

2015

MCEV – Market Consistent Embedded Value Report 2015

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Insurance. Investments.

# CONTENT

1	Introduction
1	Covered business
2	Definition
3	Results
3	Market Consistent Embedded Value
4	New Business Value
6	Analysis of Market Consistent Embedded Value Earnings
9	Reconciliation of IFRS Equity to MCEV
10	Sensitivities
10	Sensitivities of the Market Consistent Embedded Value
12	Sensitivities of the New Business Value
13	Methodology
13	Net asset value (NAV)
13	Value of in-force (VIF)
15	Assumptions
15	Economic assumptions
17	Operating assumptions
18	External Opinion
20	Disclaimer
21	Glossary

## INTRODUCTION

Market Consistent Embedded Value (MCEV) is a measure of the consolidated value of shareholders' interests in the covered business. This report shows Talanx AG's MCEV results for the life business as at 31 December 2015.

In June 2008 the European Insurance CFO Forum published the "Market Consistent Embedded Value Principles" (MCEV-Principles) in order to bring greater consistency and improved disclosure to the European insurance industry's Embedded Value disclosures. The Board of Management of Talanx AG (Talanx) has adopted these principles, together with the amendment to the Market Consistent Embedded Value (MCEV) Principles launched in October 2009. The figures shown in this report reflect the requirements set by the MCEV principles with the exception of some parts of Principle 17 which relate to the disclosure of results.

The projection of assets and liabilities applying market consistent economic assumptions ensures a consistent valuation of assets and liabilities (refer to Section "Time value of financial options and guarantees", page 13 and Section "Assumptions", page 15 for more detail). Insurance and operating risks are allowed for in the costs of residual non-hedgeable risks (CoRNHR, see Section "Cost of residual non-hedgeable risks", page 14).

Talanx AG's Life/Health Reinsurance segment is represented by Hannover Re Life and Health (Hannover Re L&H). Hannover Re L&H no longer discloses its MCEV 2015 results separately.

A detailed description of the MCEV methodology can be found in "Methodology" page 13. The glossary for definitions and abbreviations is presented in Section "Glossary" on page 21.

The directors of Talanx acknowledge their responsibility for the preparation of this disclosure document.

The MCEV methodology and assumptions have been reviewed by B&W Deloitte GmbH. Their independent opinion is shown in Section "External opinion", page 18.

## COVERED BUSINESS

The MCEV disclosure covers the material life and health businesses consolidated into the Retail Germany and Retail International divisions, and Life/Health Reinsurance segment of the IFRS accounts of Talanx. The MCEV has been explicitly calculated for the major primary life insurance carriers in Germany, Italy, and Poland, namely HDI-, neue leben-, PB- and TARGO Lebensversicherung AG, HDI Pensionskasse AG, HDI Assicurazioni S.p.A. Life and Towarzystwo Ubezpieczen na Zycie WARTA S.A., as well as for the active life and health reinsurance businesses of Hannover Re Life and Health (Hannover Re L&H). In total, these entities represent more than 95% of the total IFRS net premiums written by life insurance and life and health reinsurance businesses of the Group. A few primary life insurance entities and other non-insurance entities related to the life business have been included in the MCEV on the basis of their IFRS equity.

Within Hannover Re L&H, the life, annuity and health reinsurance business is actively written by Hannover Rück SE (Hannover Re) including its branches, E+S Rückversicherung AG (E+S Rück), the composite subsidiary in Bahrain and the life reinsurance subsidiaries in the United States, South Africa, Australia and Bermuda as well as the life and health business segment of the Irish subsidiary. The MCEV results for the reinsurance business only include the business written by these companies.

The results also include the future profits arising in the asset management due to assets generated by the primary insurance and reinsurance life businesses. The present value of these profits and the present value of head office expenses allocated to these businesses are included in this disclosure as "look through and other adjustments".

All results reflect the interest of Talanx in each of the life entities of the Group. Wherever Talanx does not hold 100% of the shares of a particular entity, a deduction has been made to determine the 'after minorities' results. Calculations have been performed separately for each business and are based on the corresponding cash flows after allowing for both external and intra-Group reinsurance.

This report shows the MCEV results split into the primary and reinsurance business. An additional split of the primary business into domestic and international business is shown, where domestic primary insurance business refers to German primary insurance business.

## DEFINITION

The MCEV is defined as the present value of shareholders' interests in the distributable earnings from assets allocated to the covered business after appropriate allowance for the risks contained in the covered business. It is calculated on an after-tax basis taking into account current legislation and known future changes.

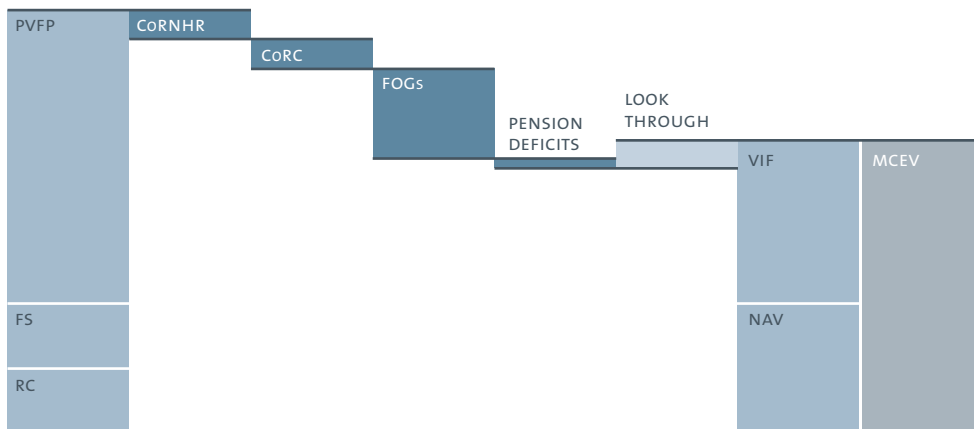
The MCEV can be broken down into the net asset value (NAV), representing the value to the shareholders of the assets not backing liabilities, and the value of in-force (VIF), determined as the value of future profits emerging from operations and the assets backing the liabilities.

The NAV consists of the required capital (RC) and the free surplus (FS). RC is the amount of capital necessary to run the business and FS the additional market value of assets not backing liabilities.

The VIF comprises of the following components:

- The "certainty equivalent" present value of the expected future shareholder profits arising from the run-off of the in-force portfolio (PVFP)
- The cost of residual non-hedgeable risks (CoRNHR)
- The cost of required capital (CoRC)
- The time value of financial options and guarantees (FOGs)
- Pension deficits (if not modelled explicitly)
- Look-through and other adjustments.

### BREAKDOWN OF THE MCEV



## RESULTS

### MARKET CONSISTENT EMBEDDED VALUE

Talanx has continued its implementation of methodology and assumption changes to align more closely with Solvency II from 1 January 2016 onwards. This in particular includes the adoption of a cost of capital rate of 6% instead of 4.5% for the calculation of the CoRNHR.

Table "Market Consistent Embedded Value 2015 and 2014" below shows the MCEV results as of 31 December 2015 and 31 December 2014 split into net asset value (NAV) and value of in-force (VIF) for the primary business and the reinsurance business. Furthermore, the change in the components of the MCEV between 2015 and 2014 is shown.

#### MARKET CONSISTENT EMBEDDED VALUE 2015 AND 2014

EUR MILLION

	Primary insurance		Reinsurance		Talanx		+/- %
	2015	2014	2015	2014	2015	2014	
Net asset value (NAV)	<b>1,008.3</b>	1,074.5	<b>832.9</b>	857.1	<b>1,841.2</b>	1,931.5	<b>-4.7</b>
Present value of future profits (certainty equivalent)	<b>1,196.3</b>	801.4	<b>1,937.4</b>	1,707.8	<b>3,133.7</b>	2,509.2	<b>24.9</b>
Financial options and guarantees (FOGs)	-626.8	-824.3	-2.0	-4.7	-628.7	-829.0	<b>24.2</b>
Cost of residual non-hedgeable risks (CoRNHR)	-336.9	-162.0	-654.4	-353.5	-991.3	-515.6	<b>-92.3</b>
Cost of required capital (CoRC)	-16.6	1.6	-59.4	-58.8	-76.0	-57.1	<b>-33.1</b>
Look through and other adjustments	119.4	118.3	-59.2	-52.6	60.2	65.7	<b>-8.3</b>
Value in-force (VIF)	<b>335.4</b>	-65.0	<b>1,162.4</b>	1,238.2	<b>1,497.8</b>	1,173.2	<b>27.7</b>
MCEV after minorities	<b>1,343.7</b>	1,009.4	<b>1,995.3</b>	2,095.2	<b>3,339.0</b>	3,104.7	<b>7.5</b>

The increase of Talanx's MCEV in 2015 was mainly driven by revised assumptions for policyholder behaviour in the domestic primary insurance business that reflect the latest available data and by an excellent new business value for the reinsurance business. The improved economic environment at year end 2015 also contributed to a positive result particularly for the domestic primary business. The updated policyholder behaviour assumptions for the domestic primary insurance and the more favourable economic environment led to a lower time value of financial options and guarantees while the CoRNHR increased significantly due to the alignment of the cost of capital rate with Solvency II specifications. For comparison

purposes a sensitivity calculated with a 4.5% cost of capital rate is shown in Section "Sensitivities", page 10.

The MCEV of the reinsurance business is driven by the value of new business that further increased from last year's excellent value, overlaid by model changes, particularly the change in CoRNHR methodology, and negative experience variances.

The table below shows a more detailed split into the MCEV results for the domestic primary business (Primary D) and the international primary business (Primary INT).

#### MARKET CONSISTENT EMBEDDED VALUE 2015 AND 2014, DETAILED VIEW OF PRIMARY INSURANCE

EUR MILLION

	Primary insurance					
	Primary D		Primary INT		Total	
	2015	2014	2015	2014	2015	2014
Net asset value (NAV)	<b>671.9</b>	771.2	<b>336.4</b>	303.3	<b>1,008.3</b>	1,074.5
Present value of future profits (certainty equivalent)	<b>1,050.0</b>	678.1	<b>146.3</b>	123.3	<b>1,196.3</b>	801.4
Financial options and guarantees (FOGs)	-592.3	-803.7	-34.5	-20.6	-626.8	-824.3
Cost of residual non-hedgeable risks (CoRNHR)	-317.8	-143.6	-19.1	-18.4	-336.9	-162.0
Cost of required capital (CoRC)	-8.3	5.9	-8.3	-4.3	-16.6	1.6
Look through and other adjustments	135.9	136.4	-16.4	-18.1	119.4	118.3
Value in-force (VIF)	<b>267.5</b>	-127.0	<b>67.9</b>	62.0	<b>335.4</b>	-65.0
MCEV after minorities	<b>939.4</b>	644.1	<b>404.3</b>	365.3	<b>1,343.7</b>	1,009.4

## NEW BUSINESS VALUE

The New Business Value (NBV) is defined as the present value at the point of sale of the projected stream of after tax profits from the new business written during the year. It allows for the actual acquisition costs incurred and is, with the exception of single premium business in some countries, based on the operating and economic assumptions at the end of the year. Allowance is made for the time

value of financial options and guarantees, cost of residual non-hedgeable risks, cost of required capital and the "look through and other adjustments".

Table "New Business Value 2015 and 2014" below shows the NBV results as of 31 December 2015 and 31 December 2014 split into profits/losses on new business in the respective reporting year due to underwriting costs and acquisition expenses and the value of in-force (VIF) for the new business for both the primary and reinsurance business. Furthermore, the proportional change in the components of the NBV between 2014 and 2015 is shown.

### NEW BUSINESS VALUE 2015 AND 2014

EUR MILLION

	Primary insurance		Reinsurance		Talanx		+/- %
	2015	2014	2015	2014	2015	2014	
<b>Profit/Loss on new business</b>	<b>-4.1</b>	<b>-3.9</b>	<b>-27.2</b>	<b>-33.4</b>	<b>-31.3</b>	<b>-37.3</b>	<b>16.1</b>
Present value of future profits (certainty equivalent)	103.8	71.0	384.3	318.4	488.2	389.4	25.4
Financial options and guarantees (FOGs)	-27.3	-46.0	0.0	0.0	-27.3	-46.0	40.6
Cost of residual non-hedgeable risks (CoRNHR)	-29.9	-14.7	-77.1	-50.9	-107.1	-65.6	-63.1
Cost of required capital (CoRC)	-4.2	4.2	-7.5	-8.9	-11.7	-4.7	-149.5
Look through and other adjustments	-2.3	-1.4	-11.4	-8.7	-13.6	-10.1	-35.3
<b>New business value after minorities</b>	<b>36.0</b>	<b>9.2</b>	<b>261.1</b>	<b>216.5</b>	<b>297.2</b>	<b>225.7</b>	<b>31.7</b>

In 2015 Talanx's new business value for primary insurance significantly increased due to a recovery of domestic new business profitability. This was due to the more favourable outlook on interest rates and to a business mix that was improved to increase profitability in the ongoing low-interest environment.

For the reinsurance business, the new business value further increased from last year's excellent value, mainly driven by traditional US mortality business and US financial solution business, as well as Regular Premium Annuity Treaties (RPATs) in the UK market.

The table below shows a more detailed split of the NBV results into domestic primary business (Primary D) and international primary business (Primary INT).

### NEW BUSINESS VALUE 2015 AND 2014, DETAILED VIEW OF PRIMARY INSURANCE

EUR MILLION

	Primary insurance					
	Primary D		Primary INT		Total	
	2015	2014	2015	2014	2015	2014
<b>Profit/Loss on new business</b>	<b>2.9</b>	<b>-1.3</b>	<b>-7.0</b>	<b>-2.6</b>	<b>-4.1</b>	<b>-3.9</b>
Present value of future profits (certainty equivalent)	75.1	48.0	28.7	23.0	103.8	71.0
Financial options and guarantees (FOGs)	-20.7	-39.6	-6.6	-6.4	-27.3	-46.0
Cost of residual non-hedgeable risks (CoRNHR)	-25.7	-10.9	-4.2	-3.9	-29.9	-14.7
Cost of required capital (CoRC)	-2.4	5.0	-1.8	-0.8	-4.2	4.2
Look through and other adjustments	0.6	1.4	-2.9	-2.8	-2.3	-1.4
<b>New business value after minorities</b>	<b>29.9</b>	<b>2.7</b>	<b>6.2</b>	<b>6.5</b>	<b>36.0</b>	<b>9.2</b>

The major part of primary life insurance new business on the basis of the Annual Premium Equivalent (APE) is written in Germany. Here the volume of new business decreased due to a deliberate reduction of single premium business. Given the more favourable outlook on interest rates, this change in business mix led to a significantly improved new business margin. The Annual Premium Equivalent margin of the reinsurance business decreased due to business written by the Shanghai branch with a very high premium volume.

The present value of future premiums and the APE for the primary insurance business are shown on a gross basis, including intra-Group and other reinsurance premiums. The premiums for the reinsurance business are net of retrocession premiums.

#### NEW BUSINESS AND ANNUAL PREMIUM EQUIVALENT MARGINS 2015 AND 2014

EUR MILLION

	Primary Insurance								+/- %
	Primary D		Primary INT		Reinsurance		Talanx		
	2015	2014	2015	2014	2015	2014	2015	2014	
New business value after minorities	29.9	2.7	6.2	6.5	261.1	216.5	297.2	225.7	31.7
Present value of future premiums	2,782.2	3,145.2	803.1	881.4	6,612.2	5,307.6	10,197.5	9,334.2	9.2
Annual premium equivalent (APE) <sup>1)</sup>	389.7	414.3	93.3	94.7	1,444.3	733.4	1,927.3	1,242.4	55.1
New business margin	1.1%	0.1%	0.8%	0.7%	3.9%	4.1%	2.9%	2.4%	—
APE margin	7.7%	0.7%	6.6%	6.9%	18.1%	29.5%	15.4%	18.2%	—

<sup>1)</sup> The values shown for the primary insurance include active reinsurance business written by primary insurance entities

## ANALYSIS OF MARKET CONSISTENT EMBEDDED VALUE EARNINGS

The following analysis of Market Consistent Embedded Value Earnings shows the breakdown of the MCEV development during the year 2015.

The development of the MCEV for the domestic primary insurance business was mainly due to the more favourable economic environment and due to changes in assumptions particularly regarding policyholder behaviour. The international primary insurance business developed positively due to positive operating and economic MCEV earnings. The introduction of the new Polish tax legislation had a negative impact on the international primary insurance business.

For the reinsurance business, the main driver for the Total MCEV earnings is an excellent value of new business offset by model changes, particularly regarding the improved alignment of the CoRNHR with Solvency II, and negative experience variance in US mortality business.

### ANALYSIS OF MARKET CONSISTENT EMBEDDED VALUE EARNINGS 2015

EUR MILLION

	Primary D			Primary INT			Reinsurance			Talanx
	FS + RC	VIF	Total	FS + RC	VIF	Total	FS + RC = NAV	VIF	Total	Total
<b>Opening MCEV</b>	<b>771.2</b>	<b>-127.0</b>	<b>644.1</b>	<b>303.3</b>	<b>62.0</b>	<b>365.3</b>	<b>857.1</b>	<b>1,238.2</b>	<b>2,095.2</b>	<b>3,104.7</b>
Capital injection	—	—	—	—	—	—	67.8	—	67.8	67.8
Dividend payments	—	—	—	—	—	—	—	—	—	—
Other implications	—	—	—	—	—	—	—	—	—	—
<b>Adjusted opening market consistent embedded value (MCEV)</b>	<b>771.2</b>	<b>-127.0</b>	<b>644.1</b>	<b>303.3</b>	<b>62.0</b>	<b>365.3</b>	<b>924.9</b>	<b>1,238.2</b>	<b>2,163.0</b>	<b>3,172.5</b>
New business value	2.9	27.0	29.9	-7.0	13.2	6.2	-27.2	288.3	261.1	297.2
Expected existing business contribution (reference rate)	—	99.0	99.0	0.9	8.3	9.3	4.9	57.4	62.3	170.6
Expected existing business contribution (in excess of reference rate)	—	19.0	19.0	0.6	-1.1	-0.5	9.4	—	9.4	27.9
Transfers from VIF and required capital (RC) to free surplus (FS)	48.6	-48.6	—	12.7	-12.7	—	144.5	-144.5	—	—
Experience variances	21.9	-8.3	13.6	12.1	3.1	15.2	6.1	-81.8	-75.7	-47.0
Assumption changes	—	230.9	230.9	—	0.5	0.5	4.4	61.4	65.9	297.2
Other operating variances	-0.0	-124.0	-124.0	1.6	-1.0	0.5	-5.4	-255.7	-261.1	-384.6
<b>Operating MCEV earnings</b>	<b>73.4</b>	<b>195.0</b>	<b>268.4</b>	<b>20.7</b>	<b>10.3</b>	<b>31.1</b>	<b>136.6</b>	<b>-74.8</b>	<b>61.8</b>	<b>361.3</b>
Economic variances	-0.4	198.5	198.2	19.4	2.4	21.8	21.1	-61.9	-40.8	179.2
Other non-operating variances	—	—	—	—	-7.3	-7.3	—	—	—	-7.3
<b>Total MCEV earnings</b>	<b>73.0</b>	<b>393.5</b>	<b>466.6</b>	<b>40.2</b>	<b>5.4</b>	<b>45.6</b>	<b>157.7</b>	<b>-136.7</b>	<b>21.0</b>	<b>533.2</b>
<b>Closing adjustments</b>	<b>-172.3</b>	<b>1.0</b>	<b>-171.3</b>	<b>-7.1</b>	<b>0.5</b>	<b>-6.6</b>	<b>-249.7</b>	<b>60.9</b>	<b>-188.8</b>	<b>-366.7</b>
Capital injection	-167.2	1.0	-166.2	-1.2	—	-1.2	-181.0	—	-181.0	-348.3
Dividend payments	-5.1	—	-5.1	-4.9	—	-4.9	-73.5	—	-73.5	-83.6
Change in currency exchange rates	—	—	—	-1.0	0.5	-0.4	4.9	60.9	65.8	65.3
<b>Closing MCEV after minorities</b>	<b>671.9</b>	<b>267.5</b>	<b>939.4</b>	<b>336.4</b>	<b>67.9</b>	<b>404.3</b>	<b>832.9</b>	<b>1,162.4</b>	<b>1,995.3</b>	<b>3,339.0</b>



## OPENING ADJUSTMENTS

### CAPITAL INJECTIONS

This position arises from a capital injection into the life segment of the Irish subsidiary of Hannover Re from the property and casualty segment of Hannover Re.

### NEW BUSINESS VALUE

The new business value is shown at the point of sale (i.e. including all underwriting costs and acquisition expenses) and is generally based on year-end assumptions. Further explanation can be found in Section "New Business Value", page 4.

### EXPECTED EXISTING BUSINESS CONTRIBUTION (REFERENCE RATE)

These values include the unwinding for one year of the discount rates (i.e. the reference rates) in respect of the PVFP and CoRC, as well as a release from the risk for the CoRNHR and FOGs. The expected contribution on the NAV is equal to the reference rates less tax.

### EXPECTED EXISTING BUSINESS CONTRIBUTION (IN EXCESS OF REFERENCE RATE)

This reflects the management's best estimate of the expected investment returns in excess of the reference rate in the year to the valuation date.

### EXPERIENCE VARIANCES

A combination of factors including experience variances on the realisation of capital gains, positive unmodelled investment returns and a release of reserves for the syndicated business result in overall positive experience variances for domestic primary business. Improvements of the Internal Model and a delayed effect of the higher impact of non-financial risks in the adverse economic environment of 2014 led to a significant increase of CoRNHR.

For international primary insurance the positive effect is supported by growth of the smaller insurance undertakings.

For the reinsurance business, negative effects on the experience variances include higher than expected mortality and lapse experience and a treaty recapture for US mortality business. Furthermore, a statutory reserve release for US mortality business had a material offsetting impact on NAV and VIF.

### ASSUMPTION CHANGES

Improved assumptions regarding policyholder behaviour, particularly lapse, for the domestic primary business lead to a significant increase in MCEV. For the international primary insurance business the overall positive impact was the aggregated result of numerous small diverging effects.

For the reinsurance business the positive impact of assumption changes on VIF is mainly driven by expected savings of future collateral costs for US mortality business based on revised collateral structures. This impact is partly offset by mortality assumption changes for US mortality business.

### OTHER OPERATING VARIANCES

The negative other operating variances shown for domestic primary insurance business are due to model improvements and changes to further align the MCEV calculation methodology with Solvency II requirements, particularly regarding the CoRNHR, partly offset by the expected impact of improved cash-flow matching methods.

For the reinsurance business the negative effect is mostly due to the increase in the cost of capital rate used in the calculation of the CoRNHR from 4.5% to 6.0% implemented to achieve a higher level of consistency with Solvency II. Other drivers of the negative other operating variances include refinements in the modelling of US mortality business.

### ECONOMIC VARIANCES

The positive economic variance for the domestic primary business is due to the increase of interest rates. Although credit spreads for some rating classes increased, due to prudent asset allocation of the domestic primary business the impact on the MCEV was small.

Additionally for the primary insurance business the volatility adjustment increased from 14 bps in 2014 to 22 bps in 2015 (for EUR). For PLN no volatility adjustment was used in 2015.

The positive value for international primary insurance is mainly due to effects from small companies in non-Euro countries.

For the reinsurance business economic variances are negative. Depending on currency and underlying business changes in interest rates can have a positive or negative effect on PVFP. In the reporting year the yield curve for USD and GBP decreased for long terms, which has a negative effect on the PVFP for US and UK business. Furthermore, there is a negative effect from changes in the book-to-market value adjustments due to widening credit spreads; however, this effect is overcompensated by higher than expected investment returns.

#### OTHER NON-OPERATING VARIANCES

The negative impact of EUR 7.3 million for the international primary insurance business is due to new legislation in Poland that imposes a 0.44% tax on assets which was included over the entire projection period although the Polish authority only very recently guided the market that for Solvency II purposes considering only one year could be more appropriate.

#### TOTAL MCEV EARNINGS

The following table shows the return on the MCEV, which is defined as the total MCEV earnings as a percentage of the adjusted opening MCEV. The adjusted opening MCEV accounts for the dividends paid to shareholders at the start of year.

##### TOTAL MCEV EARNINGS 2015

EUR MILLION

	Primary D	Primary INT	Reinsurance	Talanx
	<b>2015</b>			
Opening MCEV after minorities	644.1	365.3	2,095.2	3,104.7
Adjusted opening MCEV	644.1	365.3	2,163.0	3,172.5
Total MCEV earnings	466.6	45.6	21.0	533.2
<b>Total MCEV earnings (in %)</b>	<b>72.4</b>	<b>12.5</b>	<b>1.0</b>	<b>16.8</b>

#### CLOSING ADJUSTMENTS

##### CAPITAL INJECTIONS

A capital transfer from a sub-holding company out of the life segment, which also transfers dividends paid by primary insurance companies to that sub-holding company, has the biggest impact on the capital movements for the domestic primary business. For international primary business the capital injections include the effect of the acquisition of a Chilean life insurance company and effects of the consolidation of the holding structure.

The capital movement shown for the reinsurance business reflects the reduction of the intra-company bridge financing (compare Section "Reconciliation of IFRS Equity to MCEV").

##### DIVIDEND PAYMENTS

The dividend payments show the dividends paid to the shareholders by the primary and the reinsurance entities that do not remain within the life segment.

##### CHANGE IN FOREIGN CURRENCY EXCHANGE RATES

The Euro has weakened against many currencies yielding a strong positive result for the reinsurance business. For the international primary business the slight weakening of the Euro against the Polish Zloty was overcompensated by effects from entities in Russia and Argentina.

## RECONCILIATION OF IFRS EQUITY TO MCEV

The table below shows the reconciliation of IFRS equity to MCEV. The MCEV reflects the value of shareholders' interest in the life and health businesses of Talanx. The projected cash flows used to determine the VIF and the balance sheets used to determine the NAV are based on each business' local statutory accounts rather than the IFRS balance sheets.

### RECONCILIATION OF IFRS EQUITY TO MCEV

EUR MILLION

	Primary D	Primary INT	Reinsurance	Talanx
	<b>2015</b>			
IFRS equity before minorities	<b>2,590.0</b>	<b>2,200.7</b>	<b>2,223.9</b>	<b>7,014.6</b>
Thereof minorities	63.0	253.7	1,127.2	1,443.9
IFRS equity after minorities	<b>2,527.0</b>	<b>1,947.0</b>	<b>1,096.7</b>	<b>5,570.7</b>
Intra company Surplus Notes included in MCEV	—	—	6.0	6.0
Bridge Financing Hannover RE	—	—	416.2	416.2
IFRS equity for non-life businesses and other adjustments, including goodwill	-1,542.8	-1,555.6	-7.1	-3,105.6
<b>Subtotal of the IFRS equity</b>	<b>984.2</b>	<b>391.3</b>	<b>1,511.9</b>	<b>2,887.4</b>
Valuation differences	-312.3	-55.0	-545.8	-913.0
Value of in-force (VIF)	267.5	67.9	1,162.4	1,497.8
Other adjustments	—	—	-133.2	-133.2
<b>MCEV after minorities</b>	<b>939.4</b>	<b>404.3</b>	<b>1,995.3</b>	<b>3,339.0</b>

### INTRA COMPANY SURPLUS NOTES

The "intra company surplus notes" are the subordinated debt issued by the reinsurance non-life segment to the Hannover Re L&H subsidiaries. A part of this subordinated debt is included in the NAV of the US subsidiary, and therefore in the MCEV of the reinsurance segment. As this part of the subordinated debt is not included in the Talanx IFRS equity for the reinsurance life segment, it has to be accounted for to achieve the reconciliation between the IFRS equity and the MCEV.

### BRIDGE FINANCING HANNOVER RE

The reinsurance financing business written by Hannover Re L&H has received financial support from the reinsurance non-life segment. Within the Talanx segmental reporting this financing is shown as an inter-segmental liability from the reinsurance life segment to the

reinsurance non-life segment ("Bridge Financing"). The impact of this Bridge Financing on the Talanx Group balance sheet is neutral as the liability for the Life & Health Reinsurance segment and the asset for the reinsurance non-life segment offset each other.

### IFRS EQUITY FOR NON-LIFE BUSINESSES AND OTHER ADJUSTMENTS, INCLUDING GOODWILL

The primary insurance segments include life and non-life businesses. For the reconciliation, the IFRS equity of the non-life entities plus any goodwill for the covered business is excluded. In 2015 the domestic retail business was reorganized, leading to a split of the cash generating unit Retail Germany into Property/Casualty Germany and Life Germany. In the process, the goodwill for domestic primary insurance of EUR 155 million was written off in its entirety. The IFRS equity shown for the reinsurance segment includes the full consolidation of the private equity companies owned by Hannover Re L&H in which the primary companies also hold participations. Other adjustments include consolidation effects and the elimination of minor company shares.

Talanx' IFRS equity includes goodwill outside the domestic primary insurance that is not allowed for in the MCEV. To reconcile IFRS equity and MCEV, the goodwill has to be eliminated. Additional aspects within IFRS which are not allowed for in the MCEV are also eliminated in this position.

### VALUATION DIFFERENCES

The "valuation differences" include all differences for the valuation of the assets and the liabilities between the local statutory and the IFRS accounts. The elimination of the deferred acquisition costs and the value of business acquired included in the IFRS equity are also included within the "valuation differences".

### VALUE OF IN-FORCE (VIF)

The value of in-force is added.

### OTHER ADJUSTMENTS

The other adjustments include some effects which cannot be assigned to other positions.

## SENSITIVITIES

Sensitivity testing with respect to the underlying best estimate assumptions is an important part of the analysis in the context of the MCEV calculations. Both economic and non-economic factors have been tested. It should be noted that the sensitivity tests are, in most cases, not fully correlated so that the impact of two events occurring simultaneously is not likely to be the sum of the outcomes of the corresponding tests.

The size of the assumption shifts is not necessarily indicative of what may or may not actually occur; in reality the factors will move in increments greater or smaller than those presented below. For the sensitivities - except for the swaption implied volatilities and the equity option volatilities sensitivities - both directions are calculated and shown in Table "MCEV Sensitivity analysis 2014 and 2015" below.

For comparison purposes the effects of using the former cost of capital rate of 4.5% instead of the Solvency II-aligned cost of capital rate of 6.0% in the calculation of the CoRNHR are also shown.

### MCEV SENSITIVITY ANALYSIS 2014 AND 2015

EUR MILLION

	Primary insurance							
	Primary D		Primary INT		Reinsurance		Talanx	
	2015	2014	2015	2014	2015	2014	2015	2014
<b>MCEV after minorities</b>	<b>939.4</b>	<b>644.1</b>	<b>404.3</b>	<b>365.3</b>	<b>1,995.3</b>	<b>2,095.2</b>	<b>3,339.0</b>	<b>3,104.7</b>
	%	%	%	%	%	%	%	%
Mortality/Morbidity + 5% (non-annuity)	-3.7	-7.0	-2.1	-2.4	-34.9	-29.3	-22.2	-21.5
Mortality/Morbidity -5% (non-annuity)	3.8	7.0	2.1	2.4	35.2	29.6	22.4	21.7
Mortality +5% (annuity)	4.7	9.0	-0.0	-0.0	8.5	6.1	6.4	6.0
Mortality -5% (annuity)	-5.0	-9.8	0.0	0.0	-9.0	-6.5	-6.8	-6.4
Lapse rate +10%	-1.4	-1.8	-1.1	-0.6	-7.3	-6.0	-4.9	-4.5
Lapse rate -10%	1.6	2.5	1.2	0.7	8.9	7.2	5.9	5.5
Maintenance expenses +10%	-10.5	-20.1	-2.4	-2.7	-2.8	-2.6	-4.9	-6.2
Maintenance expenses -10%	10.4	19.5	2.4	2.7	2.9	2.5	5.0	6.1
Yield curve +1%	19.6	67.1	-10.4	-7.0	-5.7	-4.9	0.8	9.8
Yield curve -1%	-63.8	-133.3	1.1	0.6	7.1	6.6	-13.6	-23.1
Swaption implied volatilities +25%	-7.9	-24.5	-4.7	-2.0	- <sup>1)</sup>	-0.2	-2.8	-5.4
Equity and property value +10%	7.3	11.0	1.6	2.4	0.0	0.0	2.3	2.6
Equity and property value -10%	-7.8	-11.4	-2.6	-1.8	-0.0	-0.0	-2.5	-2.6
Equity option volatilities +25%	-1.7	-3.5	-0.0	-0.0	- <sup>1)</sup>	-0.0	-0.5	-0.7
CoRNHR: Cost of capital rate 4.5%	8.5	-	1.2	-	8.2	-	7.4	-

<sup>1)</sup> For the reinsurance business the swaption volatility and equity option volatility sensitivities are not shown due to immateriality

### SENSITIVITIES OF THE MARKET CONSISTENT EMBEDDED VALUE

The MCEV for the primary insurance business is mainly influenced by the economic assumptions. The main drivers are changes in interest rates. Insurance risks have a minor impact on the MCEV of the primary insurance business. The absolute impact of the MCEV sensitivities has decreased relative to 2014 for the primary business

due to the more favourable economic situation at the end of 2015; the relative impact of these sensitivities has decreased even more strongly because the base MCEV for the primary business has increased. In contrast, the sensitivities for the reinsurance business are dominated by insurance risks. Changes in the mortality/morbidity (non-annuity) or lapse rate assumptions have a strong impact on the MCEV while changes to the economic assumptions show a less material effect.

### **SENSITIVITY TO DECREASING/INCREASING MORTALITY AND MORBIDITY RATES**

This sensitivity shows the impact of a 5% decrease (increase) in the best estimate mortality and morbidity assumptions. Lower (higher) mortality has a positive (negative) impact for the products with mortality risk (e.g. endowments and term life products) and a negative (positive) impact for the products with longevity risk (life annuities). Since the future development of the risk and longevity portfolios might move in different directions, the impact of this sensitivity is shown separately.

The exposure of primary insurance business to an increase or decrease of the mortality assumptions was reduced because the recovering economy led to an improvement in the level of buffers. Typically changes in mortality assumptions lead to significant changes in the MCEV for the reinsurance business. In 2015 the reinsurance business' sensitivity to mortality slightly increased due to new business and assumption changes for the US mortality business.

### **SENSITIVITY TO DECREASING/INCREASING LAPSE RATES**

This sensitivity shows the impact of a 10% decrease/increase in the best estimate lapse rates. While the impact on the primary insurance business is small, the reinsurance business shows a significant sensitivity to the change of lapse rates.

### **SENSITIVITY TO DECREASING/INCREASING MAINTENANCE EXPENSES**

The impact of a 10% decrease/increase in the best estimate maintenance expenses is measured. For 2015 this sensitivity, in line with the general trend, showed a reduced impact for the primary business due to the growth of the base MCEV and because the improved economy led to larger buffers and thereby to reduced volatility.

### **SENSITIVITY TO DECREASING/INCREASING YIELD CURVE**

This sensitivity shows the impact of parallel shifts in the interest rates curves derived from market for the different economies at the valuation date. In case of a shift below 0% it is floored at zero. The interest rate sensitivities allow for the change in interest rates to be applied until the last liquid point. The extrapolation begins at the last liquid point and the ultimate forward rate remains unchanged. The other economic assumptions including discount rates, equity and real estate returns are adjusted correspondingly. The market

values of fixed income assets are also adjusted. The total sensitivity for Talanx is significantly lower than the sensitivity for the primary insurance business because it benefits from the diversification between the primary insurance and the reinsurance sensitivity. Due to the asymmetric and non-linear impact of embedded financial options and guarantees for the primary insurance business, the parallel down shift of the interest rate curve has a higher impact on the MCEV than the up shift.

The recovery of interest rates and the resurgence of the base MCEV for the domestic primary business lead to a significant reduction in the interest rate sensitivity particularly for the domestic primary business and for Talanx as a whole.

### **SENSITIVITY TO INCREASING SWAPTION VOLATILITY**

This sensitivity is designed to indicate the impact of an increase in market implied swaption volatilities on the cost of financial options and guarantees. The 25% increase is a multiplicative increase in volatilities. As the primary insurance companies are exposed to interest rate risk, they are also exposed to changes in swaption volatility. Due to the lower volatility compared to end of 2014, this sensitivity is less material.

### **SENSITIVITY OF A DECREASE/INCREASE IN EQUITY AND PROPERTY MARKET VALUES**

This sensitivity shows the impact of a 10% decrease/increase in the market values of equity and property assets at the valuation date. Since the modelled investment strategies allow for a target asset allocation based on market values, this sensitivity can lead to a rebalancing of the asset portfolio at the end of the first year of the projection if the specified boundaries for an asset class are exceeded. Due to the structure of Hannover Re L&H's investment portfolio this sensitivity has nearly no impact on the reinsurance business.

### **SENSITIVITY TO INCREASING EQUITY AND PROPERTY OPTION VOLATILITY**

This sensitivity shows the effect of increasing equity and property option volatilities by 25%. As the portion of equities and property in the asset portfolio for both primary and reinsurance business is low, they are hardly susceptible to this parameter; especially for the reinsurance business this sensitivity was not calculated due to immateriality.

## SENSITIVITY TO A CHANGE IN THE COST OF CAPITAL RATE FOR THE CORNHR

This sensitivity shows the effect of calculating the CoRNHR with a cost of capital rate of 4.5% as in 2014 instead of the 6.0% cost of capital rate used in the base MCEV to align with Solvency II requirements. Without this model change the MCEV of Talanx would have amounted to EUR 3,588 million, a 16% increase over last year's value.

## SENSITIVITIES OF THE NEW BUSINESS VALUE

Table "NBV Sensitivity analysis 2015 and 2014" shows the sensitivities of the New Business Value (NBV). For the NBV the same sensitivity tests have been performed as for the MCEV using the same methodology. With very low base NBVs in 2014 some of the percentages reported at that time were not meaningful. The recovery of the NBV for the domestic primary business has addressed this issue. The observed effects are generally in line with the sensitivities for the base MCEV.

### NBV SENSITIVITY ANALYSIS 2015 AND 2014

EUR MILLION

	Primary insurance							
	Primary D		Primary INT		Reinsurance		Talanx	
	2015	2014	2015	2014	2015	2014	2015	2014
NBV after minorities	29.9	2.7	6.2	6.5	261.1	216.5	297.2	225.7
	%	%	%	%	%	%	%	%
Mortality/Morbidity +5% (non-annuity)	-7.1	-182.9	-36.6	-31.4	-23.5	-22.2	-22.1	-24.4
Mortality/Morbidity -5% (non-annuity)	9.8	163.0	36.7	31.4	23.4	21.7	22.3	23.6
Mortality +5% (annuity)	2.5	82.6	-0.0	-0.0	11.9	11.7	10.7	12.2
Mortality -5% (annuity)	0.8	-94.0	0.0	0.1	-12.3	-12.4	-10.7	-13.0
Lapse rate +10%	-6.4	-136.5	-52.0	-12.0	-6.7	-6.4	-7.6	-8.1
Lapse rate -10%	6.9	143.4	62.5	13.6	7.4	6.4	8.5	8.3
Maintenance expenses +10%	-6.4	-291.5	-23.9	-17.0	-2.1	-3.0	-3.0	-6.9
Maintenance expenses -10%	11.8	230.4	23.9	17.0	2.2	3.0	3.6	6.2
Yield curve +1%	44.8	974.8	-105.3	-115.4	-11.8	-7.9	-8.0	0.8
Yield curve -1%	-91.1	-2,063.5	-32.0	-4.8	15.0	8.2	3.4	-17.0
Swaption implied volatilities +25%	-13.6	-246.4	-70.6	-36.3	— <sup>1)</sup>	—	-2.8	-4.0
Equity and property value +10%	3.6	59.2	22.0	19.5	0.0	0.0	0.8	1.3
Equity and property value -10%	6.9	-122.5	24.4	13.0	-0.0	-0.0	1.2	-1.1
Equity option volatilities +25%	6.4	-112.0	1.3	-0.9	— <sup>1)</sup>	—	0.7	-1.4
CoRNHR: Cost of capital rate 4.5%	21.5	—	17.1	—	7.4	—	9.0	—

<sup>1)</sup> For the reinsurance business the swaption volatility and equity option volatility sensitivities are not shown due to immateriality

## METHODOLOGY

Talanx has provided the businesses with detailed guidelines to ensure that the MCEV methodology, the assumption setting and the models used for the calculations are consistent across the Group.

### NET ASSET VALUE (NAV)

The NAV is the shareholders' interest in the market value of the assets not backing local statutory reserves, net of an allowance for tax on unrealized capital gains. The NAV includes the required capital (i.e. the amount of capital required to be held to support covered business in excess of local statutory reserves) and the free surplus (i.e. the market value of any capital allocated to, but not required to support, the in-force covered business on the valuation date). With respect to the domestic primary businesses, it has been assumed that the required capital is equal to the paid up shareholders' funds.

### VALUE OF IN-FORCE (VIF)

The VIF is defined as the certainty equivalent PVFP for in-force business after allowance for the FOGs granted to policyholders, the CoRNHR, the CoRC as well as look through and other adjustments.

### PRESENT VALUE OF FUTURE PROFITS (PVFP)

The certainty equivalent PVFP has been determined by projecting cash flows under the assumption that the future investments are assumed to earn the reference rate. The other assumptions (including expenses, surrender rates, mortality and morbidity rates, shareholder participation rates and tax rates) are set on a best estimate basis that reflects each business' recent experience and expected future trends. The resulting statutory shareholder profits are discounted at the risk free reference rate. This value allows for the intrinsic value of financial options and guarantees.

### TIME VALUE OF FINANCIAL OPTIONS AND GUARANTEES (FOGs)

The time value of financial options and guarantees (FOGs) allows for the potential impact of financial options and guarantees within the business. Market consistent capital market scenarios have been used to determine the time value of the material financial options and guarantees for the majority of the businesses that include options and guarantees in the life insurance and reinsurance business. The guarantees and options include

- Guaranteed annuity options
- Guaranteed interest rates and minimum maturity values
- Guaranteed minimum surrender values
- Guaranteed minimum benefits on unit-linked contracts

The FOGs for the base values of the domestic primary insurance companies have been determined using 4,000 stochastic Monte Carlo simulations using the variance-reduction technique of anti-thetic generation of random numbers. For the international primary insurance and the reinsurance business 1,000 stochastic simulations have been used. The "stochastic" PVFP is defined as the average over these scenarios of the discounted value of the projected after tax statutory shareholder profits. The economic scenarios represent possible future outcomes for capital market variables such as interest rates, equity returns, credit spreads, credit ratings and inflation. The economic scenarios and the corresponding scenario specific discount rates are market consistent. The scenarios, the definition of the risk free reference rate and parameters used are described in Section "Assumptions", page 15.

Wherever appropriate, the projection models for primary insurance allow for management actions and dynamic policyholder behaviour, i.e. some assumptions (e.g. the asset allocation or policyholder profit sharing) vary depending on the future economic conditions and other assumptions relating to policyholder behaviour (e.g. surrender rates) vary depending on the difference between total return on the insurance policies and appropriate external investment return benchmarks.

The modelled crediting strategies allow for regulatory and contractual constraints. Within these boundaries it is recognized that management behaviour is driven by both shareholders' and policyholders' expectations within a given economic scenario. The use of buffers such as unrealized capital gains or unallocated reserves for future profit sharing to meet specified return targets for policyholders and shareholders is defined as a part of the management actions. Where there is management discretion with regard to the timing of the profit sharing, for example between annual or terminal bonuses, a corresponding strategy is defined. The modelled management actions reflect observed and expected management behaviour, legal and contractual constraints as well as potential external drivers such as competitive pressures.

The valuation of policyholder options (e.g. guaranteed surrender values) requires the modelling of dynamic policyholder behaviour dependent on the development of each economic scenario. Unlike options on traded assets, it is neither possible nor appropriate to evaluate these options assuming fully rational policyholder behaviour. Contractual features such as surrender penalties, terminal bonuses, risk riders or tax penalties can also have an impact on the policyholder behaviour.

Dynamic policyholder behaviour is modelled as a function of the spread between the credited rates and a market benchmark return. The best estimate assumptions are only adjusted when the spread exceeds certain boundaries and the maximum level of the adjustment is generally limited. The corresponding parameters vary by product and client group. The majority of the treaties written by Hannover Re L&H do not contain any significant financial options or guarantees. A stochastic valuation approach is not necessary in respect of most treaties with interest guarantees because the liabilities are backed by matching assets. The FOGs in Hannover Re L&H's portfolio originate from the US market and are mainly due to guarantees under interest-sensitive products.

#### **COST OF RESIDUAL NON-HEDGEABLE RISKS (CORNHR)**

Explicit allowance has been made for the asymmetric cost of residual non-hedgeable risks which are not already allowed for in the time value of options and guarantees or in the deterministic PVFP. The CoRNHR are determined as the cost of holding required capital for the residual non-hedgeable risks. The required capital is determined based on the internal risk capital model and equals the risk capital for these risks at a 99.5% value at risk. The cost of capital rate for the calculation of the CoRNHR has been increased from 4.5% to 6.0% to align with Solvency II requirements.

#### **COST OF REQUIRED CAPITAL (CORC)**

The required capital has been defined as the maximum of the local minimum statutory solvency capital and the level of capital necessary to meet local market standards. For the businesses with participating business it is possible that a part of the required capital can be met by policyholder assets. The CoRC has only been determined for the proportion of the required capital covered by shareholders' assets. With respect to the domestic primary businesses, it has been assumed that the shareholders' share of the required capital is at least equal to the paid up shareholders' funds.

The CoRC is the difference between the amount of required capital and the present value at the risk-free interest rates of the future releases, allowing for future after-tax investment returns on that capital. The CoRC also allows for the asset management expenses in respect of the required capital to the extent that these have not been included elsewhere in the VIF. The required capital is projected over the lifetime of the portfolio based on the projected mathematical reserves or other relevant drivers such as sum at risk. The same drivers are used to split the CoRC between in-force and new business.

#### **NEW BUSINESS VALUE (NBV)**

The New Business Value is defined as individual and group policies sold during the reporting period. It includes the expected renewals and expected future contractual alterations to these contracts. Recurrent single premiums written under the same contract are included in the value of the contract where future single premiums and their level are reasonably predictable. Additional or ad-hoc single premiums that are paid into existing policies are treated as new business in the year of payment.

The NBV is determined as the present value at the point of sale of the projected stream of after-tax profits expected to be generated by the new business written in the year. It allows for the actual acquisition costs incurred and is based on the operating and economic assumptions at the end of the year. It also allows for the time value of financial options and guarantees, the cost of residual non-hedgeable risks and the cost of required capital.

The NBV for business not written in participating business funds is equal to the stand-alone value. For participating business and in some cases also unit linked policies written in participating funds, where new and existing policies are managed together in one fund, an integrated model is used to reflect the interactions between new and in-force business. For example, in Germany the participating new business helps to reduce the average interest guarantee in the in-force portfolio.

#### **PARTICIPATING BUSINESS**

The profit-sharing assumptions take into account contractual and regulatory requirements, management policies regarding profit participation and the reasonable expectations of policyholders. For businesses with significant unrealized capital gains or unallocated profit sharing reserves, the crediting strategies may include a distribution of these buffers to policyholders and shareholders as the business runs off, consistent with established company practice, local market practice and regulatory requirements.



## LOOK THROUGH AND OTHER ADJUSTMENTS

Both the VIF and the NBV include the following look through adjustments:

- Holding company expenses are shown in total in the consolidation segment in the Group's IFRS segment accounts revenue. The proportion of these expenses allocated to the primary and reinsurance life business has been reflected in the VIF and the NBV
- The net margins arising in the Group's asset management due to assets generated from the covered business have been reflected in the VIF and the NBV

## ASSUMPTIONS

### ECONOMIC ASSUMPTIONS

The model used to generate the stochastic economic scenarios for the primary insurance business has been developed by Conning Services, a US-based financial advisory company. The calibration of the model at the valuation date has also been carried out by Conning using market data predominantly taken from Bloomberg. The MCEV results for 2015 are based on economic market conditions as of 31 December 2015. Risk neutral, market consistent economic scenarios have also been used for the reinsurance business.

### RISK FREE INTEREST RATES

In line with the Omnibus II Directive and Section 4 of Chapter 3 of the Commission Delegated Regulation, Talanx has adopted swap rates for all currencies other than Polish Zloty (PLN) reduced by a credit risk adjustment as a basis for the reference rate. For PLN, government bond rates are used instead of swap rates.

Talanx includes a volatility adjustment as specified by EIOPA for Solvency II for the primary business. The volatility adjustment amounts to 22 bps for EUR for MCEV 2015. It has been applied to primary business since this business has the ability to capture this premium. In line with requirements by the Polish supervisory agency for Solvency II, no volatility adjustment has been used for PLN. EIOPA published a volatility adjustment of 8 bps for PLN.

For comparison, in 2014 the volatility adjustment adopted by Talanx for the primary business was 14 bps for EUR (8 bps for PLN).

Due the nature of Hannover Re L&H's business it was decided not to apply a volatility adjustment in 2015 or in 2014 for the reinsurance segment.

For durations where no deep, liquid and transparent market exists, a yield curve extrapolation using the Smith-Wilson method is carried out along the forward curve with an ultimate forward rate (UFR) of 4.2% for EUR and PLN and an entry point of 20 years for EUR (15 years for PLN, respectively) using a convergence period of 40 years. The methodology used follows the EIOPA guidance for Solvency II. The EIOPA methodology is also adopted for the other currencies of Hannover Re L&H's business.

Table "Swap curves including the credit risk adjustment and volatility adjustment for the primary insurance" below shows the reference rates for EUR defined as the swap curves including the appropriate volatility adjustment and credit adjustment. The reference rate for PLN is based on government bond rates and in 2015 does not include a volatility adjustment.

**SWAP CURVES INCLUDING THE CREDIT RISK ADJUSTMENT AND VOLATILITY ADJUSTMENT FOR THE PRIMARY INSURANCE**

Maturity in years	EUR		PLN	
	31.12.2015	31.12.2014	31.12.2015	31.12.2014
	%			
1	0.06	0.20	1.41	1.79
2	0.09	0.21	1.55	1.79
3	0.18	0.26	1.75	1.91
4	0.32	0.32	1.96	2.06
5	0.45	0.40	2.16	2.14
7	0.74	0.57	2.59	2.29
10	1.12	0.85	2.92	2.46
12	1.30	1.01	3.13	2.57
15	1.51	1.18	3.33	2.68
20	1.68	1.36	—	—

**SWAP CURVES INCLUDING THE CREDIT RISK ADJUSTMENT, WITHOUT A VOLATILITY ADJUSTMENT**

%

	EUR	USD	GBP	AUD	ZAR	PLN <sup>1)</sup>
Maturity in years	<b>31.12.2015</b>					
1	-0.16	0.77	0.73	2.03	7.35	1.41
2	-0.13	1.08	0.98	2.00	8.04	1.55
3	-0.04	1.32	1.19	2.05	8.45	1.75
4	0.10	1.50	1.34	2.14	8.73	1.96
5	0.23	1.64	1.47	2.28	8.93	2.16
7	0.52	1.86	1.68	2.50	9.20	2.59
10	0.90	2.10	1.89	2.77	9.43	2.92
12	1.09	2.21	1.98	2.89	9.54	3.13
15	1.30	2.33	2.06	3.03	9.64	3.33
20	1.46	2.45	2.09	3.16	9.57	—

<sup>1)</sup> Government bond curves for PLN

**SWAP CURVES INCLUDING THE CREDIT RISK ADJUSTMENT, WITHOUT A VOLATILITY ADJUSTMENT**

%

	EUR	USD	GBP	AUD	ZAR	PLN <sup>1)</sup>
Maturity in years	<b>31.12.2014</b>					
1	0.06	0.34	0.64	2.41	6.25	1.71
2	0.08	0.80	0.83	2.29	6.63	1.71
3	0.12	1.20	1.04	2.26	6.87	1.83
4	0.18	1.48	1.21	2.31	7.05	1.98
5	0.26	1.68	1.35	2.41	7.20	2.06
7	0.43	1.95	1.55	2.65	7.47	2.21
10	0.71	2.19	1.75	2.90	7.79	2.38
12	0.88	2.31	1.86	3.03	7.98	2.49
15	1.05	2.42	1.98	3.19	8.20	2.60
20	1.22	2.54	2.09	3.43	8.29	—

<sup>1)</sup> Government bond curves for PLN

**INTEREST RATE VOLATILITIES**

The interest rate volatilities used for the stochastic simulations are derived from the extrapolated swaption implied volatilities by applying the ultimate volatility methodology to market ATM swaption volatilities. The market swaption implied volatilities for the primary insurance business as at 31 December 2015 and 31 December 2014 are shown in Table "ATM swaption implied volatilities (EUR)", page 17. Hannover Re L&H's portfolio only has material FOGs in business generated in the United States. The implied swaption volatilities shown in Table "ATM swaption implied volatilities (USD)", page 17 have generally been applied to calibrate the interest rate model.

**ATM SWAPTION IMPLIED VOLATILITIES (EUR)**

Option period in years	swap term 10 years		swap term 20 years	
	2015	2014	2015	2014
1	52.53	57.85	42.55	43.47
2	47.90	53.42	40.46	41.22
5	38.41	43.57	35.43	36.03
10	33.83	38.36	33.76	32.48
15	36.80	37.06	34.48	30.52
20	42.39	35.57	36.17	28.37

**ATM SWAPTION IMPLIED VOLATILITIES (USD)**

Option period in years	swap term 10 years		swap term 20 years	
	2015	2014	2015	2014
1	33.17	31.09	29.83	26.95
2	32.43	30.31	28.24	26.46
5	30.50	28.84	27.07	25.24
10	25.95	25.21	22.92	22.29
15	23.17	22.08	20.65	19.60
20	21.77	19.94	20.69	17.96

**EQUITY VOLATILITIES**

For modelling equity returns a stochastic volatility model with jumps has been used. The equity return volatility has been calibrated to a number of EuroStoxx 50 put options. The table below shows a subset of the equity option prices as on 31 December 2015 and 31 December 2014.

**SUBSET OF THE EQUITY OPTION PRICES**

Term in years	Put at strike 3,200	Put at strike 3,100
	31.12.2015	31.12.2014
1	275.7	276.7
2	424.9	414.5
3	543.1	529.1
4	651.5	625.8
5	737.8	706.3

**CURRENCY EXCHANGE RATES**

Table "Equivalent in EUR of 1 Unit of the original currency" shows the currency exchange rates used.

**EQUIVALENT IN EUR OF 1 UNIT OF THE ORIGINAL CURRENCY**

EUR	2015	2014
USD	0.91516	0.82271
GBP	1.35481	1.27799
AUD	0.66752	0.67207
ZAR	0.05937	0.07072
PLN	0.23589	0.23217

**TAXES**

Taxes are set in line with the local tax regime.

**OPERATING ASSUMPTIONS**

Operating assumptions such as mortality, morbidity, lapse rates or expenses are determined by the respective businesses based on their best estimates as of the valuation date.

Best estimate assumptions are set by considering past, current and expected future experience. Future changes in experience are allowed for in the value where sufficient evidence exists and the changes are reasonably certain. Future improvements in productivity due to the realignment of the domestic primary business are included at 75% of planned values from 2020 onwards, while the expected realignment costs are included in full. All expected expense overruns affecting the covered business, including holding company operating expenses, overhead costs and development costs in new markets are allowed for in the calculations.

## EXTERNAL OPINION



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The Directors  
Talanx AG  
Riethorst 2

30659 Hannover

26th April 2016

Dear Sirs,

### **Review of the derivation of the Market Consistent Embedded Value as at 31<sup>st</sup> December 2015**

The life insurance business of Talanx AG is reported under the "Retail Germany" and "Retail International" divisions and the "Life/Health Reinsurance" segment in the primary financial statements. Talanx AG has determined the Market Consistent Embedded Value results for the life insurance business for 2015 as set out in the Statements of Market Consistent Embedded Value (together "the Statements") on a basis consistent with the requirements of the European Insurance CFO Forum Market Consistent Embedded Value Principles<sup>©(1)</sup> ("MCEV Principles"). These Statements, the methodologies applied and the assumptions underlying them are each the sole responsibility of the Board of Directors of Talanx AG.

The Statements have been prepared by Talanx AG as the aggregate of separate Market Consistent Embedded Values determined for each significant operating unit making due allowance for inter group transactions including retrocessions.

The calculation of embedded values necessarily makes numerous assumptions with respect to economic conditions, operating conditions, taxes, and other matters, many of which are beyond Talanx AG's control. Although the assumptions used represent estimates which the Directors believe are together reasonable, actual experience in future may vary from that assumed in the calculation of Market Consistent Embedded Values and such variation may be material. Deviations from assumed experience are normal and are to be expected.

The resulting Market Consistent Embedded Value does not purport to be a market valuation of the life insurance business of Talanx AG and should not be interpreted in that manner since it does not purport to encompass all of the many factors that may bear upon a market value, e.g. the value of future new business.

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### **Scope of B&W Deloitte's Review**

We have reviewed the methodology adopted and assumptions and calculations made by the Directors to determine the Market Consistent Embedded Values for the businesses concerned and their aggregation into the consolidated Market Consistent Embedded Value of Talanx AG.

The non hedgeable risk based capital, which is the basis for the calculation of the cost of residual non hedgeable risks, has been determined by Talanx AG using an internal capital model that was not in scope of our review.

Our work was conducted in accordance with generally accepted actuarial practices and processes. It comprised a combination of such reasonableness checks, analytical review and checks of clerical accuracy as we considered necessary to provide reasonable assurance that the Statements have been compiled free of significant error. However, we have relied upon the completeness and accuracy of the data and information supplied by Talanx AG, including the values of the net assets of the operating units and relevant divisions of Talanx AG as disclosed in the various financial statements on which the Statements are based. Accordingly, as is customary, we have not audited, verified or otherwise substantiated that data and information.

### **Opinion**

In our opinion, apart from the exceptions highlighted in Statements of Market Consistent Embedded Value, Talanx AG's methodology as approved by the Directors of Talanx AG is appropriate, its assumptions taken together are reasonable and the estimate of its consolidated Market Consistent Embedded Value has been properly compiled consistent with the "MCEV Principles".

This report is made solely to Talanx AG's Directors as a body. To the fullest extent permitted by law we do not accept or assume responsibility to anyone other than Talanx AG's Directors as a body for our work in respect of this report or for the conclusions that we have reached.

Yours faithfully



B&W Deloitte GmbH

## DISCLAIMER

The information provided in this report does in no way whatsoever constitute legal, accounting, tax, or other professional advice.

While Talanx has endeavoured to include in this report information it believes to be reliable, complete and up-to-date, the company does not make any representation or warranty, express or implied, as to the accuracy, completeness or updated status of such information.

Some of the information in this report may be forward-looking information or information on future expectations based on currently available information. Such information naturally is subject to risks and uncertainties. Factors such as the development of

general economic conditions, future market conditions, unusual catastrophic loss events, changes in the capital markets and other circumstances may cause the actual events or results to be materially different from those anticipated by such information. Talanx assumes no obligation to update any forward-looking information contained in this report.

Therefore, in no case whatsoever will Talanx and its affiliate companies be liable to anyone for any decision made or action taken in conjunction with the information in this report or for any related damages.

## GLOSSARY

### ANNUAL PREMIUM EQUIVALENT (APE)

Volume measure for new business. Sum of regular premiums from new business and 10% of single premiums on business written during the period.

### ASSUMPTION CHANGES

Overall impact of variations in the operating assumptions on the embedded value.

### BEST ESTIMATE ASSUMPTION

An assumption that represents the expected outcome of all probability weighted outcomes. It reflects those events where there is sufficient objective evidence that they will occur.

### CAPITAL MOVEMENTS

Paid dividends and capital injections.

### CFO FORUM

The European Insurance CFO Forum ('CFO Forum') is a high-level discussion group formed and attended by the Chief Financial Officers of major European listed, and some non-listed, insurance companies. Its aim is to influence the development of financial reporting; value based reporting, and related regulatory developments for insurance enterprises on behalf of its members, who represent a significant part of the European insurance industry. The CFO Forum was created in 2002.

### COVERED BUSINESS

The business for which the MCEV calculation has been performed.

### ECONOMIC ASSUMPTIONS

Assumptions based on the economic parameters such as reference rates, discount rates, inflation rates and assumptions on the volatility of economic parameters.

### ECONOMIC VARIANCES

The gap between the projected investment return and actual return plus the effect on the embedded value due to the fluctuation in capital market.

### MARKET CONSISTENT EMBEDDED VALUE (MCEV)

Embedded Value following 'MCEV Principles' published by the CFO Forum in June 2008, available online at <http://www.cfoforum.nl>.

### FREE SURPLUS (FS)

The market value of any assets allocated to, but not required to support, the in-force business covered by the MCEV as defined in MCEV Principle 4.

### INTERNAL RISK CAPITAL

The internal risk capital in Talanx Group is defined as 100% of the maximum loss of MCEV that shareholders may experience under adverse conditions over a time horizon of one year with a confidence interval of 99.5%.

### LOOK-THROUGH BASIS

An analytical approach under which the impact of an action on the whole Group, rather than on a particular part of the Group, is measured. Under this paradigm, the MCEV would allow for the value of profits or losses which arise from subsidiary companies providing administration, investment management, sales and other services in relation to the covered business.

### MARKET CONSISTENT VALUATION

The practise of valuing assets and liabilities on market values where observable with a given quality (mark-to-market), where not, on market-consistent valuation techniques (mark-to-model).

### NET ASSET VALUE (NAV)

The material net assets obtained on a mark to market-value basis either from consolidating the local regulatory (statutory) balance sheet or adjusting the consolidated IFRS balance sheet. It does not account for the portion of unrealized capital gains and losses projected in the VIF.

**NET WORTH**

The market value of the shareholders' funds and the shareholders' interest in the surplus held in the non-profit component of the long-term business funds. It is determined on a statutory solvency basis and adjusted to add back any non-admissible assets. It consists of the required capital and free surplus.

**NEW BUSINESS MARGIN**

Ratio of the value of new business to the present value of new business premiums.

**OPERATING ASSUMPTIONS**

All assumptions relating to demographic assumptions (e.g. mortality, morbidity), expenses, policyholder participation and policyholder behaviour.

**PARTICIPATING BUSINESS**

Primary insurance business in which policyholders have the right to participate in the performance of a specified pool of assets or contracts.

**PRESENT VALUE OF FUTURE PROFITS (PVFP)**

Present value of future profits (where profits are post taxation shareholder cash flows from the in-force covered business and the assets backing the associated liabilities).

**PRIMARY LIFE**

Subsidiaries selling retail life and pensions contracts that are classified as covered business under MCEV.

**REFERENCE RATE**

A proxy for the risk free rate, based on swap rates including the credit risk adjustment and the volatility adjustment to the risk free interest rate.

**REQUIRED CAPITAL (RC)**

The market value of assets measured at market consistent value attributed to the covered business over and above that required to back liabilities for covered business whose distribution to shareholders is restricted. It is determined as the greater of local solvency, capital requirement from internal risk capital and additional capital required by market standards.

**RISK-FREE INTEREST RATES**

Future yields on securities considered to be free of default and credit risk. Following the approach of EIOPA, Talanx uses swap curves to estimate risk free interest rates for EUR.

**SWAP RATES**

Swap rate or par rate is the fixed rate that makes the market value of a given swap at initiation zero. They are the borrowing rates between financial institutions and form the basis of swap curve.

**VALUE OF IN-FORCE BUSINESS (VIF)**

The value of future distributable post tax profits, expected to emerge on a business already written (including renewals), i.e. the in-force business. VIF excludes any value associated with future new contracts that have not yet been written.

**VALUE OF NEW BUSINESS (NBV)**

The value of new business should reflect the additional value to shareholders created through the activity of writing new business. It is calculated using the same operating assumptions as those used to determine the embedded values at the end of the reporting period.

**VOLATILITY ADJUSTMENT**

A measure introduced by EIOPA to dampen the effect of spread changes on insurance undertakings with long-term guarantees.





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