

# Market Consistent Embedded Value Report 2017

**Allianz** 

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# Introduction

## 1.1 Basis of preparation

Market consistent embedded value (“MCEV”) represents shareholders’ economic value of the in-force life and pension business of an insurance company. Future new business is not included. The MCEV of Allianz Group as of 31 December 2017 is disclosed in this report.

Since 2008 Allianz Group has disclosed its MCEV in line with the European Insurance CFO Forum Market Consistent Embedded Value Principles © (“MCEV Principles”), which were launched in June 2008 and amended in October 2009 and most recently in May 2016 for alignment with Solvency II. The projection of assets and liabilities applying market consistent economic assumptions ensures a consistent valuation among them. In addition, an explicit allowance is made for residual non-hedgeable risks, reflected in the calculation of the Solvency II risk margin.

Due to the similarities between the methodology and assumptions used to determine the Solvency II balance sheet and those employed under EV reporting, the latest amendment of the “MCEV Principles” permits (but does not require), the use of projection methods and assumptions applied for market consistent solvency regimes. From 2015 onwards, Allianz has been using a balance sheet approach to calculate and publish its MCEV results as it is further explained in Appendix A.

This document presents the results, methodology and underlying assumptions used to calculate the 2017 MCEV for the Allianz Group in accordance with the disclosure requirements of the MCEV Principles. As in previous years, we do not include look-through profits in our main values but provide them as additional information in the development of our value of new business (“VNB”), as we would like to retain a clear split between the segments in line with our primary IFRS accounts.

The methodology and assumptions used to determine the 2017 MCEV for the Allianz Group were reviewed by KPMG and can be found in appendices A and B. An accompanying glossary of definitions and abbreviations is given in appendix C.

## 1.2 Covered business

The business covered in the MCEV results includes all material Life / Health operations which are consolidated into the Life / Health segment of the IFRS accounts of Allianz Group worldwide. The main product groups are:

- Life and disability products including riders
- Deferred and immediate annuity products, both fixed and variable
- Unit linked and index linked life products
- Capitalization products
- Long term health products

The value of reinsurance accepted by Allianz Re is reflected in the Holding results. Where debt is allocated to covered business, it is marked to current market value.

All results reflect the interest of Allianz shareholders in the life entities of the Group. Where Allianz does not hold 100% of the shares of a particular life entity a deduction is made for the corresponding minority interest.

Entities that are not consolidated into Allianz IFRS accounts, i.e. entities where Allianz only holds a minority, are not included in the 2017 MCEV results. In particular the company in India is not included. The pension fund business written outside the Life / Health segment is also not included.

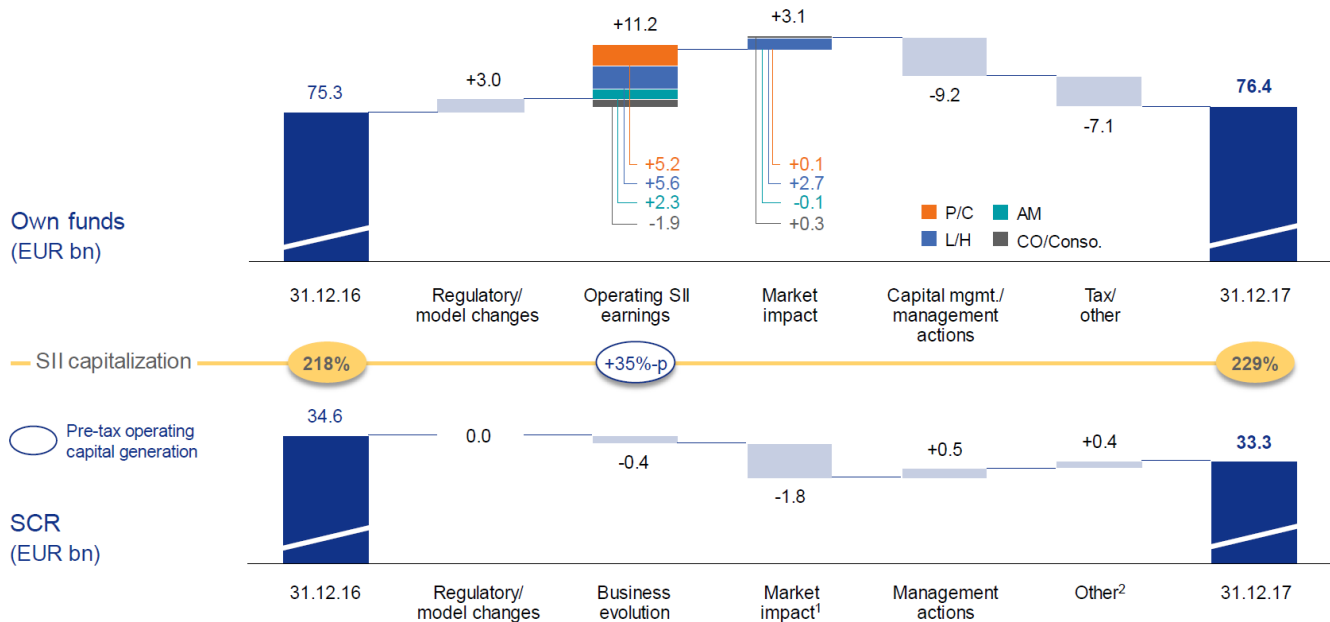
### 1.3 Solvency II disclosure

Allianz Group implemented Solvency II in 2015. This decision had two direct implications on the calculation and disclosure of MCEV:

- MCEV calculation is based on the Solvency II Market Value Balance Sheet. The methodology is fully aligned with the MCEV principles as revised in May 2016. Further explanation of the methodology can be found in Appendix A. Details of the MCEV transition can be found in the Allianz MCEV Report 2015.

- MCEV values are integrated in the Allianz Solvency II disclosure and used to explain the movement of the Own Funds for Life / Health entities as part of the Own Funds / SCR movement in the Analyst Presentation every quarter.

Next to Life / Health, the Own Funds / SCR movement contains movements related to other businesses in the Allianz Group like Property & Casualty and Asset Management. An extract of the Allianz Solvency II disclosure can be found below:



Each movement step of the Analysis of Earnings of Embedded Value table can be allocated to one of the movement steps in the Own Funds movement. Some values can be directly reconciled, others are allocated to a total Group value. Exhibit 1 shows the reconciliation from the Solvency II disclosure to the Analysis of earnings.

- Regulatory / model changes include model changes approved by the regulator. These can be major model changes or minor model changes the regulator has been informed about. Life / Health entities report these values as part of the operating variances in the Analysis of Earnings. However, in the Solvency II disclosure they have been allocated to regulatory / model changes. Regulatory / model changes are shown after tax and include not only impacts on the excess of assets over liabilities but also the impact of the model changes on transferability restrictions. In 2017 regulatory / model changes include the stochastic modelling of negative interest rates.

- Operating SII Earnings include the value of new business at point of sale, existing business contribution, non-economic assumption changes and operating variances; the latter excluding model changes.
- Market impact includes economic and foreign exchange variances.
- Capital mgmt. / management actions include net capital movements from Life / Health entities in the total Group value.
- Other includes the impact of tax reported by Life / Health entities and is consistent to MVBS tax movements as well as the tax related to model changes.

SOLVENCY II DISCLOSURE		Exhibit 1	
€MN			
	Life / Health	2017 Group	2016 Life / Health Group
<b>Own Funds Beginning of period</b>		<b>75,338</b>	<b>72,666</b>
Regulatory / model changes	1,101	2,951	1,128 -568
Operating SII earnings	5,636	11,243	6,170 11,928
VNB at point of sale (pre-tax)	2,618		1,992
Exp. existing bus. contribution	1,200		3,127
Non-eco. assumption changes	-347		916
Operating variances	1,644		1,770
Model changes included in operating variances reallocated	-1,569		-1,635
Market impact	2,707	3,074	-1,717 -1,173
Economic variances	3,747		-1,802
Foreign Exchange Variance	-1,040		85
Capital mgmt. / management actions		-9,197	-1,167
Of which: Net capital mov.	-2,639		-2,430
Of which: Acq. / Divested bus.	-		1,067
Other		-7,054	-6,349
of which: Tax	-2,807		-1,683
of which: Tax model changes	468		507
<b>Own Funds End of period</b>		<b>76,356</b>	<b>75,338</b>

ANALYSIS OF EARNINGS OF EMBEDDED VALUE		2017	
€MN			
			MCEV
<b>Opening MCEV as at 31 December 2016</b>			<b>31,777</b>
Foreign Exchange Variance			-1,062
Acquired / Divested business			21
Others			0
<b>Adjusted Opening MCEV as at 31 December 2016</b>			<b>30,736</b>
Value of new business at point of sale (pre-tax)			2,618
Expected existing business contribution			
reference rate			1,531
in excess of reference rate			1,746
other: transfer from VIF			13
Non-economic assumption changes			-347
Operating variances			1,644
<b>Operating MCEV earnings</b>			<b>7,205</b>
Economic variances			3,747
Other non-operating variance			0
Tax			-2,807
<b>Total MCEV earnings</b>			<b>8,145</b>
Net capital movements			-2,639
<b>Closing MCEV as at 31 December 2017</b>			<b>36,242</b>

# Overview of results

## 2.1 Introduction

2017 was a year in which market conditions slowly improved, and Allianz was able to significantly increase the MCEV of the Life / Health business.

European interest rates experienced a moderate increase throughout 2017 following solid economic growth and a further reduction in purchases by the European Central Bank (ECB). Despite of a benign development in inflation, a continued accommodative monetary policy contained rates to levels that are still low by historical standards. Spread markets received support from ECB purchases and solid credit fundamentals. Markets overall appeared to be very resilient to global and European political risks.

Equity markets performed strongly, led by the US. The strong Euro seems to have restrained European equities a bit in the last quarter of the year. However, in general markets have been supported by a recovery of energy prices and of the Emerging Markets to eventually conclude the year firmly up.

At 31 December 2017, Allianz Group's Life / Health MCEV amounted to EUR 36,242mn. Operating MCEV Earnings were EUR 7,205mn. Total MCEV Earnings were increased to EUR 8,145mn after tax, including a positive impact from an improved economic environment. The amount of capital movements, mainly due to dividend payments in 2017, was EUR 2.639mn.

The VNB written in 2017 was EUR 1,882mn. In a challenging environment with low interest rates, management actions on product design and new business steering towards more profitable product lines, kept VNB at a high level during the entire year. The recovery of the markets supported these results. The new business margin ("NBM") was above 3.0% during the four quarters of 2017, reaching its highest level (3.6%) in the last quarter (VNB is valued at point of sale).

The drivers of the changes in MCEV and VNB will be described in detail in the subsequent sections and chapters.

## 2.2 Embedded value results

Exhibit 2 shows the development of Allianz MCEV in 2017 with a split into the components net asset value ("NAV") and value of in-force ("VIF").

MCEV		Exhibit 2	
€MN			
	2017	2016	Change in 2016(%)
Net asset value	15,811	17,411	-9%
Value of Inforce	20,431	14,365	42%
<b>MCEV</b>	<b>36,242</b>	<b>31,777</b>	<b>14%</b>

The MCEV has increased by 14% to EUR 36,242mn driven by management actions and improvements of the markets. Customers have trusted Allianz and strongly invested in our Life / Health products. Allianz remained focused on shifting its new business mix towards capital efficient, unit linked and protection products, – thereby addressing customer needs in light of the prolonged low-yield environment – while maintaining strong shareholder returns, and building on its strong track record of product innovation. Furthermore, Allianz will continue to actively manage both new and in-force business through continuous repricing, expense management, asset/liability management and crediting strategies in order to further mitigate the impacts of difficult market conditions, particularly the low interest rates, and maintain its profitability targets. All of this is reflected in the higher profitability of new business and also in the increasing value of the in-force portfolio.

The NAV is calculated from statutory equity and reflects the market value after tax, of the assets not backing the liabilities. The NAV decreased by 9% driven by capital movements mainly in the USA and Italy.

The VIF, being defined as the difference between the MCEV and the NAV, has increased by 42% to EUR 20,431mn driven by German Speaking Countries and the USA.

The positive development in the shareholders' economic value of the life in-force business was primarily driven by the following factors:

- The higher contribution of new business as the result of a more profitable business mix due to management actions during the year.

- Narrowing of credit spreads;
- Expected over-returns during the period, especially in Germany Life.

More granular insights of the MCEV movement during the year are provided in section 2.4.

## 2.3 New business

Exhibit 3 shows the value of new business (“VNB”) at point of sale on an after-tax basis, calculated as the sum of quarterly disclosed values. Values are calculated using assumptions as of the start of the quarter in which the business was sold. As such, the overall 2017 VNB reflects economic movements throughout the year. Appendix A.5 contains a description of the VNB methodology.

The VNB in 2017 was EUR 1,882mn, 30% higher than in 2016. The NBM increased from 2.7% to 3.4%.

VALUE OF NEW BUSINESS		Exhibit 3	
€MN			
	2017	2016	Change in 2017 (%)
<b>Value of New Business</b>	<b>1,882</b>	1,448	30%
<i>(not included: look-through profits)</i>	<i>118</i>	104	14%
<b>New Business Margin<sup>1</sup> (in %)</b>	<b>3.4%</b>	2.7%	0.7%-p
Present value of new business premiums	55,515	53,591	4%
APE Margin <sup>2</sup> (in %)	23.2%	18.9%	4.4%-p
Single premium <sup>3</sup>	34,263	32,204	6%
Recurrent Premium	4,671	4,454	5%
Recurrent premium multiplier <sup>4</sup>	5	5	-5%

1—NMB= VNB / Present value of future new business premiums

2—APE margin = VNB / (recurrent premium + single premium / 10)

3—In Germany, single premium excludes Parkdepot (EUR 2,315mn)

4—Recurrent Premium Multiplier = (PVNBP - single premium) / recurrent premium

Allianz entities have been able to adapt their products on sale to the current low economic environment, in which short term interest rates are still negative for EUR and CHF. During the last two years the capital consumption of the product portfolio could be further optimized. The slight recovery of interest rates and volatilities across all regions, mainly in Europe and the USA, supported the results during 2017.

Successful management actions include:

- New business steering away from traditional savings towards capital efficient products;
- Lowering average guarantees in new traditional business from 0.70% to 0.64%, which also impacted the average guarantees of

the in-force portfolio that decreased from 2.13% in 2016 to 2.06% in 2017;

- lowering interest rate sensitivity, by introducing less market sensitive products;
- increasing pricing agility;
- improved ALM.

The increase of 4% in the present value of new business premiums (“PVNBP”) reflects an increase of 6% in single premium and 5% in recurring premium business and a slight decrease on the recurrent premium multiplier.

The increase of single premiums was mainly driven by Italy and Taiwan due to higher sales of unit linked products, together with higher sales of capital efficient products in Germany; partly offset by a decrease of fixed-indexed annuities in the USA.

Recurring premiums increased in almost all regions; the most notable exception being Germany with reduced sales of traditional business.

Exhibit 4 summarizes the development of VNB and NBM from 2016 to 2017 along the main drivers.

DEVELOPMENT OF VALUE OF NEW BUSINESS				Exhibit 4
€ MN				
	Value of New Business	New Business Margin (%)	Present Value of NB Premium	
<b>Value as at 31 December 2016</b>	<b>1,448</b>	<b>2.7%</b>	<b>53,591</b>	
Change in Foreign Exchange	-22	0.0%	-613	
Change in Allianz interest	0	0.0%	0	
<b>Adjusted Value as at 31 December 2016</b>	<b>1,426</b>	<b>2.7%</b>	<b>52,978</b>	
Change in volume	92	0.0%	2,777	
Change in business mix	56	0.1%	-13	
Change in assumptions	308	0.6%	-227	
<b>Value as at 31 December 2017</b>	<b>1,882</b>	<b>3.4%</b>	<b>55,515</b>	

Foreign exchange adjustments due to a stronger Euro reduced VNB by EUR -22mn, mainly from Turkey and the USA.

The volume impact of EUR 92mn was caused by higher sales of unit linked products in Italy, Asia and Turkey (EUR 87mn) and the increase in production of capital efficient products in Germany (EUR 32mn). Sales of fixed-indexed annuities in the USA declined (EUR -46mn) after a 2016 campaign partially offsetting the positive development.

During 2017 management actions across all regions have further increased the new business share of profitable and capital efficient products. Main contributors were Switzerland (EUR 18mn) where guarantee rates were lowered for individual life, Italy (EUR 16mn) due

to the higher share of unit linked, and Spain (EUR 10mn) driven by the intended reduction of saving products and the higher share of protection in the bancassurance channel.

The weight of the traditional guaranteed savings and annuity business in the new business mix was lowered by 4%-p. to the benefit of unit linked and capital efficient products.

Profitability of traditional guaranteed savings and annuity business could also be improved after successful repricing actions adapted to products on sale, e.g. Switzerland and Belgium. The average guarantee level decreased by 6bps to 0.64% on new business.

The weight of capital efficient products within our sales was further strengthened by Global Life entities. In the USA the sales of fixed-indexed annuities were lower but there was an increase in profitability of 0.9%-p. due to repricing actions initiated in 2016.

The contribution of Spain, France and the USA, increased the profitability of protection products by 0.9%-p. to 5.6%.

Changes in assumptions of EUR 308mn mainly reflected the higher interest rate environment, supported by positive effects from non-economic assumptions updates.

Further details on the drivers for the change in each region can be found in the regional analyses in chapter 3.

## 2.4 Analysis of MCEV earnings

Exhibit 5 presents the change in MCEV from the published value for 2016 to the value as of 31 December 2017. The value of new business is considered pre-tax in the MCEV movement.

ANALYSIS OF EARNINGS OF EMBEDDED VALUE			Exhibit 5
€MN	Earnings on MCEV analysis		
	Assets	Liabilities	MCEV
<b>Opening MCEV as at 31 December 2016</b>	<b>645,793</b>	<b>614,016</b>	<b>31,777</b>
Foreign Exchange Variance	-18,112	-17,051	-1,062
Acquired / Divested business	21	0	21
Others	0	0	0
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>627,702</b>	<b>596,966</b>	<b>30,736</b>
Value of new business at point of sale (pre-tax)			2,618
Expected existing business contribution			
reference rate			1,531
in excess of reference rate			1,746
other: transfer from VIF			13
Non-economic assumption changes			-347
Operating variances			1,644
<b>Operating MCEV earnings</b>			<b>7,205</b>
Economic variances			3,747
Other non-operating variance			0
Tax			-2,807
<b>Total MCEV earnings</b>	<b>24,451</b>	<b>16,306</b>	<b>8,145</b>
Net capital movements	-2,158	481	-2,639
<b>Closing MCEV as at 31 December 2017</b>	<b>649,994</b>	<b>613,752</b>	<b>36,242</b>

The initial adjustments include the following changes:

- Foreign exchange variance of EUR -1,062mn was driven by the strengthening of the Euro against the US Dollar and the Swiss Franc at valuation date.
- Acquired / Divested business of EUR 21mn reflects the Philippines acquired business in 2016, included in the MCEV scope in 2017;

The key components of the change in 2017 were as follows:

- Value of new business at point of sale (pre-tax) of EUR 2,618mn saw main contributions from Germany Life, AZ Life US and France. The VNB exceeded that of 2016 due to a more favorable business mix across all regions. It takes into account all



expenses with respect to new business written during 2017, including acquisition expense over- and underruns. The value contains tax of EUR 736mn.

- **Expected existing business contribution** comprises:
  - **Expected existing business contribution on reference rate** of EUR 1,531mn shows the unwinding of the discount on MCEV with respect of the reference rates used in the market consistent projection. The VIF increased as all future profits now require one year less discounting. For new business, the value reflects the progression from point of sale to end of year. The margin for the year built into the valuation for uncertainty (options and guarantees) with regard to asymmetric financial risk and non-financial risk is released in this step;
  - **Existing business contribution in excess of reference rates** of EUR 1,746mn shows the additional earnings in MCEV consistent with management expectations and mainly reflects over-returns. Biggest impacts came from Germany Life (EUR 739mn), Germany Health (EUR 196mn) and Spain (EUR 217mn). In this step, based on normalized real world assumptions provided in appendix B, risk premiums on bonds, equity and real estate are expected to materialize;
  - **Other transfer from VIF** of EUR 13mn shows the effect of the realization of projected net profits to the NAV. This step is not material for the MCEV development.
- **Non-economic assumption changes** of EUR -347mn reflect changes in assumptions such as lapses, mortality and expenses. The main driver for the change in 2017 was France (EUR -274mn) mostly due to the update of life non-market risk capital shocks impacting longevity risk.
- **Operating variances** of EUR 1,644mn contain experience variances of EUR 16mn and other operating variances of EUR 1,629mn. Experience variances reflect the deviations of actual experience from expectations during the year with respect to non-economic factors. The largest impacts came from German Speaking Countries (EUR 213mn) and Spain (EUR -133mn). Other operating variances incorporate management reactions to economic developments. Management may, for example, react by changing crediting and investment strategies. It also includes refinements on the local actuarial models and model changes approved by the regulator, as well as updates on the calculation of risk margin to allow for operational risk in line with local regulator request (e.g. France).
- **Operating MCEV earnings** of EUR 7,205mn represents the sum of all operating drivers described above. The 2017 operating MCEV earnings amount to 23% of the adjusted opening MCEV.
- **Economic variances** of EUR 3,747mn include the impacts of changes in interest rates, actual development of equity markets and actual performance of the assets in the portfolio. For 2017, the contributions from economic movements were highly

positive, driven by favorable performance of the equity markets (EUR 1.3bn), lower volatilities (EUR 1.2bn) and narrowing of credit spreads (EUR 1.0bn).

- **Other non-operating variances** (EUR 0mn) may for example reflect changes in government regulations that are not included in other operating variances.
- **Tax** of EUR -2,807mn reflects the bottom-up tax calculation on the Solvency II Balance Sheet. The effect was in line with the overall gain in the life portfolio.
- **Total MCEV earnings** of EUR 8,145mn summarize the movements during the year due to all drivers investigated. The 2017 MCEV earnings resulted in an increase of the adjusted opening MCEV of 26%, after adjustment and before capital movements, due to the large impact of economic variances.
- **Net capital movements** of EUR -2,639mn reflect the net dividends and capital movements from/to our life companies.

Further details on the drivers for the change in each region can be found in the regional analyses in chapter 3.

## 2.5 Projected profits

To present the timing of release of profits, Exhibit 6 shows the expected maturity profile of the present value of future profits ("PVFP") used for MCEV. The table shows discounted risk neutral profits with respect to the current in-force portfolio. Future new business is not considered.

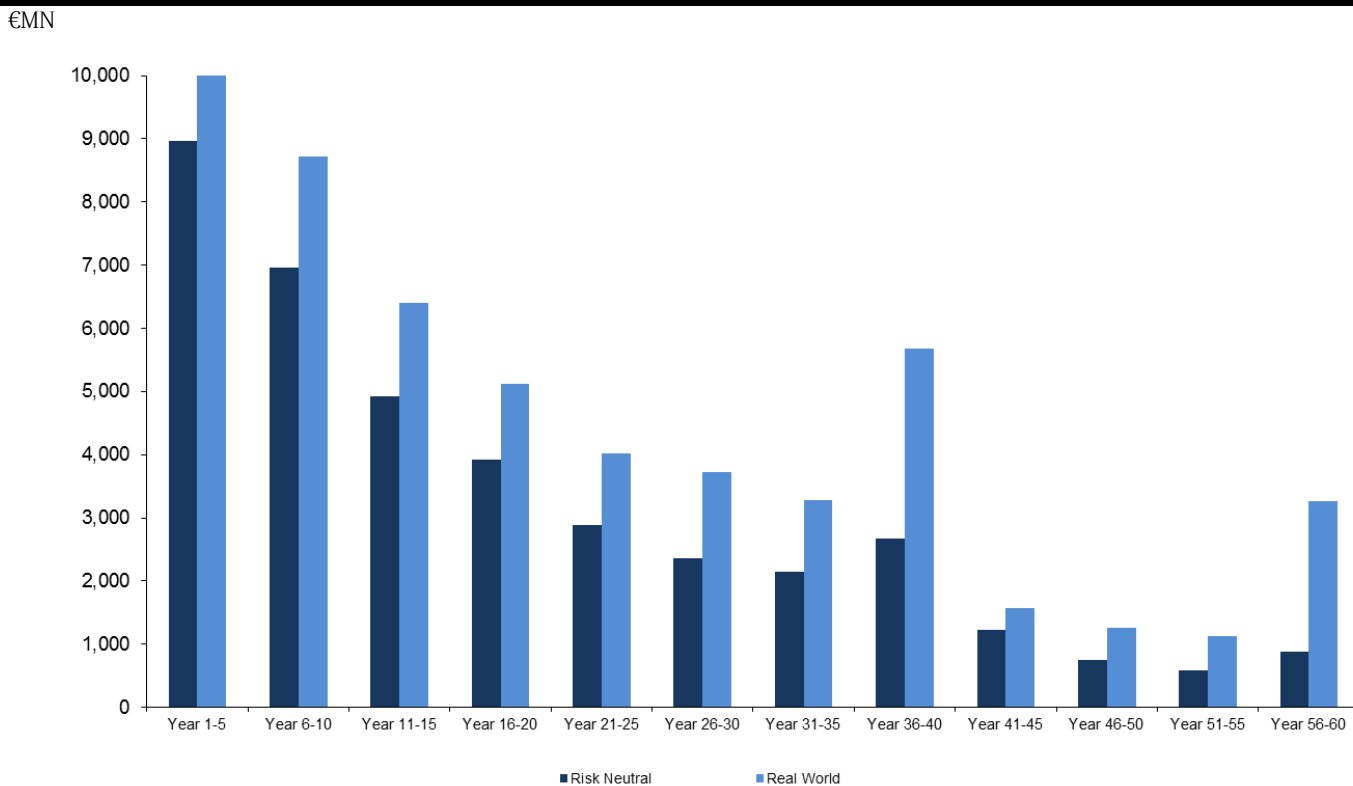
Exhibit 6

REMAINING PRESENT VALUE OF FUTURE PROFITS		
€MN	PVFP	% of initial PVFP
End of year		
year 5	19,931	72%
year 10	14,676	53%
year 15	11,203	41%
year 20	8,414	30%
year 25	6,749	24%
year 30	5,534	20%
year 35	4,379	16%
year 40	2,482	9%
year 45	1,712	6%
year 50	1,289	5%

Timing of the cash-flows depends very much on the underlying portfolio, and varies over the Group. Within Allianz there are short term portfolios, such as short term saving or protection, as well as long term portfolios, for example annuities. The overall duration of the liabilities is mainly driven by the block of long term traditional business in Germany. The projection of future profits shows a stable earnings release and return on capital over the entire projection period.

The following graph represents the pattern of risk neutral and real world profits grouped by 5 year time buckets. Risk neutral profits divided by average reserves over the entire projection period were 0.33% and the corresponding real world ratio was 0.39%. This is at a similar level than last year.

PATTERN OF RISK NEUTRAL AND REAL WORLD PROFITS

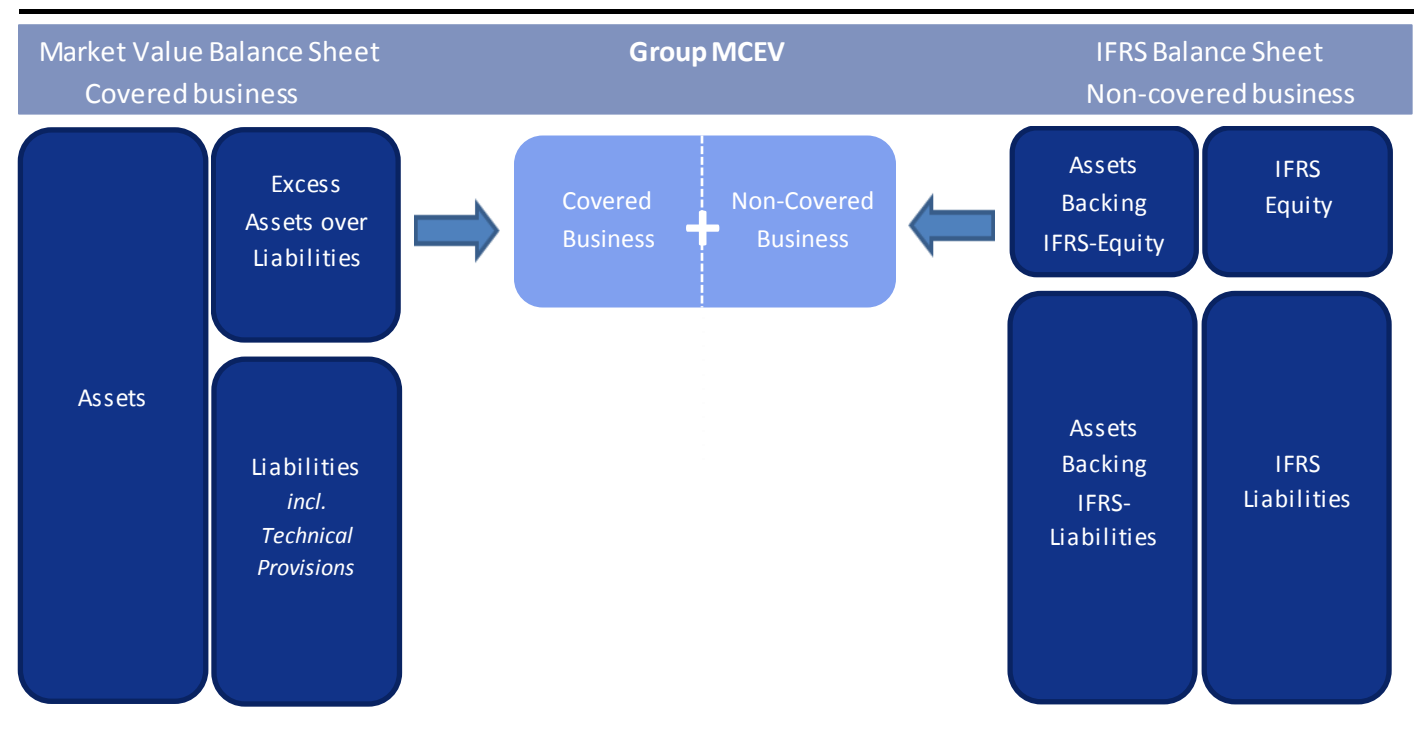


## 2.6 Group MCEV

Allianz MCEV reflects the value of assets in excess of liabilities derived from the Market Value Balance Sheet under Solvency II. The result of these calculations is a balance sheet reflecting the shareholder value of the in-force business.

The definition of MCEV determines the split of the total MCEV into NAV, i.e. the value of the assets not backing liabilities, which can also be interpreted as the equity component of the MCEV, and VIF, i.e. the value of future profits emerging from operations and assets backing liabilities.

For Allianz Group's other segments, the shareholder value is derived from the Group's IFRS equity. As the impact of future new business is not included in the MCEV, we compare it to the IFRS equity for covered business excluding any goodwill.



The Group MCEV as of 31 December 2017 was EUR 73,432mn, 5% higher than the value for 2016 of EUR 69,925mn. This was an increase after a dividend payment to shareholders of EUR 3,410mn, a share buy-back of EUR 2,998mn.

Exhibit 7 shows the analysis of earnings of Group MCEV. "Non-covered" includes all segments except Life / Health. In particular, it contains the impact of Allianz Group's financing structure as well as consolidation effects between covered and non-covered business. The analysis of earnings for non-covered business is based on the IFRS Group income statement and Group balance sheet. Specifically, operating earnings for non-covered business are

based on IFRS operating profit. Due to the differences in definition of operating profit for IFRS applied to non-covered business and operating earnings in MCEV for the covered business we do not show a total for operating earnings and non-operating earnings separately.

## ANALYSIS OF EARNINGS OF GROUP MCEV

Exhibit 7

€ MN	Covered business MCEV	Non covered business & financing adj. IFRS	Total Group MCEV
<b>Opening Group MCEV as at 31 December 2016</b>	<b>31,777</b>	<b>38,149</b>	<b>69,925</b>
Opening adjustments	-1,040	-955	-1,996
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>30,736</b>	<b>37,193</b>	<b>67,929</b>
Operating MCEV earnings <sup>1</sup>	7,204	6,686	not meaningful
Non-operating MCEV earnings <sup>2</sup>	3,748	-1,056	not meaningful
Non-covered: OCI and other equity changes		-104	
Other non-operating earnings	3,748	-952	
Tax	-2,807	-1,531	
<b>Total MCEV earnings</b>	<b>8,145</b>	<b>4,099</b>	<b>12,244</b>
Net capital movements/ other	-2,639	-4,102	-6,741
<b>Closing MCEV as at 31 December 2017</b>	<b>36,242</b>	<b>37,190</b>	<b>73,432</b>

1—For the non-covered business, IFRS Operating Profit of the Allianz Group excluding the Life / Health Segment was used as Operating MCEV earnings.

2— For the covered business, other non-operating earnings reflect economic variances. For the non-covered business, the non-operating MCEV earnings were calculated as follows:

- Changes in OCI (Unrealized Gains / Losses and DBP) and other equity changes of the Allianz Group attributable to shareholders not included in covered business;
- IFRS non-operating earnings of the Allianz Group attributable to shareholders not included in covered business.

Group MCEV increased by EUR 3,507mn, driven by the increase in covered business' MCEV of EUR 4,465mn. The change in non-covered business was driven by offsetting effects. The opening adjustment of the non-covered business reflects FX effects of EUR -902mn and change in scope from non-covered to covered (EUR -54mn) mainly due to Philippines. The operating profit of the non-covered business, amounting to EUR 6,686mn, was mainly due to P&C business. The increase in covered business MCEV is described in detail in the remainder of this report. The total movement of Group MCEV was reduced by net capital movements of EUR 6,741mn essentially comprising dividends paid from Allianz SE to shareholders and the share buy-back.

## 2.7 Sensitivities

Sensitivity testing with respect to the underlying best estimate assumptions is an important part of MCEV calculations. Both economic and non-economic factors are tested. The same management rules and policyholder behavior have been assumed in the sensitivities as for the base case. It should be noted that the sensitivities are usually correlated so that the impact of two events occurring simultaneously is unlikely to be the sum of the outcomes of the corresponding tests. Where it has been determined that the impact of assumption changes is symmetrical, one-sided sensitivities are shown.

The sensitivities presented in Exhibit 8 below correspond to the primary economic and non-economic factors specified in the MCEV Principles. The magnitude of the assumption shifts are not indicative of what may or may not actually occur.

SENSITIVITIES		Exhibit 8		
€ MN				
	Inforce MCEV		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>36,242</b>	<b>100%</b>	<b>1,882</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate – 50bp	-922	-3%	-12	-1%
Risk Free Rate +50bp	261	1%	-36	-2%
Equity values – 20 %	-2,107	-6%	-111	-6%
Swaption volatilities +25 %	-1,194	-3%	-27	-1%
Equity option volatilities +25 %	-760	-2%	-20	-1%
EV change by non-economic factors				
Lapse Rates – 10 %	462	1%	124	7%
Maintenance Expenses – 10 %	1,178	3%	106	6%
Mortality + 15 % for products with death risk	-596	-2%	-43	-2%
Mortality – 20 % for products with longevity risk	-2,531	-7%	-28	-2%

A description of the disclosed sensitivities follows. Details of the sensitivities by region are provided in chapter 3.

### – Sensitivity to a decrease/increase of the underlying market risk-free rates

This sensitivity shows by how much the MCEV would change if market interest rates in the different economies were to fall/rise. The sensitivity is designed to indicate the impact of a sudden shift in the risk-free yield-curve, accompanied by a shift in all economic assumptions including discount rates, market values of fixed income assets as well as equity and real estate return assumptions.

Yield-curve extrapolation is applied in sensitivities to interest rate shifts. This means that only the deep and liquid part of yield-curves are subject to parallel shifts with the ultimate forward rate (“UFR”) being kept stable, in line with its design under Solvency II.

Due to the asymmetric and non-linear impact of embedded financial options and guarantees, falling market rates usually have a higher impact on MCEV than rising interest rates and the impact increases for each further step down.

A shift of -50bps in interest rates results in a reduction of the MCEV of EUR -922mn or -3%. This is less than the corresponding impact shown for 2016 of -4%, driven by the successful lowering of guarantee levels in the in-force book. VNB would decrease by EUR -12mn or -1%.

We performed additional sensitivities to test the sensitivity of the UFR. In contrast to the sensitivities in which the deep and liquid part of the yield-curves are shocked, in these additional sensitivities we shock the UFR by -200bps and keep the deep and liquid part of the yield-curves unchanged. Reducing the UFR by 200bps reduces the MCEV by EUR -2,958mn. VNB would reduce by EUR -18mn.

### – Sensitivity to a decrease in equity values at the valuation date by 20%

This sensitivity is designed to indicate the impact of a sudden change in the market values of equity assets. Since the modeled investment strategies take into account a certain target allocation based on market value, this shock may lead to a rebalancing of the modeled assets at the end of the first year, when defined boundaries for each asset class are exceeded. A drop of equity values by 20% reduces MCEV by EUR -2,107mn or by -6%. This is in line with last year, as no significant changes have been performed in the underlying asset portfolio.

### – Sensitivities to increases in volatilities for fixed income and equity by 25%

These sensitivities show the effect of increasing all volatilities, i.e. swaption implied volatilities, equity option implied volatilities and real estate volatility, by 25% of the assumed rate. An increase in volatilities leads to a higher O&G for traditional participating business.

MCEV decreases by EUR -1,194mn or -3% for an increase in swaption implied volatility, which is similar to last year’s impact.

MCEV decreases by EUR -760mn or -2% for an increase in equity option implied volatility and VNB decreases by EUR -20mn or -1%.

– Sensitivity to a decrease in lapse rates by 10%

The impact of a 10% proportionate decrease in projected lapse rates is an increase in MCEV of EUR 462mn or 1% with some offsetting effects across the different countries.

– Sensitivity to a decrease in maintenance expenses by 10%

The impact of a 10% decrease in the projected expenses on MCEV is EUR 1,178mn or 3%. This sensitivity is similar to last year.

– Sensitivity to changes in mortality and morbidity rates

These sensitivities show the impact of an increase in mortality rates by 15% for products with death risk and a decrease in mortality rates of 20% for products exposed to longevity risk. Since the future experience for the different insured populations in the two product groups might vary significantly, the impacts of this sensitivity are shown separately.

For products with death risks the impact of an increase in mortality rates by 15% leads to a decrease in MCEV of EUR -596mn or -2%. The impact of a decrease in mortality rates by 20% on products exposed to longevity risk would lead to a decrease in MCEV of EUR -2,531mn or -7%. This is lower than last year due to introduction of the projection model and the update of the parametrization of the stochastic valuation in Germany Life.

The impact of non-economic shocks was in general low as they were mitigated by the ability to share technical profits and losses with policyholders, particularly in Germany.

# Regional analysis of embedded value

## 3.1 Overview

The following tables provide overviews of the contribution of the various regions and operating entities to the MCEV and VNB results of the Allianz Group. Detailed analyses for each region follow. The regional distribution consists in:

### German Speaking Countries

- **Germany Life** includes Allianz Lebensversicherungs-AG and German variable annuity business. Its subsidiaries are included at equity.
- **Germany Health** is Allianz's health business Allianz Private Krankenversicherungs AG.
- Life operations in **Switzerland** and **Austria**.

### Western & Southern Europe, Middle East, Africa

- Life operations in **France** including partnerships and French variable annuity business.
- **Italy** includes Italian and Irish life subsidiaries and Italian variable annuity business.
- Life operations in **Belgium, Netherlands, Luxemburg, Greece, Turkey, Egypt** and **Lebanon**.
- The non-consolidated life operation in **India** is not included.

### Iberia & Latin America

Life operations in **Spain, Portugal** and **Mexico**.

### Central and Eastern Europe

Life operations in **Slovakia, Czech Republic, Poland, Hungary, Croatia, Bulgaria** and **Romania**.

### Asia Pacific

- Life operations in **Taiwan, Thailand, China, Indonesia, Malaysia, Japan** and **Philippines**.
- **Allianz Global Life**, excluding continental European branches.

### USA

Allianz Life US.

### Holding

Internal life reinsurance.

In the following chapters, the analysis is presented for each material region, with specific focus on our larger life operations in Germany, France, Italy and USA.

## VALUE OF NEW BUSINESS AT POINT OF SALE BY REGION

€ MN	German Speaking Countries	Germany Life	Western & Southern Europe	France	Italy	Iberia and Latin America	CEE	Asia Pacific	USA	Holding	Total
<b>Value of New Business</b>	<b>730</b>	639	<b>435</b>	146	184	<b>104</b>	<b>35</b>	<b>227</b>	<b>323</b>	<b>28</b>	<b>1,882</b>
in % total VNB	<b>39%</b>	34%	<b>23%</b>	8%	10%	<b>6%</b>	<b>2%</b>	<b>12%</b>	<b>17%</b>	<b>1%</b>	<b>100%</b>
New Business Margin in %	<b>3.7%</b>	3.8%	<b>2.3%</b>	1.9%	2.2%	<b>5.2%</b>	<b>6.4%</b>	<b>4.5%</b>	<b>3.4%</b>	n/a	<b>3.4%</b>
Present value of NB premium	<b>19,609</b>	16,953	<b>18,971</b>	7,737	8,346	<b>1,985</b>	<b>555</b>	<b>5,035</b>	<b>9,360</b>	<b>0</b>	<b>55,515</b>
APE Margin <sup>1</sup> in %	<b>45.6%</b>	44.6%	<b>10.9%</b>	6.5%	16.1%	<b>32.5%</b>	<b>13.8%</b>	<b>25.8%</b>	<b>30.7%</b>	n/a	<b>23.2%</b>
APE Absolute	<b>1,599</b>	1,431	<b>3,992</b>	2,252	1,144	<b>319</b>	<b>256</b>	<b>881</b>	<b>1,051</b>	n/a	<b>8,097</b>
Single Premium <sup>2</sup>	<b>8,360</b>	8,199	<b>13,933</b>	5,341	6,582	<b>1,082</b>	<b>74</b>	<b>2,141</b>	<b>8,671</b>	<b>0</b>	<b>34,263</b>
Recurrent Premium	<b>763</b>	611	<b>2,598</b>	1,718	486	<b>211</b>	<b>249</b>	<b>667</b>	<b>184</b>	<b>0</b>	<b>4,671</b>
Recurrent premium multiplier <sup>3</sup>	<b>15</b>	14	<b>2</b>	1	4	<b>4</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>5</b>
<b>Value of New Business by product type</b>											
Capital Efficient	<b>425</b>	410	<b>33</b>	7	16	<b>25</b>	<b>0</b>	<b>1</b>	<b>283</b>	<b>0</b>	<b>767</b>
Guaranteed Savings & Annuities	<b>166</b>	150	<b>114</b>	95	7	<b>8</b>	<b>3</b>	<b>59</b>	<b>7</b>	<b>0</b>	<b>357</b>
Protection & Health	<b>137</b>	78	<b>113</b>	44	34	<b>63</b>	<b>26</b>	<b>59</b>	<b>32</b>	<b>28</b>	<b>458</b>
Unit linked without Guarantees	<b>1</b>	0	<b>176</b>	0	128	<b>8</b>	<b>7</b>	<b>108</b>	<b>0</b>	<b>0</b>	<b>300</b>
<b>New Business Margin by product type</b>											
Capital Efficient in %	<b>4.0%</b>	4.0%	<b>2.4%</b>	2.5%	2.4%	<b>2.9%</b>	n/a	<b>5.0%</b>	<b>3.4%</b>	n/a	<b>3.6%</b>
Guaranteed Savings & Annuities in %	<b>2.8%</b>	2.9%	<b>2.0%</b>	2.0%	0.8%	<b>2.0%</b>	<b>4.7%</b>	<b>5.0%</b>	<b>2.8%</b>	n/a	<b>2.6%</b>
Protection & Health in %	<b>4.5%</b>	5.5%	<b>3.6%</b>	1.6%	19.0%	<b>15.1%</b>	<b>9.2%</b>	<b>9.4%</b>	<b>4.7%</b>	n/a	<b>5.6%</b>
Unit linked without Guarantees in %	<b>3.1%</b>	n/a	<b>2.0%</b>	n/a	1.9%	<b>2.6%</b>	<b>3.2%</b>	<b>3.3%</b>	n/a	n/a	<b>2.4%</b>

1—APE margin = Value of new business / (recurrent premium + single premium / 10)

2—In Germany, single premium excludes Parkdepot and Kapitalisierungsprodukt

3—Recurrent Premium Multiplier = (PVNBP - single premium) / recurrent premium



## 3.2 German Speaking Countries

### 3.2.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written by the German Speaking Countries in 2017 was EUR 730mn, 24% higher than previous year. Exhibit 10 presents an analysis of the changes.

DEVELOPMENT OF VALUE OF NEW BUSINESS				Exhibit 10
€ MN				
	Value of New Business	New Business Margin (%)	Present Value of NB Premium	
<b>Value as at 31 December 2016</b>	<b>589</b>	<b>3.1%</b>	<b>18,952</b>	
Change in Foreign Exchange	0	0.0%	-22	
Change in Allianz interest	0	0.0%	0	
<b>Adjusted Value as at 31 December 2016</b>	<b>589</b>	<b>3.1%</b>	<b>18,930</b>	
Change in volume	34	0.0%	978	
Change in business mix	1	0.0%	0	
Change in assumptions	106	0.6%	-298	
<b>Value as at 31 December 2017</b>	<b>730</b>	<b>3.7%</b>	<b>19,609</b>	

The movement of VNB and NBM in the region was mainly driven by Germany Life, for which details can be found in the following section.

Fluctuations along the year of the Swiss Franc against the Euro had a small impact.

New business premium volumes increased driven by higher volumes of capital efficient products in Germany Life, supported by higher sales of full coverage insurance in Germany Health.

Low impact of business mix, as the positive movements in the region (EUR 22mn) were offset by the negative impact from Germany Life (EUR -20mn). Excluding Germany Life, this includes impacts of:

- EUR 18mn from Switzerland due to the lower guarantees in individual lines and focus on profitable group products;
- EUR 3mn from Germany Health due to higher sales of full coverage insurance and dental tariffs with higher margin.
- EUR 1mn Austria driven by shift towards products with lower guarantees.

The high positive effect of change in assumptions (EUR 106mn) was mainly driven by Germany Life (EUR 85mn), supported by the rest of the region (EUR 20mn). Impact driven by improvement of market environment (EUR 17mn) and annual update of biometric assumptions to align with the industry in Switzerland (EUR 3mn).

### 3.2.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV for the German Speaking Countries increased from EUR 12,260mn to EUR 14,876mn after capital transfers of EUR 572mn. The analysis of earnings in Exhibit 11 presents the drivers of the change in MCEV.

ANALYSIS OF EARNINGS OF EMBEDDED VALUE				Exhibit 11
€ MN	Earnings on MCEV analysis			
	Assets	Liabilities	MCEV	
<b>Opening MCEV as at 31 December 2016</b>	<b>314,352</b>	<b>302,092</b>	<b>12,260</b>	
Foreign Exchange Variance	-1,595	-1,462	-134	
Acquired / Divested business	0	0	0	
Others	0	0	0	
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>312,756</b>	<b>300,630</b>	<b>12,126</b>	
Value of new business at point of sale (pre-tax)			1,051	
Expected existing business contribution				
reference rate			600	
in excess of reference rate			1,036	
other : transfer from VIF			10	
Non-economic assumption changes			-37	
Operating variances			1,125	
<b>Operating MCEV earnings</b>			<b>3,785</b>	
Economic variances			869	
Other non-operating variance			0	
Tax			-1,332	
<b>Total MCEV earnings</b>	<b>1,670</b>	<b>-1,653</b>	<b>3,322</b>	
Net capital movements	-91	481	-572	
<b>Closing MCEV as at 31 December 2017</b>	<b>314,334</b>	<b>299,458</b>	<b>14,876</b>	

Operating MCEV earnings contributed 31% and economic variance 7% of the adjusted opening MCEV. Germany Life was the main driver of the region's positive result and is analyzed separately in the next section.

MCEV of Austria increased by 16% driven by economics; Germany Health increased by 14% and Switzerland gained 1% due to offsetting effects from better equity markets and depreciation of Swiss Franc.

The opening foreign exchange of EUR -134mn reflects the strengthening of the Euro against the Swiss Franc at valuation date.

The VNB at point of sale contributed EUR 1,051mn pre-tax, of which EUR 78mn were from Germany Health and EUR 38mn from Switzerland. Earning the reference rate on the in-force portfolio increased MCEV by EUR 600mn, expected returns in excess of the reference rate added EUR 1,036mn.

Operating variances of EUR 1,125mn include refinements on the local actuarial models to reflect regulatory changes in Austria (EUR 26mn), as well as annual update of assumptions in Switzerland (EUR 64mn) and favorable deviations between predicted and actual reserves in Germany Health (EUR 71mn).

Economic variances of EUR 869mn reflects the slight improvement of interest rates mainly impacting Switzerland, as well as lower volatilities and improvement on equity markets.

Germany Life and Germany Health made a capital transfer of EUR 379mn and EUR 100mn respectively, and Switzerland paid a dividend of EUR 93mn.

### 3.2.3. SENSITIVITIES

Exhibit 12 shows the sensitivities for the German Speaking Countries' MCEV and VNB.

SENSITIVITIES	Exhibit 12			
	Inforce MCEV		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>14,876</b>	<b>100%</b>	<b>730</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate – 50bp	-716	-5%	9	1%
Risk Free Rate +50bp	309	2%	-34	-5%
Equity values – 20 %	-931	-6%	-60	-8%
Swaption volatilities +25 %	-537	-4%	-1	0%
Equity option volatilities +25 %	-262	-2%	-12	-2%
EV change by non-economic factors				
Lapse Rates – 10 %	240	2%	39	5%
Maintenance Expenses – 10 %	163	1%	39	5%
Mortality + 15 % for products with death risk	-102	-1%	-6	-1%
Mortality – 20 % for products with longevity risk	-290	-2%	9	1%

The portfolio is mostly participating business with long premium paying terms. Sensitivities to non-economic assumptions are relatively low because technical surplus is shared with policyholders. For the German health business, premiums are adjusted when assumptions are change.

Due to the asymmetric nature of embedded options and guarantees, falling market rates have a higher impact on MCEV than rising rates. Shift in new business interest rate sensitivity was driven by Germany Life due to higher share of capital efficient products, which started having an impact on the total portfolio, reducing MCEV sensitivities to interest rates.

Swaption volatility sensitivity increased compared to last year, driven by Germany Life.

The non-economic sensitivities stayed low. Longevity risk exposure decreased considerably driven by the introduction of the projection model in combination with the update of the stochastic parametrization in Germany Life.

## 3.3 Germany Life

### 3.3.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written by Germany Life in 2017 was EUR 639mn, 18% higher than the value in 2016. The NBM changed from 3.4% to 3.8%. Exhibit 13 presents an analysis of the changes.

#### DEVELOPMENT OF VALUE OF NEW BUSINESS Exhibit 13

€ MN	Value of New Business	New Business Margin (%)	Present Value of NB Premium
<b>Value as at 31 December 2016</b>	<b>542</b>	<b>3.4%</b>	<b>16,143</b>
Change in Foreign Exchange	0	0.0%	0
Change in Allianz interest	0	0.0%	0
<b>Adjusted Value as at 31 December 2016</b>	<b>542</b>	<b>3.4%</b>	<b>16,143</b>
Change in volume	32	0.0%	947
Change in business mix	-20	-0.1%	0
Change in assumptions	85	0.5%	-137
<b>Value as at 31 December 2017</b>	<b>639</b>	<b>3.8%</b>	<b>16,953</b>

The VNB of Germany Life has been strong throughout the year. The introduction of new tariffs and significant growth on products with reduced and alternative guarantees was still supported by the effect of the new cash flow model that better reflects capital efficient product features. The model is used since the second half of 2016 and added 48bps to the NBM.

As a result of steering the business towards capital efficient products, sales of savings have been reduced by a similar amount. Single premium contracts on savings lines sold in the last half of the year counterbalanced the effect and supported the increase of volumes (EUR 32mn).

The negative VNB contribution of EUR -20mn on business mix led to a decrease in NBM of 0.1%-p. and was based on repricing of products due to lowering of minimum guarantee by regulation, as well as the higher share of single premium contracts with lower profitability.

The VNB increase of EUR 85mn was driven by economics as well as the positive effect of the new cash flow model introduced in the second half of 2016.

### 3.3.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV of Germany Life increased by 28% from EUR 8,085mn to EUR 10,312mn, including capital transfer of EUR 379mn. The analysis of earnings in Exhibit 14 presents the drivers of the change in MCEV.

#### ANALYSIS OF EARNINGS OF EMBEDDED VALUE Exhibit 14

€ MN	Earnings on MCEV analysis		
	Assets	Liabilities	MCEV
<b>Opening MCEV as at 31 December 2016</b>	<b>255,489</b>	<b>247,405</b>	<b>8,085</b>
Foreign Exchange Variance	0	0	0
Acquired / Divested business	0	0	0
Others	0	0	0
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>255,489</b>	<b>247,405</b>	<b>8,085</b>
Value of new business at point of sale (pre-tax)			925
Expected existing business contribution			
reference rate			519
in excess of reference rate			739
other : transfer from VIF			10
Non-economic assumption changes			4
Operating variances			843
<b>Operating MCEV earnings</b>			<b>3,041</b>
Economic variances			611
Other non-operating variance			0
Tax			-1,046
<b>Total MCEV earnings</b>	<b>158</b>	<b>-2,448</b>	<b>2,606</b>
Net capital movements	2	381	-379
<b>Closing MCEV as at 31 December 2017</b>	<b>255,650</b>	<b>245,338</b>	<b>10,312</b>

Operating MCEV earnings contributed EUR 3,041mn and were supported by an economic impact of EUR 611mn.

The VNB at point of sale contributed EUR 925mn pre-tax. Earning the reference rate on the in-force portfolio increased MCEV by EUR 519mn. Expected returns in excess of the reference rate added a significant amount of EUR 739mn.

Non-economic assumptions of EUR 4mn and operating variances of EUR 843mn mainly reflect the model changes approved by the regulator (EUR 662mn).

Economic variances of EUR 611mn reflect the impact of higher interest rates and lower volatilities as well as favorable development of equity markets.

There were net capital movements of EUR 379mn in respect of the profit/loss transfer agreements.

### 3.3.3. SENSITIVITIES

Exhibit 15 shows the sensitivities for Germany Life's MCEV and VNB.

SENSITIVITIES	Exhibit 15			
	Inforce MCEV		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>10,312</b>	<b>100%</b>	<b>639</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate – 50bp	-563	-5%	11	2%
Risk Free Rate +50bp	193	2%	-36	-6%
Equity values – 20 %	-673	-7%	-59	-9%
Swaption volatilities +25 %	-465	-5%	1	0%
Equity option volatilities +25 %	-245	-2%	-10	-2%
EV change by non-economic factors				
Lapse Rates – 10 %	263	3%	34	5%
Maintenance Expenses – 10 %	20	0%	34	5%
Mortality + 15 % for products with death risk	-10	0%	0	0%
Mortality – 20 % for products with longevity risk	-264	-3%	6	1%

Germany Life's portfolio comprised mostly of traditional participating business with long premium paying terms. Sensitivities to non-economic assumptions are relatively low because technical surplus is shared with policyholders.

Due to the asymmetric nature of embedded options and guarantees, falling market rates have a higher impact than rising rates. The shift on the interest rate sensitivity sign of new business was driven by higher share of capital efficient products.

Equity sensitivity in line with the volume of the equity portfolio.

Low non-economic sensitivities. Longevity risk exposure decreased considerably driven by the introduction of the projection model in combination with the update of the stochastic parametrization. New business could benefit even more from higher policyholder persistency than last year.

## 3.4 Western & Southern Europe

### 3.4.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written in Western & Southern Europe in 2017 was EUR 435mn, 61% higher than the value in 2016. The NBM increased from 1.6% to 2.3%. Exhibit 16 presents an analysis of the changes.

DEVELOPMENT OF VALUE OF NEW BUSINESS		Exhibit 16	
	Value of New Business EUR mn	New Business Margin %	Present Value of NB Premium EUR mn
<b>Value as at 31 December 2016</b>	<b>270</b>	<b>1.6%</b>	<b>16,667</b>
Change in Foreign Exchange	-13	-0.1%	-182
Change in Allianz interest	0	0.0%	0
<b>Adjusted Value as at 31 December 2016</b>	<b>256</b>	<b>1.6%</b>	<b>16,484</b>
Change in volume	67	0.2%	2,258
Change in business mix	23	0.1%	0
Change in assumptions	89	0.4%	229
<b>Value as at 31 December 2017</b>	<b>435</b>	<b>2.3%</b>	<b>18,971</b>

The increase in VNB was mainly driven by France and Italy, explained in detail in the next sections, supported by Benelux and Turkey.

The losses in foreign exchange of EUR -13mn, are based on the weakening of Turkish Lira and Egyptian Pound against the Euro.

The increase in VNB of EUR 67mn by volume was mainly caused by Italy (EUR 25mn), France (EUR 19mn) and Turkey (EUR 14mn), due to higher sales of unit linked products.

The gain in VNB of EUR 23mn for business mix was caused by more profitable products in Italy (EUR 9mn), France (EUR 8mn) and Benelux (EUR 6mn), due to lowering of guarantee levels and increasing the share of unit linked products in Belgium.

The change in assumptions of EUR 89mn includes economic effects (EUR 30mn) mainly from Italy and Benelux due to higher interest rates; and non-economic effects (EUR 32mn) driven by tax impacts and assumption updates in France.

### 3.4.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV for Western & Southern Europe increased from EUR 9,718mn to EUR 9,886mn which represents an increase of 2%. The analysis of earnings in Exhibit 17 presents the drivers of the change in MCEV.

ANALYSIS OF EARNINGS OF EMBEDDED VALUE		Exhibit 17	
€MN	Earnings on MCEV analysis		
	Assets	Liabilities	MCEV
<b>Opening MCEV as at 31 December 2016</b>	<b>177,194</b>	<b>167,476</b>	<b>9,718</b>
Foreign Exchange Variance	-479	-419	-60
Acquired / Divested business	0	0	0
Others	0	0	0
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>176,715</b>	<b>167,056</b>	<b>9,659</b>
Value of new business at point of sale (pre-tax)			592
Expected existing business contribution			
reference rate			343
in excess of reference rate			297
other : transfer from VIF			2
Non-economic assumption changes			-225
Operating variances			326
<b>Operating MCEV earnings</b>			<b>1,335</b>
Economic variances			702
Other non-operating variance			0
Tax			-496
<b>Total MCEV earnings</b>	<b>9,340</b>	<b>7,800</b>	<b>1,540</b>
Net capital movements	-1,312	0	-1,312
<b>Closing MCEV as at 31 December 2017</b>	<b>184,743</b>	<b>174,856</b>	<b>9,886</b>

Operating MCEV earnings contributed 14%, supported by better economics. France and Italy were the main driving countries of the development and are analyzed separately. Stable MCEV in Benelux, next to increases in Turkey, Egypt and Lebanon, with small offset from Greece.

The opening foreign exchange loss of EUR -60mn reflects the weakening of the Turkish Lira and Egyptian Pound against the Euro.

The VNB at point of sale added EUR 592mn pre-tax, including a significant contribution from Turkey (EUR 66mn) and Benelux (EUR 65mn) next to France and Italy. Earning the reference rate on

the in-force portfolio increased MCEV by EUR 343mn; expected returns in excess of the reference rate added another EUR 297mn.

The non-economic impact of EUR -225mn refers mainly to updates in France partly offset by minor impacts from Italy and Benelux from updated of expense assumptions.

Operating variances of EUR 326mn were primarily based on contributions from France (EUR 471mn) partly offset by Italy (EUR -122mn).

The contribution of economic variances of EUR 702mn was mostly coming from France and Italy as well as Benelux.

Capital movements of overall EUR 1,312mn including Italy (EUR 658mn), France (EUR 420mn), Benelux (EUR 201mn), Turkey (EUR 23mn), Lebanon (EUR 6mn) and Egypt (EUR 5mn).

### 3.4.3. SENSITIVITIES

Exhibit 18 presents the sensitivities for Western & Southern Europe's MCEV and VNB.

SENSITIVITIES		Exhibit 18		
€MN				
	Inforce MCEV		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>9,886</b>	<b>100%</b>	<b>435</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate – 50bp	-315	-3%	-29	-7%
Risk Free Rate +50bp	174	2%	18	4%
Equity values – 20 %	-1,076	-11%	-48	-11%
Swaption volatilities +25 %	-268	-3%	-9	-2%
Equity option volatilities +25 %	-264	-3%	-8	-2%
EV change by non-economic factors				
Lapse Rates – 10 %	154	2%	39	9%
Maintenance Expenses – 10 %	707	7%	44	10%
Mortality + 15 % for products with death risk	-268	-3%	-9	-2%
Mortality – 20 % for products with longevity risk	-885	-9%	-8	-2%

Lower interest rate sensitivity driven by slightly higher interest rates for both new business and inforce.

The higher equity sensitivity compared to last year is based on an overall increasing equity exposure in the SAAs, especially in the French portfolio.

The non-economic exposures remained on a relatively low level.

## 3.5 France

### 3.5.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written in France in 2017 increased to EUR 146mn, 247% higher than the value in 2016. The NBM went up from 0.8% to 1.9%. Exhibit 19 presents an analysis of the changes.

DEVELOPMENT OF VALUE OF NEW BUSINESS			Exhibit 19
	Value of New Business	New Business Margin	Present Value of NB Premium
	EUR mn	%	EUR mn
<b>Value as at 31 December 2016</b>	<b>59</b>	<b>0.8%</b>	<b>7,256</b>
Change in Foreign Exchange	0	0.0%	0
Change in Allianz interest	0	0.0%	0
<b>Adjusted Value as at 31 December 2016</b>	<b>59</b>	<b>0.8%</b>	<b>7,256</b>
Change in volume	19	0.2%	293
Change in business mix	8	0.1%	0
Change in assumptions	60	0.7%	187
<b>Value as at 31 December 2017</b>	<b>146</b>	<b>1.9%</b>	<b>7,737</b>

Successful steering of the new business since last year has driven the increase of VNB and NBM. Significant effort on improving combined ratios on health business and moving away from unprofitable saving products. The share of unit linked increased by 2%p. to 28% whereas the share of saving products decreased by 4%p. to 32%. Capital efficient products gain a 4% share driven by the higher sales from Global Life branch. For the health and protection business margin improved from 0.3% to 1.1% (on a like to like basis) in 2017.

2017 figures were influenced by two regulatory effects: the "Supertax 2017" and the adjustment of the long term tax after the "Finance Bill 2018". The first one is a one-off effect that increased the margin by 28bps as the higher tax has a positive effect on the negative first year strain; the second one increased the margin by 26bps due to the gradual reduction of tax rates from 34.4% to 25.8% in the next five years.

The positive volume effect of EUR 19mn was driven by a lower share of unprofitable savings and higher sales of capital efficient and unit linked products.

Overall small impact from business mix of EUR 8mn, due to higher share of loan products in protection and health.

Change in assumptions (EUR 60mn) include the tax impacts (EUR 41mn) as explained above, as well as non-economic assumption updates (EUR 27mn): higher switching rates towards unit linked, increased VNB for unit linked and savings, and improved combined ratios for health and protection.

### 3.5.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV of France increased by 6% from EUR 5,487mn to EUR 5,799mn after dividend payments of EUR 420mn. The analysis of earnings in Exhibit 20 presents the drivers of the change in MCEV.

ANALYSIS OF EARNINGS OF EMBEDDED VALUE			Exhibit 20
€MN	Earnings on MCEV analysis		
	Assets	Liabilities	MCEV
<b>Opening MCEV as at 31 December 2016</b>	<b>95,732</b>	<b>90,246</b>	<b>5,487</b>
Foreign Exchange Variance	0	0	0
Acquired / Divested business	0	0	0
Others	0	0	0
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>95,732</b>	<b>90,246</b>	<b>5,487</b>
Value of new business at point of sale (pre-tax)			208
Expected existing business contribution			
reference rate			211
in excess of reference rate			181
other : transfer from VIF			0
Non-economic assumption changes			-274
Operating variances			471
<b>Operating MCEV earnings</b>			<b>798</b>
Economic variances			211
Other non-operating variance			0
Tax			-276
<b>Total MCEV earnings</b>	<b>3,668</b>	<b>2,935</b>	<b>732</b>
Net capital movements	-420	0	-420
<b>Closing MCEV as at 31 December 2017</b>	<b>98,980</b>	<b>93,181</b>	<b>5,799</b>

Operating MCEV earnings contributed 15% and economic variances 4% of the adjusted opening MCEV.

The VNB at point of sale contributed EUR 208mn pre-tax. Earning the reference rate on the in-force portfolio increased MCEV by EUR 211mn. Expected returns in excess of the reference rate added another EUR 181mn.

Non-economic assumption updates reduced MCEV by EUR -274mn mainly due to the update of life non-market risk capital shocks, impacting longevity risk (EUR -193mn) and the annual assumption update process, which impacted mainly expenses and lapses (EUR -132mn). Partly offset by updates of switching assumptions between unit linked fund and general account (EUR 35mn).

Operating variances of EUR 471mn mainly consist of an update of the crediting strategy (EUR 86mn) and the refinement on the cash flow projection models.

Economic variances had a positive impact of EUR 211mn driven by the lower volatilities and favorable equity movements.

Dividends of EUR 420mn were paid during 2017.

### 3.5.3. SENSITIVITIES

Exhibit 21 shows the sensitivities for France's MCEV and VNB.

SENSITIVITIES		Exhibit 21		
€MN	Inforce MCEV		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>5,799</b>	<b>100%</b>	<b>146</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate – 50bp	-123	-2%	-21	-15%
Risk Free Rate +50bp	23	0%	12	9%
Equity values – 20 %	-790	-14%	-16	-11%
Swaption volatilities +25 %	-186	-3%	-6	-4%
Equity option volatilities +25 %	-200	-3%	-7	-5%
EV change by non-economic factors				
Lapse Rates – 10 %	109	2%	24	16%
Maintenance Expenses – 10 %	559	10%	26	18%
Mortality + 15 % for products with death risk	-222	-4%	3	2%
Mortality – 20 % for products with longevity risk	-809	-14%	-5	-4%

Lower interest rate sensitivity in both new business and inforce were caused by slightly higher interest rates.

The higher equity sensitivity is based on an increasing equity exposure in the SAA of the French portfolio.



## 3.6 Italy

### 3.6.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written in Italy in 2017 increased to EUR 184mn, 40% higher than the value in 2016. The NBM went up from 1.9% to 2.2%. Exhibit 22 presents an analysis of the changes.

DEVELOPMENT OF NEW BUSINESS VALUE		Exhibit 22	
	Value of New Business	New Business Margin	Present Value of NB Premium
	EUR mn	%	EUR mn
<b>Value as at 31 December 2016</b>	<b>131</b>	<b>1.9%</b>	<b>7,050</b>
Change in Foreign Exchange	0	0.0%	0
Change in Allianz interest	0	0.0%	0
<b>Adjusted Value as at 31 December 2016</b>	<b>131</b>	<b>1.9%</b>	<b>7,050</b>
Change in volume	25	0.0%	1,296
Change in business mix	9	0.1%	0
Change in assumptions	19	0.2%	0
<b>Value as at 31 December 2017</b>	<b>184</b>	<b>2.2%</b>	<b>8,346</b>

The overall increase was driven by Allianz SpA where the VNB went from EUR 25mn in 2016 to EUR 53mn in 2017. Credit RAS and DARTA VNB increased by EUR 8mn (22%) and EUR 14mn (24%) respectively, due to higher volumes in unit linked. The Global Life branch increased its VNB by EUR 7mn (87%).

Increase in volume of EUR 25mn driven by higher sales in unit linked in Credit RAS and DARTA, due to favorable development of equity markets. Increase of capital efficient products through Global Life branch supported the value.

Positive contribution of business mix (EUR 9mn) due to active repricing, including renegotiation of in-force contracts to adjust guarantee levels to current market conditions.

VNB increased by EUR 19mn due to higher interest rates (EUR 14mn) and non-economic assumption updates (EUR 5mn) mainly from lower lapse rates.

### 3.6.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV of Italy decreased by 6% from EUR 2,406mn to EUR 2,251mn. The analysis of earnings in Exhibit 23 presents the drivers of the change in MCEV.

ANALYSIS OF EARNINGS OF EMBEDDED VALUE		Exhibit 23	
€MN	Earnings on MCEV analysis		
	Assets	Liabilities	MCEV
<b>Opening MCEV as at 31 December 2016</b>	<b>57,356</b>	<b>54,950</b>	<b>2,406</b>
Foreign Exchange Variance	0	0	0
Acquired / Divested business	0	0	0
Others	0	0	0
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>57,356</b>	<b>54,950</b>	<b>2,406</b>
Value of new business at point of sale (pre-tax)			244
Expected existing business contribution			
reference rate			65
in excess of reference rate			93
other : transfer from VIF			2
Non-economic assumption changes			49
Operating variances			-122
<b>Operating MCEV earnings</b>			<b>330</b>
Economic variances			330
Other non-operating variance			0
Tax			-156
<b>Total MCEV earnings</b>	<b>4,178</b>	<b>3,675</b>	<b>503</b>
Net capital movements	-658	0	-658
<b>Closing MCEV as at 31 December 2017</b>	<b>60,876</b>	<b>58,625</b>	<b>2,251</b>

Operating MCEV earnings contributed 14% of the adjusted opening MCEV and economic variances by another 14%.

The VNB at point of sale (pre-tax) contributed EUR 244mn as a result of the profitable new business written during the year. Earning the reference rate of the in-force portfolio increased MCEV by EUR 65mn. Expected returns in excess of the reference rate further increased MCEV by EUR 93mn.

Non-economic assumption changes added EUR 49mn driven by updates on lapse rates including increased persistency of unit linked (EUR 91mn). Partly offset by higher mortality assumptions for older ages, and higher administration expense assumptions (EUR -56mn).

Operating variances of EUR -122mn includes several impacts such as the update of the lapse mass shock calculation in DARTA which impacts the risk margin.

Economic variances (EUR 330mn) were driven by narrowing of credit spreads, supported by higher interest rates and lower volatilities as well as favorable development of the equity markets.

Dividend payment and capital upstream of EUR 658mn.

### 3.6.3. SENSITIVITIES

Exhibit 24 shows the sensitivities for Italy's MCEV and VNB.

SENSITIVITIES		Exhibit 24		
€MN	Inforce MCEV		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>2,251</b>	<b>100%</b>	<b>184</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate – 50bp	-144	-6%	-4	-2%
Risk Free Rate +50bp	114	5%	2	1%
Equity values – 20 %	-231	-10%	-27	-15%
Swaption volatilities +25 %	-60	-3%	-2	-1%
Equity option volatilities +25 %	-21	-1%	-1	0%
EV change by non-economic factors				
Lapse Rates – 10 %	42	2%	11	6%
Maintenance Expenses – 10 %	79	4%	12	6%
Mortality + 15 % for products with death risk	-33	-1%	-8	-4%
Mortality – 20 % for products with longevity risk	-60	-3%	0	0%

The VNB exposure to changes in interest rates is similar to last year driven by the intended shift of new business mix towards risk and unit linked products, and savings with lower guarantees. The corresponding MCEV exposure remained at the level of previous years.

Equity sensitivity is driven by the unit linked business in DARTA and Credit RAS and a higher exposure in Allianz SpA.

## 3.7 Iberia & Latin America

### 3.7.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written in Iberia & Latin America in 2017 increased to EUR 104mn, 18% higher than the value in 2016. The NBM changed from 4.4% to 5.2%. Exhibit 25 presents an analysis of the changes.

	DEVELOPMENT OF VALUE OF NEW BUSINESS		Exhibit 25
	Value of New Business	New Business Margin	Present Value of NB Premium
	EUR mn	%	EUR mn
<b>Values as at 31 December 2016</b>	<b>88</b>	<b>4.4%</b>	<b>2,004</b>
Change in Foreign Exchange	0	0.0%	-11
Change in Allianz interest	0	0.0%	0
<b>Adjusted Value as at 31 December 2016</b>	<b>88</b>	<b>4.4%</b>	<b>1,993</b>
Change in volume	-10	-0.5%	23
Change in business mix	13	0.6%	0
Change in assumptions	13	0.7%	-32
<b>Value as at 31 December 2017</b>	<b>104</b>	<b>5.2%</b>	<b>1,985</b>

The increase of EUR 16mn in VNB was driven by a higher share of protection products.

In Spain, VNB increased by EUR 3mn in 2017 driven by management actions reducing sales on saving products to the benefit of unit linked and protection. The emergency sale of the bank partner Banco Popular to Santander in 2Q 2017 led to a reduction in sales of capital accumulation products in that channel, as customer confidence in the solidity of the bank had suffered. Sales of protection products through the bank were not affected. Favorable economics supported the positive impact.

Increase of VNB in Portugal by EUR 4mn was driven by shift towards profitable saving products with lower guarantee rates. The favorable economic environment supported the positive evolution.

In Mexico, VNB increased by EUR 7mn due to higher volumes.

### 3.7.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV for Iberia & Latin America increased from EUR 1,207mn to EUR 1,377mn after dividend payments of EUR 71mn. The analysis of earnings in Exhibit 26 presents the drivers of the change in MCEV.

€MN	ANALYSIS OF EARNINGS OF EMBEDDED VALUE			Exhibit 26
	Earnings on MCEV analysis			
	Assets	Liabilities	MCEV	
<b>Opening MCEV as at 31 December 2016</b>	<b>9,301</b>	<b>8,094</b>	<b>1,207</b>	
Foreign Exchange Variance	-1	9	-10	
Acquired / Divested business	0	0	0	
Others	0	0	0	
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>9,300</b>	<b>8,104</b>	<b>1,196</b>	
Value of new business at point of sale (pre-tax)			132	
Expected existing business contribution				
reference rate			17	
in excess of reference rate			223	
other : transfer from VIF			0	
Non-economic assumption changes			-37	
Operating variances			-85	
<b>Operating MCEV earnings</b>			<b>251</b>	
Economic variances			56	
Other non-operating variance			0	
Tax			-56	
<b>Total MCEV earnings</b>	<b>21</b>	<b>-230</b>	<b>251</b>	
Net capital movements	-71	0	-71	
<b>Closing MCEV as at 31 December 2017</b>	<b>9,251</b>	<b>7,874</b>	<b>1,377</b>	

Operating MCEV earnings added 21% to the adjusted opening MCEV. The change was mainly driven by new business added and realized spreads on investments.

Opening FX variance reflects the strengthening of the Euro against the Mexican Peso, lowering the MCEV by EUR -10mn.

The VNB at point of sale (pre-tax) added EUR 132mn. Earning the reference rate on the in-force portfolio increased MCEV by EUR 17mn. Expected returns in excess of the reference rate added another EUR 223mn.

Non-economic assumptions of EUR -37mn were driven by the strengthening of longevity provisions in the pension portfolio

linked to the bank (EUR -117mn) counterbalanced by the update of lapse assumptions in the bancassurance channel after the crisis of the bank partner (EUR 75mn).

Operating variances of EUR -85mn reflect the higher than expected lapses in Portugal and Spain (related to the bank partner business). In Mexico, the change in regulatory treatment of reserving unit linked savings products, as well as a model migration and an update of the mortality table for annuities contributed positively to the values.

Economic variances of EUR 56mn was mainly driven by narrowing of credit spreads in Spain.

In Spain and Portugal dividends of EUR 63mn and EUR 8mn were paid respectively.

### 3.7.3. SENSITIVITIES

Exhibit 27 presents the sensitivities for Iberia & Latin America's MCEV and VNB.

SENSITIVITIES		Exhibit 27		
€MN				
	Inforce MCEV		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>1,377</b>	<b>100%</b>	<b>104</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate – 50bp	12	1%	8	8%
Risk Free Rate +50bp	-17	-1%	-8	-8%
Equity values – 20 %	-5	0%	-1	-1%
Swaption volatilities +25 %	-20	-1%	2	2%
Equity option volatilities +25 %	-4	0%	0	0%
EV change by non-economic factors				
Lapse Rates – 10 %	83	6%	23	22%
Maintenance Expenses – 10 %	28	2%	2	2%
Mortality + 15 % for products with death risk	-50	-4%	-7	-7%
Mortality – 20 % for products with longevity risk	-236	-17%	0	0%

Interest rate sensitivity for the in-force blocks is dominated by the protection portfolios in Portugal and Spain and the unit linked portfolio in Mexico, where rising rates mainly affect PVFP discounting and therefore lower the value.

Non-economic sensitivities are relatively high compared to other entities, driven by the risk portfolios in Spain and Portugal.

The exposure to longevity risk relates to the existing pension portfolio in Spain and the annuity portfolio in Mexico.

## 3.8 Central and Eastern Europe

### 3.8.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written in Central and Eastern Europe in 2017 increased to EUR 35mn, 6% higher than in 2016. The NBM increased from 6.0% to 6.4%. Exhibit 28 presents an analysis of the changes.

DEVELOPMENT OF VALUE OF NEW BUSINESS	Exhibit 28		
	Value of New Business	New Business Margin	Present Value of NB Premium
	EUR mn	%	EUR mn
<b>Value as at 31 December 2016</b>	<b>33</b>	<b>6.0%</b>	<b>556</b>
Change in Foreign Exchange	0	0.0%	6
Change in Allianz interest	0	0.0%	0
<b>Adjusted Value as at 31 December 2016</b>	<b>33</b>	<b>5.9%</b>	<b>562</b>
Change in volume	-1	0.0%	-16
Change in business mix	2	0.3%	0
Change in assumptions	1	0.1%	9
<b>Value as at 31 December 2017</b>	<b>35</b>	<b>6.4%</b>	<b>555</b>

The growth of the VNB in the region reflects business steering towards profitable product lines: growth in protection and riders (+4%p. to 50%) and decline in guarantee products (-11%p. to 11%).

The region was overall less affected by the challenging economic environment, since higher share of profitable risk riders leveled out losses in traditional business.

VNB in Slovakia, which accounts for about half of the region's VNB, was stable. Better business mix with higher share of more profitable riders within protection and risk offset by higher claim ratio on disability riders.

The VNB in Poland slightly increased by EUR 1mn driven by new unit linked product generation with higher profitability, higher margins in health including lower costs and product redesign.

### 3.8.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV for Central and Eastern Europe increased from EUR 775mn to EUR 781mn after dividend payments of EUR 79mn. The analysis of earnings in Exhibit 29 presents the drivers of the change in MCEV.

ANALYSIS OF EARNINGS OF EMBEDDED VALUE	Exhibit 29		
	Earnings on MCEV analysis		
	Assets	Liabilities	MCEV
<b>Opening MCEV as at 31 December 2016</b>	<b>4,050</b>	<b>3,275</b>	<b>775</b>
Foreign Exchange Variance	74	58	16
Acquired / Divested business	0	0	0
Others	0	0	0
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>4,124</b>	<b>3,333</b>	<b>791</b>
Value of new business at point of sale (pre-tax)			45
Expected existing business contribution			
reference rate			25
in excess of reference rate			54
other : transfer from VIF			0
Non-economic assumption changes			-17
Operating variances			-35
<b>Operating MCEV earnings</b>			<b>73</b>
Economic variances			17
Other non-operating variance			0
Tax			-21
<b>Total MCEV earnings</b>	<b>68</b>	<b>-1</b>	<b>69</b>
Net capital movements	-79	0	-79
<b>Closing MCEV as at 31 December 2017</b>	<b>4,113</b>	<b>3,331</b>	<b>781</b>

Total MCEV earnings added 9% to the adjusted opening MCEV. Contribution of new business was offset by operating earnings and dividend payments.

Opening FX mainly reflects the strength of the Polish Zloty, Czech Koruna and Bulgarian Lev against Euro, increasing the MCEV by EUR 16mn.

The VNB at point of sale (pre-tax) added EUR 45mn with biggest contribution from Slovakia, Hungary and Poland. Earning the reference rate on the in-force portfolio increased MCEV by EUR 25mn; expected returns in excess of the reference rate added

another EUR 54mn, mainly coming from over-return on management expectations in Slovakia.

Non-economic assumption changes of EUR -17mn included decrease in lapse assumption of traditional business in Slovakia.

Operating variances of EUR -35mn mainly due to unfavorable lapses development in Slovakia.

Economic variances of overall EUR 17mn contain the impact of narrowing credit spreads in Slovakia (EUR 12mn) and higher interest rate environment (EUR 5mn).

Net capital movement overall of EUR 79mn from Slovakia, Poland, Hungary, Croatia and Romania of EUR 60mn, EUR 8mn, EUR 7mn, EUR 3mn and EUR 1mn respectively.

### 3.8.3. SENSITIVITIES

Exhibit 30 presents the sensitivities for Central and Eastern Europe's MCEV and VNB.

<b>SENSITIVITIES</b>		Exhibit 30			
€MN					
	Inforce MCEV		New Business VNB		
	EUR mn	%	EUR mn	%	
<b>Central Assumptions</b>	<b>781</b>	<b>100%</b>	<b>35</b>	<b>100%</b>	
EV change by economic factors					
Risk Free Rate – 50bp	-18	-2%	0	1%	
Risk Free Rate +50bp	13	2%	0	-1%	
Equity values – 20 %	7	1%	0	0%	
Swaption volatilities +25 %	-10	-1%	0	0%	
Equity option volatilities +25 %	-1	0%	0	0%	
EV change by non-economic factors					
Lapse Rates – 10 %	21	3%	4	10%	
Maintenance Expenses – 10 %	29	4%	4	10%	
Mortality + 15 % for products with death risk	-16	-2%	-4	-11%	
Mortality – 20 % for products with longevity risk	-4	0%	0	0%	

For the in-force blocks, interest rate sensitivity is dominated by Croatian, Slovakian and Czech traditional savings products with high guarantees. For rising interest rates, the effect on PVFP discounting leading to lower values for unit linked business in Poland and Hungary partly offsets the positive contribution.

The exposure to swaption volatilities is almost exclusively based on guarantee costs in Slovakia.

The exposure to death risks relates to business in Slovakia, Czech Republic and Poland due to the protection business.

## 3.9 Asia Pacific

### 3.9.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written in Asia Pacific in 2017 was EUR 227mn, 28% higher than the value in 2016. The NBM decreased from 4.7% to 4.5%. Exhibit 31 presents an analysis of the changes.

DEVELOPMENT OF VALUE OF NEW BUSINESS		Exhibit 31	
	Value of New Business	New Business Margin	Present Value of NB Premium
	EUR mn	%	EUR mn
<b>Value as at 31 December 2016</b>	<b>177</b>	<b>4.7%</b>	<b>3,785</b>
Change in Foreign Exchange	-4	0.0%	-74
Change in Allianz interest	0	0.0%	0
<b>Adjusted Value as at 31 December 2016</b>	<b>173</b>	<b>4.7%</b>	<b>3,711</b>
Change in volume	48	-0.4%	1,471
Change in business mix	19	0.4%	-12
Change in assumptions	-12	-0.1%	-135
<b>Value as at 31 December 2017</b>	<b>227</b>	<b>4.5%</b>	<b>5,035</b>

The change in Foreign Exchange was driven by the depreciation of Indonesian Rupiah and Malaysian Ringgit against the Euro.

The increase of the VNB by EUR 48mn was driven by higher new business volumes in unit linked products in Taiwan.

Positive contribution of EUR 19mn from business mix as a result of improved profitability of the products in almost all countries. For example, higher share of recurrent premium products in Taiwan.

Negative impact of assumptions of EUR -12mn driven by an update of lapse assumptions (EUR -24mn) mainly in Taiwan and Indonesia, offset by favorable economics in the region (EUR 12mn) mainly from higher interest rates in China and Thailand.

Overall sustainable strong level of profitability in the region along the year. Slight decrease driven by the higher weight of less profitable than other products, unit linked business from Taiwan.

### 3.9.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV for Asia Pacific increased from EUR 1.293mn to EUR 1,640n after net capital movements of EUR 45mn. The analysis of earnings in Exhibit 32 presents the drivers of the change in MCEV. Values in the table below include Allianz Global Life Dublin.

ANALYSIS OF EARNINGS OF EMBEDDED VALUE		Exhibit 32	
EMN	Earnings on MCEV analysis		
	Assets	Liabilities	MCEV
<b>Opening MCEV as at 31 December 2016</b>	<b>11,581</b>	<b>10,288</b>	<b>1,293</b>
Foreign Exchange Variance	-557	-452	-105
Acquired / Divested business	21	0	21
Others	0	0	0
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>11,045</b>	<b>9,836</b>	<b>1,209</b>
Value of new business at point of sale (pre-tax)			260
Expected existing business contribution			
reference rate			103
in excess of reference rate			42
other : transfer from VIF			1
Non-economic assumption changes			-9
Operating variances			19
<b>Operating MCEV earnings</b>			<b>417</b>
Economic variances			78
Other non-operating variance			0
Tax			-108
<b>Total MCEV earnings</b>	<b>1,258</b>	<b>872</b>	<b>387</b>
Net capital movements	45	0	45
<b>Closing MCEV as at 31 December 2017</b>	<b>12,348</b>	<b>10,708</b>	<b>1,640</b>

Operating MCEV earnings contributed 35% to the adjusted opening value, mainly from the positive contribution of the new business.

The foreign exchange variance of EUR -105mn mainly reflects a stronger Euro against the Indonesian Rupiah, Thai Baht and Chinese Yuan at valuation date. The long term partnership with Philippine National Bank by which Allianz acquired 51% of PNB Life Insurance Inc. business in June 2016 has been included in the MCEV scope in 2017, adding EUR 21mn.

The VNB at point of sale contributed EUR 260mn pre-tax. Earning the reference rate on the in-force portfolio increased MCEV by EUR

103mn. Expected returns in excess of the reference rate added another EUR 42mn.

Non-economic assumption changes (EUR -9mn) due to higher lapses and update on paid up assumptions in Indonesia offset by updates of morbidity rates and rebate/expense linked to unit linked in Taiwan.

Operating variances (EUR 19mn) driven by a refinement of actuarial models in Taiwan (EUR 40mn) were counterbalanced by higher than expected lapses in unit linked in Indonesia (EUR -10mn) and higher than expected health claims in Thailand (EUR -5mn).

The overall economic impact of EUR 78mn was driven by higher interest rates in Indonesia and China, supported by positive development of equity markets mainly in Thailand, and better unit linked performance in Taiwan.

Net capital movements of overall EUR 45mn comprised of a dividend paid in Thailand of EUR 25mn and a capital injection of EUR 69mn in Taiwan.

Exhibit 33 has been included exceptionally for the current MCEV report. It contains historical MCEV data for the Asia Pacific region excluding South Korea. The purpose is to provide the reader a like to like basis for comparison. South Korea business was divested in 2016 and therefore is not part of the 2016, nor 2017 MCEV year-end values.

**MCEV DEVELOPMENT**

Exhibit 33

EUR mn	2014	2015	2016	2017
Incl. South Korea	226	-324	n.a.	n.a.
Excl. South Korea	835	1,041	1,293	1,640

**3.9.3. SENSITIVITIES**

Exhibit 34 presents the sensitivities for Asia Pacific's MCEV and VNB.

**SENSITIVITIES**

Exhibit 34

€MN	Inforce MCEV <sup>1</sup>		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>1,640</b>	<b>100%</b>	<b>227</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate - 50bp	-74	-4%	-2	-1%
Risk Free Rate +50bp	53	3%	-1	0%
Equity values - 20 %	-53	-3%	-8	-4%
Swaption volatilities +25 %	-41	-2%	-4	-2%
Equity option volatilities +25 %	0	0%	0	0%
EV change by non-economic factors				
Lapse Rates - 10 %	62	4%	21	9%
Maintenance Expenses - 10 %	71	4%	11	5%
Mortality + 15 % for products with death risk	-109	-7%	-14	-6%
Mortality - 20 % for products with longevity risk	-34	-2%	0	0%

Sensitivities to interest rates are driven by the high guarantees in the old-block of traditional portfolios in Taiwan.

Based on the asymmetric nature of embedded options and guarantees, falling market rates have a higher impact on in-force block than rising rates.

Mortality sensitivity driven by Taiwan in both MCEV and VNB as unit linked business has mortality coverage.

Taiwan drives also the MCEV longevity sensitivity, due to the whole life health product from old block portfolios.



## 3.10 USA

### 3.10.1. DEVELOPMENT OF VALUE OF NEW BUSINESS

The VNB written in the USA in 2017 increased to EUR 323mn, 18% higher than the value in 2016. The NBM went up from 2.4% to 3.4%. Exhibit 35 presents an analysis of the changes.

DEVELOPMENT OF VALUE OF NEW BUSINESS		Exhibit 35	
	Value of New Business	New Business Margin	Present Value of NB Premium
	EUR mn	%	EUR mn
<b>Value as at 31 December 2016</b>	<b>273</b>	<b>2.4%</b>	<b>11,627</b>
Change in Foreign Exchange	-4	0.0%	-330
Change in Allianz interest	0	0.0%	0
<b>Adjusted Value as at 31 December 2016</b>	<b>269</b>	<b>2.4%</b>	<b>11,297</b>
Change in volume	-46	0.0%	-1,937
Change in business mix	-2	0.0%	0
Change in assumptions	101	1.1%	0
<b>Value as at 31 December 2017</b>	<b>323</b>	<b>3.4%</b>	<b>9,360</b>

The VNB changed by EUR -4mn due to foreign exchange as a result of stronger Euro against the US Dollar.

Decrease in volumes driven by fixed-indexed annuities due to special promotion activities in the first half of 2016, besides effects from new "Department of Labour" regulation and higher competitiveness. The higher competitiveness was motivated as market was moving from variable to fixed-indexed annuities, where Allianz is market leader.

The main increase of VNB is explained by the improvement of the economic environment compared to previous year (EUR 71mn). Updates of non-economic assumptions, mainly driven by alignment of the modelled expenses assumption to in-force management explained the remaining.

### 3.10.2. DEVELOPMENT OF EMBEDDED VALUE

The MCEV of the USA increased from EUR 6,308 to EUR 7,429mn after a dividend payment of EUR 650mn. The analysis of earnings in Exhibit 36 presents the drivers of the change in MCEV.

ANALYSIS OF EARNINGS OF EMBEDDED VALUE		Exhibit 36	
EMN	Earnings on MCEV analysis		
	Assets	Liabilities	MCEV
<b>Opening MCEV as at 31 December 2016</b>	<b>127,805</b>	<b>121,496</b>	<b>6,308</b>
Foreign Exchange Variance	-15,545	-14,777	-767
Acquired / Divested business	0	0	0
Others	0	0	0
<b>Adjusted Opening MCEV as at 31 December 2016</b>	<b>112,260</b>	<b>106,719</b>	<b>5,541</b>
Value of new business at point of sale (pre-tax)			496
Expected existing business contribution			
reference rate			434
in excess of reference rate			93
other : transfer from VIF			0
Non-economic assumption changes			-28
Operating variances			297
<b>Operating MCEV earnings</b>			<b>1,293</b>
Economic variances			2,040
Other non-operating variance			0
Tax			-795
<b>Total MCEV earnings</b>	<b>12,203</b>	<b>9,665</b>	<b>2,538</b>
Net capital movements	-650	0	-650
<b>Closing MCEV as at 31 December 2017</b>	<b>123,814</b>	<b>116,384</b>	<b>7,429</b>

Operating MCEV earnings contributed 23% of the adjusted opening MCEV, supported by positive impact from narrowing of credit spreads.

The opening foreign exchange adjustment reflects the strengthening of the Euro against the US Dollar at valuation date. The currency movement impacted MCEV by EUR -767mn.

The VNB at point of sale (pre-tax) contributed with EUR 496mn. Earning the reference rate on the in-force portfolio added EUR 434mn to MCEV. Expected returns in excess of the reference rate increased MCEV by EUR 93mn.

Operating variances of EUR 297mn reflect an improvement of the long term care (“LTC”) model.

The tax amount includes the positive tax reform impact (EUR 310mn). The effect does not consider the part of the benefits of the tax reform that might be passed onto policyholders. This will be clarified in 2018.

Economic variances of EUR 2,040mn resulted from narrowing of credit spreads in the portfolio (EUR 1,121mn), lower volatilities (EUR 475mn) and positive development of equity markets (EUR 215mn) partially offset by lower rates (EUR -191mn).

Dividends of EUR 650mn were paid.

### 3.10.3. SENSITIVITIES

Exhibit 37 shows the sensitivities for the MCEV and VNB in the USA.

SENSITIVITIES		Exhibit 37		
€MN				
	Inforce MCEV		New Business VNB	
	EUR mn	%	EUR mn	%
<b>Central Assumptions</b>	<b>7,429</b>	<b>100%</b>	<b>323</b>	<b>100%</b>
EV change by economic factors				
Risk Free Rate – 50bp	189	3%	2	1%
Risk Free Rate +50bp	-282	-4%	-10	-3%
Equity values – 20 %	-35	0%	6	2%
Swaption volatilities +25 %	-317	-4%	-16	-5%
Equity option volatilities +25 %	-229	-3%	0	0%
EV change by non-economic factors				
Lapse Rates – 10 %	-107	-1%	-2	-1%
Maintenance Expenses – 10 %	171	2%	6	2%
Mortality + 15 % for products with death risk	-29	0%	-1	0%
Mortality – 20 % for products with longevity risk	-1,077	-14%	-29	-9%

With the increased weight of fixed-index annuities in the in-force portfolio, the exposure to interest rate upshifts became predominant in terms of absolute values, same as for new business. Interest rate sensitivities have switched signs since 2014, as different lines of business respond differently to the development of rates. An interest rate up-shock on fixed-index annuities has a negative impact which was more significant for the 2017 results.

The significant longevity exposure of both the in-force block and the new business is related to the guaranteed minimum withdrawal benefit options, which are more expensive compared to last year due to lower US interest rates at valuation date. LTC business also contributes to the risk.

# Independent Opinion

KPMG has been engaged to review the Market Consistent Embedded Value (MCEV) of Allianz Group, Munich, as at 31 December 2017 as stipulated in the MCEV Principles published by the CFO forum in June 2008 and amended in October 2009 and in May 2016, (MCEV Principles) as described in the accompanying MCEV Report of Allianz Group. Management is responsible for the preparation of the MCEV Report including the calculation of the MCEV. This includes particularly setting the operative and economic assumptions, the explanation concerning the determination of the MCEV and its roll forward, the implementation and the operativeness of the system which ensures the completeness and correctness of the data which are necessary for the calculation of the MCEV.

KPMG's responsibility is to express an opinion on the calculation of the MCEV based on review procedures. Assessment criteria for this opinion are the MCEV Principles.

We conducted our review of the MCEV in accordance with IDW PS 570. This standard requires that we plan and conduct the review so that we can preclude through critical evaluation, with a certain level of assurance, that the MCEV report – the methodology and assumptions used, the calculation and further information – has not been prepared in material aspects in accordance with the requirements of the MCEV Principles. A review is limited primarily to inquiries of company employees and analytical assessments and therefore does not provide the assurance attainable in a MCEV audit.

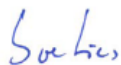
The calculation of the MCEV is subject to numerous assumptions on future conditions and events which are uncertain and beyond control of the company. Therefore the actual future cash-flows might differ significantly from those underlying the MCEV report.

Based on our review no matters have come to our attention that causes us to presume that the MCEV report has not been prepared in material respects in accordance with the MCEV Principles.

We issue this certificate on the basis of the agreement concluded between KPMG AG Wirtschafts-prüfungsgesellschaft and Allianz SE on 1 August 2017, which is subject to and governed by the General Engagement Terms for German Public Auditors and Public Audit Firms as of 1 January 2017 (<https://www.kpmg.de/bescheinigungen/lib/aab.pdf>). Limitations of liability contained therein cover any parties receiving access to this certificate and will have to be allocated between the recipients.

Munich, 8th March 2018

KPMG AG Wirtschaftsprüfungsgesellschaft



Dr. Frederik Boetius



Ralf Goschnick

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# Appendix A: Methodology

Allianz Group provides to the operating entities detailed guidelines in order to ensure consistency of MCEV and VNB calculations throughout the Group. Allianz Group sets the economic assumptions centrally which are used in the calculations by the operating entities. All results submitted to Allianz Group are reviewed and approved by the local chief actuaries and CFOs.

## A.1 MCEV definition

Allianz Group has decided to base and publish its MCEV results following a balance sheet approach, which is explicitly allowed for in the MCEV principles from the CFO forum, using the Solvency II Market Value Balance Sheet (“MVBS”).

The MCEV is defined as the difference between market value of assets and market value of liabilities as of valuation date, excluding any item that is not considered shareholder interest. It is calculated on an after-tax basis taking into account current and known future changes in legislation.

Allianz disclosed MCEV is in alignment with Solvency II and the MCEV principles. Clarifications on specific points are listed below:

- MCEV components: net asset value (“NAV”) and value of in-force (“VIF”). No further split of VIF is explicitly calculated compared to a distributable earnings approach.
- Frictional costs of holding required capital, arising from double taxation on investment earnings, additional investment management expenses and possibly profit sharing obligations are not part of the Solvency II concept and therefore as Allianz MCEV is aligned with Solvency II MVBS, are not calculated;
- Costs of non-hedgeable risks (“CNHR”) has been replaced with the Risk Margin required by Solvency II that covers a similar purpose. A more detail section on Risk Margin can be found below;
- Application of Solvency II contract boundary definition;
- MCEV is disclosed on a net of tax basis using the full bottom-up tax calculations incorporated in the MVBS. The items of the balance sheet are on a before tax basis with a tax component separately. Movement steps are on a before tax basis and a tax item is disclosed separately.

## A.2 Net asset value and Value of in-force covered business

The MCEV can be broken down into the NAV, i.e. the market value of the assets after tax not backing liabilities, and the VIF, i.e. the value of future profits emerging from operations and assets backing liabilities.

In order to perform this split, Allianz calculates the NAV on statutory basis, as the market value of the assets of a life company not backing local statutory reserves at 31 December 2017, net of an allowance for tax on unrealized capital gains. In case of a composite insurer only those assets are considered that are allocated to the company’s life segment.

The VIF is calculated as the difference between the MCEV and the NAV and therefore not explicitly calculated.

## A.3 Assets

Assets in Solvency II market value balance sheet consist of financial, non-financial and deferred tax assets as well as reinsurance recoverables. As required by the MCEV principles, the MCEV is reported net of reinsurance.

## A.4 Liabilities

Liabilities in Solvency II market value balance sheet consist of the technical provisions (“TP”) net of reinsurance as well as of other liabilities not belonging to TP such as tax and contingent liabilities, pension benefit obligations and reinsurance payables.

The technical provisions comprise the best estimate liabilities (“BEL”), the time value of option and guarantees and the Risk Margin, all explained in the following subsections.

### A.4.1. BEST ESTIMATE LIABILITIES

The BEL is the market value before tax of the obligations of the company to policyholders and beneficiaries and it includes policyholder tax. In case of a composite insurer only those policies and riders that are allocated to the company’s life segment are considered in these guidelines.

According to the Solvency II Directive the BEL is calculated gross of reinsurance and gross of any amounts recoverable from special

purpose vehicles. The Solvency II Balance Sheet is constructed on a gross/gross basis with the assets grossed up for the recoveries and gross liabilities, rather than netted down by the recoveries.

Best Estimate liabilities are calculated for all in-force policies at the valuation date. The BEL represents the discounted cash flows that emerge over the term of the policy. In line with Level 2 Article 28 of the Solvency II directive, all relevant cash flows are included in the calculation:

- future benefits, such as maturity values, annuity payments, claims, surrender values;
- future expenses, such as maintenance, servicing, overhead, commission, investment management;
- future premiums, i.e. contracted premiums.

All future amounts are discounted to the valuation date at the valuation discount rate.

#### A.4.2. TIME VALUE OF OPTIONS AND GUARANTEES

The Solvency II Directive requires the calculation of the TP to take account of the value of financial guarantees and any contractual options included in insurance and reinsurance policies. It requires the BEL calculation to identify and take into account all factors which may materially affect the likelihood that policyholders will exercise contractual options or the value of the option or guarantee.

Contractual options are defined as a right to change the benefit, to be taken at the choice of its holder (generally the policyholder), on terms that are established in advance. Thus, in order to trigger an option, a deliberate decision of its holder is necessary.

A financial guarantee is present when there is the possibility to pass losses to the insurer or to receive additional benefits as a result of the evaluation of financial variables. In the case of guarantees, the trigger is generally automatic and not dependent of a deliberate decision of the policyholder / beneficiary.

A market consistent approach has been adopted for the valuation of material financial options and guarantees, using a stochastic option pricing technique calibrated to be consistent with the market price of relevant traded options. The most material options and guarantees granted by the Allianz Group companies are:

- Guaranteed interest rates and minimum maturity values
- Guaranteed minimum surrender values
- Annuity conversion options
- Extension options
- Options and guarantees for unit linked contracts and variable life and annuities
- Fund switching options with guarantee

O&G is determined based on stochastic techniques. Due to their complex nature, for the majority of the business there is no closed form solution to determine the value. Therefore stochastic simulations are applied which project all cash-flows and reserves including expenses, taxes etc. under a significant number of economic scenarios to determine the O&G.

The models and assumptions employed in the stochastic simulation are consistent with the underlying embedded value and allow for the effect of management actions and policyholder behavior in different economic scenarios. The scenarios and the key parameters used in the calculations of O&G are described in Appendix B.1.

#### A.4.3. RISK MARGIN

The Solvency II Directive defines the RM as the cost of providing an amount of available financial resources (AFR) equal to the solvency capital requirement (SCR) necessary to support the insurance and reinsurance obligations over the lifetime of those obligations.

Solvency II requires an allowance for the cost of holding non-hedgeable risk capital but not for hedgeable financial risks as these may be removed through the capital markets. RM has replaced the calculation of CNHR and is required for non-hedgeable risks - the financial other than interest rate risk, insurance and operational risks that cannot be removed through the capital markets.

The cost of capital is the expected cost of transferring the non-hedgeable financial, insurance and operational risks to another insurer or reinsurer. Risk margin is calculated with 6% cost of capital rate (CoC), after tax and 100% capitalization of risk capital in line with Solvency II requirements.

## A.5 New business

The value of new business (“VNB”) arises from the sale of new contracts during the reporting period and the value from renewals and contractual alterations to renewal business acquired in prior periods. MCEV only reports in-force business, which excludes future new business. The VNB reflects the additional value to shareholders created through the activity of writing new business in the current period.

New business consist of individual and group policies. Recurring 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. Short-term group risk contracts are projected with allowance for renewal rates in line with observed experience.

VNB is calculated following a distributable earnings approach, and has been aligned to Solvency II requirements including EIOPA specifications for valuation as well as the application of contract boundary definition and risk margin. This in particular allows using the VNB as contribution of new business in the development of MCEV.

As such, the VNB is calculated as the present value of future profits after acquisition expense over- and underruns and tax ("PVFP") minus the time value of options and guarantees ("O&G") minus the risk margin ("RM"), all determined at issue date.

The values are point of sale values based on interest rates valid at the beginning of the quarter the business was sold, in line with our quarterly disclosure of value of new business. Appendix B.1 shows the corresponding economic assumptions. For business in the USA, where products are re-priced more frequently, we apply a bi-weekly update of economic assumptions for new business calculations to better reflect how the business is managed.

Timing and assumptions for the present value of new business premiums are in line with assumptions used for the VNB. Premiums are before reinsurance.

For a major part of the business the value added by new business is equal to the stand-alone value calculated for the business written in the year. Investment return assumptions are based on the market assumptions described in Appendix B.1. For open fund products, where new policies and existing policies are managed together in one fund, the stand-alone value is adjusted for certain interaction effects between new business and in-force business. In Germany and France for example due to regulatory profit sharing rules initial expenses can be shared with all policyholders of the in-force fund, so the shareholder strain from new business is reduced significantly. Furthermore, in order to capture the impact on the O&G from the interaction between new business and previously written business, open fund products are valued on a marginal basis as the difference between the O&G value calculated with and without new business.

## A.6 Participating business

The profit sharing assumptions take into account contractual and regulatory requirements, management strategy and the reasonable expectations of policyholders.

For companies with significant unrealized gains or 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 and local market practice and regulation. Alternatively, these buffers may not be required in many of the scenarios to pay competitive bonus rates and there will be excess assets at the end of the projection. In the latter case, the excess assets at the end of the projection are shared between policyholders and shareholders in a consistent manner and the discounted value of the shareholders' share is included in the in-force value.

## A.7 Health business

The MCEV methodology for the German Health business is aligned to the methodology used for the Life entities. In addition certain specifics to health have been taken into consideration.

- An annual inflation of health cost is assumed which triggers premium adjustments on a regular basis;
- Any adjustment to the technical interest rates is determined in line with regulatory requirements;
- The company's strategy to limit premium increases on in-force policies is applied.

# Appendix B: Assumptions

## B.1 Economic assumptions

The MCEV results for 2017 are based on economic market conditions as of 29 December 2017. Options and guarantees have been evaluated using market consistent scenarios. These have been generated to be arbitrage free, and the model underlying the scenarios has been calibrated to replicate actual market implied volatilities for selected financial instruments at the valuation date. Stochastic economic scenarios are generated centrally by an in-house model. Since the fourth quarter of 2017 the stochastic economic scenarios allow for negative interest rates.

As actual EIOPA curves are typically published too late for the in-house process of scenario generation, Allianz SE has used their own processes to generate the calibration yield curves. The methodology to derive these curves is fully aligned with EIOPA specification. Allianz SE has also set up a process to assess the differences between the curves generated in-house and the curves published by EIOPA. In case of material differences, the actual EIOPA curves would have been used. Material deviations were not observed.

Key economic assumptions for risk neutral evaluation are for each economy

- the reference yield-curve;
- the implied volatilities for each asset class;
- correlations between different asset classes and economies.

Market data for interest rates have been taken from an internal data base fed by Reuters, Bloomberg and Tullett Prebon data. Market data used for calibration of volatilities have been taken from Reuters, Bloomberg and Tullett Prebon where available and markets are sufficiently liquid. Correlations and volatilities for real estate are based on historical data.

Reference rate yield-curves used in the certainty equivalent approach and the stochastic scenarios are based on swap rates as of 29 December 2017 with the following further adjustments.

In line with EIOPA technical documentation of the methodology to derive risk-free interest rate term structures for Solvency II a currency specific reduction to the swap rates is made to account for credit risk inherent in swaps. Allianz also includes a volatility adjustment in its MCEV assumptions following the

recommendations of Solvency II. The dynamic credit risk adjustments and the volatility adjustments applied are in line with the EIOPA published technical information valid for year-end 2017. Credit risk adjustments are shown in Table 1.

CREDIT RISK ADJUSTMENT		Table 1
Currency		Credit Risk Adjustment
EUR		-10bps
USD		-10bps
GBP		-10bps
CHF		-10bps
CZK		-10bps
HUF		-10bps
PLN		-10bps
TWD		-10bps
THB		-10bps

The application ratio for the volatility adjustment is 65%. Table 3 shows the development of the volatility adjustment for each currency.

For application to products we apply a simplified bucketing approach. We apply no volatility adjustment to variable annuities and 65% of the volatility adjustment to all participating, unit linked and other businesses, including US fixed and fixed indexed annuities. For certain parts of the US portfolio, where account value is equal to 0, a portfolio specific illiquidity premium is applied.

Allianz is using the approach for extrapolation of the risk-free curve as prescribed by EIOPA. This means that yield-curve extrapolation is done with a Smith Wilson approach along the forward curve with an ultimate forward rate and an entry point of extrapolations as prescribed. The entry points and ultimate forward rates for the main currencies are shown below in table 4.

For consistency, yield-curve extrapolation is applied in sensitivities to interest rate shifts. This means that only the deep and liquid part of the yield-curve is shifted in a fully parallel way with the ultimate forward rate being kept stable. Extrapolation



parameters determine the actual shift of the extrapolated part of yield-curve, which is then a non-parallel shift.

Due to the underlying reference rate methodology as described above, the projected cash-flows may not always be valued in line with the market prices of similar financial instruments that are traded on the capital markets, which is required by the MCEV Principles. We applied consistent reference rate assumptions to both the deterministic and stochastic runs, in order to improve the accuracy of the calculation of the intrinsic and time value of O&G's. This would not be feasible if the stochastic scenarios used to value O&G's were based on swap curves and calibrated to meet market prices while the deterministic runs used the reference rate that incorporated this methodology.

For currencies where EIOPA requires valuation based on government bonds, government rates are used. The MCEV of these entities is 1% of the total MCEV.

Table 2 shows the swap rates used in the market consistent valuation. These already include the deduction for the credit risk adjustment.

SWAP RATES		Table 2				
Currency	as of dd.mm.yyyy	1 year %	2 year %	5 year %	10 year %	20 year %
EUR	30.12.2016	0.01%	0.01%	0.01%	0.57%	1.11%
	31.03.2017	0.01%	0.01%	0.08%	0.67%	1.24%
	30.06.2017	0.01%	0.01%	0.17%	0.81%	1.40%
	29.09.2017	0.01%	0.01%	0.16%	0.82%	1.45%
	29.12.2017	-0.36%	-0.25%	0.21%	0.80%	1.35%
CHF	30.12.2016	0.01%	0.01%	0.01%	0.05%	0.46%
	31.03.2017	0.01%	0.01%	0.01%	0.03%	0.42%
	30.06.2017	0.01%	0.01%	0.01%	0.15%	0.54%
	29.09.2017	0.01%	0.01%	0.01%	0.21%	0.61%
	29.12.2017	-0.73%	-0.59%	-0.24%	0.18%	0.57%
USD	30.12.2016	1.04%	1.30%	1.83%	2.20%	2.44%
	31.03.2017	1.22%	1.45%	1.89%	2.24%	2.49%
	30.06.2017	1.30%	1.46%	1.81%	2.14%	2.39%
	29.09.2017	1.44%	1.62%	1.88%	2.18%	2.40%
	29.12.2017	1.79%	1.97%	2.14%	2.30%	2.45%
CZK	30.12.2016	0.06%	0.13%	0.40%	0.77%	1.32%
	31.03.2017	0.20%	0.35%	0.60%	0.97%	1.65%
	30.06.2017	0.34%	0.58%	0.87%	1.18%	1.74%
	29.09.2017	0.66%	0.91%	1.26%	1.52%	1.89%
	29.12.2017	0.98%	1.21%	1.51%	1.74%	2.18%
HUF	30.12.2016	0.26%	0.62%	1.67%	2.98%	4.01%
	31.03.2017	0.12%	0.75%	1.83%	3.12%	4.09%
	30.06.2017	0.09%	0.49%	1.54%	2.98%	4.00%
	29.09.2017	0.01%	0.30%	1.13%	2.57%	3.77%
	29.12.2017	0.00%	0.32%	1.07%	2.04%	3.43%

**SWAP RATES**
**Table 2**

Currency	as of dd.mm.yyyy	1 year %	2 year %	5 year %	10 year %	20 year %
PLN	30.12.2016	1.47%	1.95%	2.80%	3.49%	3.83%
	31.03.2017	1.44%	1.82%	2.70%	3.29%	3.80%
	30.06.2017	1.45%	1.74%	2.55%	3.16%	3.71%
	29.09.2017	1.33%	1.60%	2.58%	3.20%	3.44%
	29.12.2017	1.39%	1.64%	2.53%	3.16%	3.32%
TWD	30.12.2016	0.51%	0.61%	0.88%	1.19%	1.98%
	31.03.2017	0.41%	0.53%	0.79%	1.09%	1.91%
	30.06.2017	0.40%	0.50%	0.73%	1.07%	1.91%
	29.09.2017	0.33%	0.42%	0.67%	1.00%	1.86%
	29.12.2017	0.31%	0.40%	0.60%	0.93%	1.81%
JPY	30.12.2016	0.01%	0.01%	0.01%	0.12%	0.56%
	31.03.2017	0.01%	0.01%	0.01%	0.17%	0.59%
	30.06.2017	0.01%	0.01%	0.01%	0.16%	0.56%
	29.09.2017	0.01%	0.01%	0.01%	0.16%	0.57%
	29.12.2017	-0.07%	-0.06%	0.00%	0.16%	0.57%

Table 3 shows the development of the volatility adjustment using the application ratio of 65%.

**LONG TERM GUARANTEE MEASUREMENT**
**Table 3**

Currency	30.12.2016 bps	31.03.2017 bps	30.06.2017 bps	29.09.2017 bps	29.12.2017 bps
EUR	13 bps	13 bps	9 bps	7 bps	4 bps
CHF	5 bps	1 bps	1 bps	-1 bps	-3 bps
USD	50 bps	44 bps	40 bps	34 bps	28 bps
CZK	1 bps	1 bps	2 bps	3 bps	4 bps
HUF	17 bps	14 bps	5 bps	2 bps	2 bps
PLN	17 bps	15 bps	13 bps	12 bps	11 bps

Table 4 shows the ultimate forward rate and entry point parameters used when applying yield-curve extrapolations.

**YIELD-CURVE EXTRAPOLATION**
**Table 4**

Currency	Entry point	Ultimate forward rate %
EUR	20	4.20%
CHF	25	3.20%
USD	50	4.20%
CZK	15	4.20%
HUF	15	4.20%
PLN	10	4.20%
THB	15	4.20%
TWD	10	4.20%
JPY	30	3.20%

The swaption volatility convention employed in Allianz Internal model has changed with the go-live of the negative interest rates model change in the fourth quarter of 2017. While the floored model used Black (relative) swaption volatilities, the unfloored model uses normal (absolute) volatilities.

Table 5 shows the development of swaption implied volatilities.

	30.12.2016	31.03.2017	30.06.2017	29.09.2017	29.12.2017
Currency & model	%	%	%	%	%
EUR - Black	45.00%	35.89%	31.68%	30.20%	31.74%
EUR - normal	n.a.	n.a.	n.a.	n.a.	0.57%
CHF - Black	163.80%	151.23%	101.72%	78.74%	87.39%
CHF - normal	n.a.	n.a.	n.a.	n.a.	0.71%
USD - Black	25.47%	24.61%	25.67%	24.99%	22.88%
USD - normal	n.a.	n.a.	n.a.	n.a.	0.59%

Market implied volatilities - 10 year options on 20 year swaps at the money (10 year swaps for CHF).

Table 6 shows the swaption implied volatilities at various terms for three main currencies.

According to MCEV Principles G15.3, volatility assumptions should be based on the most recently available information as at the valuation date. Swaption implied volatilities used for the 2017 MCEV calculations were therefore based on 29 December 2017.

For similar reasons that yield-curve extrapolations were applied, for durations where no deep and liquid swaption markets exist, volatility anchoring is applied. For each currency the last liquid option maturities are determined. Market volatility quotes are used until the last liquid tenor. Long-term target levels are determined based on historical data. The volatility surface is then extrapolated from the last liquid option maturity terms to the long term target levels.

	Option term	1 year %	2 year %	5 year %	10 year %	20 year %
EUR	30.12.2016 - Black	58.36%	55.04%	47.94%	45.00%	31.88%
	29.12.2017 - Black	31.55%	33.19%	32.54%	31.74%	22.46%
	29.12.2017 - normal	0.48%	0.53%	0.58%	0.57%	0.53%
CHF	30.12.2016 - Black	219.60%	179.66%	138.80%	163.80%	102.62%
	29.12.2017 - Black	123.17%	113.60%	99.23%	87.39%	56.28%
	29.12.2017 - normal	0.50%	0.58%	0.72%	0.71%	0.60%
USD	30.12.2016 - Black	33.06%	31.95%	29.26%	25.47%	20.49%
	29.12.2017 - Black	23.58%	24.37%	24.44%	22.88%	19.33%
	29.12.2017 - normal	0.61%	0.63%	0.64%	0.59%	0.64%

Market implied volatilities on 20 year swaps of money (10 year swaps for CHF).

Table 7 shows the starting points of the volatility extrapolation and long term target levels for each currency:

Currency	Start of swaption volatility anchoring Year	Long term target level bps
EUR	10	44 bps
CHF	10	42 bps
USD	10	84 bps
CZK	10	41 bps
HUF	10	172 bps
PLN	10	77 bps
THB	10	92 bps

For modelling fixed income stochastic scenarios, the Shifted Constant Elasticity Volatility Model, which allows for negative interest rates, is used.

For fixed income instruments, parameters are fitted to at-the-money swaption implied volatilities. When calibrating to swaption implied volatilities, different weight is given to different swap maturities and option tenors in order to optimize the fit to actual market data. Where a trade-off in the goodness of fit was necessary, the long term nature of the life business modelled has been considered appropriately.

A range of equity indices is considered. For modelling equity and real estate returns, an excess return model is used to generate

returns from fixed income dynamics of the economy. A constant volatility model is used where the modeled equity volatility is independent of the option term.

Equity volatilities are taken from implied volatilities of long term equity options at the money, targeted to the longest maturity option available (10 years).

#### EQUITY OPTION IMPLIED VOLATILITIES

Table 8

		30.12.2016	31.03.2017	30.06.2017	29.09.2017	29.12.2017
Index		%	%	%	%	%
EUR	Eurostoxx 50	22.47%	21.57%	21.69%	19.73%	19.68%
	CAC	21.74%	19.93%	19.72%	18.02%	17.82%
	DAX	20.64%	20.73%	20.55%	19.07%	19.23%
CHF	SMI	17.68%	16.97%	16.72%	15.40%	14.86%
USD	S&P 500	27.24%	24.90%	24.63%	23.31%	23.63%

Volatilities implied in 10 year equity option at the money.

Best estimate levels of volatility are used in the market consistent calibration to derive real estate volatility since meaningful option prices for the property market were not available.

Table 9 shows the real estate volatility for the main currencies:

#### REAL ESTATE VOLATILITIES

Table 9

Currency	30.12.2017	30.12.2016
	%	%
EUR	15.00%	15.00%
CHF	8.00%	8.00%
USD	15.00%	15.00%

#### CORRELATION ASSUMPTIONS

Table 10

	Fixed income 1 year bond rate			Equity Indices	
	EUR	CHF	USD	MSCIEMU	S&P500
Fixed income 1 year bond rate					
EUR	1	0.76	0.56	0.36	0.40
CHF		1	0.51	0.31	0.39
USD			1	0.30	0.30
Equity Indices					
MSCIEMU				1	0.87
S&P500					1

Table 8 shows the equity option implied volatility for the main equity indices.

To show the impact of asset mixes and inter-economy relations, correlation assumptions were estimated from historic market data. Table 10 shows the correlation assumptions for 2017; the return period is on a quarterly basis.

1,000 stochastic paths are used for stochastic calculations of options and guarantees. Given the significance of the O&G of Germany Life, 5,000 paths were used by this entity. The higher number of paths further reduced Monte-Carlo errors. All scenario sets use antithetic random numbers in order to reduce Monte-Carlo errors.

## B.2 Capital charge for risk margin

For 2017, the cost of capital (CoC) charge was set to 6% before tax in line with Solvency II market value balance sheet, for the calculation of the risk margin, using 100% capitalization level for risk capital.

## B.3 Foreign currency exchange rates

EV results are calculated in local currencies and converted to Euro using the corresponding exchange rates at the valuation date. Exchange rates are consistent with the rates used in the balance sheet of our IFRS financial accounts. The exchange rates against the Euro are shown in table 11 below.

**MAIN EXCHANGE RATES AGAINST EUR**

Table 11

FX against 1.00 EUR	2017	2016
CHF	1.17	1.07
USD	1.20	1.05
CZK	25.53	27.02
HUF	310.21	308.87
PLN	4.17	4.40
THB	39.13	37.77
TWD	35.73	33.99

## B.4 Non-economic assumptions

Non-economic assumptions such as mortality, morbidity, lapse rates and expenses are determined by the respective business units based on their best estimates as at the valuation date.

Best estimate assumptions are set by considering past, current and expected future experience. Future expected changes are taken into account in best estimate assumptions only when sufficient evidence exists and the changes are reasonably certain. Future improvements in productivity can be allowed only if they have been agreed in business plans which have been partly achieved at least by the end of the reporting period, and only to the extent that they are projected to be realized within the first projection year. All the expected expense overruns affecting the covered business, such as holding company operating expenses, overhead costs and development costs in new markets are allowed for in the calculations.

## B.5 Tax assumptions

For MCEV, tax effects are aligned with the Solvency II market value balance sheet bottom-up calculation. Tax assumptions used for the calculation of VNB are set in line with accounting principles and the local tax regime. Tax losses carried forward are considered

in the projections. Tax is based on marginal tax impacts. For example, losses on different portfolios can be compensated within one company, and also between Life and P/C portfolios where held in one legal entity. Tax impact of future new business is not allowed for. Table 12 shows the nominal tax rates applied for the VNB calculation.

**TAX ASSUMPTIONS**

Table 12

	2017	2016
	%	%
Germany	31%	31%
France	28.8%	34%
Italy	29.9%	33%
US	21%	35%
Switzerland	21%	21%

## B.6 Real world economic assumptions

The following assumptions are centrally provided:

- Risk-free yields
- Equity returns
- Real estate returns

Risk-free yield-curves are the same under real world and risk neutral assumptions.

Reinvestment rates for all asset classes are the forward rates implied in the initial yield-curve, which means yields do not stay constant over time, but dynamically follow the forward curve.

Risk premiums are assumed for all risky assets. Return assumptions for equity and real estate are derived from the risk-free rate, i.e. the 10 year swap rate, plus a risk premium; see table 13.

**ECONOMIC ASSUMPTIONS FOR REAL WORLD PROJECTION**

Table 13

	2017	2016
Equity risk premium	4.4%	5.0%
Real estate risk premium	3.9%	20% × 10 year swap rate

# Appendix C: Glossary and Abbreviations

## BEL

Best estimate liabilities. Market value of the obligations of a life company to policyholders and beneficiaries.

## Contract Boundaries

Allianz calculates and publishes its MCEV results based on the Solvency II contract boundary definition. The boundary of a contract is the point at which the insurer has a unilateral contractual right to amend the premiums or the benefits payable under the contract in such a way that the premiums fully reflect the risks.

## Covered business

The contracts to which the MCEV calculation has been applied, in line with the MCEV Principles.

## DAC

Deferred acquisition costs. Expenses of an insurance company which are incurred in connection with the acquisition of new insurance policies or the renewal of existing policies. These typically include commissions paid and the costs of processing proposals.

## Distributable earnings

The profits after tax plus changes in required capital plus interests on required capital, all based on real world assumptions.

## EIOPA

European Insurance and Occupational Pension Authority.

## IFRS

International Financial Reporting Standards. Since 2002, the designation IFRS applies to the overall framework of all standards approved by the International Accounting Standards Board. Already approved standards will continue to be cited as International Accounting Standards (IAS).

## IRR

Internal rate of return. The discount rate which gives a zero value of new business under real world projections after allowing for any acquisition expense overrun or underrun.

## Look-through basis

A basis via which the impact of an action on the whole Group, rather than on a particular part of the Group, is measured. Under this basis, 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.

## MCEV

Market consistent embedded value. A measure of the consolidated value of shareholders' interests in the covered business. It is defined as the excess of market value of assets over market value of liabilities as of valuation date. As such, MCEV excludes any item that is not considered shareholder interest like the Going Concern Reserve and Surplus Fund.

## NAV

Net asset value. Market value of assets after tax, which are not backing liabilities, calculated from statutory equity.

## NBM

New business margin. Value of new business divided by present value of new business premiums.

## New business strain

Impact of new business on free surplus in the year business is written: (negative) profit in the first year plus initial capital binding. Negative result in first year reflects the shareholder share in initial expenses.

## O&G

Time value of financial options and guarantees. The allowance made in the MCEV for the potential impact on future shareholder cash flows of all financial options and guarantees within the in-force covered business.

## Payback period

Payback period is the period from the point of sale of new business to the first point in time when the undiscounted sum of distributable earnings, under real world assumptions, is positive.

#### PVFP

Present value of future profits. Future (statutory) shareholder profits after tax projected to emerge from operations and assets backing liabilities, including value of unrealized gains on assets backing policy reserves.

#### PVNBP

Present value of new business premiums. The present value of future premiums on new business written during the year discounted at reference rate. It is the present value of projected new regular premiums, plus the total amount of single premiums received.

#### Reference rate

A proxy for a risk free rate appropriate to the currency term and liquidity of the liability cash flows. Based on swap rates, includes a swap credit adjustment and illiquidity premium.

#### RM

Risk Margin. The cost of providing an amount of available financial resources (AFR) equal to the solvency capital requirement (SCR) necessary to support the insurance and reinsurance obligations over the lifetime of those obligations. Risk margin is calculated with 6% cost of capital rate (CoC), after tax and 100% capitalization of risk capital in line with Solvency II requirements.

#### SCR

Solvency Capital Requirement.

#### Total MCEV earnings

Change in MCEV after initial adjustments and after tax, but before capital movements.

#### TP

Technical Provisions. These reflect the amount that an insurer needs to hold in order to meet its expected future obligations on insurance contracts. They include stochastic best estimate liabilities and risk margin.

#### Ultimate forward rate

The estimate of the ultimate forward rate (UFR) is defined in line with the EIOPA methodology and guidelines. An extrapolation is needed past last available market data points. The UFR is determined for each currency using macro-economic methods, the most important factors being long term expected inflation and real interest rates. Although the UFR is subject to revision, it should be stable and only change when there are fundamental changes to long term expectations.

#### VIF

Value of in-force. It is defined as the difference between the MCEV and the NAV.

#### VNB

Value of new business. The additional value to shareholder created through the activity of writing new business. It is defined as present value of future profits (PVFP) after acquisition expense overrun or underrun, minus the time value of financial option and guarantees (O&G), minus the risk margin (RM), all determined at issue date.

# Disclaimer

## Forward-looking statements

The statements contained herein may include prospects, statements of future expectations and other forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties. Actual results, performance or events may differ materially from those expressed or implied in such forward-looking statements.

Such deviations may arise due to, without limitation, (i) changes of the general economic conditions and competitive situation, particularly in the Allianz Group's core business and core markets, (ii) performance of financial markets (particularly market volatility, liquidity and credit events), (iii) frequency and severity of insured loss events, including from natural catastrophes, and the development of loss expenses, (iv) mortality and morbidity levels and trends, (v) persistency levels, (vi) particularly in the banking business, the extent of credit defaults, (vii) interest rate levels, (viii) currency exchange rates including the EUR/USD Dollar exchange rate, (ix) changes in laws and regulations, including tax regulations, (x) the impact of acquisitions, including related integration issues, and reorganization measures, and (xi) general competitive factors, in each case on a local, regional, national and/or global basis. Many of these factors may be more likely to occur, or more pronounced, as a result of terrorist activities and their consequences.

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