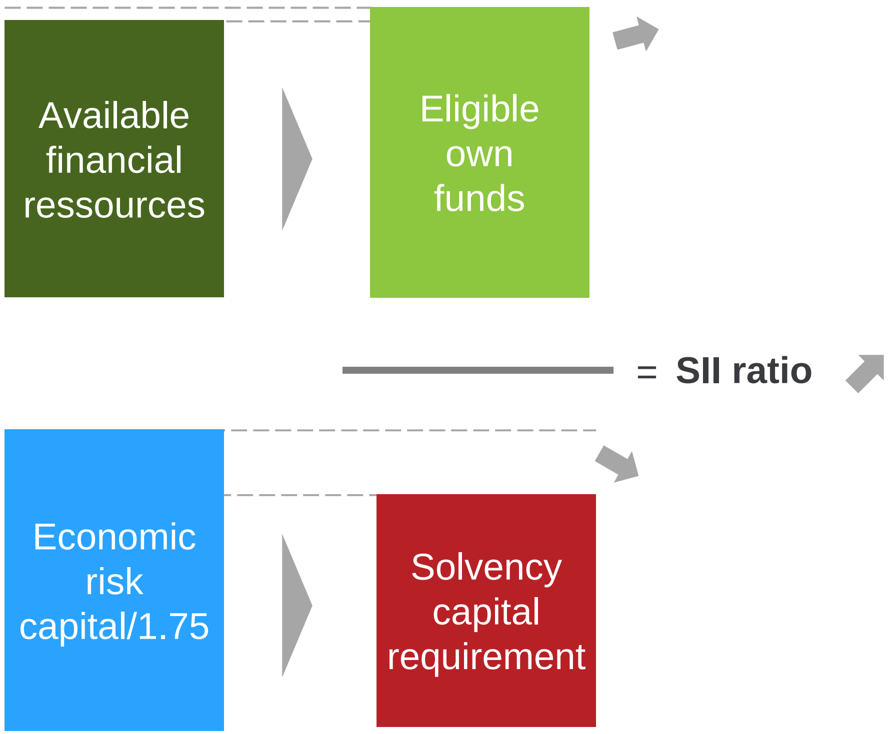
Impact of ultimate forward rate

- Actual discount rate based on risk-free spot rates
- UFR affects risk-free spot rates only from LLP on
- Potential changes in UFR expected to have very limited effect

Possible reduction of UFR with very limited impact on Munich Re's SII ratio due to diversity of business models within Munich Re Group

[1] End of year.

Positive effects on solvency ratio from transposition into Solvency II world



	Impact on eligible own funds	Impact on solvency capital requirement
Fungibility and transferability restrictions	↓	↓
ERGO Life/Health Surplus funds ('free RfB')	↑	↑
Application of EIOPA risk-free interest rates	↑	↓
Loss-absorbing capacity of deferred taxes		↓

Capitalisation of Munich Re remains very strong under Solvency II regime

Agenda

Overview and implementation

Impact on Munich Re

Solvency II balance sheet and own funds

Solvency capital requirement

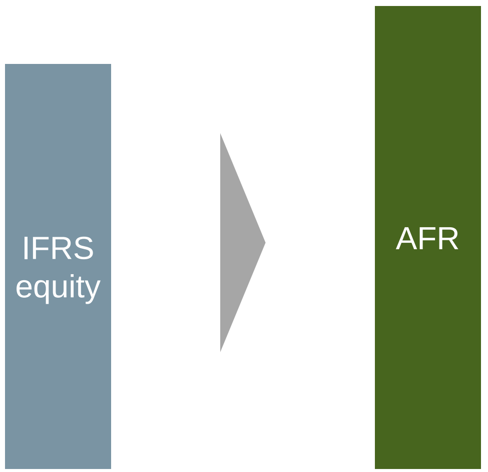
Solvency II capitalisation ratio and target capitalisation

Impact on the insurance industry

From top-down AFR approach to bottom-up own funds calculation

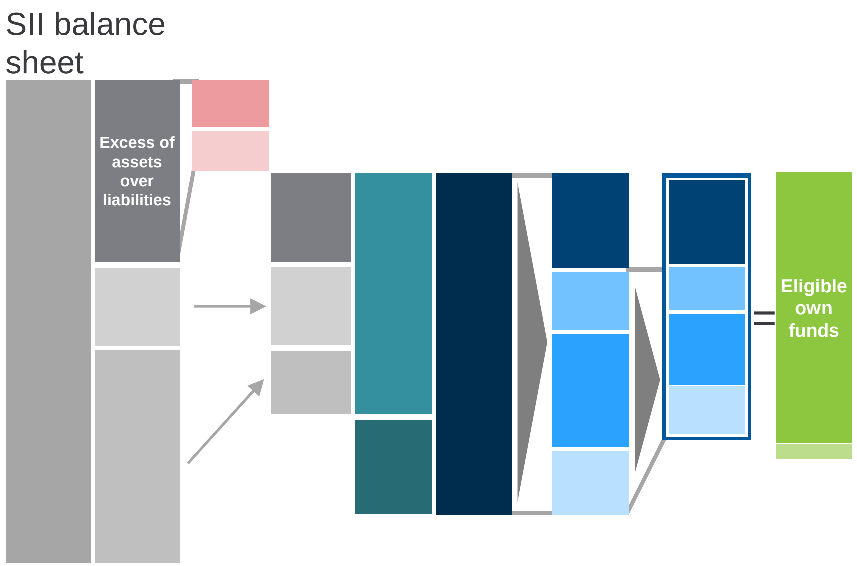
Old world – Top-down approach

- AFR derived from IFRS equity via economic adjustments



New world (SII) – Bottom-up approach

- Eligible own funds derived from SII excess of assets over liabilities in a very granular process



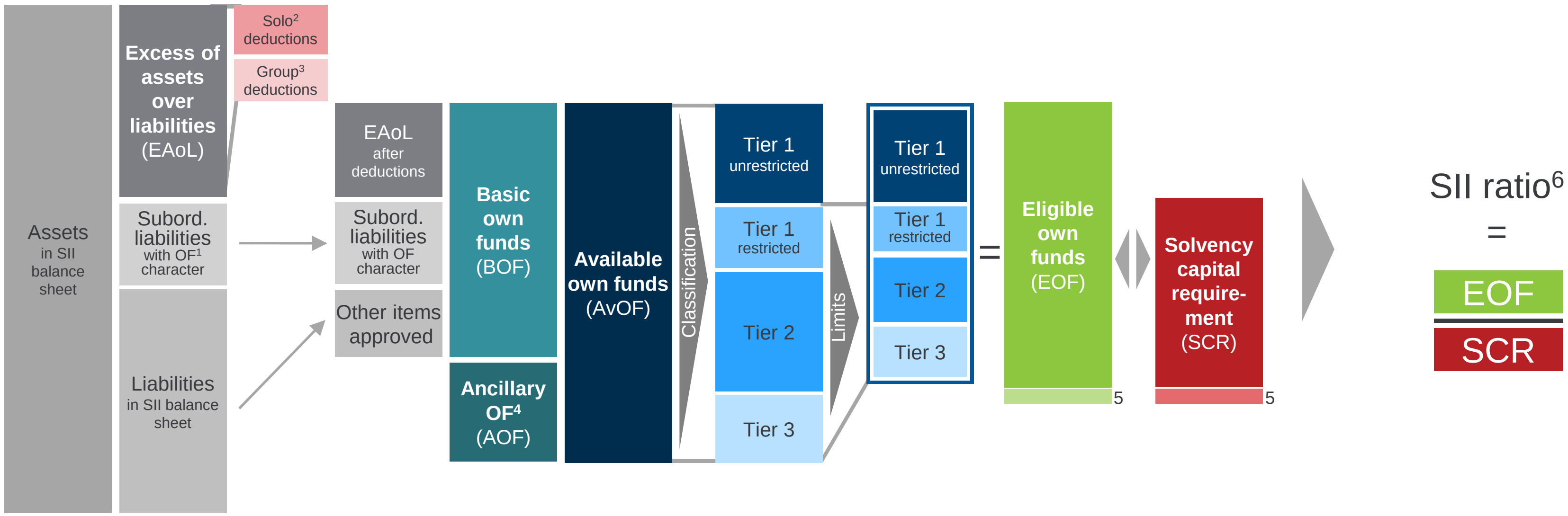
Calculation of own funds based on full Solvency II balance sheet

Consistent methodology for the calculation and disclosure of the SII ratio

Munich RE

Available capital | Required capital | Solvency II capitalisation ratio

SII balance sheet audited



- Clearly defined system for calculation of eligible own funds
- New concept of tiering requires quality assessment of own funds

Components and quality of own funds highly complex but transparent

[1] Own funds. [2] E.g. foreseeable dividends and distributions, own shares, ring-fenced funds, matching adjustment portfolio.
[3] Non-available own funds items (e.g. non available surplus funds) and deduction of own funds from participations in other financial sectors. [4] Off-balance sheet items that can be called up to absorb losses, e.g. letters of credit (subject to supervisory approval).
[5] EOF/SCR for other financial sectors. [6] MR Group reports SII ratio including other financial sectors according to aligned 'SII capital market disclosure concept'.

Reconciliation of BOF to EOF: SII methodology less complex at Munich Re Group

Munich RE

Own funds as at 31 December 2014

- No ancillary own funds
  Basic own funds equal
  Available own funds
- No tiering effects
  Available own funds equal
  Eligible own funds[1]
- No "ring-fenced funds" or "matching adjustment portfolio"
- No "other items approved" by supervisory authorities

Munich Re Group's own funds have a straight-forward structure

[1] For 'SII ratio including other financial sectors', EOF need to be increased by EOF related to other financial sectors.

Continuity in capital resources despite new methodology

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Reconciliation AFR to own funds as at 31 December 2014

€bn

Available financial resources (AFR)	**38.8**
Foreseeable share buy-backs[2]	–0.3
Surplus funds ('free RfB')	2.0
Other valuation adjustments (AFR vs. SII)	–1.7
Optional long-term-guarantee measures	–
Restrictions[3]	–0.8
SII basic own funds (BOF)	**38.0**
Restrictions from tiering	0.0
Own funds for FCIIF and IORP[4]	0.2
SII eligible own funds (EOF)	**38.2**

Comments

Recognition of surplus funds and other valuation adjustments

- Various valuation differences between SII methodology and former AFR approach pretty much level out (including recognition of surplus funds); management reserve margin RI P-C[1] included in the AFR but not in SII own funds

Optional long-term-guarantee measures

- Currently not considered

Restrictions

- Non-available own funds items formerly recognised in higher capital requirements

Restrictions from tiering

- High quality of SII capital resources allows full consideration of BOF as EOF

[1] ~€2bn after tax. [2] Outstanding from share buy-back 2014/2015. [3] Deduction of non-available own funds items of –€0.5bn (e.g. non available surplus funds) and deduction of own funds from participations in other financial sectors. [4] Own funds for other financial sectors (financial, credit institutions and investment firms and institutions for occupational retirement provision).

Main differences between Solvency II and IFRS balance sheets

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Balance sheet item	SII	IFRS
Goodwill and intangible assets	No recognition, i.e. valued at zero	Amortised cost
Property, loans	Fair value	Amortised cost
Subordinated liabilities	Fair value	Amortised cost
Technical provisions	Technical provision (discounted) = Best estimate + Risk margin	Nominal value (in exceptional cases discounted values)
Surplus funds (‘free RfB‘)	Treated as own funds	Treated as liabilities
Other assets / other liabilities	Mostly fair value	Amortised cost

Solvency II balance sheet is a full fair-value balance sheet

From IFRS to Solvency II excess of assets over liabilities

Munich RE

€bn Assets/Liabilities (clustered) as at 31.12.2014	SII	IFRS	▲	Comments	
Goodwill and intangible assets[1]	0.0	3.6	*–3.6*	No recognition of goodwill and intangible assets in SII	–3.6
Investments including loans, deposits with cedants, cash	243.2	230.3	*12.9*	Full fair values in SII lead to higher balances	6.1
Subordinated liabilities	–5.0	–4.4	*–0.6*		
Net deferred tax assets / liabilities[1]	–3.6	–1.9	*–1.7*	Different valuation methods produce difference in deferred taxes	
Other assets and other liabilities[1]	–6.4	–8.8	*2.4*	For example discounting effects in SII	
Technical accounts[1] without surplus funds	–193.5	–186.6	*–6.9*	SII: Risk margin and additional policyholder participation due to higher fair values of assets are partly offset by reserve discounting	
Surplus funds	0.0	–2.0	*2.0*	Surplus funds (‘free RfB’) are own funds in SII and are therefore not classified as liabilities	2.0
SII EAoL versus IFRS equity	**34.8**	**30.3**	***4.5***		**+4.5**

Fair values, risk margin and surplus funds are the main differences

[1] IFRS balances reflect reclassifications in order to facilitate comparison to IFRS equity / Eligible own funds reconciliation.

Reconciliation of IFRS equity with eligible own funds includes both well-known and new elements

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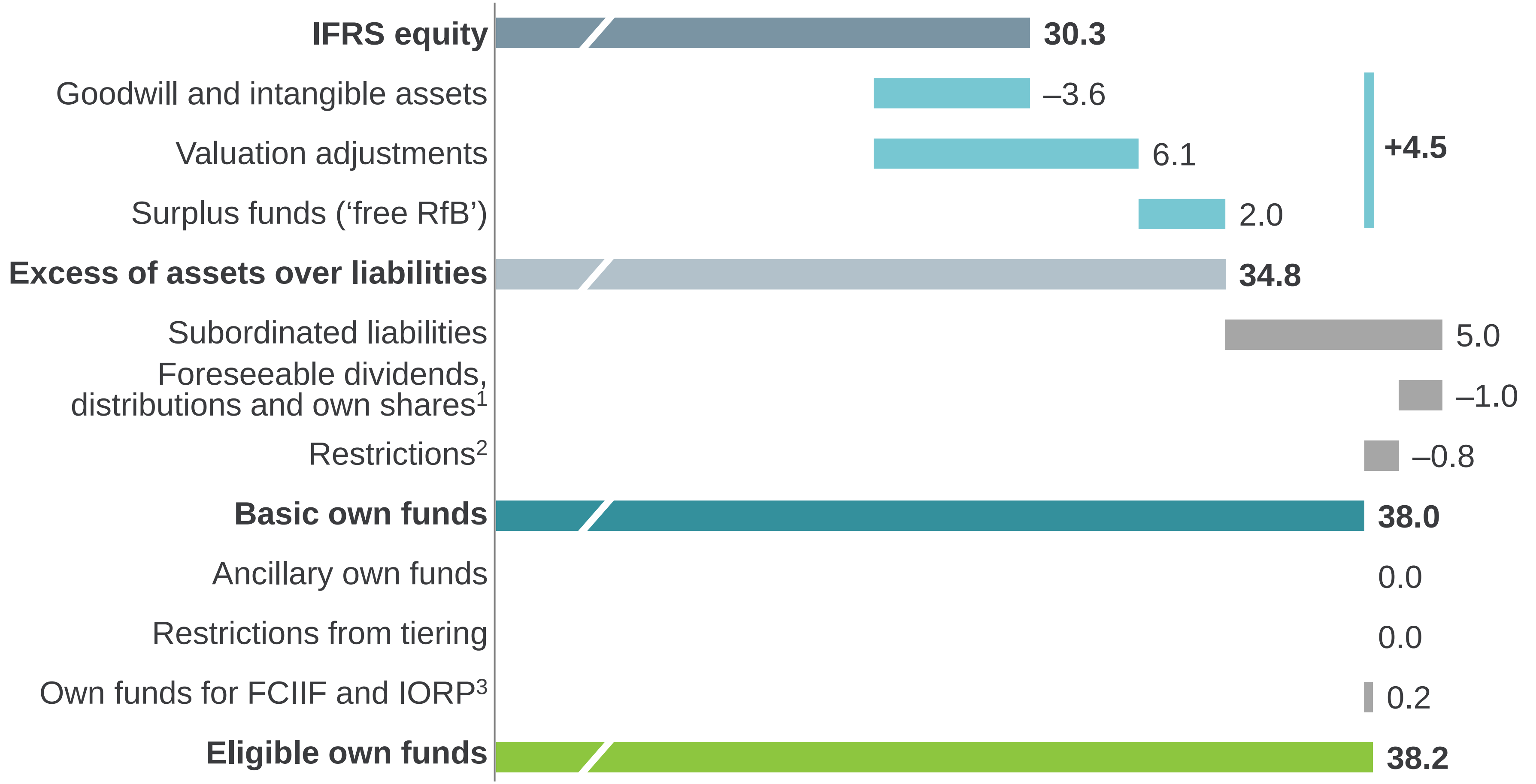
Reconciliation of IFRS equity to eligible own funds as at 31 December 2014; Structure according to 'SII capital market disclosure concept' defined by Allianz, Talanx and Munich Re

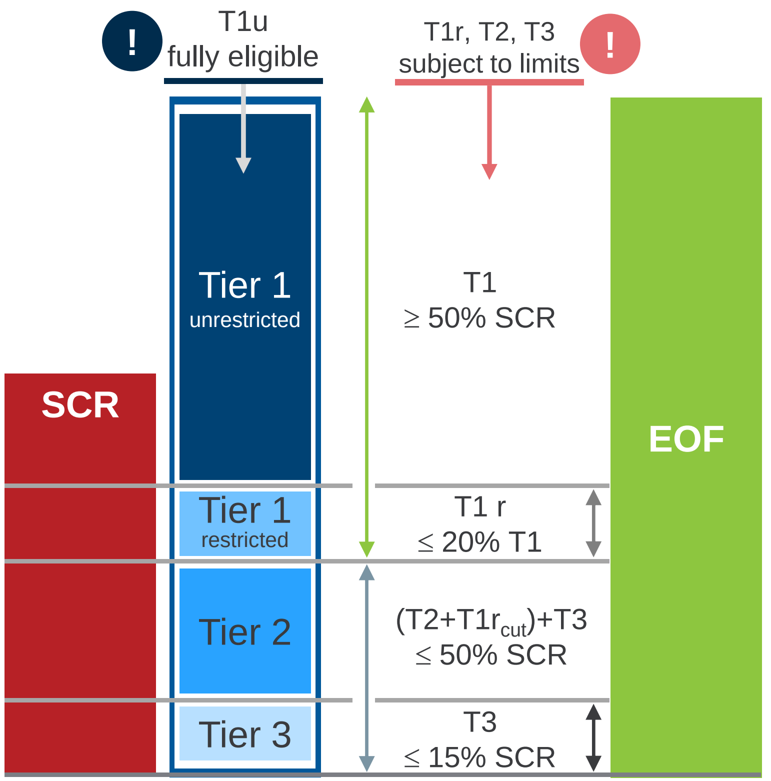
€bn



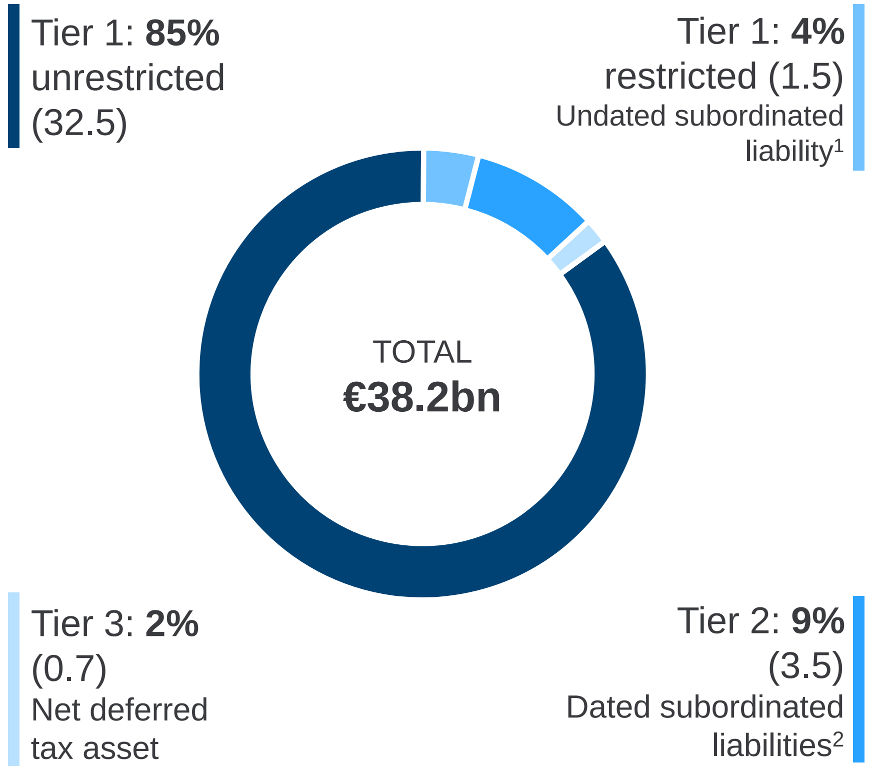
[1] Foreseeable distributions from share buy-backs (–€0.3bn) and own shares (–€0.7bn). [2] Deduction of non-available own funds items of –€0.5bn (e.g. non-available surplus funds) and deduction of own funds from participations in other financial sectors. [3] Own funds for other financial sectors (financial, credit institutions and investment firms and institutions for occupational retirement provision).

SCR limits do not lead to restrictions from tiering – 89% tier 1 capital

SCR limits



EOF 31.12.2014 €bn



High quality of capital provides Munich Re with flexibility and capacity

[1] MR AG undated subordinated liability nominal €1,349m according to MR’s own assessment accounted for under transitional arrangements – “grandfathering”. [2] Mainly MR AG dated subordinated liabilities nominal €900m, €1,000m and £450m according to MR’s own assessment; nominal £300m according to MR’s own assessment accounted for under transitional arrangements – “grandfathering”.

Profit and loss attribution explains change in Solvency II eligible own funds – Focus on economic earnings

Munich RE

Expected return existing business	**Operating economic earnings**	**Total economic earnings**
New business value		
Operating variances existing business		
Other operating variances		
	Economic effects	
	Other non-operating earnings	

- **Expected return existing business**
  Risk-free interest on economic capital resources and unwind of risk margin
- **New business value**
  Value of new business written in reporting period, valued at end of period, after capital costs
- **Operating variances existing business** Experience variances and assumption changes; reflect positive or negative deviations from prior year's business valuation
- **Other operating variances**
  Model changes, etc.
- **Economic effects**
  Changes in economic capital resources from development of capital market parameters on assets and liabilities
- **Other non-operating earnings**
  Overall tax effect and other items

Note: All operating economic earnings components as well as economic effects are reported before tax.

Group economic earnings split into three major components

Munich RE

Group economic earnings 2014 €bn

Operating economic earnings		**1.5**	Pleasing new business value and existing business development especially in RI Life and RI Property-Casualty; model enhancements in RI Life and ERGO Life operations with negative effect
Economic effects		**2.2**	
Interest rate	–0.9		Positive FX effects and gains in equities mainly in RI are partly offset by overall negative impact of lower interest rates (negative ERGO effect exceeded positive impact for RI and MH)
Equity	0.4		
Credit	0.3		
Currency	1.8		
Other[1]	0.6		
Other non-operating earnings		**–0.6**	Overall tax effect and other items
Total economic earnings		**3.2**	

Economic earnings supported by sound technical result and good asset-liability management

[1] Primarily related to illiquid investments: property, infrastructure, forestry, hedge funds, private equity.

Profit and loss attribution provides consistent reporting of economic performance across business units

Munich RE

Munich Re (Group) FY 2014 €bn	RI Life	RI P-C	ERGO Life/Health Germany	ERGO P-C Germany	ERGO Intl.	Munich Health	MR (Group)
Operating economic earnings	**0.2**	**1.6**	**–0.4**	**0.2**	**–0.1**	**0.1**	**1.5**
Expected return existing business	0.1	0.3	0.1	0.0	0.1	0.0	0.7
New business value	0.6	0.5	0.2	0.2	0.0	0.1	1.5
Operating variances existing business	0.2	0.8	–0.3	0.0	–0.1	0.0	0.5
Other operating variances	–0.7	0.0	–0.5	0.0	0.0	0.0	–1.2
Economic effects	**1.0**	**2.3**	**–1.3**	**0.3**	**–0.2**	**0.1**	**2.2**
Other non-operating earnings	**–0.2**	**0.1**	**–0.1**	**–0.2**	**–0.1**	**0.0**	**–0.6**
Total economic earnings	**1.1**	**3.9**	**–1.8**	**0.3**	**–0.4**	**0.2**	**3.2**
Capital measures							–2.6
Changes in other own funds items							–
Change in SII EOF							**0.6**

Former MCEV concept now integrated in group-wide SII-based performance metric

Economic earnings Reinsurance Life

Munich RE

Munich Re (Group) FY 2014 €bn	RI Life
Operating economic earnings	**0.2**
Expected return existing business	0.1
New business value	0.6
Operating variances existing business	0.2
Other operating variances	–0.7
Economic effects	**1.0**
Other non-operating earnings	**–0.2**
Total economic earnings	**1.1**

Main sources of operating economic earnings

- Overall, the FY 2014 new business value fits well into Munich Re's long and successful track record [cf. MCEV report, page 8]
- Operating variances include experience variances somewhat higher than expected reflecting aggregates in mortality and morbidity [cf. Analysts' conference presentation 2015, p. 71]. Assumption changes have been updated to reflect both past evidence and expected future experience [cf. MCEV report, page 9]
- Other operating variances allow for model changes resulting from the continuous revision of valuation models [cf. MCEV report, page 9]

Pleasing new business value generation, but negative effects from model updates

Economic earnings Reinsurance Property-Casualty

Munich RE

Munich Re (Group) FY 2014 €bn	RI P-C
Operating economic earnings	**1.6**
Expected return existing business	0.3
New business value	0.5
Operating variances existing business	0.8
Other operating variances	0.0
Economic effects	**2.3**
Other non-operating earnings	**0.1**
Total economic earnings	**3.9**

Main sources of operating economic earnings

- Operating economic earnings driven by good underlying profitability. Favourable major loss development vs. expectation contributes €0.8bn [cf. Analysts‘ conference presentation 2015, page 6; 69; 102]
- Unchanged reserving discipline reflected in new business value usually facilitates reserve releases of ~4% without challenging the prudency level; corresponding NBV adjusted for prudency margin €1.1bn [cf. Analysts‘ conference presentation 2015, p. 19]. Besides, new business value benefits from major losses below expectation for current development year [cf. Analysts‘ conference presentation 2015, page 102]
- Operating variances contain the effect of favourable actual vs. expected comparison which allow ultimate reductions for prior years (€0.9bn adjusted for commission effects) [cf. Analysts‘ conference presentation 2015, page 19; 21]

Favourable developments in large losses and reserve releases slightly above expectation

Economic earnings ERGO

Munich RE

Munich Re (Group) FY 2014 €bn	ERGO Life/Health Germany	ERGO P-C Germany	ERGO Intl.
Operating economic earnings	**–0.4**	**0.2**	**–0.1**
Expected return existing business	0.1	0.0	0.1
New business value	0.2	0.2	0.0
Operating variances existing business	–0.3	0.0	–0.1
Other operating variances	–0.5	0.0	0.0
Economic effects	**–1.3**	**0.3**	**–0.2**
Other non-operating earnings	**–0.1**	**–0.2**	**–0.1**
Total economic earnings	**–1.8**	**0.3**	**–0.4**

Main sources of operating economic earnings

- NBV Life/Health lower than last year [cf. MCEV report, page 17] while P-C's NBV remained stable
- Operating variances existing business: especially German life primary business impacted negatively by various effects, e.g. with regard to profit sharing, lapses and expenses, with variances in profit sharing as main driver among these experience variances. International life primary business produced negative assumption changes [cf. MCEV report, page 15]
- Other operating variances negative as a result of various model refinements predominantly in German life primary business [cf. MCEV report, page 15]

Challenges from low-yield environment reflected in ERGO Life/Health Germany, while property-casualty business remains profitable

Agenda

Overview and implementation

Impact on Munich Re

Solvency II balance sheet and own funds

Solvency capital requirement

Solvency II capitalisation ratio and target capitalisation

Impact on the insurance industry

Munich Re's long-standing internal risk model was already substantially compliant with SII requirements

Munich Re's internal model originally developed for internal corporate management

- Internal model developed in recent decades as a foundation for value-based management
- The model reflects risks on both the asset and the liability side of the balance sheet on an economic valuation basis
- Internal model covers all risk categories (e.g. including operational risk) within entire Munich Re Group on the basis of consolidated accounts ("full internal model")
- Internal model recognised by S&P in determining the target rating capital ("M-factor"). Munich Re's Enterprise Risk Management is assessed as "very strong" by S&P, the highest level in the industry.

Final adoption of internal model when entering Solvency II

- No major changes in the SCR or internal management due to the following modifications:
  - Use of EIOPA risk-free interest rates
  - Consideration of fungibility and transferability restrictions
  - Treatment of loss-absorbing capacity of deferred taxes

Internal risk model well integrated into management and business decisions

New risk disclosure mirrors Solvency II model characteristics

Munich RE

Risk capital – Breakdown by risk category €bn

Risk category	ERC	ERC/1.75	SII-SCR
Prop.Casualty[1]	10.0	5.7	**5.7**
Life and Health	9.0	5.1	**4.8**
Market	12.5	7.1	**8.8**
Credit[2]	6.7	3.8	**4.6**
Operational risk	1.7	1.0	**1.0**
Other[3]	–	–	**0.2**
Simple sum	39.9	22.7	**25.1**
Diversification	–13.0	–7.3	**–9.1**
Tax	–	–	**–2.2**
Total risk capital	26.9	15.4	**13.8**

Main drivers for differences	Impact on SII-SCR
▪ Transition from swap rates to EIOPA risk-free interest rates	Life and Health ⬇ Market ⬇
▪ Implementation of SII rules on fungibility and transferability (Group)	Market ⬆ Diversification ⬇
▪ Transition to pre-tax disclosure of risk categories and introduction of loss-absorbing capacity of deferred taxes	Life and Health ⬆ Market ⬆ Credit ⬆ Tax ⬇

The SII-SCR numbers are based on the approved internal model. The SCR calculation is based on VaR99.5%.

Moderate decrease of disclosed SCR, mainly driven by consideration of loss- absorbing capacity of deferred taxes

[1] Credit (re)insurance included.
[2] Default and migration risk.
[3] Capital requirements for other financial sectors, e.g. institutions for occupational retirement provisions.

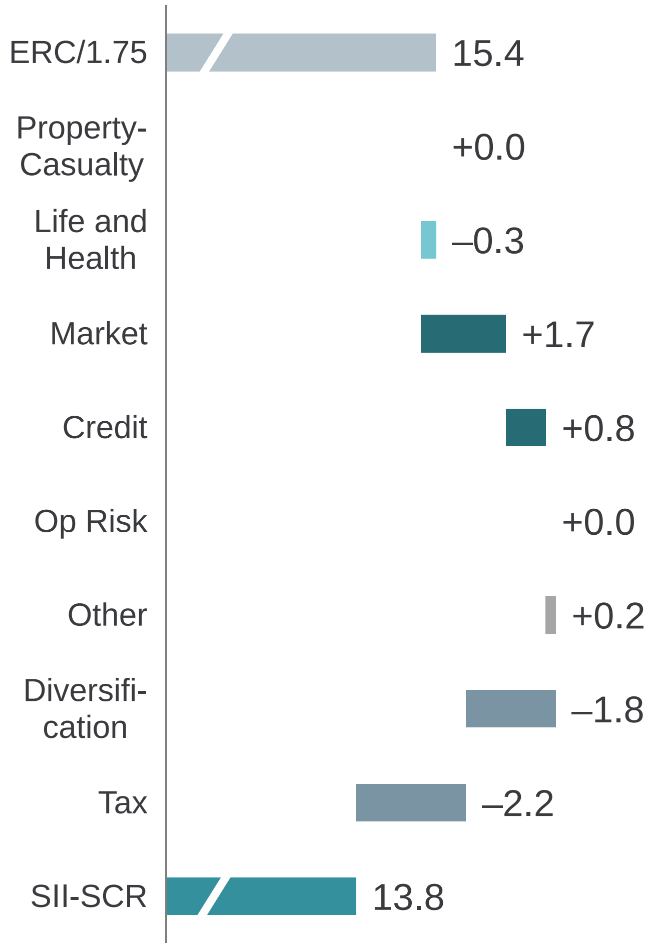
Breakdown of SII-SCR by business field

Munich RE

Risk capital – Breakdown by risk category €bn

Risk category	Group ERC/ 1.75	Group SII-SCR	RI SII-SCR	ERGO SII-SCR	MH SII-SCR	Div. SII-SCR
Prop.-Casualty	5.7	**5.7**	5.6	0.3	0.0	–0.2
Life and Health	5.1	**4.8**	3.6	2.1	0.3	–1.2
Market	7.1	**8.8**	5.5	5.0	0.0	–1.7
Credit	3.8	**4.6**	2.8	1.9	0.0	–0.1
Operational risk	1.0	**1.0**	0.8	0.4	0.1	–0.3
Other	–	**0.2**	–	–	–	–
Simple sum	22.7	**25.1**	18.3	9.7	0.4	–3.5
Diversification	–7.3	**–9.1**	–7.1	–2.6	–0.1	–
Tax		**–2.2**	–1.9	–0.5	0.0	–
Total SCR	15.4	**13.8**	**9.3**	**6.6**	**0.3**	**–2.5**

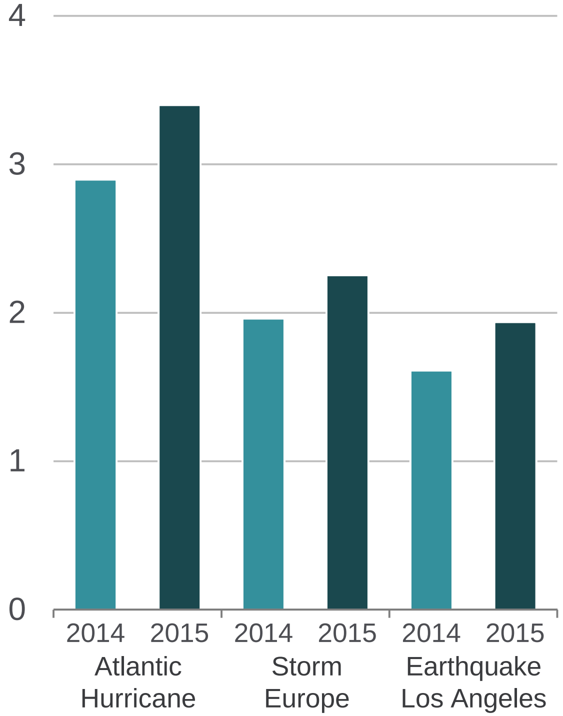
Reconciliation as at 31.12.2014 €bn

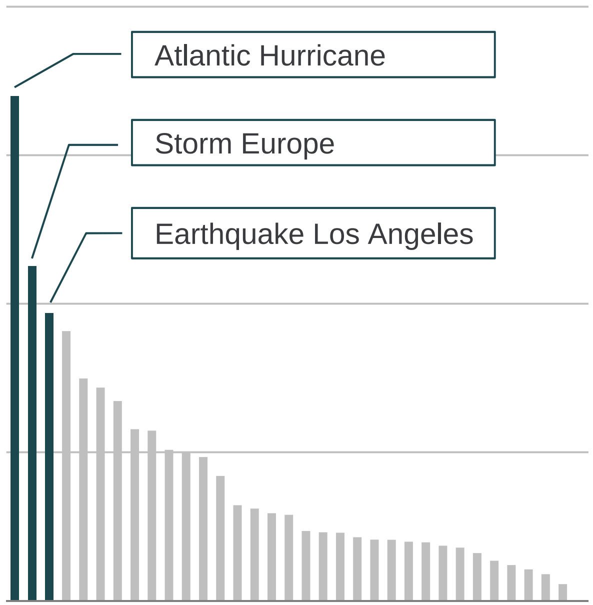


Munich Re benefits from strong diversification between natural catastrophe risks

Munich Re (Group) – Nat cat exposure (net of retrocession)[1] €bn

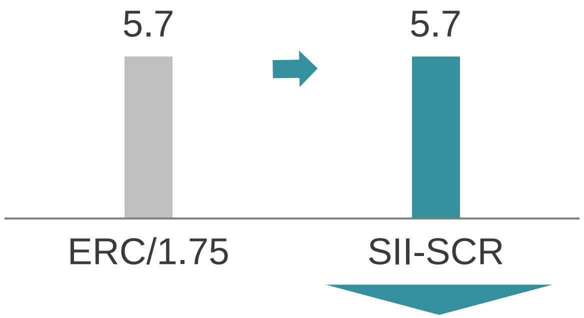
AggVaR (return period 200 years) (pre-tax)





Top nat cat exposures

SCR Property-Casualty €bn



Basic losses	3.2
Major losses[2]	5.1
Diversification	–2.6
Total	**5.7**

No changes in Property-Casualty risk module

[1] Exposures relate to the full year, e.g. 2015 relates to the period from 1.1.2015 to 31.12.2015.
[2] Natural catastrophes, man-made (including terrorism and casualty accumulation) and major single losses.

Decrease in Life/Health SCR mainly driven by transition from swap rates to EIOPA risk-free interest rates

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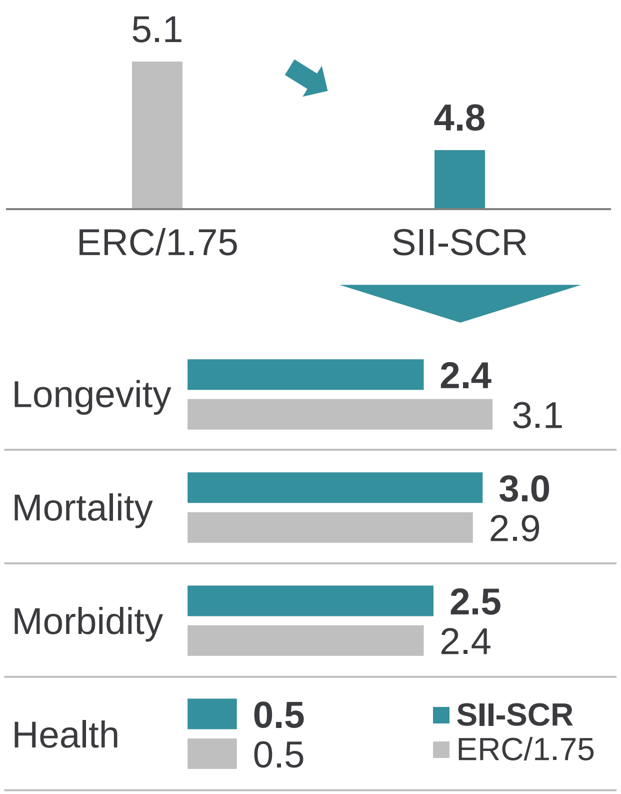
SCR Life/Health €bn



ERGO Life/Health	Impact on SII-SCR
▪ Final model adoptions:	
▪ Treatment of Surplus Funds	↑
▪ Consistent use of Risk Margin	↓
▪ Refined modelling of the “ZZR” for German life primary business	↓
▪ Use of EIOPA risk-free interest rates	↓
▪ “Pre-tax” disclosure	↑
Reinsurance Life	
▪ Model used in Q4 2014 was already Solvency II-compliant	→
▪ Implementation of EIOPA risk-free interest rates has a modest effect on overall life reinsurance SCR	→

Market risk categories affected differently by model adoptions

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Risk category Year-end 2014 €bn	**Group** ERC/ 1.75	 **SII-** **SCR**	**RI/MH** SII- SCR	**ERGO** SII- SCR	**Div.** SII- SCR	**Explanation**
Equity	3.3	**3.4**	2.6	0.8	±0.0	Minor increase due to conversion to pre-tax calculation
General interest rate	3.0	**3.8**	1.8	3.9	–1.9	Transition to risk margin and conversion to pre-tax calculation partially offset by application of EIOPA risk-free interest rates
Credit spread	3.0	**3.1**	1.7	2.0	–0.6	
Real estate	1.3	**1.3**	0.8	0.5	±0.0	
Currency	1.5	**3.5**	3.4	0.2	–0.1	Implementation of SII fungibility and transferability rules
Simple sum	**12.1**	**15.1**	**10.3**	**7.4**	**–2.6**	
Diversification	–5.0	**–6.3**	–4.8	–2.4	–	Improved diversification due to SCR increase
Total SCR	**7.1**	**8.8**	**5.5**	**5.0**	**–1.7**	

Pre-tax disclosure and conservative treatment of SII availability restrictions lead to increases in different risk categories

Agenda

Overview and implementation

Impact on Munich Re

Solvency II balance sheet and own funds

Solvency capital requirement

Solvency II capitalisation ratio and target capitalisation

Impact on the insurance industry

Capitalisation in the Solvency II regime remains very comfortable …

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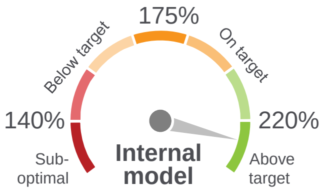
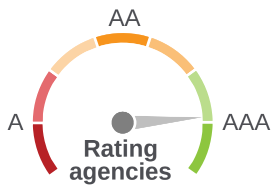
Sound capitalisation according to all metrics

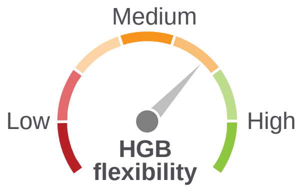
Eligible own funds of high quality



SII ratio well over 220%



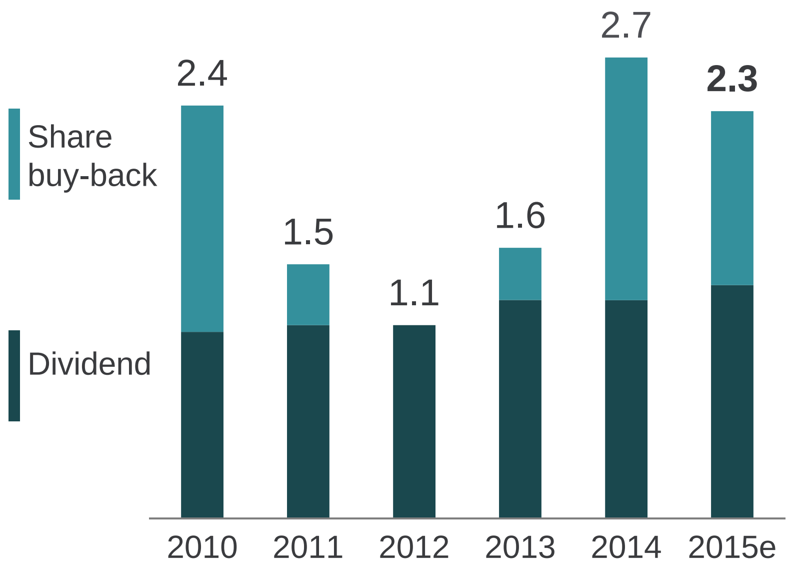
Substantial capital buffer supporting AA rating



German GAAP earnings largely protected by equalisation reserve

Attractive shareholder participation[1] €bn

Cash yield[2]	11.2%	7.8%	5.4%	6.0%	9.6%	**~7%**



Almost €20bn returned to shareholders since 2006

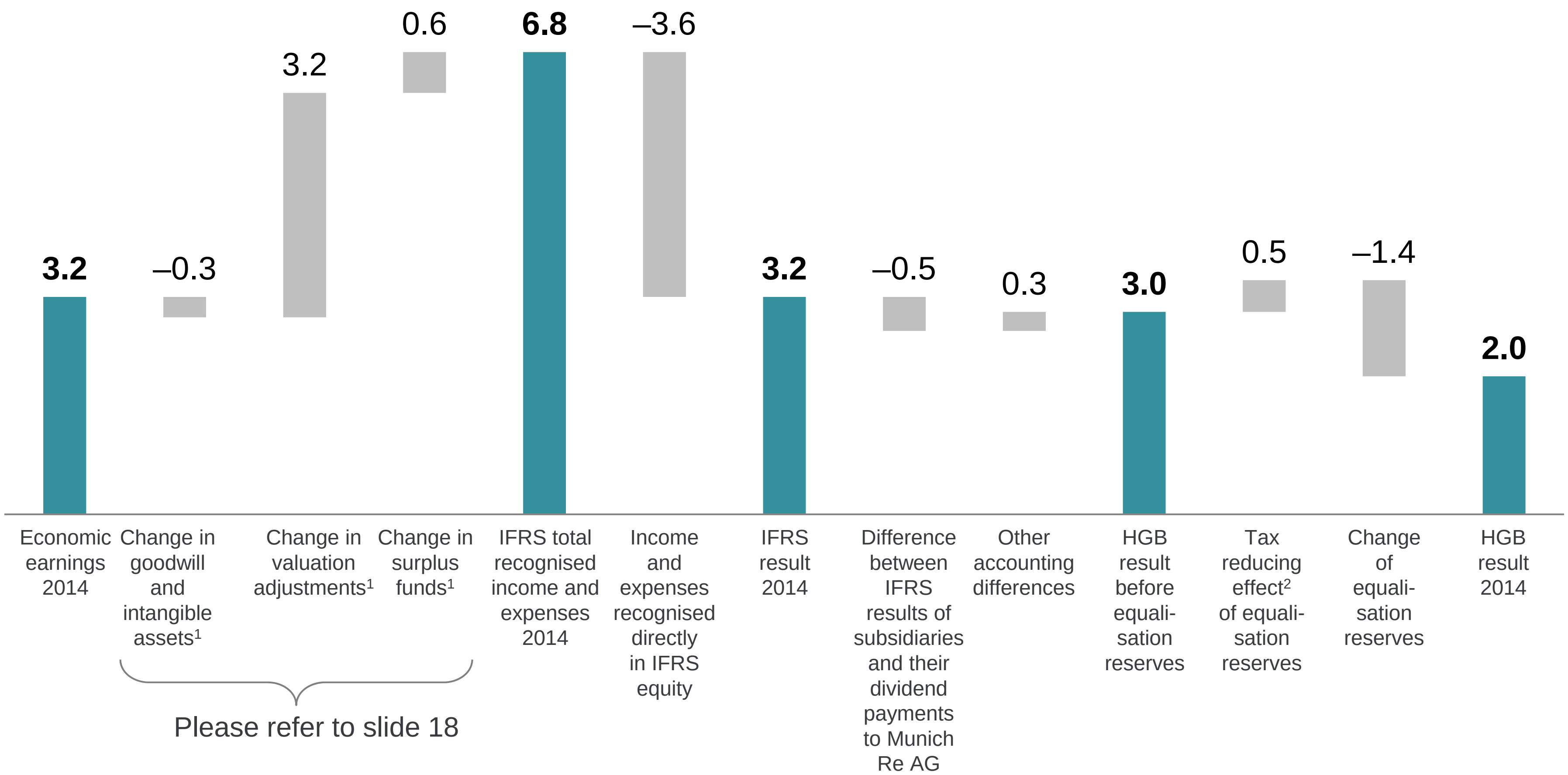
… enabling ongoing active capital management

[1] Cash-flow view.
[2] Total payout (dividend and buy-back) divided by average market capitalisation.

Reconciliation of economic earnings to German GAAP (HGB) result

Reconciliation of economic earnings to HGB result

€bn



[1] Based on rough estimates. [2] Assuming a tax rate of 33% for Munich Re AG.

Significant improvement in Munich Re's SII ratio

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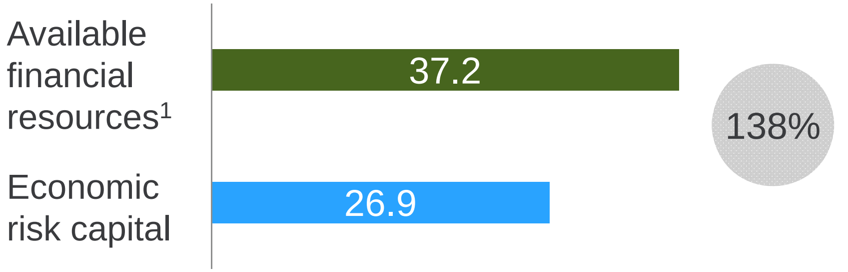
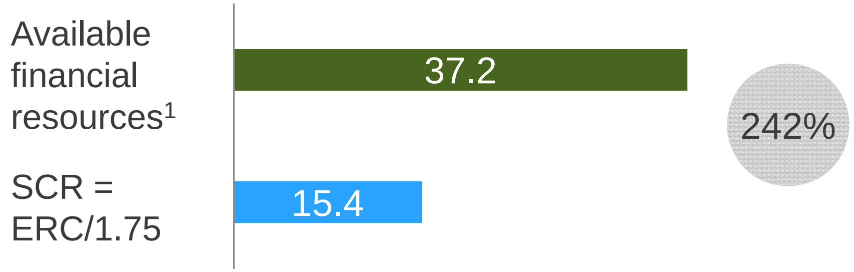
Ratio based on AFR and ERC — €bn



Ratio based on AFR and ERC/1.75 — €bn



SII ratio[2] — €bn

Pro-forma Q3 2015 SII ratio expected to be around 260%

[1] After dividend of ~€1.3bn announced for 2014 to be paid in April 2015 and outstanding share buy-backs of ~€0.3bn.
[2] Ratio after dividend of ~€1.3bn for 2014 to be paid in April 2015: 268%.

Despite more favorable ratio: Target capitalisation range kept stable because of higher confidence level

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Munich Re actions

>220%
Above target capitalisation
- Capital repatriation
- Increased risk-taking
- Holding excess capital to meet external constraints

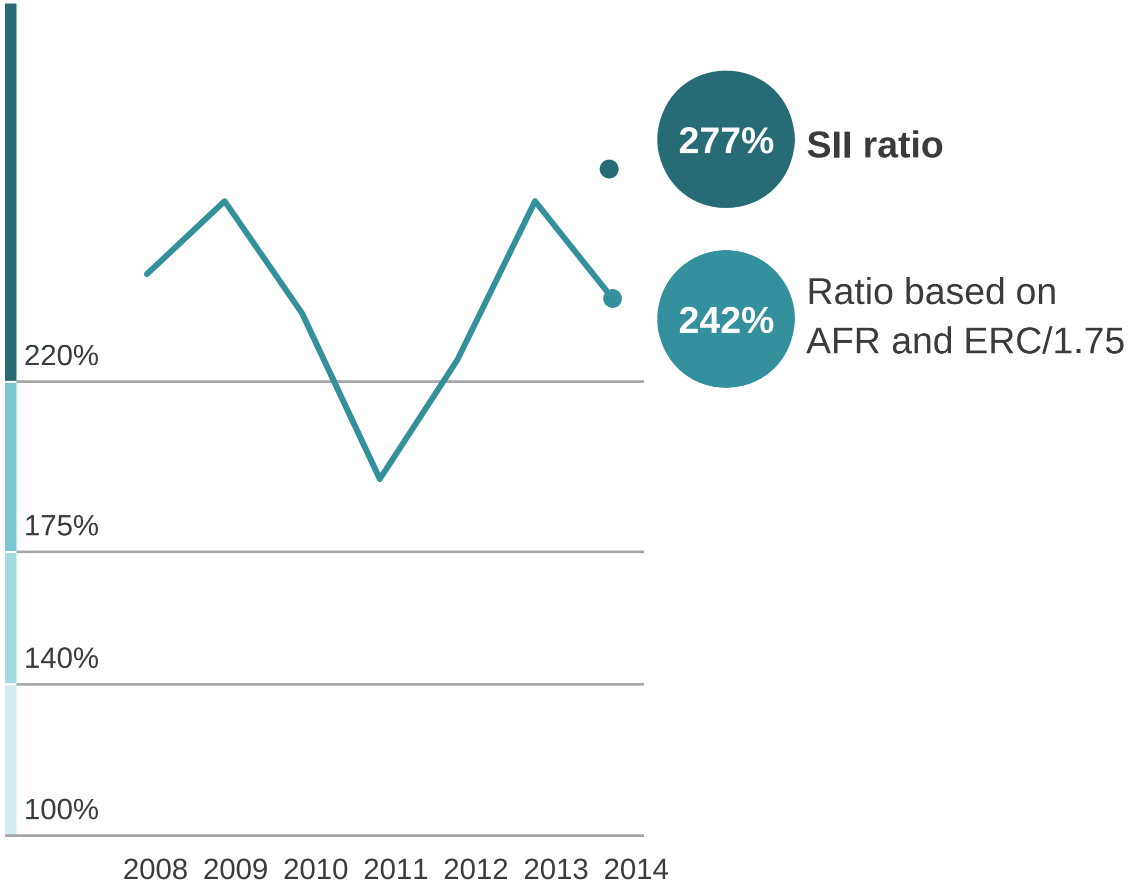
175% – 220%
Target capitalisation
- Optimum level of capitalisation

140% – 175%
Below target capitalisation
- Tolerate (management decision) or
- take if necessary management action (e.g. risk transfer, scaling-down of activities; raising of hybrid capital)

<140%: Sub-optimum capitalisation
- Take risk management action (e.g. risk transfer, scaling-down of activities; raising of hybrid capital) or
- in exceptional cases tolerate situation (management decision)

SII ratio

%



Sensitivities of SII ratio …

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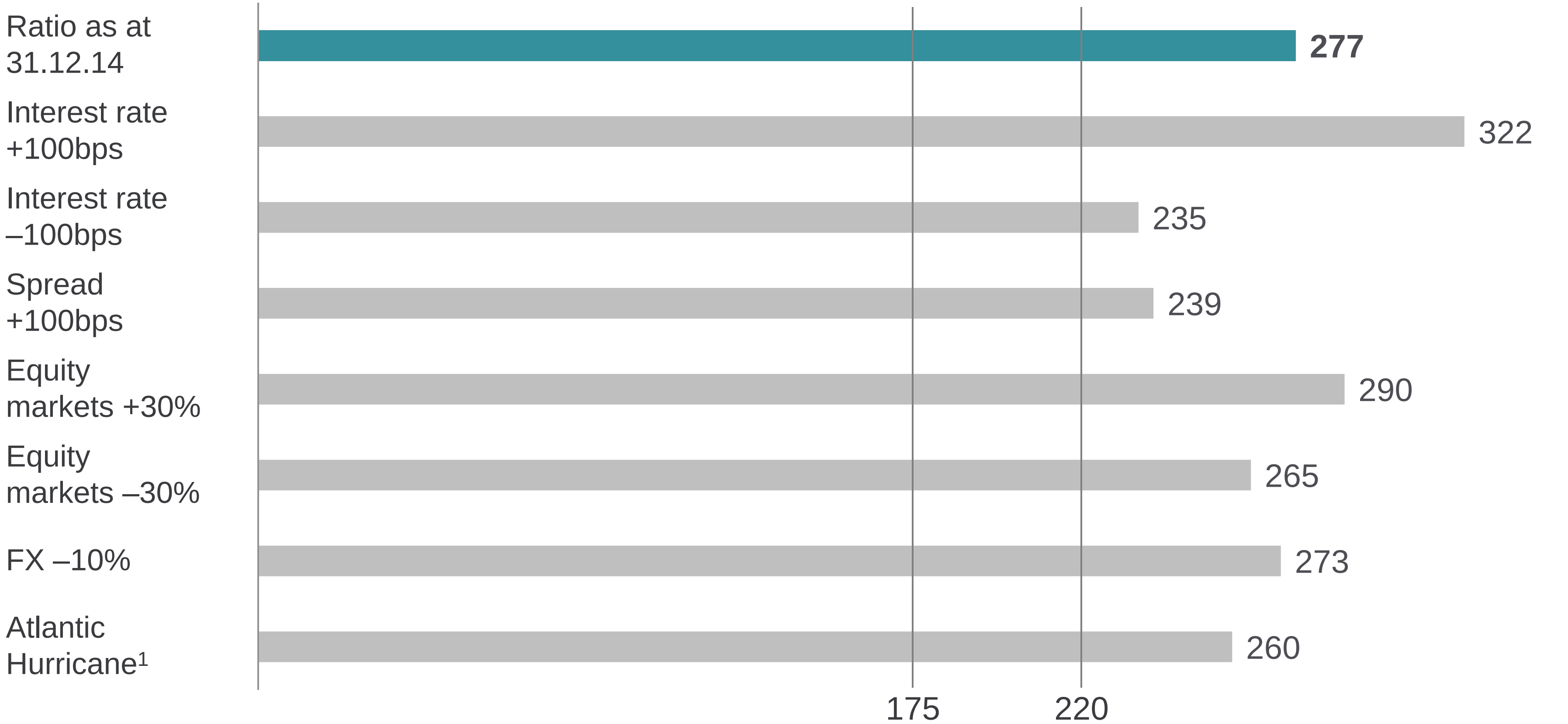
SII ratio – Sensitivity %



… underline robustness of capital position

[1] Based on 200 year event.

Agenda

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Overview and implementation

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Overarching impact of Solvency II: Focus on capital management

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1 Increasing number of capital management dimensions

- Solvency II another highly complex and volatile dimension in addition to local GAAP, tax, rating and IFRS (as applicable)
- Impact of business decisions immediately visible through economic measurement approach under Solvency II
- Differences in underlying principles may lead to conflicting management impulses – in extreme cases "capital eats strategy"

2 Strong impact of asset-liability management (ALM)

- Development of robust ALM techniques vital for companies to prosper under Solvency II
- Integration of Solvency II interest-rate adjustments[1] a further challenge
- Trade-off between hunt for yield and keeping capital requirements under control, especially in Life business
- Removal of artificial investment restrictions allows greater freedom but "prudent person principle" requires close alignment of investments with policyholder interests

3 Trade-off between customer needs and capital impact

- Capital requirements integral part of product development, profitability assessment and monitoring
- Companies will be nudged towards risk and value-based management
- However, customers and policyholders expect insurance companies to offer products which satisfy their needs / wishes, e.g. long-term-guarantee products

Capital management will become a multi-faceted exercise under Solvency II and be a core factor in strategic discussions in areas such as new product development

[1] Credit adjustment, volatility adjustment, matching adjustment, interest-rate transitional (as applicable).

Solvency II plays to Munich Re's strengths

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Observations …

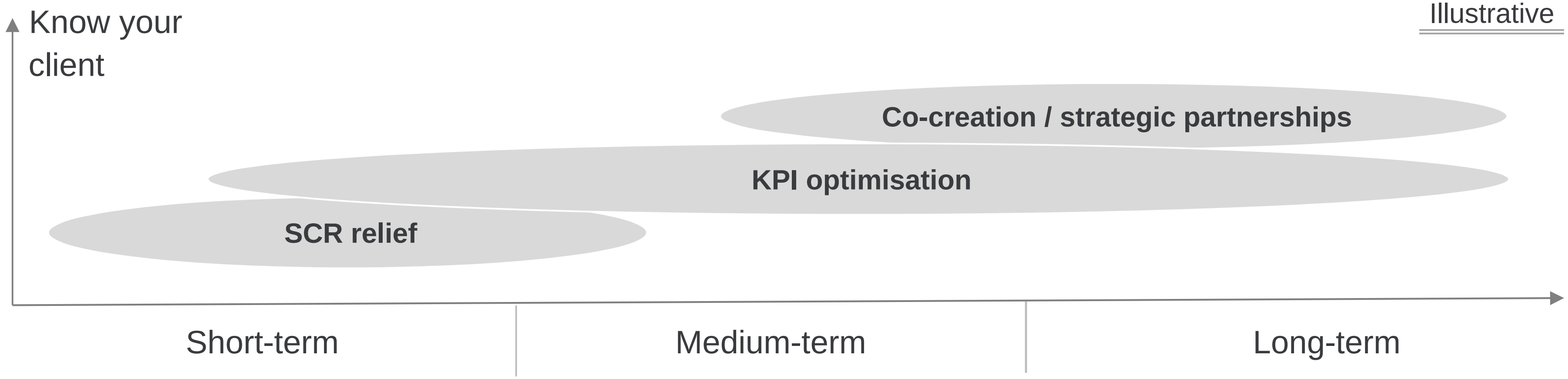
- Reinsurance on par with traditional capital management instruments (e.g. equity, debt)
- Knowledge of individual client situation key to developing tailor-made solutions
- World-wide move towards risk-based supervision similar to Solvency II (e.g. China, Mexico)

… and implications

- Reinsurance will be used as an additional capital management instrument
- Analytical capabilities needed to analyse clients and evaluate solutions
- Experience gained in Europe can be transferred to other countries – advantage for global players

Evolution of reinsurance inspired by Solvency II and similar regimes

Illustrative



Impact on competitiveness: Solvency II fully crystallising the value of the reinsurance business model

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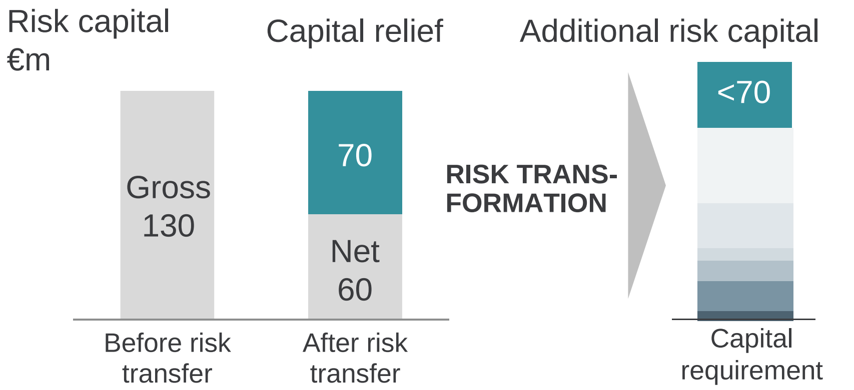
Risk transfer – illustrative

Primary insurer's portfolio | **Reinsurer's portfolio**



Counterparty default by rating and no. of reinsurers[1]

€ Capital strength	Number of reinsurers #1	#2	#3	#4	#5
AAA	8	7	6	6	6
AA	19	16	15	14	14
A	42	[illegible]	[illegible]	31	30
BBB	92	[illegible]	[illegible]	[illegible]	66
BB	340	284	263	[illegible]	245
B	625	523	483	462	448

Lower default risk for a single AA-rated reinsurer than for a panel of 5 A-rated reinsurers

Diversification of reinsurers is higher due to

- number of individual risks
- geographical spread (global business model)
- product and line of business mix

- Explicit consideration of reinsurance credit risk by insurers through counterparty default risk module
- A better-rated single reinsurer always produces a lower counterparty default risk than a panel of lower-rated reinsurers

Risk transfer from insurer to well-diversified reinsurer beneficial for both

Financial strength of reinsurer to provide a clearer competitive edge

[1] Based on loss given default of €1,250: total reinsurance recoverable of €1,000, total risk-mitigating effect of €500, no collateral considered.

Solvency II as an additional driver in some of Munich Re's strategic business initiatives

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- Cyber risks
- Energy and technology (e.g. technical performance guarantees)
  - Non-damage BI
  - Weather and climate
  - Project cost insurance
  - Product design in Life and Health based on enhanced data analytics

- Automation and digitalisation of processes (e.g. automated underwriting platform)
  - White labelling
  - Risk-sharing with pension funds

New (re-)insurance products

New business models

Key development areas

New risk-related services

New clients and demands

- Consultancy (e.g. Motor and Property Consulting services)
  - Project risk rating
  - Virtual simulation of e.g. construction
  - Predictive and preventive services

- Corporate finance/capital management solutions (e.g. Capital Partners)
  - Public-sector business development
  - Sharing economy/mobility

~ €400m[1] premium generated by innovative products

[1] Approximation – not fully comparable with IFRS figures.

Glossary

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A

AOF	Ancillary own funds. Off-balance-sheet items that can be called upon to absorb losses, e.g. letters of credit (subject to supervisory approval).

B

BOF	Basic own funds. Own funds consisting of EAoL after deductions, subordinated liabilities treated as own funds character and other items approved.

C

Capital measures	Changes in own funds, for example due to dividends, shares bought back, hybrid capital raised or repaid or changes in foreseeable capital distributions (dividends and share buy-backs).
Change in other own funds items	Part of PLA, e.g. change in non-available Own funds items, change in restrictions from tiering.
ComFrame	Common Framework for the Supervision of Internationally Active Insurance Groups: ComFrame is a set of international supervisory requirements developed by IAIS (International Association of Insurance Supervisors) focusing on the effective group-wide supervision of internationally active insurance groups (IAIGs).

D

Diversification	The diversification measures the balancing effects between different risk sources within a portfolio, taking account of dependencies which assess the extent to which events could occur simultaneously.
Dynamic volatility adjustments	The level of the volatility adjustment changes during calculating the capital requirements. In scenarios where the credit spreads widen/narrow, the basic risk-free interest rates are increased/decreased reducing the overall spread risk. The dynamic volatility adjustment can only be applied in internal models. Munich Re does not intend to apply the dynamic volatility adjustment.

Glossary

E

EAoL	Excess of assets over liabilities. Obtained by deducting total liabilities from total assets in the Solvency II balance sheet.
Economic earnings	Change in economic capital resources in the reporting period, adjusted for capital measures, especially dividend payouts and share buy-backs, as well as changes in other own funds items. Economic earnings are part of Profit and loss attribution.
Economic effects	Changes in economic capital resources from development of capital market parameters on assets and liabilities. Assets and liabilities are measured consistent to SII balance sheet.
EOF	Eligible own funds. Part of own funds eligible to cover Solvency capital requirements after consideration of potential limits from tiering; numerator of Solvency II capitalisation ratio.
Equivalence	Solvency II includes provisions for assessment of the solvency regimes and systems of group supervision of countries outside the EU. The purpose of these assessments is to determine whether the regimes and systems assessed are equivalent to the comparable provisions of Solvency II.
ERC	Economic risk capital: Based on Munich Re internal model: 175% times VaR 99.5%.
Expected return existing business	Risk-free interest on economic capital resources and unwind of risk margin.

Glossary

F

FCIIF	Credit institutions, investment firms, financial institutions, alternative investment fund managers, financial institutions. Own funds for FCIIF and IORP are not part of BOF but EOF.

G

Grandfathering	Now referred to as „transitional arrangements“. Please see below.
G-SIIs	Global systematically important insurers.

H

HLA	Higher loss absorbency: The higher loss absorbency requirement developed by IAIS will be a globally comparable group capital requirement that applies to all global systemically important insurers (G-SIIs).

I

ICS	International Capital Standards: The ICS is part of ComFrame and will apply to all internationally active insurance groups (IAIGs) and G-SIIs.
IORP	Institutions for occupational retirement provision: Own funds for FCIIF and IORP are not part of BOF but EOF.

Glossary

L

LTG measures	Long-term-guarantee measures: volatility adjustment, matching adjustment, transitional measures for the risk-free interest rates and transitional measures for technical provisions.

M

Matching adjustment (MA)	Adjustment based on spread between interest rate of specific asset portfolio and risk-free interest rates in which asset and liability cash flows are closely matched; Portfolio-specific – used to calculate best estimate of the respective liabilities.
M-Factor	"M-Factor" reflects S&P's view of the robustness of the insurer's economic capital model.

N

New business value	Value of new business (NBV) written in reporting period, valued at end of period, after capital costs.
Non-available own funds items	Due to restrictions in fungibility and transferability (i.e. availability), certain own funds items of solo entities (e.g. surplus funds, subordinated liabilities, deferred tax assets) cannot be taken to cover the Group SCR. Such "non available own funds" may be included in the group own funds only up to the contribution of the related undertaking to the group SCR. Formerly those restrictions were covered within the calculation of SCR.

Glossary

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O

Operating variances existing business	Experience variances and assumption changes; reflect positive or negative deviations from prior year's business valuation.
Other valuation adjustments (AFR vs SII)	Various valuation differences between SII methodology and former AFR approach; e.g. transition to EIOPA yield curve, etc.
Other items approved	Certain items in the SII balance sheet approved by the supervisor classify as BOF.
Other non-operating earnings	Overall tax effect and other items.
Other operating variances	Model changes, etc.
ORSA	Own risk and solvency assessment: The ORSA can be defined as the entirety of the processes and procedures employed to identify, assess, monitor, manage, and report the short and long-term risks a (re)insurance undertaking faces or may face and to determine the own funds necessary to ensure that the undertaking's overall solvency needs are met at all times over the planning time horizon.

P

Profit and loss attribution (PLA)	Analysis of changes in own funds: economic earnings, capital measures and change in other own funds items. Reflection of risk and value drivers of major business units.

Q

QRT	Quantitative Reporting Template.

Glossary

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R

Restrictions from tiering	When calculating EOF, certain limits regarding the tiers have to be considered. The maximum limits regulate how much capital of a specific tier is at least required to cover solvency requirements. If a limit is reached the entity has to deduct own funds of a specific tier. This is not applicable to Tier 1 unrestricted items. SII limits do currently not lead to deductions of own funds at Munich Re.
Ring-fenced funds (RFF)	RFF have a reduced capacity to fully absorb losses on a going-concern basis due to their lack of transferability within an undertaking. Such items have to be deducted from solo own funds if they exceed the notional SCR of that RFF.
Risk Margin	The risk margin is designed to represent the amount an insurance company would require to take on the obligations of a given insurance company on top of the best estimate of liabilities. It is calculated using a cost of capital approach.

S

Solvency II balance sheet (SII B/S)	Assets and liabilities recognised and valued according to the regulations of the new Solvency II supervisory regime.
Solvency II capitalisation ratio (SII ratio)	Quotient of eligible own funds and solvency capital requirements.
Solvency capital requirements (SCR)	The amount of capital that insurers in the European Economic Area are required to hold. The solvency capital requirement is set at a level that ensures that insurers can meet their obligations over the following 12 months with a 99.5% probability (VaR99.5%).
Surplus funds	Components of provision for premium refund (free RfB) considered as own funds, partially treated as non-available own funds item.

Glossary

T

Technical accounts	Aggregate of all asset and liability SII balance sheet items relating to technical accounting: technical provisions including best-estimate liability and risk margin, reinsurance recoverables, deposits, etc.
Transitional arrangements	SII regulation allowing subordinated liabilities issued prior to 1.1.2016 to be included as own funds even if they do not comply with the general SII guidelines.
Transitionals	The transitional measures for Solvency II are intended to ensure a smooth transition to meeting the full requirements (e.g. transitional measures for risk-free interest rates and technical provisions).

V

Valuation adjustments	Difference in valuation of assets and liabilities under IFRS and SII (e.g. fair values in SII vs. amortised cost in IFRS).
Volatility adjustment (VA)	Adjustment to the relevant risk-free interest rates based on the spread between interest rates of a reference asset portfolio and the risk-free interest rates.

Financial calendar

2016

4 February	Preliminary key figures 2015 and renewals
16 March	Balance sheet press conference for 2015 financial statements Analysts' conference in Munich with videocast
27 April	Annual General Meeting 2016, ICM – International Congress Centre Munich
10 May	Interim report as at 31 March 2016
9 August	Interim report as at 30 June 2016
9 November	Interim report as at 30 September 2016

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