talanx.
Insurance. Investments.

Talanx Risk Management Workshop

London, 26 June 2013

Dr. Immo Querner, CFO
Dr. Gerhard Stahl, CRO

Agenda

	Registration and Coffee	
I	Approach and organisational set-up	Dr. Immo Querner
II	MCEV report: key results	Dr. Gerhard Stahl
III	SCR report: methodology and key results	Dr. Gerhard Stahl
	Lunch Break	
IV	Operationalisation: ALM/Credit VAR	Dr. Immo Querner
V	S&P ERM review and BaFin process	Dr. Gerhard Stahl
VI	Q&A for open issues	

Today‘s speakers

Dr. Immo Querner

Immo Querner became the CFO of Talanx AG in 2006 following Talanx‘s acquisition of Gerling Group. He holds a university degree in engineering (Dipl.-Ing.) from Berlin Technical University (TU Berlin) as well as a Master of Philosophy from the University of St. Andrews in Scotland. In addition, he holds a doctoral degree in economics from TU Berlin.

He has started his post-university career as a management consultant at McKinsey & Company, working on projects in various European countries, such as Germany, Switzerland, Italy, Belgium and France. In 1996, he joined the Gerling Credit Insurance Group to head the Strategy/Participations/ Outward Reinsurance department. He became the CFO of Gerling Group in 2002 and held this position until the acquisition by Talanx. Immo Querner represents Talanx at the European Insurance CFO Forum („CFO Forum“).

Dr. Gerhard Stahl

Gerhard Stahl holds the position of the Chief Risk Officer in Talanx since 2011 and heads the Group Risk Management of the Talanx Group. After having studied mathematics, he joined the Federal Financial Supervisory Authority (BaFin) from 1995 to 2007. During this time he headed the Risk Modelling Group (QRM), the unit of the BaFin that is in charge for on-site inspections of risk management models.

Furthermore he contributes very much to the implementation of Basel II and Solvency II within regulatory working groups. In 2007 he joined Talanx as Deputy Chief Risk Officer. He holds an honorary doctor degree (Dr. rer. pol. h. c.) from the University of Bamberg for his scientific contributions to financial risk management. From 2008 to 2009 he was adjunct professor at the University of Ulm. Since 2010 he is adjunct professor at the Leibniz University of Hannover.

Key essentials

- **Talanx Risk Management set-up to reflect entrepreneurial spirit of the Group**
- **Commitment to act in the interest of shareholders**
- **Dedication to focus on underwriting risk**
- **MCEV slightly up in 2012 despite the challenging economical environment**
- **Internal model with robust and promising results**

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Essentials

- **Talanx Risk Management set-up to reflect entrepreneurial spirit of the Group**
- **Legal entity philosophy most adequate to comply with legal and factual restrictions and requirements**
- **Enabling managers to optimize profitability on their respective business level**
- **Commitment to act in the interest of shareholders and to reflect shareholders' opportunity costs**
- **Side conditions of business are intrinsicly deducted from Talanx's business model**
- **Dedication to focus on underwriting risk**

Risk management targets integral part of Group Strategy

Focus of the Group is on long-term increase in value by sustainable and profitable growth and vigorous implementation of our B2B-expertise

Profit target	Capital management	Risk management	Growth target	Human resource policy
▪ RoE[1]>∅ TOP20 European insurers ▪ RoE[1]≥risk-free interest rate[2] +750bps	▪ Fulfill S&P "AA" capital requirement ▪ Efficient use of available financing instruments	▪ Generate positive annual earnings with a probability of 90% ▪ Sufficient capital to withstand at least an aggregated 3,000-year shock ▪ Investment risk max. 50%	▪ 50% of primary GWP from foreign operations ▪ Selective profitable growth in Retail Germany and Reinsurance	▪ Continuous development and promotion of own workforce ▪ Individual responsibility and entrepreneurial spirit

[1] In accordance with IFRS
[2] Risk-free rate is defined as the 5-year rolling average of the 10-year German government bond yield

Source: Talanx Group Strategy as presented on the Capital Markets Day, 17 April 2013

Talanx's risk management targets reflect commitment to shareholders' interest

Entrepreneurial culture: Talanx's roots and ambition

Central steering combined with decentralized responsibilities…

- Talanx Group centralised management, controlling, services and back-office functions
- Principle: central strategic leadership combined with decentralised / local management responsibility
- Individual business units have strong responsibility for delivering results within the guidelines of the group-wide performance management
- International units are managed locally by local country managers

leads to

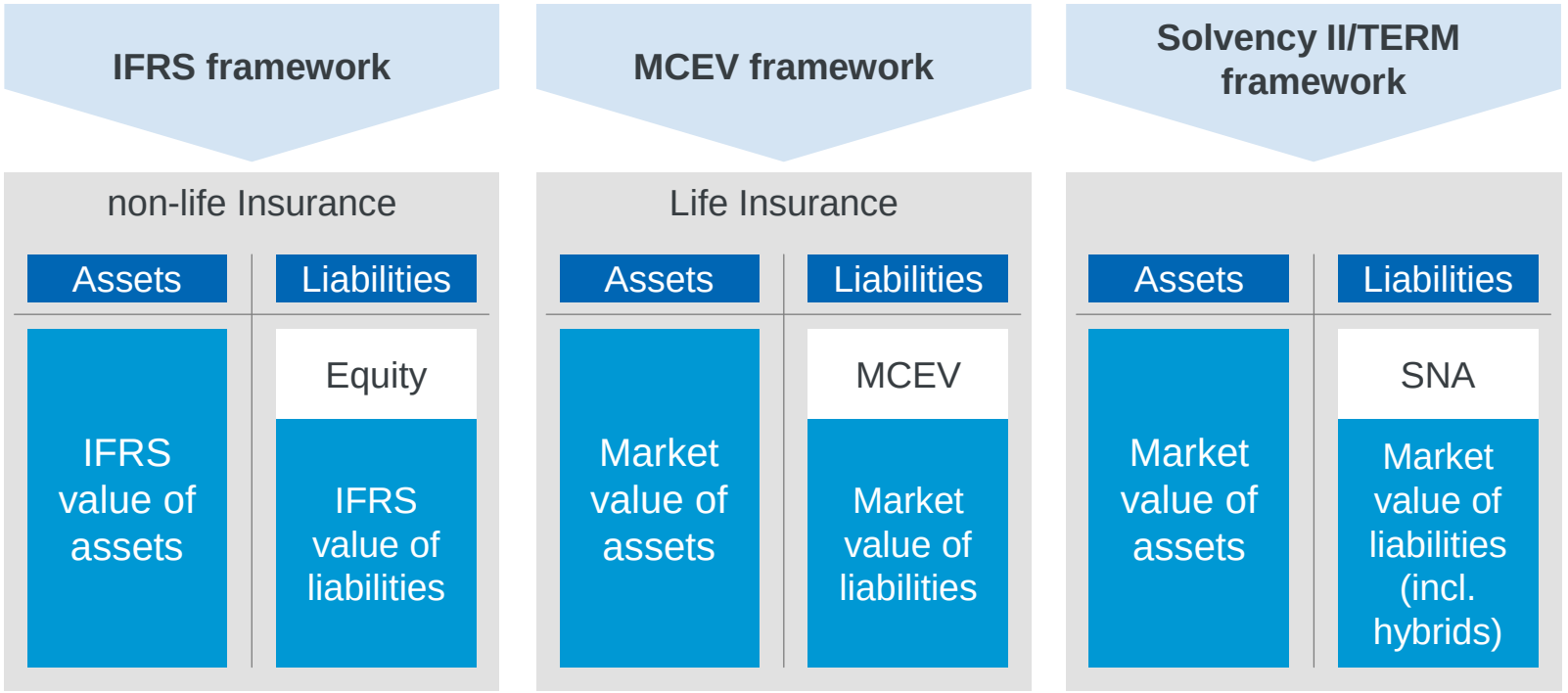
...strong entrepreneurial spirit

- Empowerment of individual managers
- Freedom to pursue new ventures within group guidelines
- Strong can-do attitude supporting group development and making use of market expertise
- Entrepreneurial pursuit of new opportunities building on traditional strengths of the group (B2B, B2B2C business)

Source: Capital Markets Day, 17 April 2013

Strong entrepreneurial culture across the Group to unlock full earnings potential

Comparable concept from three perspectives



- Equity evaluated as difference between market value of assets and liabilities
- For economic capital: adjustments are necessary, Talanx defines SNA:= shareholders' net assets (=A)

Three key questions for any risk manager:

Target function to maximize:

$$A_i = \max(0; U_i - l_i)$$

with:

A_i = shareholders' net asset value of entity i

U_i = enterprise value of entity i

l_i = leverage/liabilities of entity i

Key questions:

1. **How much risk to take?**
   – risk tolerance and limits
2. **What kind of risk?**
   – risk categories
3. **Who can take it?**
   – allocation of risks, capital and authority

Target to maximize shareholder value under side conditions to be set by risk management

1. How much risk to take? – Target definition (I)

$$P(A_{t+1} \leq 0) < 0.03\%$$

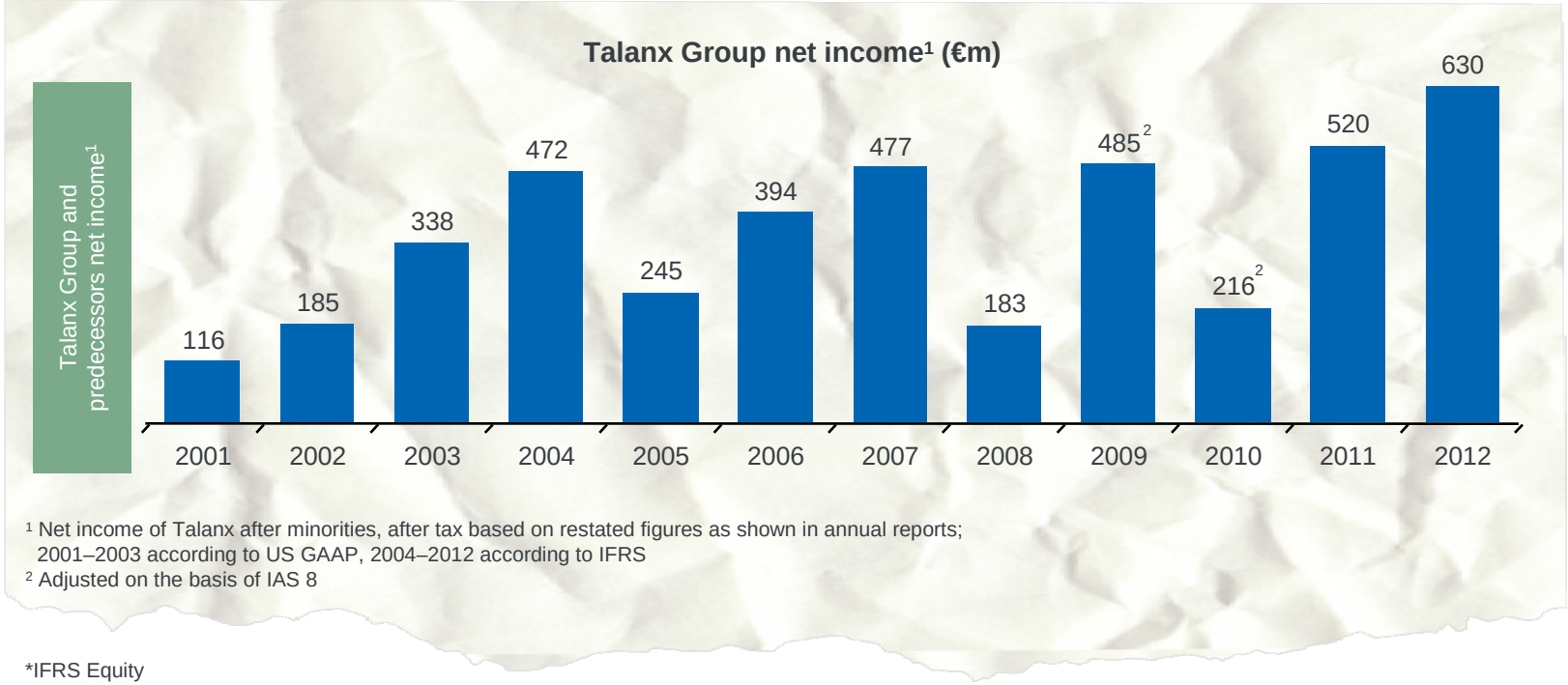
- Talanx's risk management limits are based on a capacity to withstand a 3000-year shock to its business
- In other words, Talanx bases its internal model on a 99.97% confidence level (roughly equivalent to a "AA" rating in the Standard & Poor's capital model) which is significantly stricter than the 99.5% confidence level (~200-year default probability) as required under Solvency II
- Why to voluntarily comply with stricter rules?
  - B2B focus with a dominance of professional, institutional clients
  - Dedication to sustainably create value for shareholders

Business-model compliant definition of risk appetite

1. How much risk to take? – Target definition (II)

$$P(A^*_{t+1} - A^*_t < 0) \leq 10\ \%$$

- Talanx is dedicated to limit the risk of an IFRS loss to 1 in 10 years
- Despite various industry and financial market burdens, the Group has been profitable in each single year since 2001



[1] Net income of Talanx after minorities, after tax based on restated figures as shown in annual reports; 2001–2003 according to US GAAP, 2004–2012 according to IFRS
[2] Adjusted on the basis of IAS 8

*IFRS Equity
Source: Capital Markets Day, 17 April 2013

Limitation of annual loss risk pre-condition for steady business development and capability to continuously pay out dividends

2. What kind of risk? – Target definition

$$Market\ risk \leq 50\ \%$$

- Talanx intends to limit the exposure to market risk to a maximum of 50%. In other words, the majority of risk exposure in which investors may invest is targeted to be underwriting risk
- The target level is derived from Merton- and Coase-based considerations on whether insurances are superior vehicles to manage investments – or, whether they are not
- Empirical evidence also underlines that low risk exposures in asset management have turned into the most value-accretive business strategy over the cycle

Target: a provider of underwriting risk rather than a "derivative" on the financial market

2. What kind of risk? – „Dos and Don'ts"

Assumption of an entrepreneurial risk in return for payment U

- insurance risk **V**
- investment market risks **M**
- operational risks

Significant external markets

- sales market
- investment
- equity capital **A**
- passive reinsurance
- labour market

Coase's test for value creation from a shareholder perspective

Does the (internally market-remotely organized) insurance undertaking, with its products/its production process, use capital resources in a way superior (or at least not inferior) to a direct access to the other external markets?

Are the frictional costs (e.g. controlling, administration, taxes, principal agent considerations) of internalising outsourced businesses more than offset by "synergies"?

Coase-considerations trigger decisions on make or buy, and make or avoid

2. What kind of risk? – Merton also helps! („Diversification hurts!“)

$$A_i = \max(0; U_i - l_i)$$

- Simplified Merton model. Minimal value of „0“ signals the Merton option, or limited liability put option, not to inject any further capital into an over-indebted enterprise

$$A_i = \max(0; V_i + M_i - l_i)$$

- Enterpreneurial risk U reflects the sum of underwriting (V) and market (M) risk

$$Max\left[0; V + M - l\right] \leq Max\left[0; V - l^*\right] + Max\left[M - l + l^*\right]$$

$$\frac{\left[V + M - l\right] + \left|\left[V + M - l\right]\right|}{2} \leq \frac{\left[V - l^*\right] + \left|\left[V - l^*\right]\right| + \left[M - l + l^*\right] + \left|\left[M - l + l^*\right]\right|}{2}$$

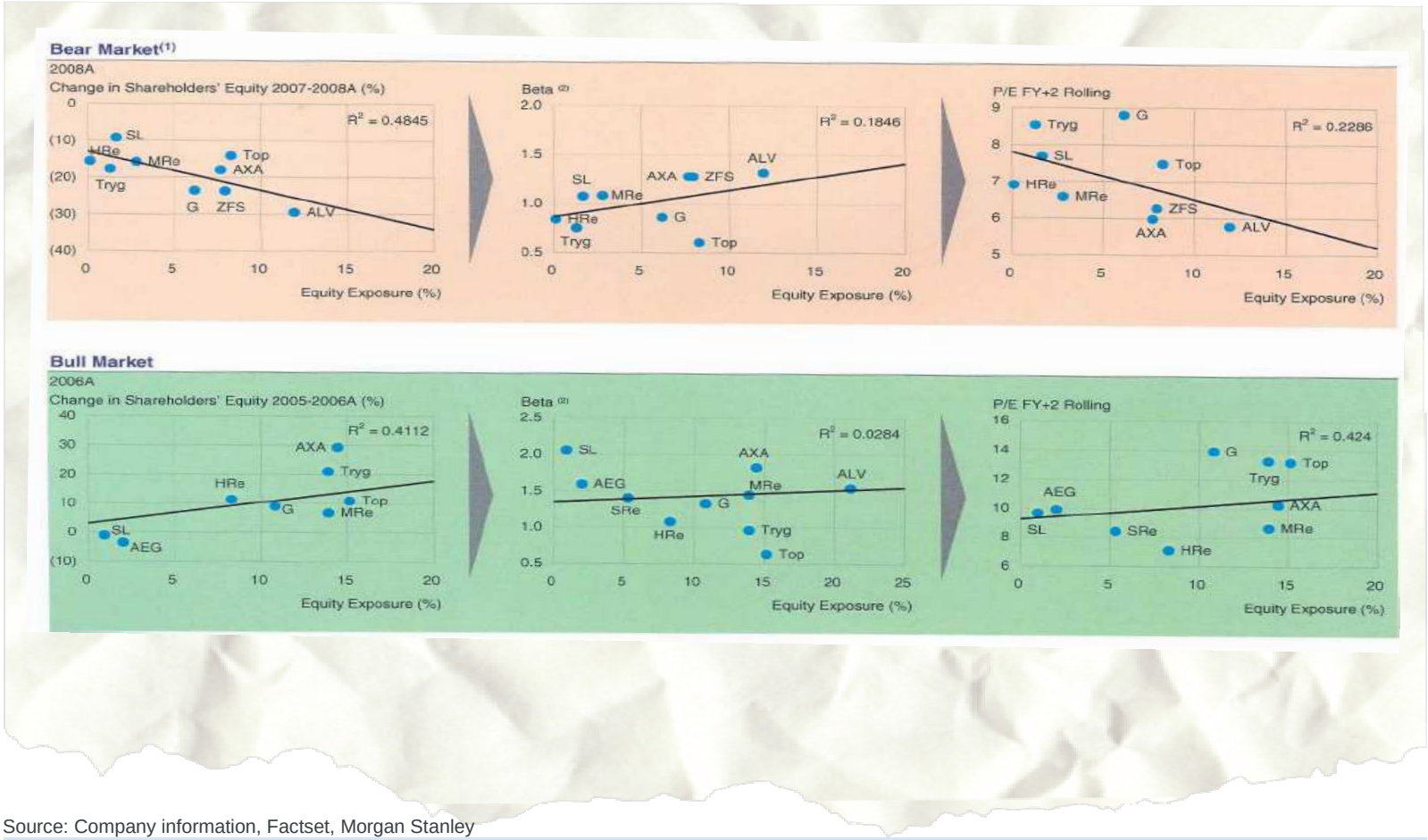
$$\left|\left[V + M - l\right]\right| \leq \left|\left[V - l^*\right]\right| + \left|\left[M - l + l^*\right]\right|$$

q.e.d. $|a+b| \leq |a| + |b|$

Please refer to R.C. Merton, Theory of Rational Option Pricing, Bell Journal of Economics and Management Science 4 No. 1, 1973, pp. 141-183

Mathematics underline intuitive reasoning

2. What kind of risk? – some empirical evidence



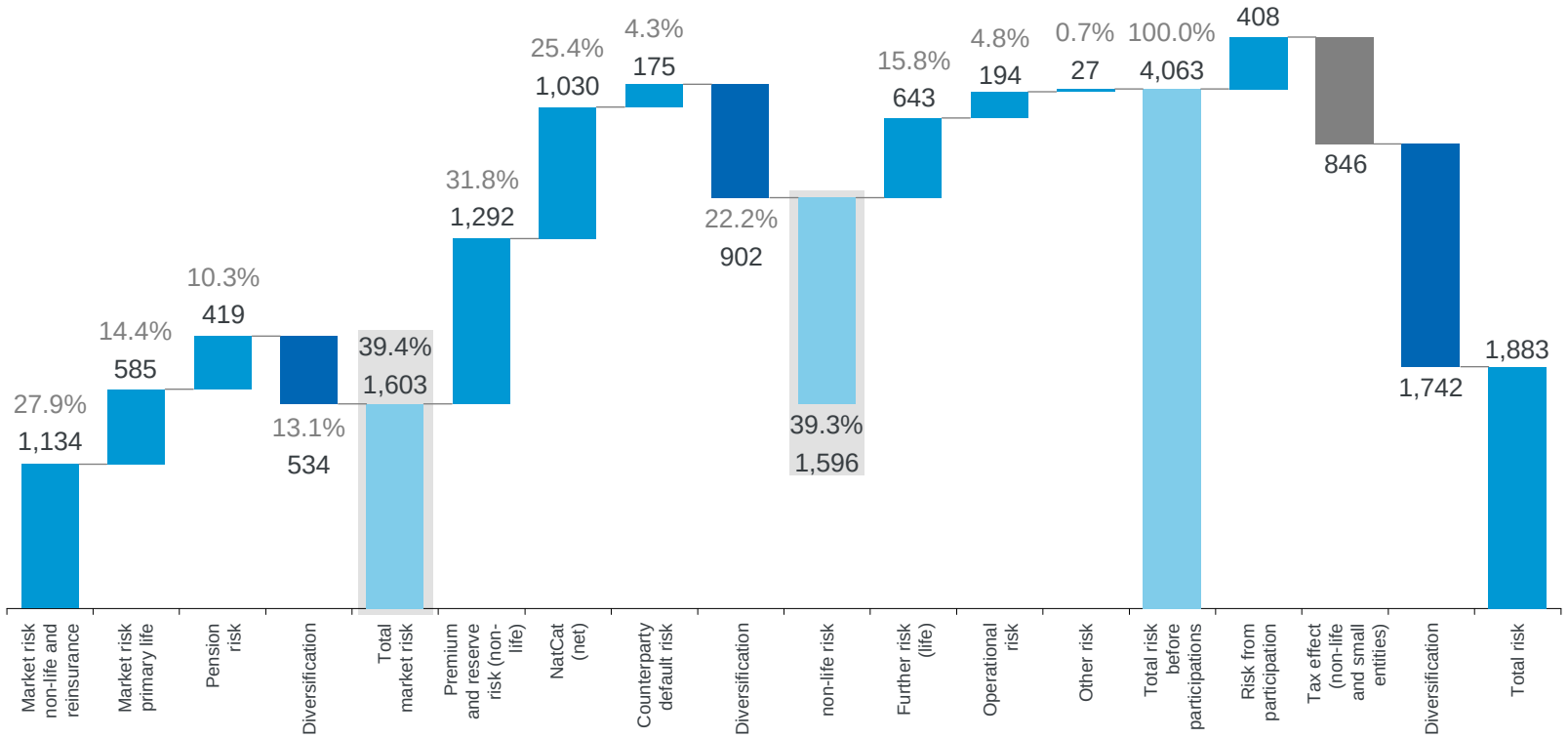
Source: Company information, Factset, Morgan Stanley

Empirically, asset risk exposures have not proven a value-driver for insurances

2. What kind of risk? – Talanx positioning in hard numbers

Risk components of Talanx Group[1]

(as of 31 December 2012, €m)

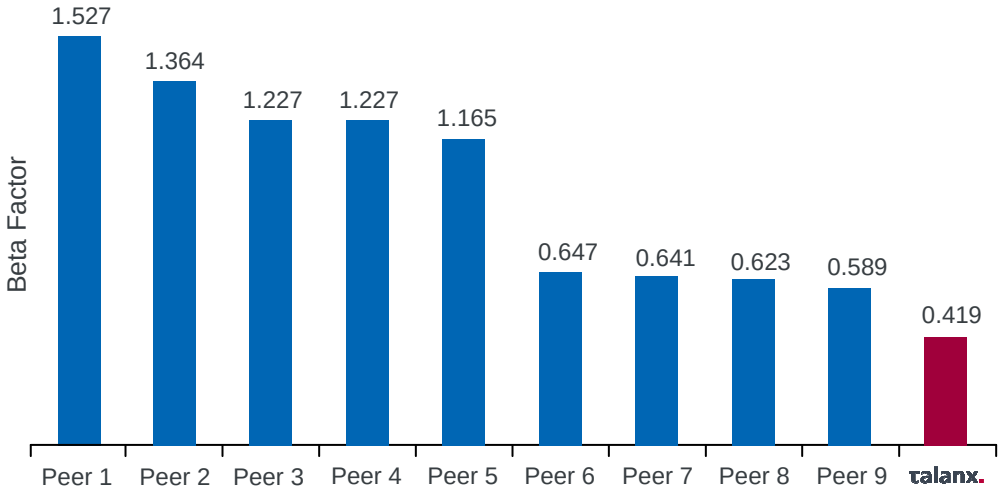


[1] Figures show risk categorisation of the Talanx Group after minorities, after tax, post diversification effects as of 2012. Solvency capital requirement determined according to 99.5% security level, economic view, after minorities

Market risk well below the defined limit of 50%

2. What kind of risk? – impact on Talanx share

Historical beta relative to Stoxx 600 Insurance



All numbers are historical beta figures. Period for beta calculation: 4 January – 31 May 2013.
The peer group contains Allianz, Aviva, Axa, CNP, Generali, Munich Re, Prudential, Swiss Re and Zurich.
Source: Bloomberg

Talanx €500 2042-NC-2022 8.367%: 0.739 vs. iBOXX SUB (Jun 2012 - May 2013)

- Over the first five months of the year, the beta of the Talanx share was lower than for any of its peers
- The calculation excludes Q4 2012 to avoid distortions from the IPO
- In other words, the sensitivity of the share‘s returns to market returns, or market risk, was lowest: when the Stoxx 600 Insurance index moved 1% the Talanx share only moved by 0.42% in parallel
- A low-elasticity to market movements can also be observed for the €500m hybrid issue launched in April 2012

Lowest beta among Top 10 European insurers

3. Who can take it? – decentralised entrepreneurship

"Capitalistic" mathematics

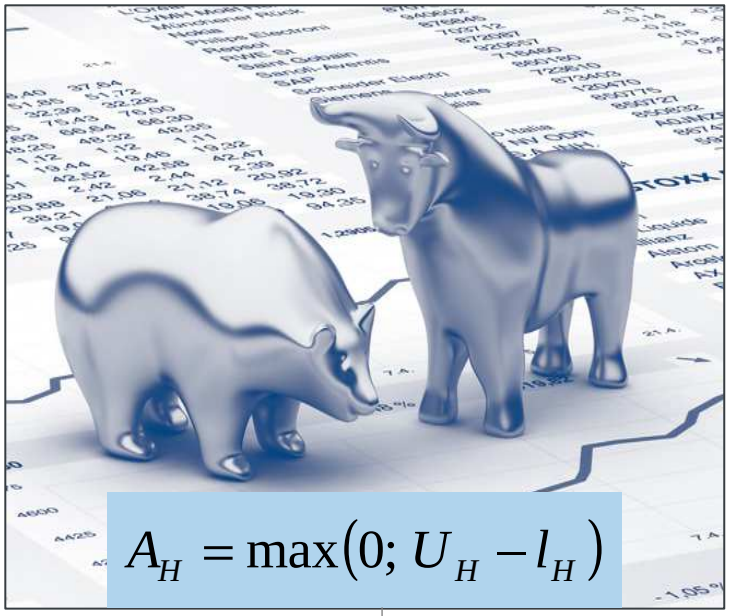
- Pure definition of capital, i.e. no subordinate debt
- Maximising (shareholder-)risk-adjusted return/capital
- Considering not only policyholder protecting – and business-essential - tail loss limits (below 0.03%), but also "operation/dividend-relevant" loss risks to be limited to 10%
- Limiting „sub-accretive" uses of capital, i.e. market risk to 50%

Entrepreneurial set up

- As much Schumpeter as possible yet as much central risk management oversight as necessary
- Swiss Solveny Test-like legal entity approach defining and limiting entity specific local and corporate out-of-bounds limits
- Co-operative risk management organisation with central risk management staff (e.g. policy, aggregation, path-identical Monte Carlo event sets), central gatekeepers (e.g. asset mangement, outward reinsurance), and capable (consistent) decentral risk management hubs

"Schumpeter in the box": risk management intended to reflect decentralised entrepreneurship

3. Who can take it? – anatomy of the Group (I)



$$A_H = \max(0; U_H - l_H)$$

x %

$$A_{S_1} = \max(0; U_{S_1} - l_{S_1})$$

y %

$$A_{S_2} = \max(0; U_{S_2} - l_{S_2})$$

z %

$$A_{S_3} = \max(0; U_{S_3} - l_{S_3})$$

Dedication to shareholder value approach on Group as well as on legal entity level

3. Who can take it? – anatomy of the Group (II)

The legal form (stock corporation) is characterized by three basic principles

Group

Liability is limited to the company's assets which privileges the controlling shareholder;
the company's management is obliged to take this into account

Solo undertakings

The company's management bears the responsibility for the business
and needs to take into account the minority shareholders in its decisions

Separation of insurance lines

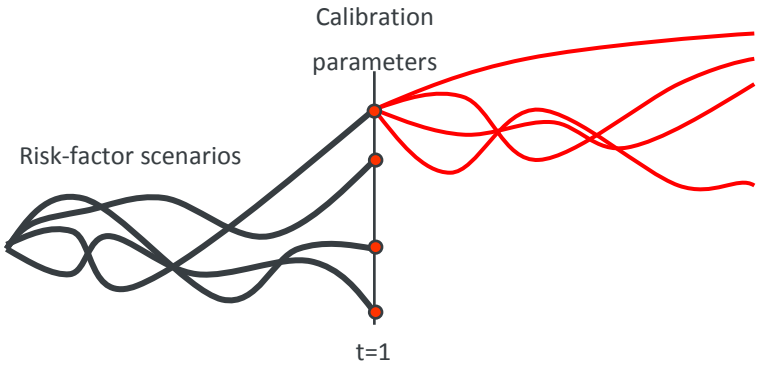
**Legal and regulatory requirements as starting point on how to set up risk management.
Responsibility to pay claims falls to solo-entities in the first place, not to the Group**

3. Who can take it? – anatomy of the Group (III)

- Create a sufficiently large number of group-wide identical scenarios for all relevant risk factors – describing the world for one year whereby groupwide riskfactors must be modelled pathwide identical
- Revalue the assets and liabilities for each risk factor scenario at the end of the first year
  - including all options and guarantees
  - which in most cases requires a stochastic valuation and thus leads to a nested stochastic calculation
- Aggregate the SNAs („at-equity consolidation“)

Comments

- All other approaches are shortcuts for this approach



Source: TowersWatson (Group Models by Tigran Kalberer, Michael Thomas & Michael Klüttgens)

There is also diversification in SST-like models!
Diversification is more an outgoing result rather than an ingoing assumption

3. Who can take it? – anatomy of the Group (IV)

The existence of the Group has an impact on individual legal entities

- Participations
- Internal counterparty default risk on internal capital and risk transfer instruments (CRTIs)
- Group effects must be considered

Simple question: how do we represent solo-entities & group interactions?

- Define a group: a set of (at least two) legal entities bound by some type of ownership or control arrangement
- Who owns whom? - structure of ownership
- Which type of capital has been transferred between group members?
- Which risks are transferred between which group members? - risk transfer instruments: guarantees, reinsurance contracts etc.

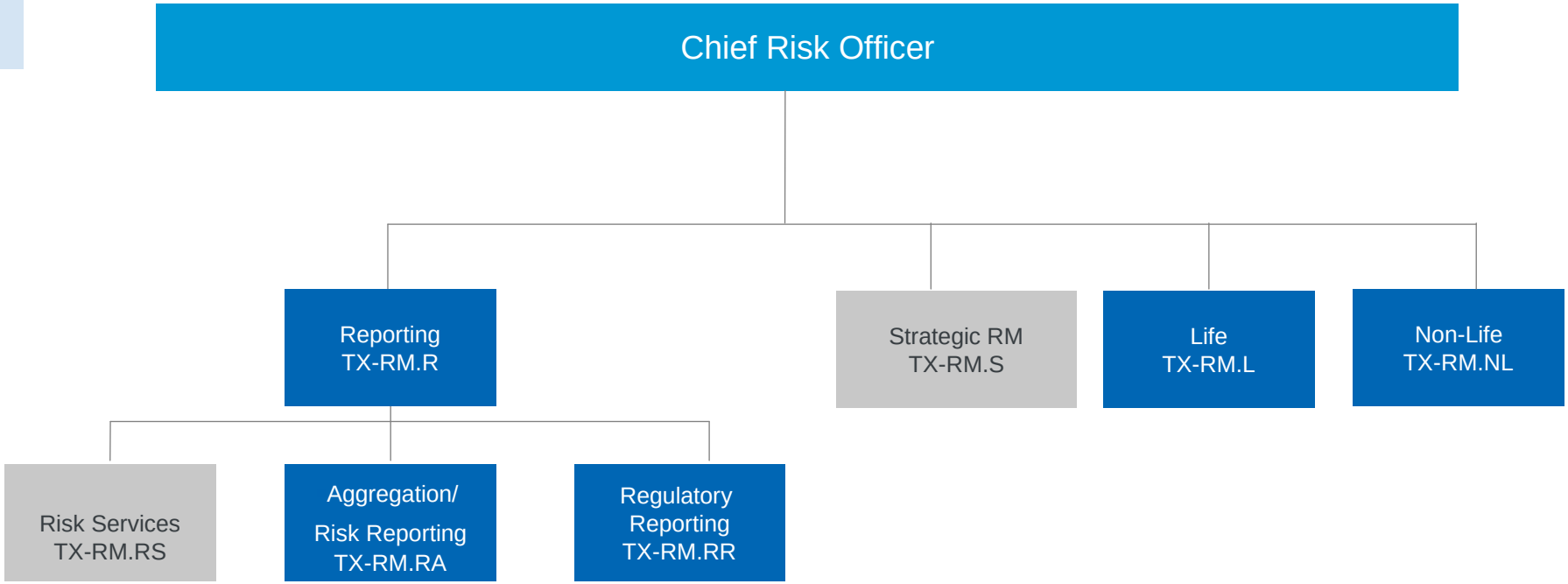
Explicit interactions between legal entities both by means of ownership and by legally binding capital or risk transfer instruments

Allows us to reason about solo-entity risk factors and group interactions

Source: TowersWatson (Group Models by Tigran Kalberer, Michael Thomas & Michael Klüttgens)

Talanx Risk Management bases on the legal entity approach

3. Who can take it? – Organisational set-up on Group level



On Group level, Talanx Risk Management employs 34 highly qualified specialists

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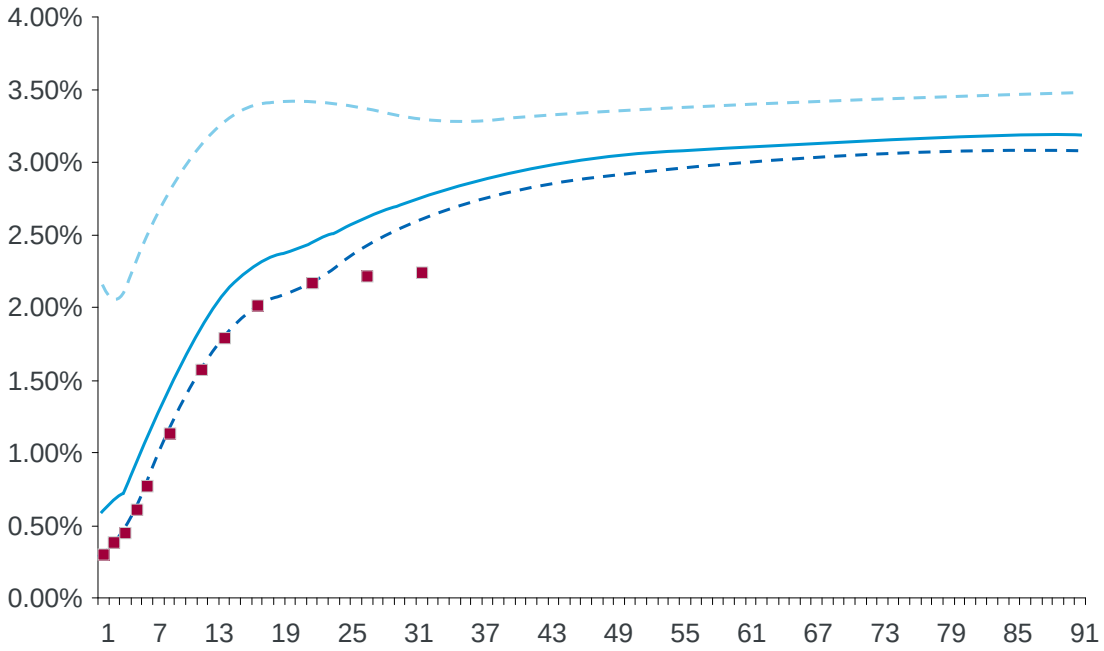
Essentials

- **MCEV slightly up in 2012 despite the challenging economic environment**
- **MCEV model has been further improved and fine-tuned**
- **Acquisitions in foreign retail business positively contribute to the MCEV**
- **Interest rate sensitivity further reduced by hedges closed in 2013**

Changes in methodology and market environment

Comparison of swap rates



- Risk-free rate 2012 (no illiquidity premium, start extrapolation at 20Y and reach to UFR at 60Y)
- Reference rate 2012 (with illiquidity premium, start extrapolation at 20Y and reach to UFR at 60Y)
- Reference rate 2011 (with illiquidity premium, start extrapolation at 30Y and reach to UFR at 90Y)
- Bloomberg 2012 (as of year-end)

Changes in methodology

- Change of credit risk model
- Unified model platform for Retail Germany
- Improved modelling for Italian life business

Influences of the capital market

- Narrowing of credit spreads
- Lower implied swaption volatility
- Lower interest rates:
  - lower risk-free rates
  - lower illiquidity premium

Parameterisation of the scenarios

- Ultimate forward rate (UFR)
- Ultimate volatility

MCEV affected by changes in methodology and influences of the capital market

Economic assumptions [currency EUR] - 2012

Yield curve extrapolation with Smith-Wilson method:

- Ultimative forward rate (UFR) 4.2%
- Extrapolation entry point 20 years, UFR reached after maturity of 60 years
- Extrapolation parameter 0.2

Illiquidity premium:

- Basis illiquidity premium of 44 bps calibrated in line with QIS5 methodology (50/40 formula)
- Usage: 100% annuities, 75% traditional, 0% unit linked without guaranties
- Illiquidity premium of 29 bps (74 bps in 2011) applied to primary insurance, due to composition of portfolio
- No illiquidity premium applied for reinsurance

Assumptions of Talanx are comparable with peers

Talanx MCEV 2012

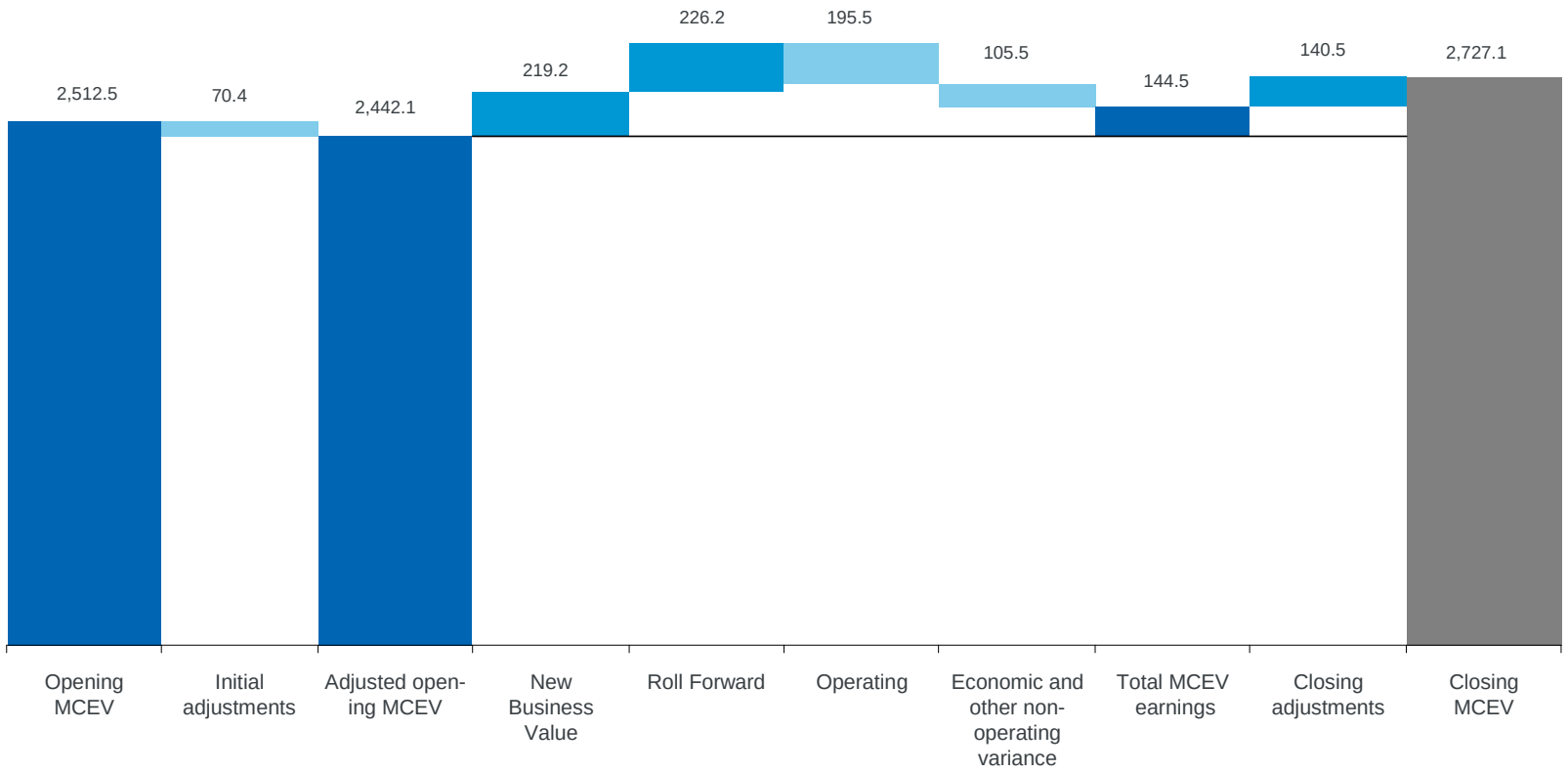
	Primary insurance		Reinsurance		Talanx		Change
	2012	2011	2012	2011	2012	2011	Change
	€m	€m	€m	€m	€m	€m	%
Net asset value (NAV)	**1,072.1**	**794.0**	**503.6**	**564.7**	**1,575.6**	**1,358.7**	**16.0**
Present value of future profits (certainty equivalent)	909.7	1,048.6	1,344.7	1,240.6	2,254.4	2,289.2	-1.5
Financial options and guarantees (FOGs)	-705.7	-679.0	-7.9	-6.9	-713.7	-685.8	-4.1
Cost of residual non-hedgeable risks (CoRNHR)	-124.0	-67.4	-214.9	-208.4	-338.9	-275.8	-22.9
Cost of required capital (CoRC)	-33.7	-63.7	-51.6	-49.9	-85.2	-113.6	25.0
Look through and other adjustments	74.3	-23.0	-39.4	-37.1	34.9	-60.1	158.1
Value in-force (VIF)	**120.6**	**215.4**	**1,030,9**	**938.4**	**1,151.5**	**1,153.8**	**-0.2**
MCEV after minorities	**1,192.6**	**1,009.4**	**1,534.5**	**1,503.1**	**2,727.1**	**2,512.5**	**8.5**

Note: All values are displayed after minorities.

MCEV of €2.7bn reflects life business of primary insurance and reinsurance

Movement of Embedded Value

Movement of Embedded Value (€m)



MCEV slightly up in 2012 despite the challenging economic environment

Analysis of Change

	Primary insurance			Reinsurance			Talanx
	FS+RC[1]	VIF[2]	Total	FS+RC	VIF	Total	Total
	€m	€m	€m	€m	€m	€m	€m
Opening MCEV	**794.0**	**215.4**	**1,009.4**	**564.7**	**938.4**	**1,503.1**	**2,512.5**
Capital injection	-	-	-	-0.0	-	-0.0	-0.0
Dividend payments	-66.7	-	-66.7	-	-	-	-66.7
Change in currency exchange rates	-	-	-	-3.2	-0.5	-3.7	-3.7
Other implications	-	-	-	-	-	-	-
Adjusted opening market consistent embedded value (MCEV)	**727.3**	**215.4**	**942.7**	**561.5**	**937.9**	**1,499.4**	**2,442.1**
New business value	-2.2	67.7	65.4	-64.1	217.9	153.8	219.2
Expected existing business contribution (reference rate)	-	142.4	142.4	9.0	37.1	46.1	188.5
Expected existing business contribution (in excess of reference rate)	-	28.1	28.1	9.6	-	9.6	37.7
Transfers from VIF and RC to FS	118.3	-118.3	-	90.2	-90.2	0.0	0.0
Experience variance	27.8	-21.3	6.4	-66.7	-23.0	-89.7	-83.3
Assumption changes	-	133.8	133.8	-93.4	-48.2	-141.6	-7.7
Other operating variance	26.0	-67.2	-93.2	1.5	-12.8	-11.3	-104.5
Operating MCEV earnings	**117.9**	**165.1**	**283.0**	**-113.9**	**80.9**	**-33.0**	**250.0**
Economic variances	-2.7	-185.0	-187.6	160.2	7.0	167.2	-20.4
Other non operating variance	-3.4	-86.8	-90.2	-0.0	5.2	5.2	-85.0
Total MCEV earnings	**111.8**	**-106.6**	**5.2**	**46.2**	**93.0**	**139.3**	**144.5**
Closing adjustments	**233.0**	**11.7**	**244.7**	**-104.2**	**-**	**-104.2**	**140.5**
Capital injection	239.6	11.7	251.3	-76.9	-	-76.9	174.4
Dividend payments	-6.6	0.0	-6.6	-27.3	-	-27.3	-33.9
Closing MCEV after minorities	**1,072.1**	**120.6**	**1,192.6**	**503.6**	**1,030.9**	**1,534.5**	**2,727.1**

[1] FS = free surplus, RC = required capital, [2] VIF = value-in-force, [3] net effect mainly from the acquisitions of Warta and TU Europa and the disposal of Aspecta Liechtenstein

Comments

Primary segment:

- Development of MCEV impacted by an unfavourable economic environment
- Negative impact overcompensated by the new activities, changes to assumptions in light of actual experience, reduction of risk, and the value of new business
- Impact from acquisitions of €132m[3]

Reinsurance segment:

- High return on MCEV by excellent value of new business, positive experiences on investment return as well as higher NAV and VIF due to downward shift of yield curve
- New business value mainly from the US, Bermudian and Irish business

MCEV slightly up in 2012 despite the challenging economic environment

New business

	Primary insurance		Reinsurance		Talanx		Change
	2012	2011	2012	2011	2012	2011	Change
	€m	€m	€m	€m	€m	€m	%
Profit/Loss on New business	-2.2	-4.5	-64.1	-82.6	-66.4	-87.1	23.8
Present value of future profits (certainty equivalent)	100.7	104.7	246.0	245.2	346.6	349.9	-0.9
Financial options and guarantees (FOGs)	-18.1	-29.0	0.0	0.0	-18.1	-29.0	37.4
Cost of residual non-hedgeable risks (CoRNHR)	-11.7	-5.1	-18.8	-31.1	-30.5	-36.2	15.7
Cost of required capital (CoRC)	-2.2	-1.2	-5.5	-10.7	-7.7	-11.9	35.1
Look through and other adjustments	-1.0	-6.4	-3.7	-4.7	-4.7	-11.0	57.8
New business value after minorities	**65.4**	**58.5**	**153.8**	**116.2**	**219.2**	**174.6**	**25.5**
	%	%	%	%	%	%	%
New business margin	**1.68**	**1.51**	**5.82**	**3.28**	**3.35**	**2.35**	**42.5**

Values exclude the NBV of the new acquisitions in Poland.

Comments

Primary segment:

- Slight increase in new business value
- Decrease of FOGs for Retail Germany, partly offset by an increase in the CoRNHR due to refinements in the model
- Moderate increase in new business margins due to lower guaranteed interest rates in Germany

Reinsurance segment:

- Significant increase in new business value mainly caused by innovative structured Yearly Renewable Term transactions and Mortality Solutions business underwritten by the US, Bermudian and Irish subsidiaries
- Increase in new business margins for domestic operations and foreign operations by the US, Bermudian and Irish subsidiaries

Increase of Talanx's new business value by 25.5%

MCEV sensitivity analysis

	Primary insurance 2012	Reinsurance 2012	Talanx 2012
	€m	€m	€m
MCEV after minorities	**1,192.6**	**1,534.5**	**2,727.1**
	%	%	%
Mortality/Morbidity + 5% (non-annuity)	-3.5	-33.4	-20.3
Mortality/Morbidity -5% (non-annuity)	3.3	36.0	21.7
Mortality +5% (annuity)	3.1	3.6	3.4
Mortality -5% (annuity)	-3.3	-3.8	-3.6
Lapse rate +10%	-1.3	-12.3	-7.5
Lapse rate -10%	1.4	8.3	5.3
Maintenance expenses +10%	-9.2	-3.2	-5.8
Maintenance expenses -10%	8.9	2.9	5.5
Yield curve +1%	32.4	-7.5	10.0
Yield curve -1%	-75.3	9.0	-27.8
Swaption implied volatilities +25%	-16.5	-0.3	-7.4
Equity and property value +10%	4.9	0.1	2.2
Equity and property value -10%	-5.2	-0.1	-2.3
Equity option volatilities +25%	3.8	0.0	1.6

Diversification effect between primary and reinsurance, namely in interest rate sensitivity

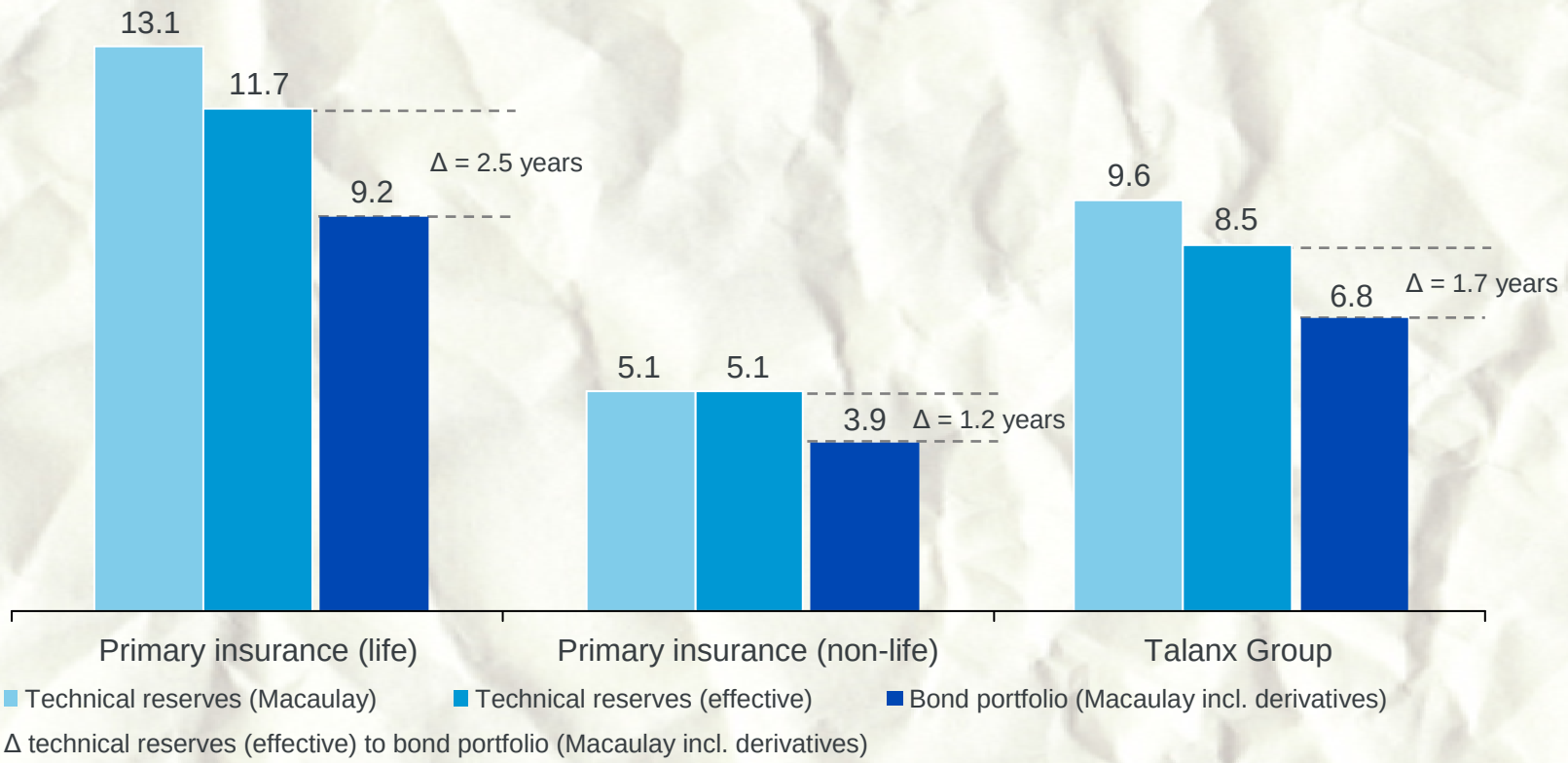
New Business Value sensitivity analysis

	Primary insurance 2012	Reinsurance 2012	Talanx 2012
	€m	€m	€m
New Business Value (NBV) after minorities	**65.4**	**153.8**	**219.2**
	%	%	%
Mortality/Morbidity + 5% (non-annuity)	-9.0	-27.5	-22.0
Mortality/Morbidity -5% (non-annuity)	6.5	26.7	20.7
Mortality +5% (annuity)	2.5	1.1	1.5
Mortality -5% (annuity)	-3.0	-1.2	-1.7
Lapse rate +10%	-6.7	-7.4	-7.2
Lapse rate -10%	5.0	6.0	5.7
Maintenance expenses +10%	-16.7	-3.2	-7.3
Maintenance expenses -10%	12.7	3.6	6.3
Yield curve +1%	43.1	-9.2	6.4
Yield curve -1%	-96.9	9.7	-20.0
Swaption implied volatilities +25%	-17.6	0.0	-5.3
Equity and property value +10%	4.4	0.0	1.3
Equity and property value -10%	-5.2	0.0	-1.6
Equity option volatilities +25%	4.1	0.0	1.2

Diversification effect on interest rate sensitivity also in NBV between primary and reinsurance

Effective duration concept

Preliminary duration match of bond portfolio and technical reserves 2012 (years)

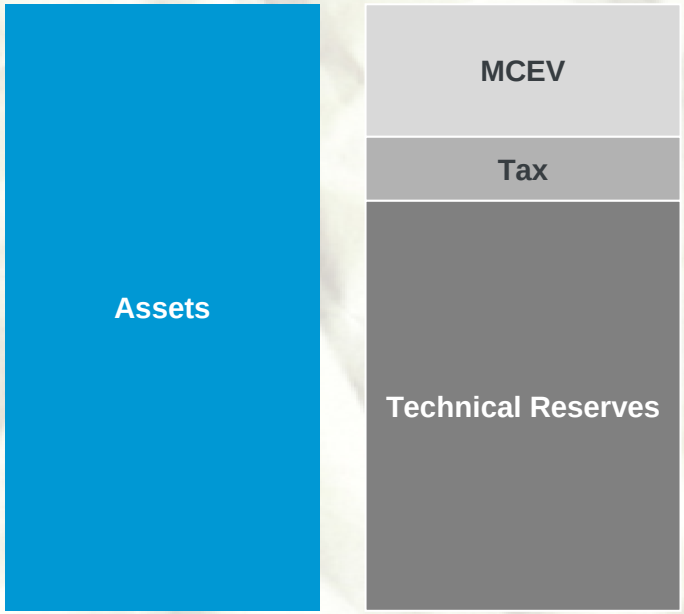


Source: Capital Markets Day, 17 April 2013

Talanx employs a conservative duration matching approach

Effective duration concept

Economic balance sheet (stylised)



Comments

- TERM (Talanx Enterprise Risk Management) - consistent and "economic" definition of effective duration:

$$\frac{\Delta TR}{\Delta i} = \frac{\Delta Assets}{\Delta i} - \frac{\Delta Tax}{\Delta i} - \frac{\Delta MCEV}{\Delta i}$$

TR = technical reserves

i = interest rate

Δi = very small increase of interest rate

This reflects inter alia

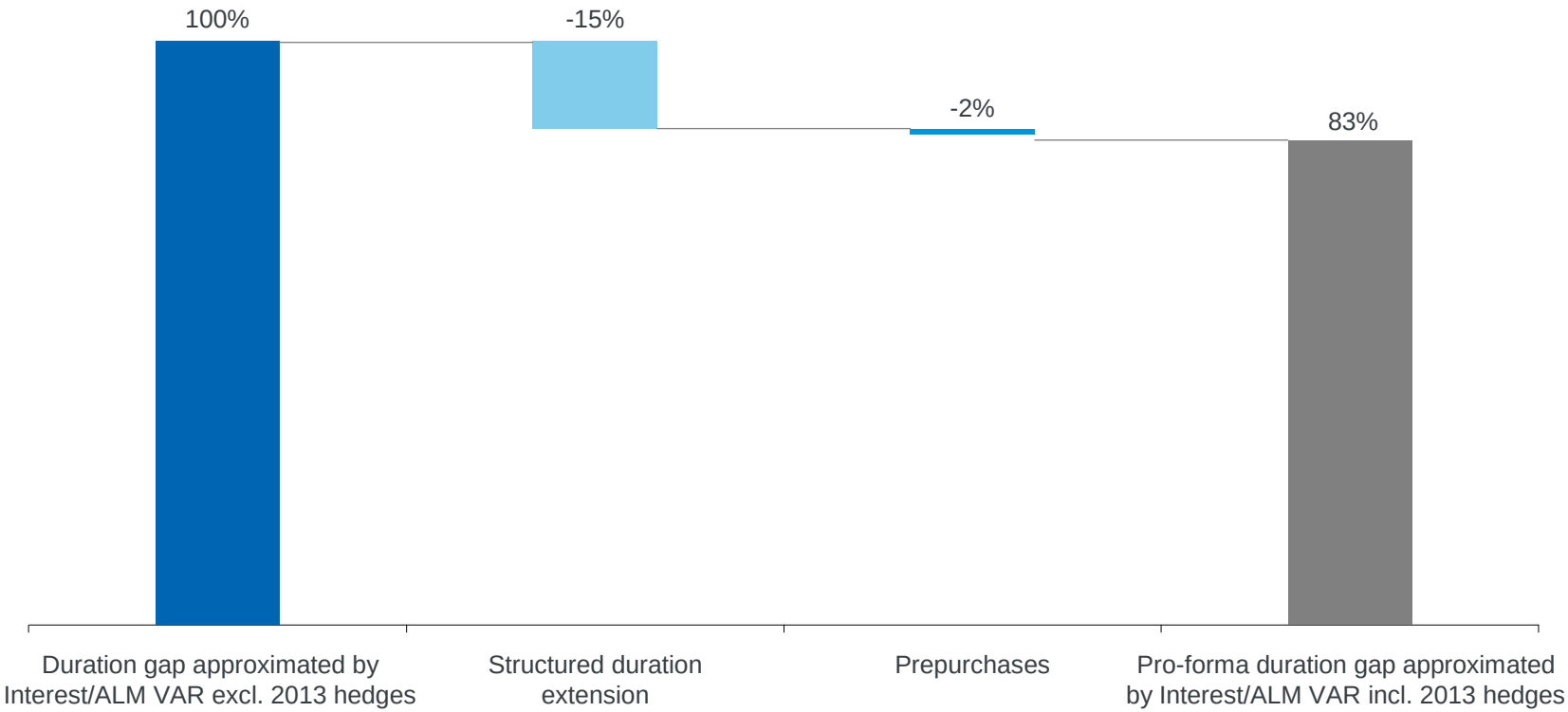
- Management rules as implemented in the certified CFO Forum compliant MCEV calculation
- Burden sharing with the fiscal authorities
- Market consistent representation of the asset duration

Source: Capital Markets Day, 17 April 2013

Effective duration also basis for the day-to-day high frequency ALM radar screen

Effective hedging strategy

Reduction in interest sensitivity of MCEV since 1 January 2013



[1] Please also see Section IV on the application of ALM/Credit VARs

Hedging measures taken in 2013 have further reduced interest rate sensitivity by 17%

Agenda

	Registration and Coffee	
I	Approach and organisational set-up	Dr. Immo Querner
II	MCEV report: key results	Dr. Gerhard Stahl
III	SCR report: methodology and key results	Dr. Gerhard Stahl
	Lunch Break	
IV	Operationalisation: ALM/Credit VAR	Dr. Immo Querner
V	S&P ERM review and BaFin process	Dr. Gerhard Stahl
VI	Q&A for open issues	

Essentials

- **Comfortable capitalisation due to a well-diversified portfolio**
- **Appreciable rise in own funds in comparison to 31 December 2011**
- **Capital adequacy ratio improved in comparison to 2010 and 2011**
- **Application of state-of-the-art models**
- **Never rest: methods and processes are improved constantly**

Preliminary remarks

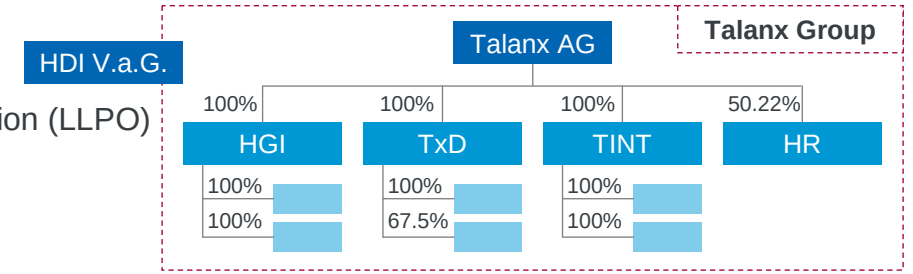
- **As of the reporting date 31 December 2012, Talanx performed a group internal model run (TERM* 2012)**
- **The results presented in the following are taken from the Group model TERM 2012 based on the first validation**
- **The Group results referring to the forecast distribution (e.g. solvency capital requirement or correlation) are derived from a semi-parametric model**
- **This semi-parametric model allows for a straightforward aggregation of results calculated by solo entities via correlation matrices which reflect the experience of former model runs**

* TERM = Talanx Enterprise Risk Model

TERM – Talanx's Reporting Views

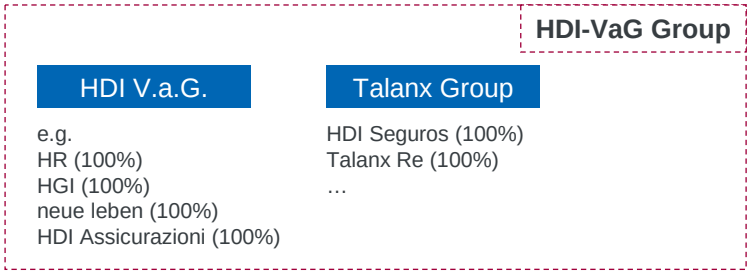
Talanx Group View (Economic View)

- after minorities
- legal structure, but no limited liability put option (LLPO)
- tax according to economic reality



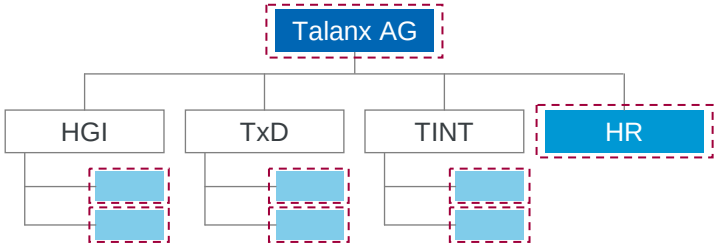
Talanx / HDI – Group Regulatory View

- before minorities, fully consolidated
- as if whole HDI Group would be one risk carrier
- no inter-company relations
- with availability constraints on own funds
- application of tax as in the Talanx Group View



Solo View

- only risk carriers are considered, stand alone, based on solo delivery
- Hannover Re considered as stand alone group
- no Talanx / HDI-Group
- Tax according to economic reality (Solo level)



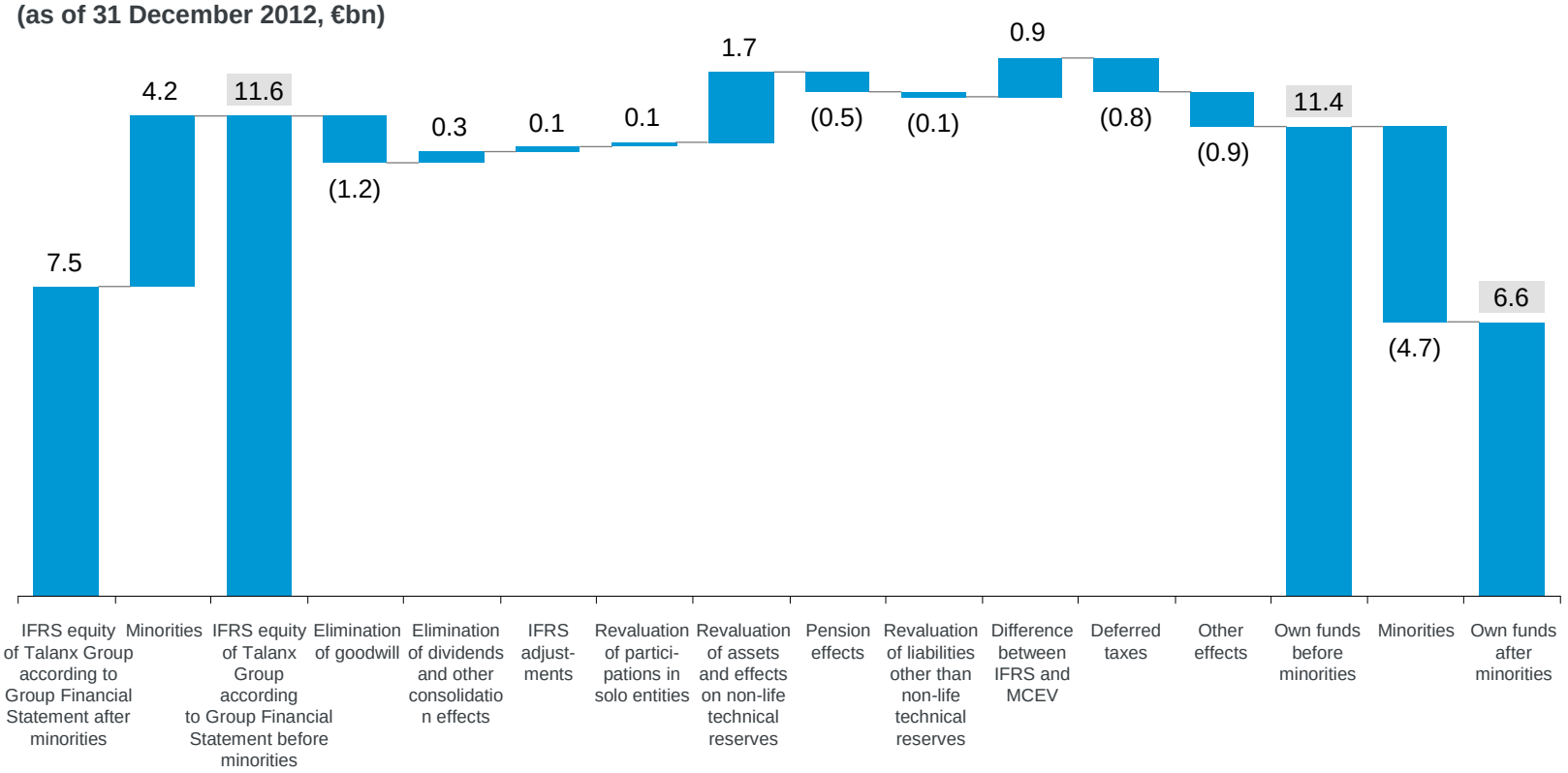
HGI = HDI-Gerling Industrie Versicherung AG, TxD = Talanx Deutschland AG, TINT = Talanx International AG, HR = Hannover Rückversicherung AG

The Economic View is the main reporting view of Talanx

IFRS – own funds reconciliation
Transformation from shareholders‘ equity to own funds

Reconciliation from IFRS to Own Funds[1]

(as of 31 December 2012, €bn)



[1] economic view, after minorities

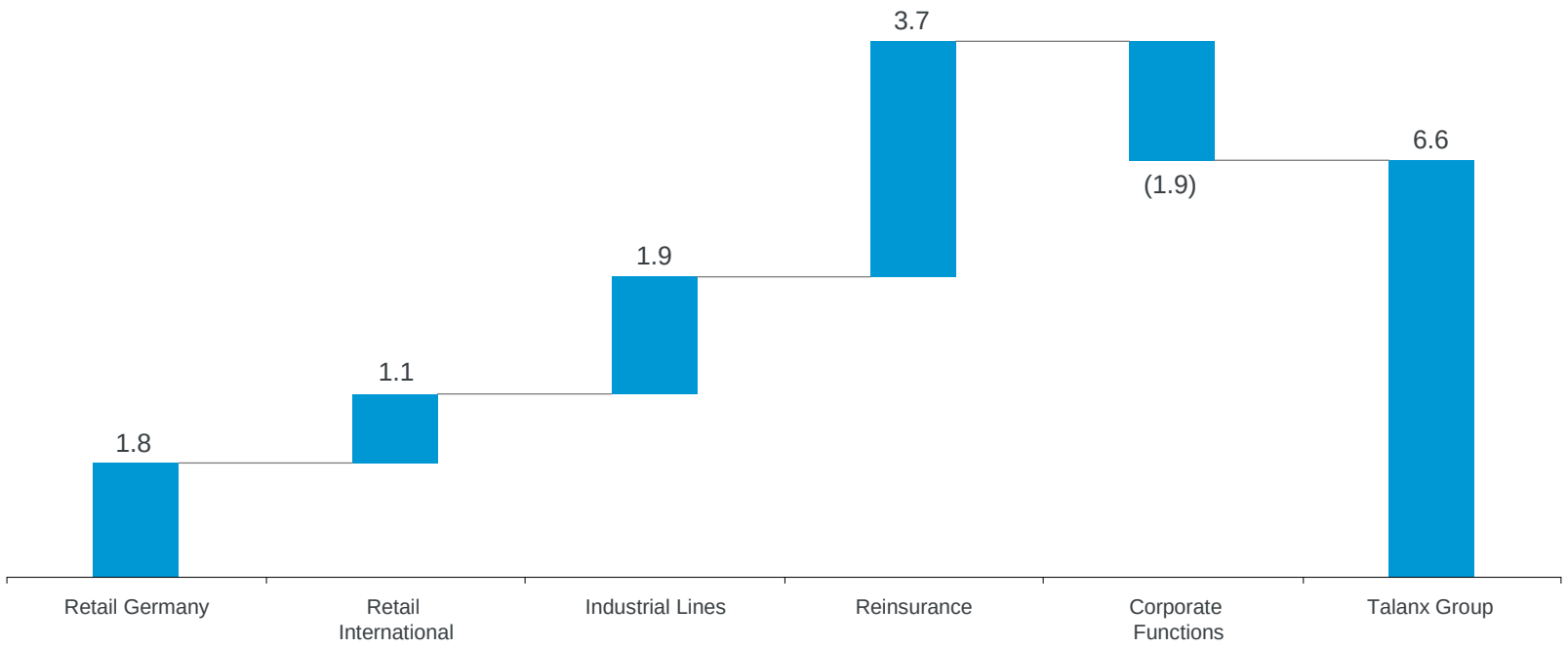
Revaluation effects amount to -0.9 bn € (Economic View)

talanx.

Own funds by division

Own funds[1] by division

(as of 31 December 2012, €bn)



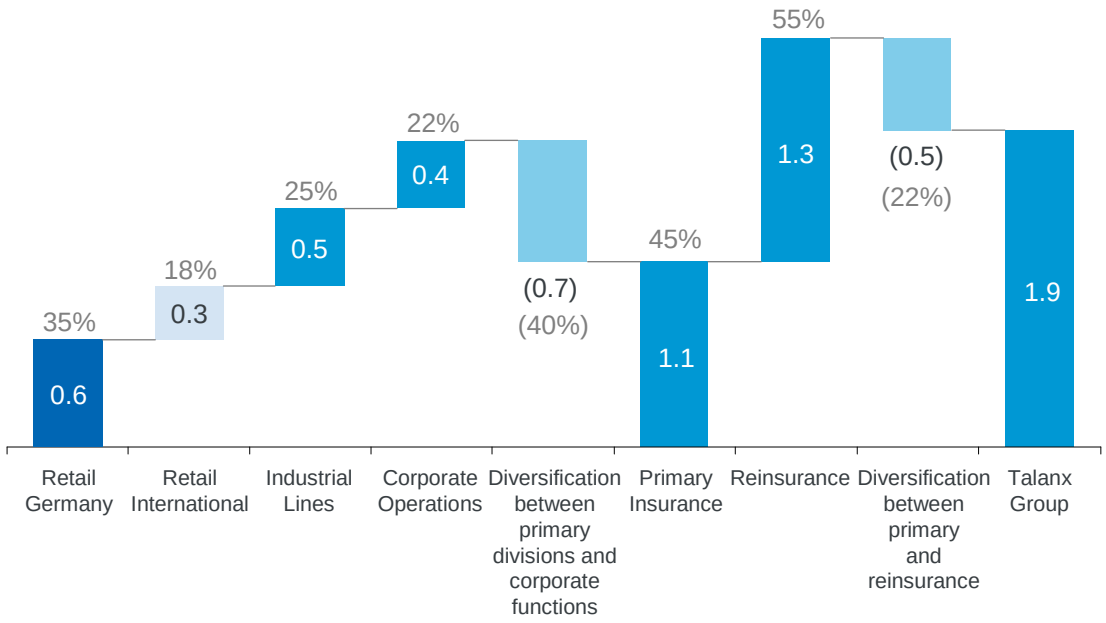
[1] economic view, after minorities

Appreciable rise in own funds in comparison to year-end 2011

Solvency capital requirements (SCR) by division and segments

SCR[1] by division and segments

(As of 31 December 2012, €bn)



Comments

- High diversification effect of 40% among primary divisions
- The Group benefits from a diversification effect of 22% between primary insurance and reinsurance
- This corresponds to an absolute amount of €0.5bn
- At a 99.97% security level, the SCR amounts to €3,371m resulting in a capital adequacy ratio of 196%

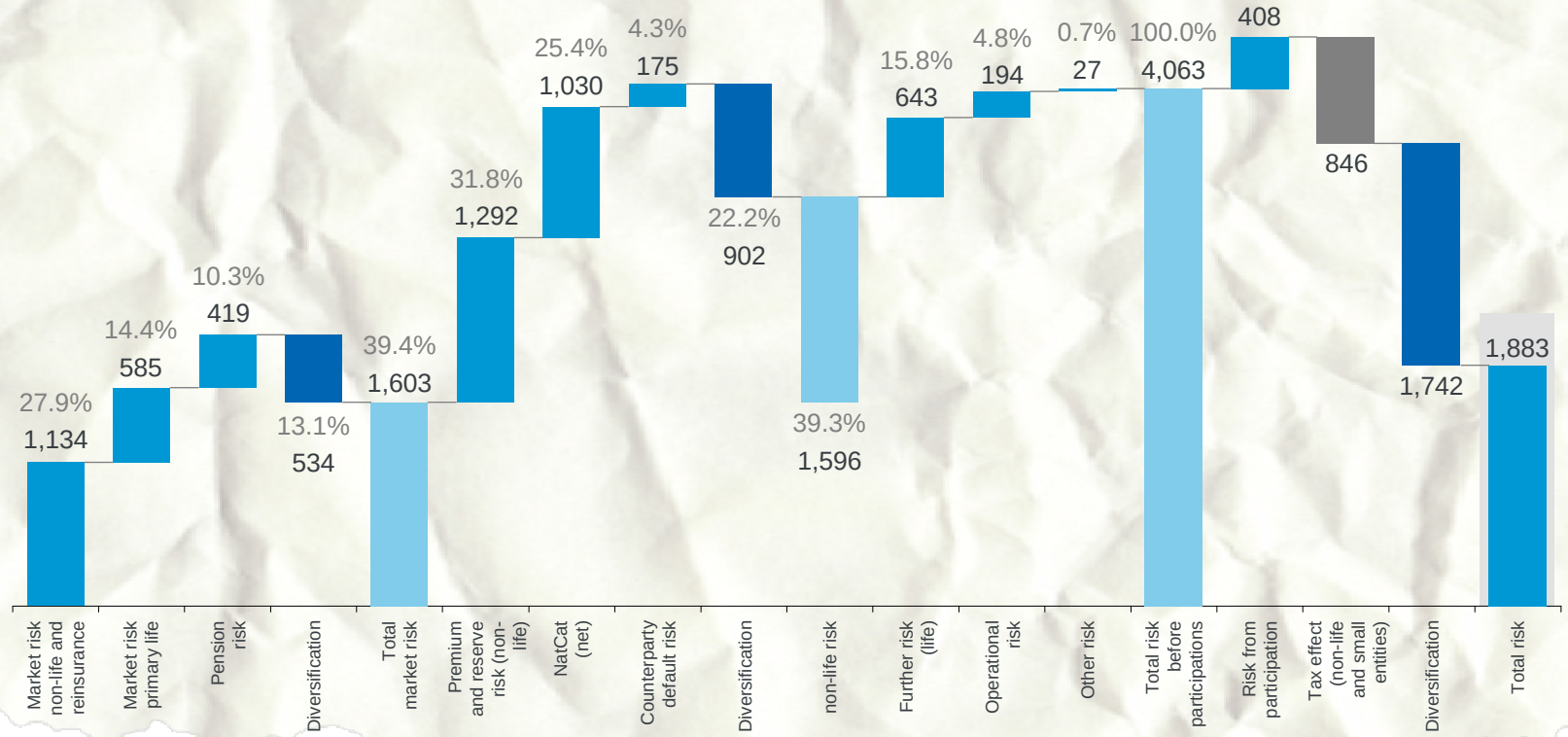
[1] Solvency capital requirement; determined according to 99.5% security level, economic view, after minorities

Talanx Group features a well diversified portfolio

Solvency capital requirement split into components and segments

Risk components of Talanx Group[1]

(as of 31 December 2012, €m)



[1] Figures show risk categorisation of the Talanx Group after minorities, after tax, post diversification effects as of 2012. Solvency capital requirement determined according to 99.5% security level, economic view, after minorities

High diversification between primary insurance and reinsurance in non-life risk

Diversification benefits

Correlation between Talanx's divisions (internal model results)

	Retail Germany	Retail International	Industrial Lines	Reinsurance	Corporate Operations	Talanx Group
Retail Germany						
Retail International	Medium positive					
Industrial Lines	Medium positive	Very low positive				
Reinsurance	Very low positive	Very low positive	Low positive			
Corporate Operations	Medium positive	Very low positive	Low positive	Low positive		
Talanx Group	High positive	Low positive	Medium positive	Very high positive	Medium positive	

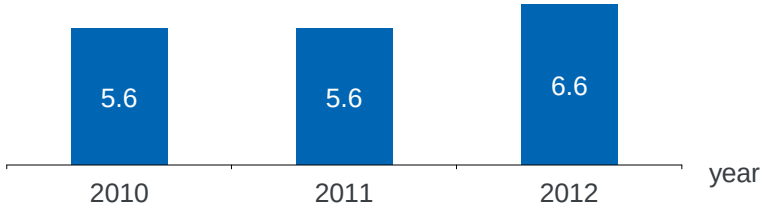
Comments

- Results show superior degree of diversification due to low correlation between divisions
- Results are supportive to the Group's strategic target to achieve an annual profit with 90% probability

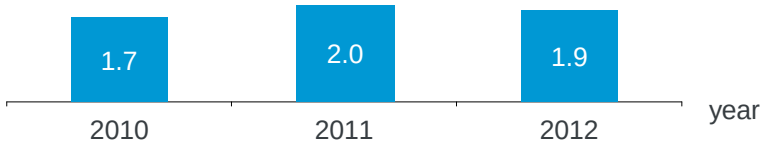
Talanx Group profits from high diversification between divisions; especially Reinsurance shows a low correlation with other divisions

Result history 2010 – 2012 (Economic View: after minorities, no LLPO)

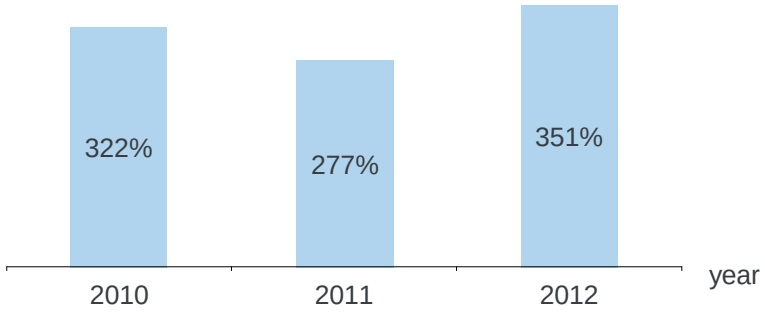
Own Funds (€bn)



Solvency Capital Required (€bn)



Capital Adequacy Ratio (CAR)



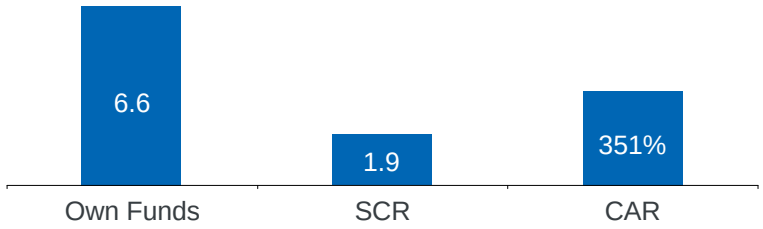
Comments

- Own funds increase significantly from €5.6bn (31 Dec 2011) to €6.6bn end-2012
- Change in own funds from 2011 to 2012 largely due to the Talanx IPO, the Polish acquisitions and the increase in equity capital in Reinsurance
- Diversification effect increases vs. last year

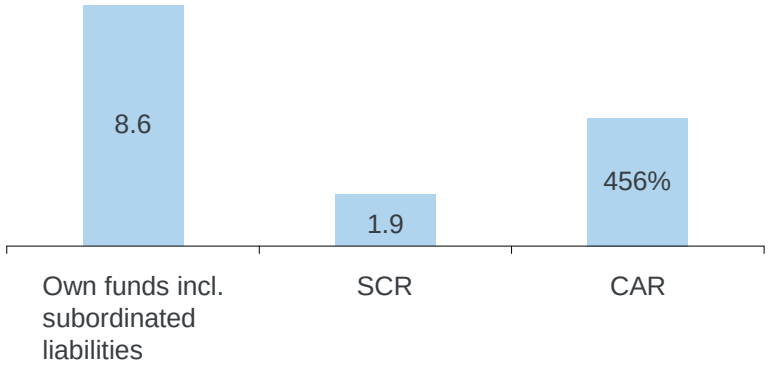
Increase in CAR mainly results from rise in own funds; SCR robust over time

Sensitivity of Solvency Capital Ratios (I): effect from inclusion of subordinated liabilities into Own Funds

Economic view



Inclusion of subordinated liabilities



Comments

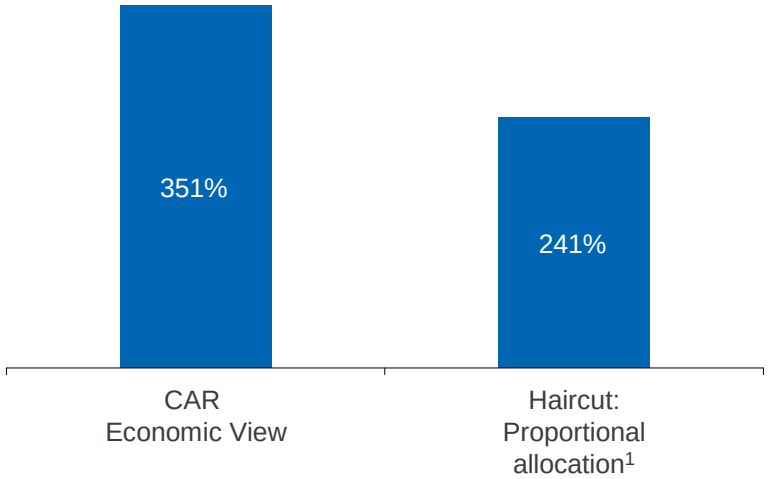
- In the Economic View, subordinated liablities are not included in own funds
- Subordinated liabilities would lead to an increase in own funds of roughly €2bn
- Inclusion of subordinated liabilities leads to an increase in the capital adequacy ratio of more than 100% to 456%
- Consideration of subordinated liabilities has no influence on solvency capital requirements

Talanx Economic View is conservative in not including subordinated liabilities

Sensitivity of Solvency Capital Ratios (II): effect from regulatory availability constraints on CAR (haircut)

Capital Adequacy Ratio

Effect of availability constraints on CAR



Comments

- Regulatory framework places restrictions on the availability of solo own funds on group level (e.g. minority interest)
- The amount of restricted capital depends on the risk capital allocated to solo entities
- The contribution is determined via allocation method
- Proportional allocation (regulatory standard) preserves relation between solo SCRs, but neglects individual diversification effects
- The main impact on own fund availability stems from minority interest in Hannover Re

[1] Solvency capital requirement; determined according to 99.5% security level, regulatory view, before minorities

Talanx CAR at comfortable level even after haircut

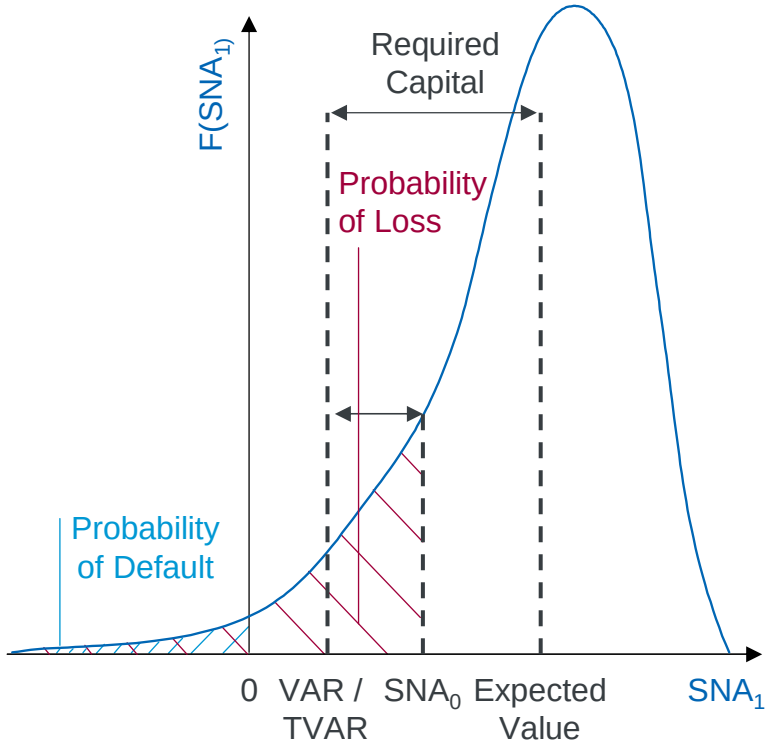
Sensitivity of Solvency Capital Ratios (III): effect from different SCR definitions

Referring to own funds:
The solvency capital requirement (SCR) is determined as difference between the own funds (SNA_0) and VAR 99.5%

or

Referring to expected value:
The solvency capital requirement (SCR) is determined as difference between expected value of SNA_1 distribution and VAR 99.5%

	SCR	CAR
Own Funds - VAR	1.8	377%
Expected value – VAR	1.9	351%



Regulatory uncertainty concerning the procedure to apply.
Talanx chooses the more conservative approach

Which model adjustments are in the pipeline

Improvements for future model runs:

- Inclusion of Warta based on an internal model
- Ability to perform model runs sub-annually within the next two years:
  - superior application of the internal model within the enterprise risk management
  - improving the fulfillment of USE-test requirements
- Adjustments of market volatilities in a conservative manner

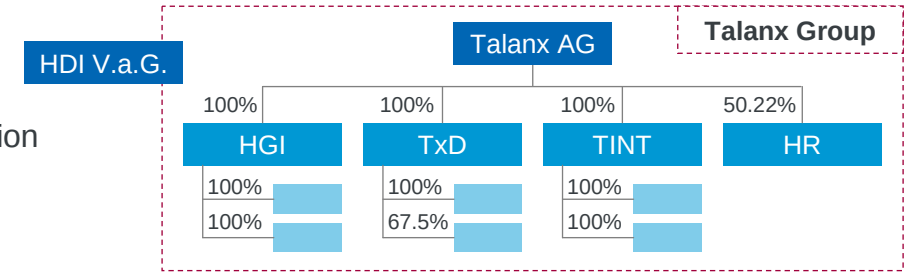
Constant improvements of models and processes

Benefits of the internal model as a steering tool

- The benefits are the higher, the better “economic reality” is captured
- More realistic view of the Group by applying the Economic View. For regulatory purposes some adjustments have to be made
- Standard approaches would lead to misallocation of risk budgets:
  - an internal model features more realistic diversification effects
  - risk from NatCat is not appropriately captured by standard approaches
- The model is interlinked with the planning process

Talanx Group View (Economic View)

- after minorities
- legal structure, but no limited liability put option
- tax according to economic reality



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Core business of an insurer is risk, therefore state-of-the-art risk models should be applied

Why is the Solvency II CAR so much better than under Solvency I?

- The internal model provides an Economic View and a realistic consideration of an insurer‘s underwriting and investment portfolios
- Within the Solvency I approach, correlations between entities and risk categories are not taken into account

	Capital Adequacy Ratio (Solvency I)	Capital Adequacy Ratio (Solvency II)
2011	199%	277%
2012	225%	351%

Internal models capture the risk situation more appropriately

To which extent do regulators limit potential capital savings relative to standard models?

- Currently, insurers do not face dramatic constraints relative to standard models, however…

  … due to regulatory uncertainty it is not yet finally clarified which limitations result from the haircut

  … standard methods are based on some non-conservative asssumptions (e.g. non-defaultable government bonds)

- Eventually, non-conservative assumptions do not reflect the economic common sense and can therefore not be seen as a limitation

No significant limitations in comparison to standard models

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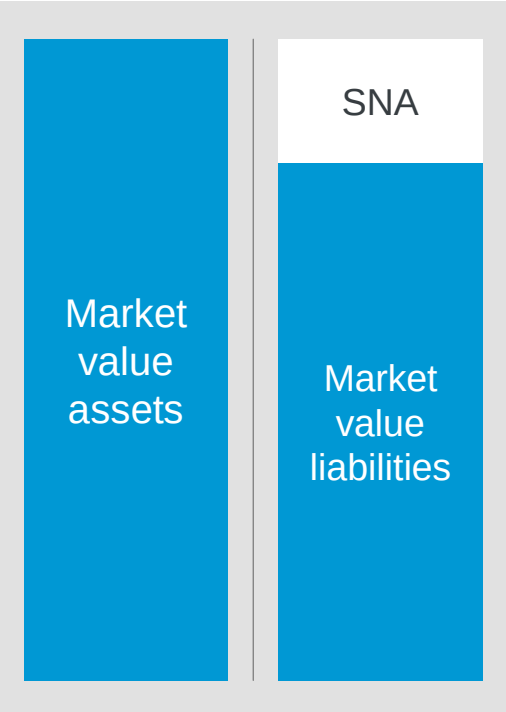
Essentials

- **Analysis and steering of asset management decisions in the context of ALM management and corporate/credit risk positioning**
- **Intra-year tool: dedication to analyse and steer continuously during the whole year**
- **Allowing for a frequent, fast and robust assessment**
- **Safe-guarding the shareholders' net assets continuously throughout the year**

Operationalisation of TERM, SCR, MCEV etc.



1. Asking essentially the same question „**what does it mean for my economic risk position?**“ but particularly when it comes to Asset Management
   - more frequent
   - faster (“pre-trade”)
   - much more disaggregated
   - scalable
   - easily “limitable”
   - robust operational IT-environment
2. The two main asset management levers are
   - horizontal matching, in particular duration/convexity matching
   - exposure to credit/corporate risk

Solution for the ALM challenge: ALM VAR

- ALM VAR is calculated as VAR of a long short portfolio consisting of
  - long positions in all assets under management
  - short positions in liability positions, where each cash flow corresponds to a (MCEV-consistent) liability position

- Modeling of long short portfolios combines benefits of
  - Standard asset management models (Sungard APT©) which take into account detailed cash flow information and a large set of risk factors at a position level and
  - Consistent modeling of the impact of different risk factors on market value of assets and liabilities

- Stand-alone interest rate risk of an existing duration/convexity gap between assets and liabilities is separated by an additional interest-only ALM VAR, where spreads an other risk factors are faded out

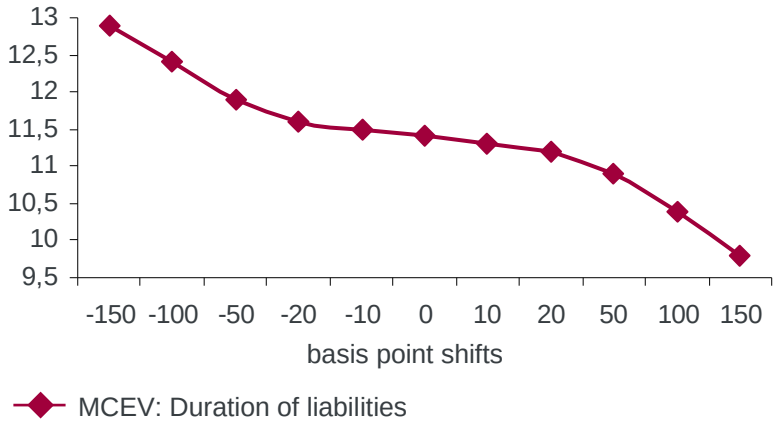
Establishing a day-to-day proven concept

Solution: ALM VAR

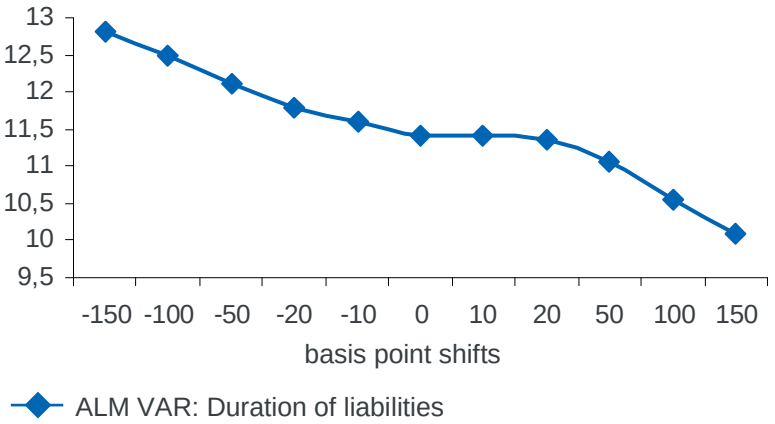
- **ALM VAR incorporates assets and liabilities in market risk management**
  - Liability cash flows (based on projections for each year) are modeled as capital market instruments
  - non-life: cash flows are modeled as risk-free zero-bonds
  - life: cash flows are modeled as risk free structured floaters, risk profile (duration/convexity) is matched to MCEV calculation based on MCEV bps shifts

$$\frac{\Delta TR}{\Delta i} = \frac{\Delta Assets}{\Delta i} - \frac{\Delta Tax}{\Delta i} - \frac{\Delta MCEV}{\Delta i}$$

MCEV: Duration of liabilities for life portfolio



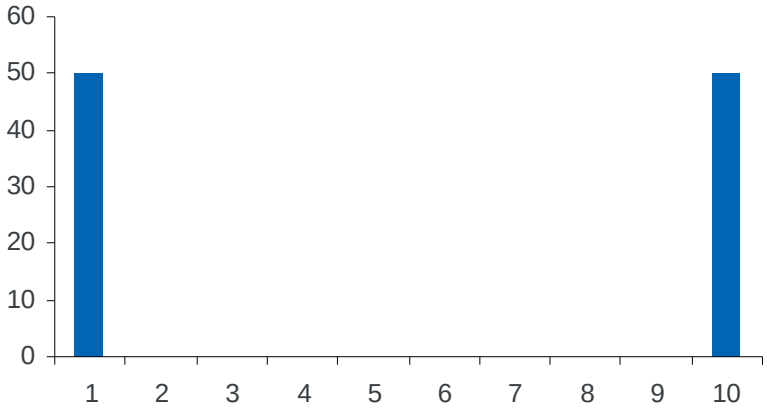
ALM VAR: Duration of liabilities for life portfolio



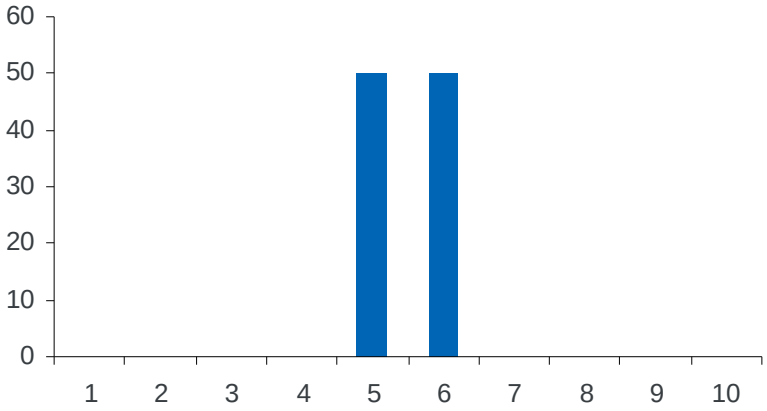
ALM VAR: Highlights

- Simulation based on the ALM VAR incorporates not only parallel shifts of the yield curve but also twists, butterflies, etc.
- ALM VAR incorporates cash flow structures of assets and liabilities, so different cash flow structures having same duration lead to different risk profiles:

Cash flow structure 1 (barbell)

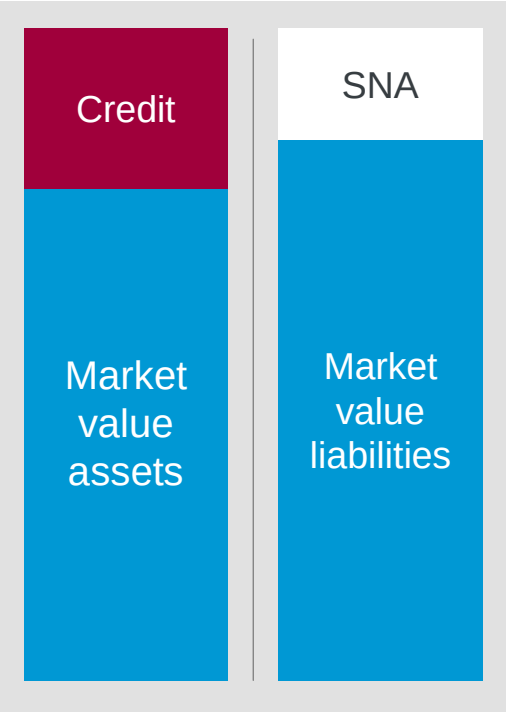


Cash flow structure 2 (centered)



Duration of cash flow structure 1 = Duration of cash flow structure 2
but
Value-at-Risk of cash flow structure 1 <> Value-at-Risk of cash flow structure 2

Operationalisation of credit risk



1. Credit risk drivers
   - transition matrix incl. PD[1]
   - LGD (seniority, collaterisation) in the Merton-universe incl. equities, infrastructure etc.
   - spread-risk
   - duration
   - correlation/concentration/diversification (issuer, industry, country)
2. Treatment of sovereigns
   - sovereigns are deemed to be as risky as commercials if the rating falls below AA-[2]

[1] „market consitent“, i.e. spread implied („PIT“) and/or rating consistent („TTC“)
[2] more conservative approach in comparison to the EIOPA Proposal for the Solvency II standard approach
PD = probability of default
LGD = loss-given default

Holistic operationalisation of credit risks in line with core TERM principles

Portfolio credit risk monitoring
Recognition of potential critical concentrations

Instruments

- Credit- and concentration risk are aggregated to risk numbers **Expected Loss** and **Credit VAR**

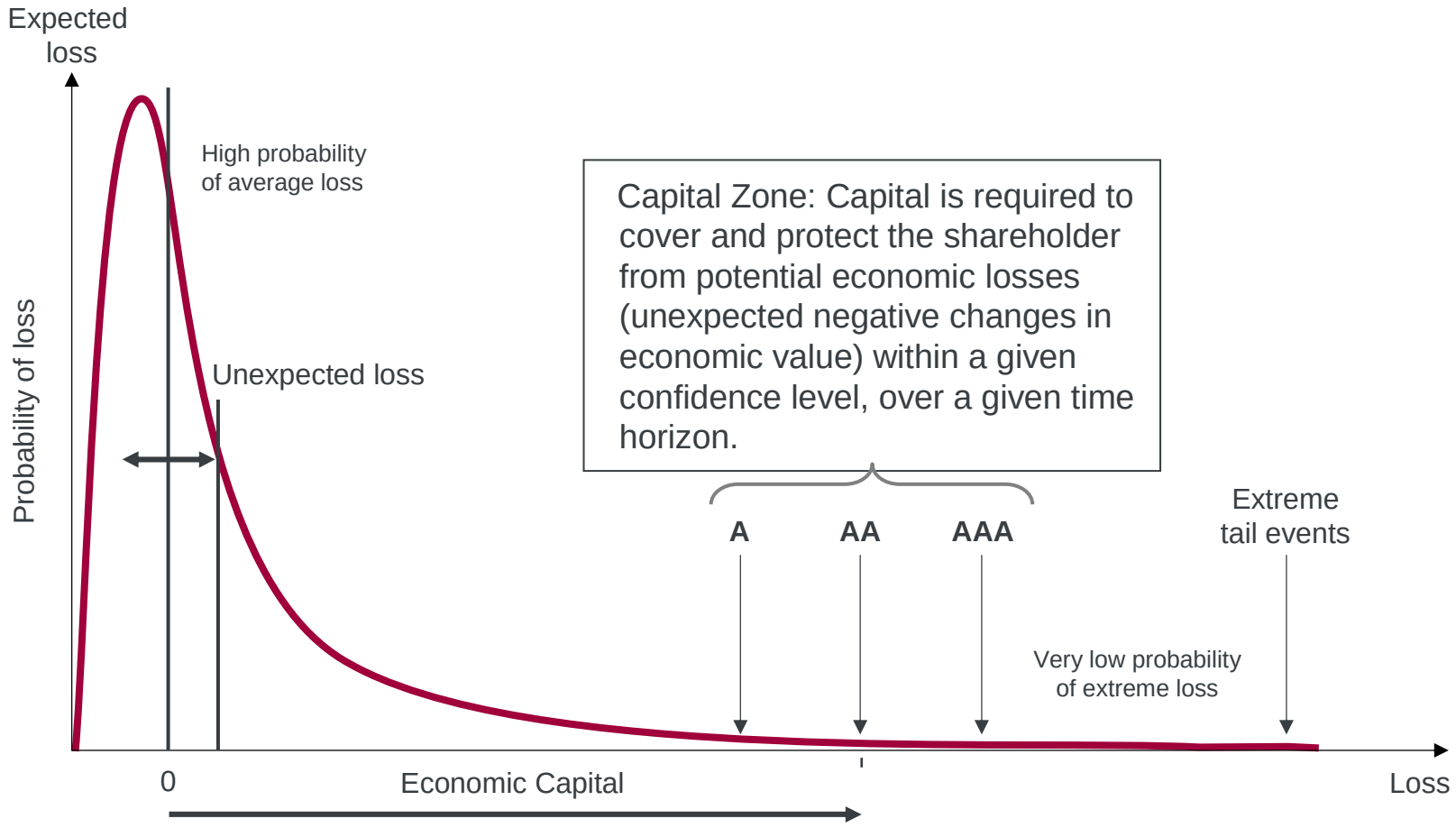
  1. **Expected Loss**: credit risk provision
  2. **Credit VAR:**
     potential portfolio credit risk
     „with a probability of 99.5% the loss from credit risk doesn‘t exceed the Credit VAR“ on the basis of “Moodys/KMV©”

Benefit for Asset Manager

- Analysis of Key Risks
  1. Which single obligors are responsible for potential high portfolio losses?
  2. In which industries / countries / products are high concentrations?
- Unwanted risk are identified and can be avoided
- Stresstests simulate portfolio losses in extreme situations
- Threshold and escalation process

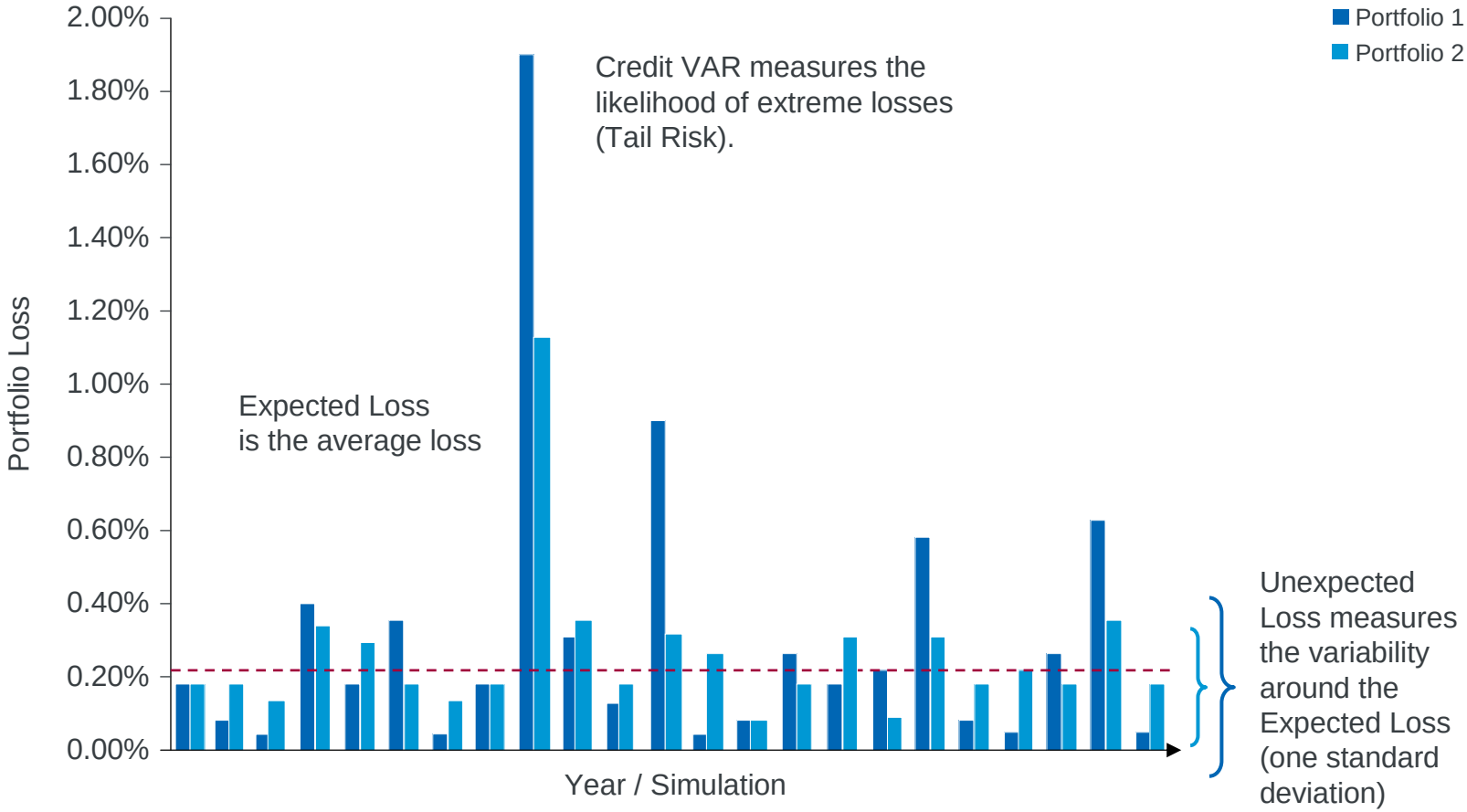
Robust implementation of the basis of standard industry tools

Bringing all together in a Portfolio Loss Distribution



The Level III Review analyses in detail the Insurer's Economic Capital Model (ECM)

Typical loss pattern of credit risk portfolios



Simulation: portfolio with identical expected loss, but different portfolio risk

Possibility to define various Credit VAR Scenarios / Stress testing (e.g.)

	Measuring „fundamental“ credit risk	Measuring „market-implied“ credit risk
Idea		
Parameter	Empirical average default probabilities and transition rates (based on ratings)	Market-implied default probabilities and dynamic transition rates (based on credit spreads and volatility)
Usage	Portfolio / issuer limitation and economic capital cushion	Early warning measure

Objective:

- credit risk measurement on external ratings is relative stable
- supplementary scenarios (e.g. market-implied probability of defaults (PD)) allow for early reactions to potential deterioration of credit quality

Robust limits (“TTC”) vs. early warning (“PIT”) signals

Controlling the risks of the markets ...
... integrated investment and risk management process

Portfolio Management	Limit controls	Risk controls	Reporting
▪ Risk Management ▪ Ex-ante checks on all limits including investment thresholds ▪ Meeting the market requirements	▪ Monitoring the market requirements ▪ Ex-post checks of investment thresholds	▪ Monitoring of all significant risks ▪ Limit system for every significant risk ▪ Carrying out stress tests for all significant risks (= exceptional, but plausible events) ▪ Taking into account risk concentration	▪ Immediate escalation to the Board when critical information on a risk situation ▪ Regular reporting to the Board on the risk situation, adherence to limits and on questions of methodology ▪ Quarterly risk report to the Supervisory Board

Risk profile derived from investment strategy

Fully implemented in day-to-day routine processes

Limiting and managing day-to-day risk

Segmental limits …

1. Top-down limits for ALM-Risks
   - holistic in % of AuM
   - sublimit for pure interest rate ALM risk for German life insurers % of AuM
2. Top-down limits for credit risks
   - portfolio limit in % of AuM
   - issuer limit in % of AuM
3. Consistent with TERM
   - logic/structure/drivers
   - concrete numbers

… and opportunities

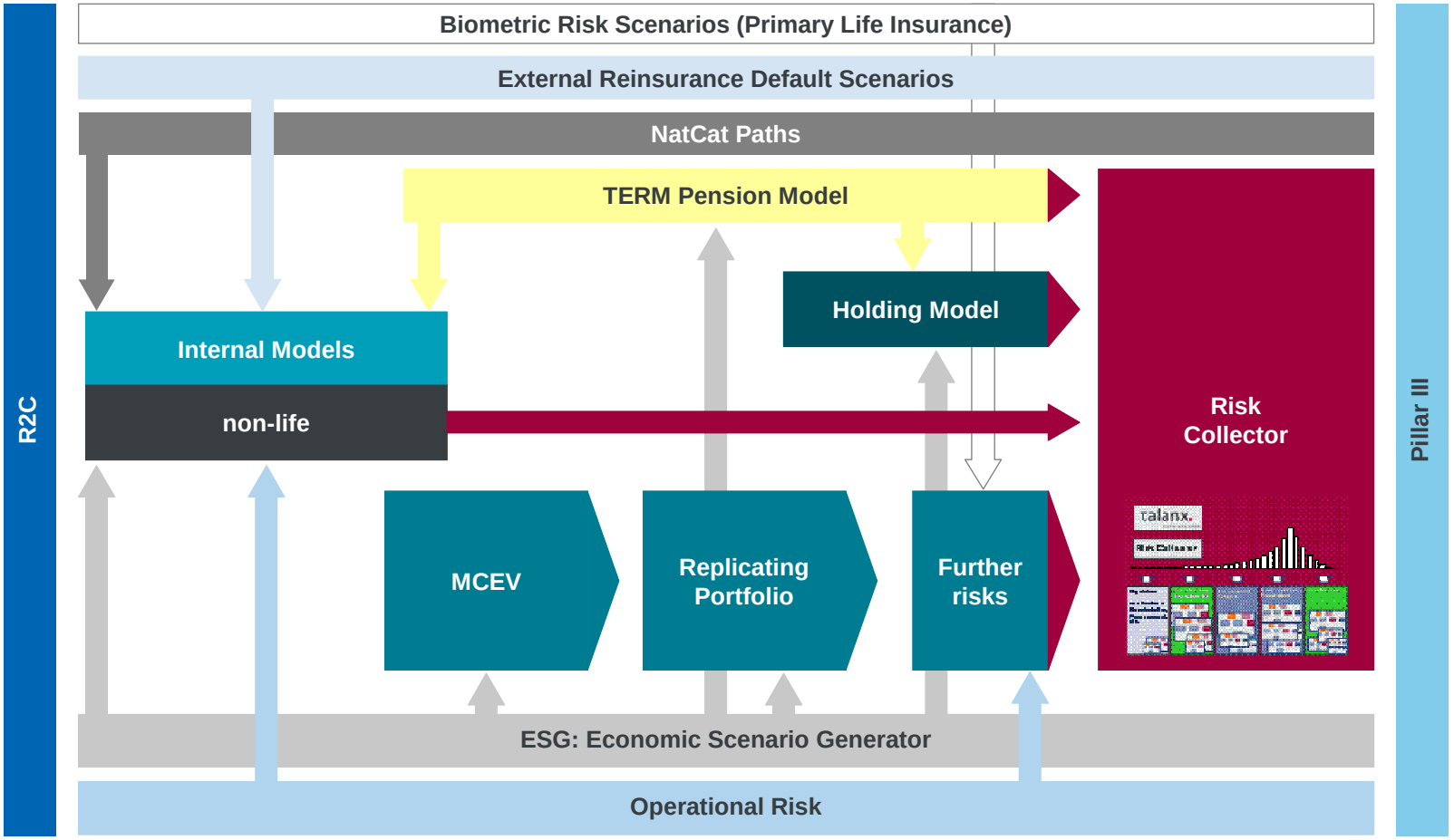
1. More decentral empowerment, i.e. no micro-management bossing around with “uneconomic” micro limits
2. Managing „off-sets“ (Is Slovenia a better portfolio addition than Schaeffler?)
3. Incentive „to get the biggest bang for the buck“ (no incentive to waste risk-capacity on concentration risk)
4. Swift evaluation of complicated structures

Risk management allowing for entrepreneurial spirit: “Freedom within boundaries”

Agenda

	Registration and Coffee	
I	Approach and organisational set-up	Dr. Immo Querner
II	MCEV report: key results	Dr. Gerhard Stahl
III	SCR report: methodology and key results	Dr. Gerhard Stahl
	Lunch Break	
IV	Operationalisation: ALM/Credit VAR	Dr. Immo Querner
V	S&P ERM review and BaFin process	Dr. Gerhard Stahl
VI	Q&A for open issues	

Model landscape of TERM



ERM Level III assessment of Standard & Poor's could trigger capital saving for the Group

Co-movements of risk factors

- The Talanx applies the following **input models:**
  - Economic Scenario Generator (ESG)
  - Global Event Set (GES) – Scenarios for natural catastrophes
  - Reinsurance default
  - Operational risk
  - Biometric risks
- Reinsurance default and GES risk categories are assumed to be independent
- Reinsurance default and ESG are dependent
- The business model defines the interaction between risk categories, e. g. interest rates and inflation, both influence the asset and liability side. No further assumptions about correlations of business lines, etc. are **explicitely** made
- The question of correlation across solo entities is answered by the co-movements of risk drivers
- The validation of correlation is achieved by **backtesting SCR** results at solo, division and group level as well. The results over four-year-experience have shown no evidence against our diversification benefits. Furthermore correlations within an input model are valid

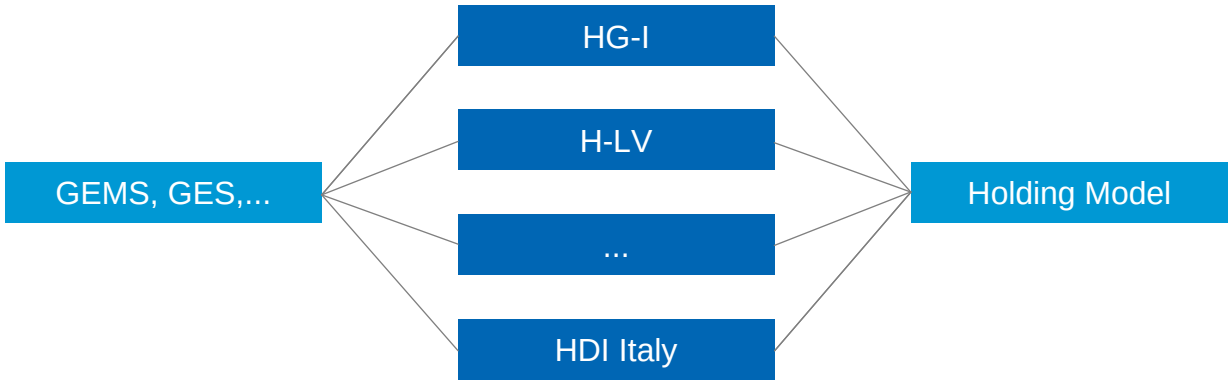
Co-movements of risk factors (cont.)

- An empirical analysis has shown that **model risk** related to our **entities approach** is less compared to those approaches based on **risk categories**
- Our main drivers are risks related to GES and ESG, where we **apply standard calibrations from the provider**. Hence we do not manipulate these implicit correlations and use these models **as the market in general will do**. Hence no particular Talanx induced bias will come into play
- The correlations in GEMS (GEMS® Economic Scenario Calculator) are validated by an internal validation process
- GES is validated by Hannover Re
- Compared to the validation of co-movements of entities our approach has the advantage that sufficient time series are available in order to judge the validity of co-movements of risk drivers

Correlations of risk drivers are validated;
the model risk in solo-entity approach is smaller than that based on risk categories

Philosophy: structure of Talanx 3-layer-approach

Input Models	Solo Entities	Group Model



Correct calibration	**Portfolio adequacy**	**Portfolio adequacy**	AIM of Analysis
Statistical analysis	**360°-Validation**	**Statistical analysis**	TOOLS

Full control of solo and group models by Group Risk Management and Internal Audit

Talanx Primary Group rating confirmed under new S&P methodology

Research Update 12 June 2013

STANDARD &POOR'S

Financial Strength Rating:

A+ (Stable)

Anchor rating a+

Business Risk Profile	Financial Risk Profile	
Strong	Very Strong	
IICRA *)	**Capital & Earnings**	**ERM**
Intermediate Risk	Very Strong	Strong
Competitive Position	**Risk Position**	**Management & Governance**
Strong	Intermediate Risk	Satisfactory
	Risk Position	**Liquidity**
	Strong	Exceptional

„We regard TPG's enterprise risk management (ERM) and management and governance practices as neutral for the ratings. However, our view of TPG's ERM as strong contributes to our more favorable anchor assessment and reflects our favourable view of the group's risk-management culture, risk controls, and strategic and emerging risk management of this expanding organization."

„We assess TPG's capital and earnings as very strong. In 2012, TPG's capital adequacy was within our range for the 'AA' rating level. In our base case, we anticipate that TPG will maintain this level of capitalization in 2013-2015."

*) Insurance Industry And Country Risk Assessment
Source: Standard & Poor´s, Rating Report, 12 June 2013

talanx.

Assessment of Talanx Primary Group‘s ERM in detail

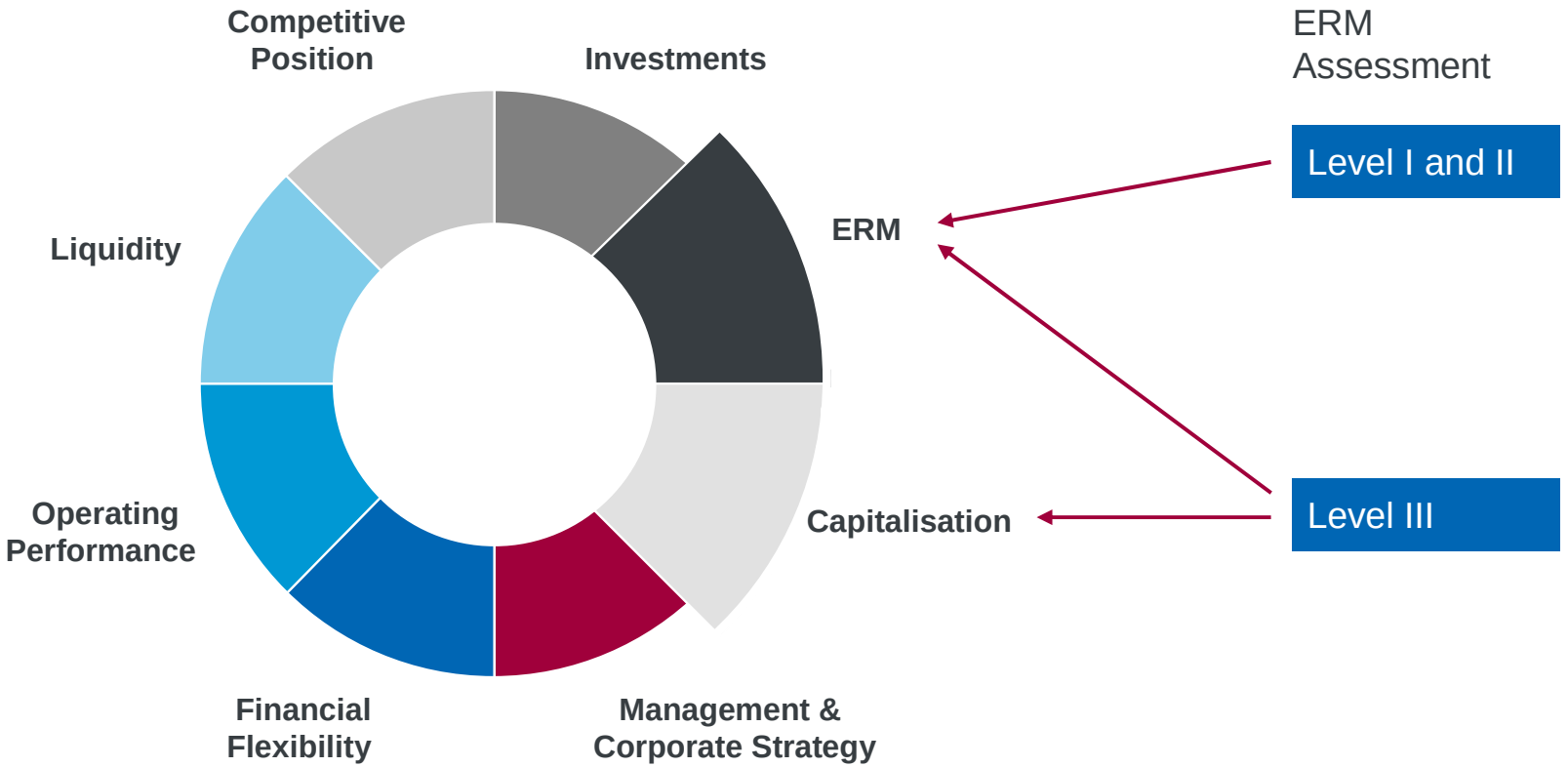
Category	Assessment Talanx Primary Group
Risk management culture	“strong”
Risk controls:	
▪ Credit risk	“strong”
▪ Market risk	“strong”
▪ ALM	“strong”
▪ Underwriting risk (P/C)	“adequate”
▪ Reserving risk	“strong”
▪ Nat Cat risk	“strong”
▪ Reinsurance	“strong”
Emerging Risk Management	**“strong”**
Group’s Risk model (TERM)	**“strong”**
Strategic Risk Management	**“strong”**
Enterprise Risk Management (ERM)	**“strong”**

Enterprise Risk Management: Further Progress Made And Now Viewed As Strong

“We now consider TPG's ERM to be strong following the recent developments toward a harmonized ERM framework at group level. We think it is unlikely that TPG will experience losses that are in excess of its risk tolerance. ERM is of very high importance to the rating on TPG, which operates in complex and potentially volatile business lines and is highly exposed to the competitive German insurance market. The major factors supporting our overall ERM assessment are the group's strong risk management culture, strong risk controls for the main risks, strong risk models, and strong strategic risk management.”

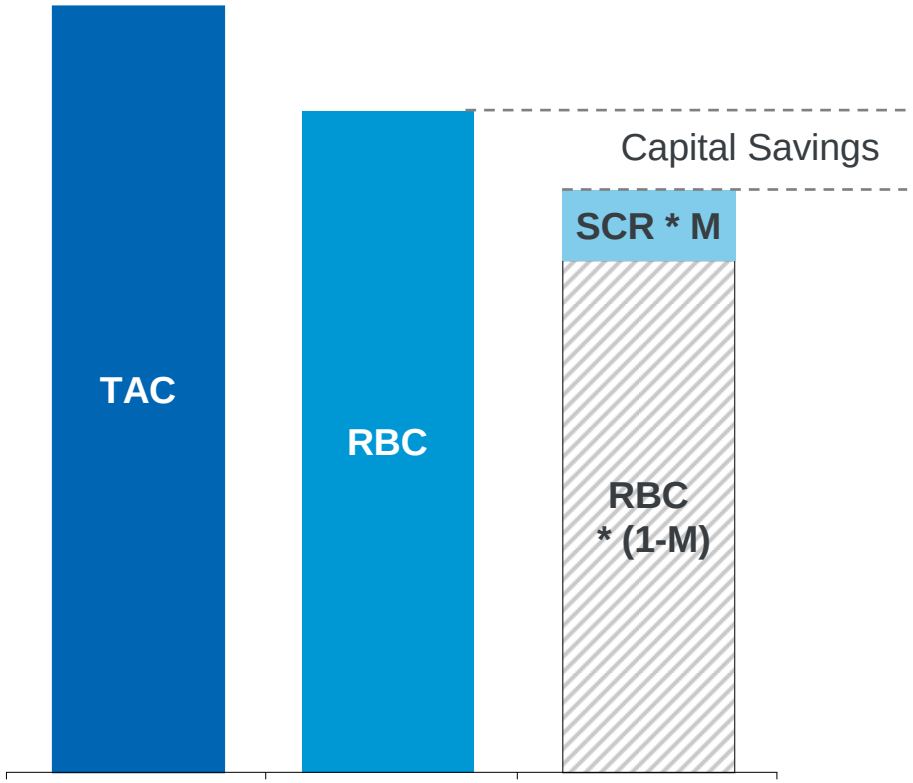
Source: Standard & Poor´s, Rating Report, 28 September 2012

Standard & Poor‘s has started its ERM Level III Review of TPG



The Level III Review analyses in detail the Insurer‘s Economic Capital Model

Chances from the ERM Level III Review

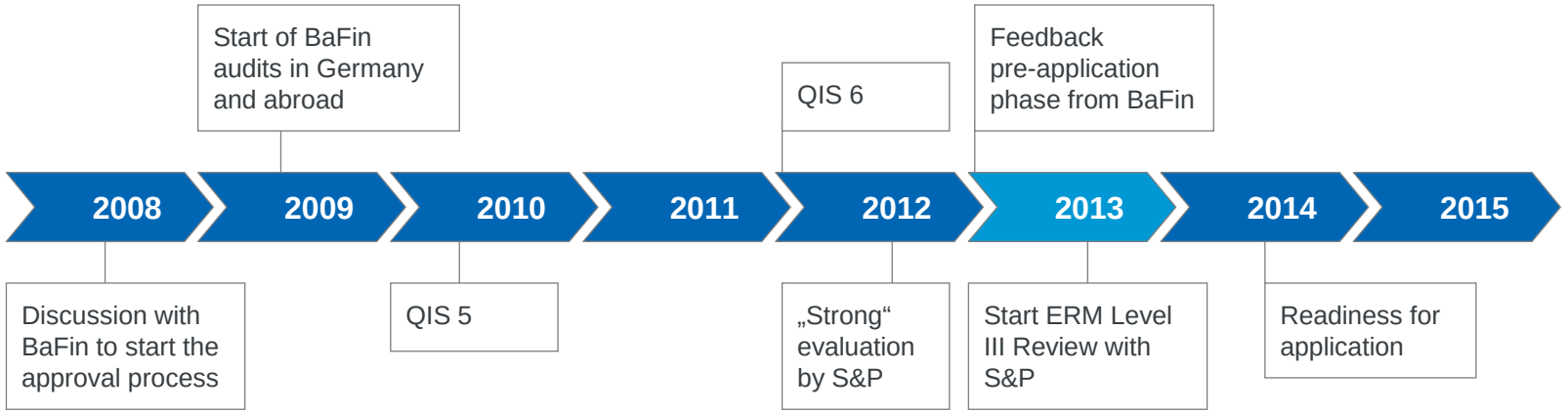


Comments

- The ERM Level III Review by Standard & Poor's assesses whether an Economic Capital Model is robust and reliable and whether it is fully integrated in the decision-making process of a group
- If Standard & Poor's comes to a positive assessment, credit might be given for the internal model
- The outcome could be a reduced capital requirement in the Standard & Poor's capital model, the weighting would be conducted via the „M-Factor"

ERM Level III assessment of Standard & Poor's could trigger capital saving for the Group

Road to Solvency II



- Talanx is in the approval process since 2009
- Over the years 2009 to 2013 on-site inspections took place on 250 days by a team of eight regulators on average
- These audits took place in Germany as well as in foreign countries
- The guidelines for implementing measures for Solvency II require a pre-implementation of:
  - Reporting to supervisors
  - Governance
  - ORSA
  - Preapplication phase of internal models
- These requirements are targeted to be fulfilled by Talanx Group
- Increasing cooperation with European regulators. Regulators from four countries: BaFin, IVASS, KNF, CBI

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