

Embedded value report

Annual results 2017

Embedded value report

Zurich produces and reports embedded value in accordance with the Market Consistent Embedded Value (MCEV) Principles and Guidance issued by the European Insurance CFO Forum (CFO Forum) in April 2016 to provide an economic view of the value of the life insurance business from a shareholders' perspective without any allowance for the value attributable to future new business, to support financial management and strategic decision making. This report provides an overview of the movement in the MCEV over the calendar year 2017 and new business value during the year, including further splits into constituent parts and geographical regions.

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This report describes the development of embedded value of the Life business including the life insurance business in the Farmers segment (Farmers Life), which is reported under the Farmers section in the Group's Annual Report of the Zurich Insurance Group for the year ended December 31, 2017. For further details, see section 1 of this report.

The opening embedded value for 2017 has been adjusted to reflect changes in the covered business as a result of Zurich Group's new reporting structure and the transfer of certain life insurance businesses in North America. For further details, see section 2 of this report.

1. Basis for preparation

The statements in this report relate to a representation of the shareholders' economic value of Zurich in-force covered life and related businesses on a Market Consistent Embedded Value (MCEV) basis.

MCEV is a recognized method for the measurement of the value of distributable statutory earnings arising from assets allocated to the covered business:

- → MCEV looks at the value of the business created or diluted allowing for the whole policy term
- → Assumptions and risk margins are explicit, best estimate and transparent
- → Asset and liability cash flows are valued using risk discount rates consistent with those applied to similar cash flows in capital markets, and options and guarantees are valued using market consistent models calibrated to observable market prices
- → The analysis of change captures all value movements including those caused by risk taking
- → MCEV is particularly useful when there is a mismatch in timing between income receipts and benefit/expense outflows, especially for assessing new business value
- → MCEV is calculated using a "bottom-up" approach with allowances for the time value of financial options and guarantees, for the frictional cost of required capital and for the cost of non-hedgeable risks. It excludes any value from future new business

Zurich has disclosed MCEV in line with the Principles and Guidance issued by the European Insurance CFO Forum in April 2016.

A new operational Zurich Group (the Group) structure became effective for both the Group's Annual Report and the embedded value report as of 2017, reflecting both the Group's businesses and geographical regions. The Group pursues a customer-centric strategy, with the Property & Casualty (P&C) and Life businesses, which are managed through our regional structure.

The Group further divides its P&C and Life business into Retail and Commercial customer units. The Group has identified the following 13 reportable and operating segments.

Group structure

Businesses	Property & Casualty (P&C) Life		Farmers	Non-Core Businesses	Group Functions and Operations		
Reportable segments	Europe, Middle East & Africa (EMEA) North America Asia Pacific Latin America Group Reinsurance Europe, Middle East & Africa (EMEA) North America Asia Pacific Latin America Group Reinsurance		Farmers ¹	Non-Core Businesses	Group Functions and Operations		
Customer Commercial units Retail							

¹ Note that the Farmers segment includes the life insurance business (Farmers Life).

Out of the Group's 13 reportable segments, the Embedded Value Report covers EMEA (Europe, Middle East & Africa), North America, Asia Pacific, Latin America and Group Reinsurance as the reportable segments of the Life business as well as Farmers and Group Functions and Operations.

The following changes have been applied to the segmental information within the embedded value report compared to the prior year:

- → Europe, Middle East & Africa (EMEA): the segment covers the International Group Risk Solutions ("IGRS") business (included in "Other" in the previous year). Further, the IGRS business has been split in 2017 between Zurich International Group Risk Solutions "ZIGRS" (reported under "Zurich International") and Zurich Global Employee Benefits Solutions "ZGEBS" (reported under "Rest of EMEA")
- → North America: compared to last year, this segment does not cover the Farmers New World Life business ("FNWL") which in 2017 is covered separately in the Farmers segment included in this report
- → Group Reinsurance: this segment covers certain life reinsurance businesses and does not contain any new business value
- → Group Functions and Operations business: the segment contains the Group holding expenses. Group holding expenses previously allocated to the life insurance business are no longer part of the covered business. Disclosure of this segment is required for the opening adjustment in relation to Group Life holding expenses

The prior year numbers for the year ended December 31, 2016 are reported under the Group's new reportable segment structure to allow for a more meaningful comparison.

Zurich engaged PwC to review the methodology, assumptions and results in accordance with the MCEV CFO Forum Principles and Guidance as described in the "Auditor's review report on embedded value" section.

All amounts in the embedded value report, unless otherwise stated, are shown in U.S. dollars, rounded to the nearest million with the consequence that the rounded amounts may not add to the rounded total in all cases. All ratios and variances are calculated using the underlying amounts rather than the rounded amounts.

2. Covered business

Covered business relates to business written by the Life business and Farmers Life, including life reinsurance ceded to the Group, specifically the following product lines:

- → Life and critical illness including riders
- → Savings (with profit, non-profit, unit-linked and universal life)
- → Pensions and annuities
- → Long-term health and accident

Certain entities in the Life business and Farmers Life, that write business in an investment vehicle but with some life insurance features, are also included as part of covered business.

As of January 1, 2017, Group holding expenses previously allocated to the life insurance business are no longer part of covered business, in line with prevailing industry practice, and also aligning to the new Group structure and, consequently, no longer valued on an economic basis.

The opening balance of the embedded value has been adjusted to reflect these changes. In the segmental information, the opening adjustment is included in the Group Functions and Operations segment. Additionally, in line with the presentation of the 2017 Group's Annual Report, certain corporate protection portfolios have been reclassified from the Non-Core Business (non-covered business) to the North America segment (covered business), which is shown as part of the 2017 opening adjustment to the embedded value.

There are certain legacy life portfolios in run-off not considered core (Non-Core Business) to the Group's strategy and therefore not included as part of the covered business.

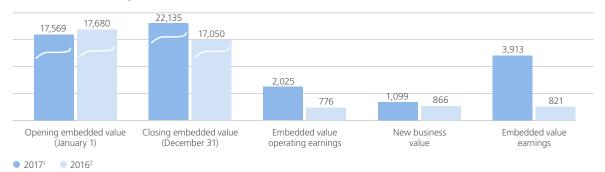
For certain smaller entities in the Life business and Farmers, including holding companies, pension funds and purely financial shell companies, no embedded value has been calculated but these entities have been included in embedded value with an amount equal to IFRS shareholders' equity, as calculated in accordance with Group accounting policies. The contribution from these entities to embedded value is less than 5 percent.

The MCEV for the entire Group would be the sum of the value of the covered business using MCEV Principles and the value of the non-covered business at unadjusted IFRS shareholders' equity value as reported in the Group's Annual Report.

3. Embedded value report – executive summary

Key results

in USD millions, for the years ended December 31



- ¹ 2017 opening embedded value has been restated to include the change in covered business as noted in section 2 of the report.
- ² 2016 opening embedded value has been restated and 2016 results presented reflect the change due to the new capital regimes in Europe. Switzerland and Mexico.

Embedded value key results for the covered business

in USD millions, for the years ended December 31	2017	2016	Change
Opening embedded value before the methodology change	17,050	17,637	(586)
Opening adjustment ¹	518	43	475
Opening embedded value after the methodology change	17,569	17,680	(111)
Closing embedded value	22,135	17,050	5,085
Embedded value operating earnings	2,025	776	1,249
of which new business value	1,099	866	233
Embedded value earnings	3,913	821	3,092

All metrics are reported net of non-controlling interests.

The Life business showed strong growth in 2017 in line with the Group's strategy focused on delivering sustainable earnings. The growth was driven by improved new business performance through higher volumes and improved business mix, as well as positive economic variances and currency translation effects. The Life business continued to make progress on transforming to a more customer-oriented organization via streamlining management structures and certain project-related activities. The Group continued to strengthen focus on key businesses resulting in a reinsurance transfer of certain annuity businesses in Farmers Life and the divestment of the corporate pension and savings business in the UK.

The increase in embedded value was mainly driven by stronger new business value across all segments and positive investment performance in addition to an overall improvement in interest rates, coupled with an improved interest rate model (see section 9.g in this report) including the Solvency II EIOPA swap rates. Furthermore, favorable currency translation effects and changes in certain tax regimes contributed positively to embedded value.

¹ For 2017, this includes the change in covered business as noted in section 2 of this report. For 2016, this includes the change in the required capital in Europe, Switzerland and Mexico due to the introduction of new capital regimes.

New business value was USD 1,099 million. This was 27 percent higher than the prior period in both U.S. dollar and in local currency terms. The superior performance was attributable to a growth in volume and an improved business mix, particularly in corporate, bancassurance individual protection and unit-linked businesses. Favorable economic variances resulted from the higher interest rate environment.

Embedded value operating earnings were USD 2,025 million, a 161 percent increase compared with the prior year. In line with Group strategy, expense reductions were observed through lower development costs. The increase in operating earnings was particularly driven by the following:

- → Model refinements, primarily in Germany related to a revised modeling of profit sharing for participating business and enhancements to the valuation of certain specific funds
- → Higher expected returns on the in-force portfolios in Switzerland, from a more refined calculation in order to better align with the actual experience
- → Improved operating persistency experience in certain cross-border corporate protection businesses, and a positive mortality experience across most segments

Embedded value earnings were USD 3,913 million representing a return of 22.3 percent. The embedded value earnings benefited from positive economic variances, including improved investment results in the current year, a more favorable interest rate environment, an improved interest rate model (see section 9.g in this report) and the adoption of Solvency II EIOPA swap rates in the European Economic Area, with a notable impact in Germany. In addition, the U.S. Tax Cuts and Jobs Act of 2017 positively contributed to the Farmers Life earnings.

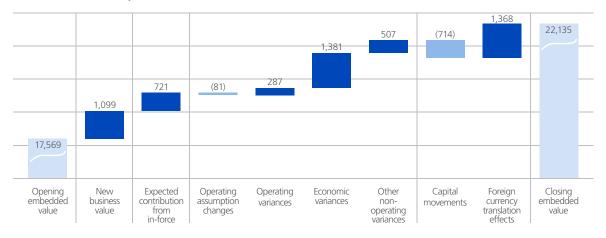
4. Analysis of embedded value earnings and value of business in-force

The graph and table below show how embedded value of the covered business has increased from USD 17,569 million (after adjusting the opening embedded value for the change in covered business as noted in section 2 of this report) to USD 22,135 million during 2017.

The split of the Life business and Farmers Life can be found in the segmental analysis (see section 8 of this report).

Embedded value development for the covered business

in USD millions, for the year ended December 31, 2017



Analysis of embedded value earnings for the covered business

in USD millions,		2017		2016
for the years ended December 31	Share-	Value of		
	holders'	business		
	net assets	in-force	Total	Total
Opening embedded value before the methodology change	8,498	8,553	17,050	17,637
Opening adjustment ¹	25	493	518	43
Opening embedded value after the methodology change	8,523	9,046	17,569	17,680
New business value	(432)	1,531	1,099	866
Expected contribution at reference rate	96	113	209	260
Expected contribution in excess of reference rate	290	221	511	362
Expected transfer to shareholders' net assets	784	(784)	_	_
Operating assumption changes	136	(218)	(81)	(251)
Operating variances	575	(288)	287	(461)
Embedded value operating earnings	1,449	576	2,025	776
Economic variances	368	1,014	1,381	74
Other non-operating variances	(7)	514	507	(30)
Embedded value earnings	1,809	2,104	3,913	821
Capital movements	(859)	145	(714)	(457)
Foreign currency translation effects	866	502	1,368	(993)
Closing embedded value	10,339	11,797	22,135	17,050

All metrics are reported net of non-controlling interests.

¹ For 2017, this includes the change in covered business as noted in section 2 of this report. For 2016, this includes the change in the required capital in Europe, Switzerland and Mexico due to the introduction of new capital regimes.

Components of value of business in-force for the covered business

in USD millions, as of December 31			2017			2016⁵
					Value of	Value of
					business	business
	CE ¹	FC ²	TVFOG ³	CRNHR ⁴	in-force	in-force
Life business						
North America	497	(4)	(10)	(42)	441	225
Latin America	368	(36)	_	(91)	241	150
EMEA	8,208	(226)	(590)	(876)	6,516	5,432
Asia Pacific	1,777	(114)	(8)	(288)	1,367	988
Group Reinsurance	-	-	-	-	_	_
Farmers Life	3,572	(46)	(37)	(258)	3,232	2,089
Group Functions and Operations	_	_	_	_	-	(332)
Total covered business	14,422	(426)	(645)	(1,555)	11,797	8,553

- CE is the certainty equivalent value of business in-force.
- ³ TVFOG is the time value of financial options and guarantees.
- CRNHR is the cost of residual non-hedgeable risk (see section 9 for further details).
 2016 figures have been restated to allow for the change in the covered business noted in section 2 of this report.

Increases in the value of business in-force are noted in EMEA, particularly in Germany driven by favorable economic variances and the effect of adopting Solvency II EIOPA swap rates. Additional contributions were noted in Switzerland as a result of positive current year investment results and favorable operating assumptions updates. Asia Pacific also showed an increase in the value of business in-force mainly due to organic growth in Japan. Opening adjustments to the embedded value positions in North America and Group Functions and Operations also contributed to an overall increase in value in covered business. Farmers Life value of business in-force increased also as a result of the positive effect of the U.S. Tax Cuts and Jobs Act of 2017.

Overall, a decrease in TVFOG was noted, predominantly in Germany, Italy and Farmers Life, due to an improved interest rate model (see section 9.g in this report). Other decreases included Switzerland with a favorable movement in interest rates, and Farmers Life due to a reinsurance transfer of certain annuity businesses.

Maturity profile of value of business in-force

The value in-force (VIF) maturity profile sets out the time period over which the discounted VIF profits are expected to emerge into shareholders' net assets. It does not include the release of required capital to free surplus which usually accompanies the emergence of the VIF profit. The VIF emergence takes into account frictional costs, the cost of residual non-hedgeable risk and the time value of financial options and guarantees valued based on market consistent economic assumptions. For further details, see section 10 of this report.

The VIF maturity profile shows that 31 percent of the VIF is expected to emerge into shareholders' net assets over the next five years and an additional 25 percent over the following five years.

Maturity profile of value of business in-force for the covered business

in USD millions, as of December 31	201	2017		5
	VIF	% of Total	VIF	% of Total
1 to 5 years	3,643	31%	2,772	32%
6 to 10 years	2,905	25%	2,128	25%
11 to 15 years	1,998	17%	1,581	18%
16 to 20 years	1,317	11%	973	11%
more than 20 years	1,934	16%	1,098	13%
Total covered business	11,797	100%	8,553	100%

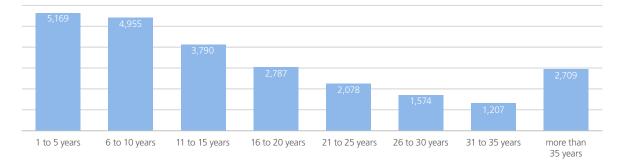
Projected profit on real world basis

The projected profit on a "real world" basis shows the expected pattern of the undiscounted profit released by the in-force business as of December 31, 2017 (excluding future new business) estimated using real world best estimate economic assumptions (further details in section 10). This projected profit on a real world basis does not include the release of the required capital supporting the in-force business.

The projection of the profits allowing for the real world economic assumptions shows the portion of the additional expected return earned on assets covering the liabilities attributable to shareholders. The main contribution was noted in EMEA, particularly in Germany due to the long term nature of the annuity business and its underlying investment components, as noted in the last time period (i.e., more than 35 years).

Future real world undiscounted profits for the covered business

in USD millions, for the year ended December 31, 2017



5. Value of new business

New business by geographical region for the covered business

in USD millions, for the years ended December 31	New business margin ²					
	AP	E ^{1,2}	New busin	ness value ³	% of APE	
	2017	2016	2017	2016	2017	2016
Life business						
North America	224	62	66	25	29.3%	40.8%
Latin America	1,117	1,231	164	126	23.2%	14.7%
EMEA	3,333	3,238	605	541	19.1%	18.3%
Asia Pacific	195	155	165	88	85.8%	57.8%
Farmers Life	91	94	100	85	110.3%	90.7%
Total covered business	4,959	4,779	1,099	866	25.1%	21.0%

¹ APE is measured as new annual premiums plus 10 percent of new single premiums.

² APE is shown gross of non-controlling interests

In the following two tables, the disclosure of the new business value information has been split between the Life business and Farmers Life in order to ensure comparability with the 2017 Zurich Group's Annual Report.

New business by quarter

Life business new business by quarter

in USD millions	2017					2016				
	Q1	Q2	Q3	Q4	FY	Q1	Q2	Q3	Q4	FY
Annual premium equivalent										
(APE) ²	1,172	1,103	1,199	1,394	4,868	1,049	1,154	1,267	1,216	4,686
New annual premiums	710	641	734	731	2,816	632	652	841	694	2,820
New single premiums	4,620	4,629	4,647	6,631	20,527	4,168	5,015	4,257	5,217	18,657
Present value of new business										
premiums (PVNBP)1	12,132	10,192	10,896	11,708	44,928	12,267	13,753	11,030	12,813	49,863
New business value ³	277	227	202	293	999	235	218	165	163	782
New business margin ³ (% of										
APE)	27.0%	23.6%	19.1%	23.7%	23.3%	25.5%	22.3%	15.3%	15.6%	19.4%
New business margin ³										
(% of PVNBP)	2.5%	2.4%	2.0%	2.8%	2.4%	2.1%	1.8%	1.6%	1.4%	1.7%

¹ PVNBP is measured as new single premiums plus the present value of new annual premiums.

Premiums, APE and PVNBP are shown gross of non-controlling interests.
 New business value and new business margin are reported net of non-controlling interests.

New business annual premium equivalent (APE) was USD 4,868 million, an increase of USD 183 million in U.S. dollar terms or a 4 percent increase on a local currency basis. Higher new business sales were noted across most segments, including North America resulting from a large top-up contribution in a corporate protection scheme, in Zurich Santander driven by an increase in individual protection business in Brazil and in EMEA due to higher unit-linked sales in the UK and Ireland and a new corporate savings scheme in Zurich International. Asia Pacific also showed a general increase in sales, including also a positive contribution from the Zurich Takaful Malaysia Berhad business.

PVNBP was USD 44,928 million, a decrease of USD 4,936 million in U.S. dollar terms or a 9 percent decrease on a local currency basis. The decrease is mainly driven by the UK due to a reduction in corporate pension and savings business after the divestment of this portfolio in the fourth quarter of 2017, and in Spain from reducing individual savings business.

³ New business value and new business margin are shown net of non-controlling interests.

Farmers Life	new
business	
by quarter	

in USD millions			2017					2016		
	Q1	Q2	Q3	Q4	FY	Q1	Q2	Q3	Q4	FY
Annual premium equivalent										
(APE) ²	22	24	21	24	91	23	24	23	24	94
New annual premiums	21	23	21	23	88	21	22	23	23	89
New single premiums	11	11	5	4	31	14	14	7	9	44
Present value of new business										
premiums (PVNBP)1	228	268	233	257	987	219	251	263	269	1,002
-										
New business value ³	23	26	22	29	100	20	22	24	19	85

PVNBP is measured as new single premiums plus the present value of new annual premiums. Premiums, APE and PVNBP are shown gross of non-controlling interests.

New business annual premium equivalent (APE) was USD 91 million, a decrease of USD 3 million or a 3 percent decrease in U.S. dollar terms, due to a slight decrease in individual protection sales.

PVNBP was USD 987 million, a decrease of USD 15 million or a 2 percent decrease, consistent with the APE movements noted above.

Movement of new business value and new business margins for the covered business

Analysis of new business value and margin for the covered business

in USD millions	NBV ¹	NBM ¹
New business value 2016	866	21.0%
Change in volumes and business mix	160	2.4%
Economic and operating variances	78	1.6%
Foreign currency translation effects	(5)	n.a.
New business value 2017	1,099	25.1%

¹ New business value and new business margin (% of APE) are reported net of non-controlling interests.

New business value was USD 1,099 million, an increase of USD 233 million in U.S. dollar terms or a 27 percent increase on a local currency basis. The increased performance was attributable to higher new business sales in North America, in EMEA, predominantly in Zurich International due to higher volumes of corporate business, and an overall positive contribution in Asia Pacific. In addition, EMEA has benefited from an improved business mix predominately in Spain and Italy due to a reduction in guaranteed interest rates for savings business. The overall market improvement in interest rates largely benefited the EMEA businesses primarily in Germany, Switzerland and Italy. In addition, higher market interest rates in Japan resulted in a positive impact to the long-term business.

New business margin increased by 4.1 percentage points to 25.1 percent. This resulted from a general improvement in business mix in EMEA, coupled with positive economic variances in both EMEA and Japan due to the higher interest rate environment.

³ New business value is reported net of non-controlling interests.

6. Sensitivities

Sensitivi	ties	for	the
covered	hus	ines	S

in USD millions, as of December 31, 2017	Change in	Change in
	embedded	new business
	value ¹	value ¹
Reported embedded value and new business value ¹	22,135	1,099
Base embedded value and base new business value ¹	22,135	1,097
Operating sensitivities		
10% decrease in maintenance expenses	3%	7%
10% increase in voluntary discontinuance rates	(4%)	(10%)
10% decrease in voluntary discontinuance rates	5%	12%
5% improvement in mortality and morbidity for assurances	4%	10%
5% improvement in mortality for annuities	(1%)	(1%)
Economic sensitivities		
50 basis points increase in risk free yield curve	(1%)	2%
50 basis points decrease in risk free yield curve	(0%)	(3%)
10% fall in equity market values	(2%)	(1%)
10% fall in property market values	(1%)	(0%)
25% increase in implied volatilities for risk free yields	(1%)	(2%)
25% increase in implied volatilities for equities and properties	(0%)	(0%)

¹ Values used to calculate the sensitivities include the effect of using the end of year best estimate assumptions (rather than this reported new business value where beginning of quarter best estimate assumptions are used).

The key assumption changes represented by each of these sensitivities are given in section 9.

In each sensitivity calculation, all other assumptions remain unchanged except where they are directly affected by the revised assumption. The results include the impact of assumption changes on all embedded value components. The 50 basis points decrease in risk free yield curve increases the value of some products, such as short-term assurance business, with fixed future cash flows discounted at lower rates. This increase is offset by a reduction in the value of other products, such as those where lower assumed investment returns reduce profitability.

7. Reconciliation of shareholders' equity to embedded value

Reconciliation of shareholders' equity to embedded value for the covered business

in USD billions, as of December 31, 2017	Life business	Farmers Life	Total
Shareholders' equity ¹	17.0	2.0	19.0
Less intangible assets			
Goodwill	(0.2)	0.0	(0.2)
Deferred policy acquisition costs and deferred origination costs	(12.1)	(1.7)	(13.8)
Other intangibles and present value of future profits	(2.8)	(0.1)	(2.9)
Deferred front-end fees	5.3	0.1	5.4
Pension scheme liabilities ²	1.2	0.1	1.2
Less non-controlling interests ³	(0.3)	0.0	(0.3)
Other adjustments ⁴	1.6	0.1	1.8
Embedded value shareholders' net assets	9.8	0.5	10.3
Value of business in-force	8.6	3.2	11.8
Embedded value	18.4	3.7	22.1

Shareholders' equity is the share of total shareholders' equity for the Life business including Farmers Life (which is a subset of the Farmers segment) as reported in note 3 of the Group's Annual Report.
 Pension scheme liabilities are deducted from shareholders' equity but are not deducted from embedded value shareholders' net assets.
 Primarily from non-controlling interests in Zurich Santander and Spain.
 Other adjustments include tax differences, policyholders' share of intangibles, reserving differences and asset valuation differences.

8. Segmental analysis of embedded value and new business value

Analysis of embedded value earnings by segments for the covered business

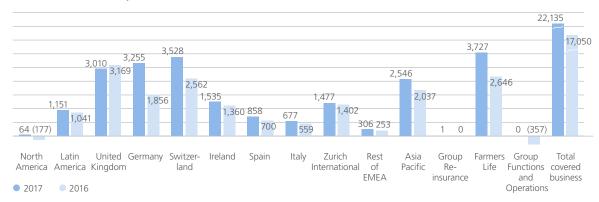
in USD millions,		L	ife business				Group	
for the year ended December 31, 2017							Functions	
2017	North	Latin			Group		and	Total covered
	America	America	EMEA	Asia Pacific	Reinsurance	Farmers Life	Operations	business
Opening embedded								
value before the								
methodology change	(177)	1,041	11,861	2,037		2,646	(357)	17,050
Opening adjustment ¹	155		7				357	518
Opening embedded								
value after the								
methodology change	(23)	1,041	11,868	2,037		2,646		17,569
New business value	66	164	605	165		100		1,099
Expected contribution at	_							
reference rate	5	81	40	33		50		209
Expected contribution in			2.40			=-		=
excess of reference rate		58	348	27		78		511
Expected transfer to								
shareholders' net assets								_
Operating assumption	(-)	()	/ · ·					(= ·)
changes	(1)	(68)	(264)	33		219	_	(81)
Operating variances	12	20	309	(19)		(36)	_	287
Embedded value								
operating earnings	82	255	1,039	238		411		2,025
Economic variances	(10)	64	1,072	68		187		1,381
Other non-operating								
variances	25	8	19	20		435	_	507
Embedded value								
earnings	97	326	2,130	326		1,034		3,913
Capital movements	(11)	(207)	(591)	46	1	48	_	(714)
Foreign currency translation		(=)						
effects	-	(9)	1,240	137	_		_	1,368
Closing embedded value	64	1,151	14,646	2,546	1	3,727	_	22,135

All metrics are reported net of non-controlling interests.

This includes the change in covered business as noted in section 2 of this report.

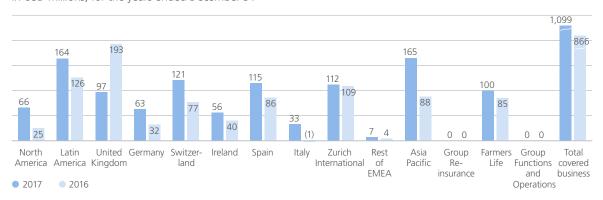
Embedded value by geographical region

in USD millions, for the years ended December 31



New business value by geographical region

in USD millions, for the years ended December 31



EMEA

New business

EMEA analysis of new business value and margin

in USD millions	NBV ¹	NBM ¹
New business value 2016	541	18.3%
Change in volumes and business mix	127	2.5%
Economic and operating variances	(54)	(1.7%)
Foreign currency translation effects	(9)	n.a.
New business value 2017	605	19.1%

 $^{^{\}rm 1}$ New business value and new business margin (% of APE) are reported net of non-controlling interests.

New business value was USD 605 million, an increase of USD 64 million or a 12 percent increase on a local currency basis. Higher corporate business volumes contributed positively. In addition, the new business value performance improved due to changes in business mix towards non-guaranteed products.

Volumes and business mix changes positively impacted the new business value by USD 127 million. The main contributors were:

- → Zurich International, as a result of higher corporate protection and savings volumes, including the ZIGRS business
- → Spain, due to a lower proportion of guaranteed interest rate products and higher volumes of high margin individual protection business
- → Italy, due to a shift in the portfolio from guaranteed interest rate products business to unit-linked business with higher margins
- → Switzerland, due to overall higher business volumes and the continued offering of zero percent guaranteed interest rate products with a higher focus on individual protection and unit-linked products

Negative operating variances, predominantly driven by the worsened persistency assumption update to the UK corporate savings business, were partially compensated by positive economic variances. The main contributors to the economic variances were the general improvement in the interest rate environment and the impact, primarily in Germany, of the adoption of the Solvency II EIOPA swap rates.

Embedded value development

EMEA analysis of embedded value earnings

in USD millions,		2017		2016
for the years ended December 31	Share-	Value of		
	holders'	business		
	net assets	in-force	Total	Total
Opening embedded value before the methodology change	6,429	5,432	11,861	13,180
Opening adjustment ¹	_	7	7	43
Opening embedded value after the methodology change	6,429	5,439	11,868	13,223
New business value	(218)	824	605	541
Expected contribution at reference rate	3	37	40	105
Expected contribution in excess of reference rate	129	219	348	220
Expected transfer to shareholders' net assets	508	(508)	_	_
Operating assumption changes	136	(400)	(264)	(420)
Operating variances	563	(253)	309	(330)
Embedded value operating earnings	1,121	(82)	1,039	117
Economic variances	355	717	1,072	60
Other non-operating variances	37	(18)	19	9
Embedded value earnings	1,513	616	2,130	185
Capital movements	(557)	(33)	(591)	(548)
Foreign currency translation effects	746	494	1,240	(999)
Closing embedded value	8,131	6,516	14,646	11,861

Embedded value increased mostly due to beneficial economic variances, including improved investment results and a beneficial interest rate environment, coupled with positive impacts from model enhancements and overall favorable currency translation effects in the segment.

Positive economic variances included an overall improvement in investment results in the segment, particularly in Switzerland with higher returns in the fixed income, equity and real estate portfolios. In addition, an improved interest rate model (see section 9.g in this report), benefited the embedded value of the in-force business, mostly in Germany, Switzerland and Italy. Overall a higher interest rate environment and the adoption of the Solvency II EIOPA swap rates contributed positively, in particular to the long-term business in Germany. The allowance of negative interest rates during the year did not result in a material movement in the embedded value.

Other non-operating variances remained stable. The positive impact from updating the CRNHR in Germany was partially offset by the decrease in the value of multi-currency business in Zurich International affected by weaker U.S. dollar denominated revenues. Additionally, a negative impact was noted due to the capital gains tax indexation relief in the UK.

Negative operating assumption changes were observed from updating persistency assumptions in the corporate savings business in the UK, in the traditional savings business in Italy and in the unit-linked business in Ireland. This was partially offset by a generally positive impact from the maintenance expenses assumptions updates and positive mortality assumptions updates in the UK and Switzerland.

Positive other operating variances were mainly related to model refinements, primarily in Germany, due to revised modeling of profit sharing for participating business and enhancements to the valuation of certain specific funds. This was partially offset by the impact of a new external reinsurance program.

Capital movements decreased embedded value, mostly due to dividend payments made to the Group and the divestment of the corporate pension and savings business in the UK.

Opening adjustment impacts related to the Group holding expenses previously allocated to the life insurance business are no longer part of the covered business due to the adoption of the new Group structure and, consequently are no longer valued on an economic basis.

All metrics are reported net of non-controlling interests.

¹ For 2017, this includes the change in covered business as noted in section 2 of this report. For 2016, this includes the change in the required capital in Europe, Switzerland and Mexico due to the introduction of new capital regimes

Zurich Insurance Group Annual results 2017 – Embedded value report

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Favorable currency translation effects across the EMEA segment included the strengthening of the value of Euro and the British pound.

Embedded value results **EMEA**

in USD millions, for the years ended December 31					
	United Kir	ngdom	Germa	any	
	2017	2016	2017	2016	
Embedded value information:					
Opening embedded value before the methodology change	3,169	3,815	1,856	2,147	
Methodology change ¹	_	5	_	_	
Opening embedded value after the methodology change	3,169	3,820	1,856	2,147	
New business value	97	193	63	32	
Expected contribution at reference rate	10	25	25	25	
Expected contribution in excess of reference rate	36	30	25	24	
Expected transfer to shareholders' net assets	_	-	_	_	
Operating assumption changes	(193)	(180)	24	(50)	
Operating variances	(80)	(50)	345	78	
Embedded value operating earnings	(131)	18	482	110	
Economic variances	(73)	(34)	479	36	
Other non-operating variances	(41)	(27)	126	3	
Embedded value earnings	(245)	(43)	1,088	150	
Capital movements	(192)	11	(12)	(392)	
Foreign currency translation effects	279	(619)	323	(49)	
Closing embedded value	3,010	3,169	3,255	1,856	
New business information: ²					
Annual premiums	722	672	176	190	
Single premiums	4,971	4,329	899	888	
Annual premium equivalent (APE)	1,219	1,105	265	279	
Present value of new business premiums (PVNBP)	16,005	22,014	2,919	2,740	
New business value	97	193	63	32	
New business margin (% of APE)	8.0%	17.5%	24.5%	11.7%	
New business margin (% of PVNBP)	0.6%	0.9%	2.2%	1.2%	

¹ For 2017, this includes the change in covered business as noted in section 2 of this report. For 2016, this includes the change in the required capital in Europe, Switzerland and Mexico due to the introduction of new capital regimes.

² Premiums, APE and PVNBP are reported gross of non-controlling interests.

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		EM	EA								
Switzer	land	Irelar	nd	Spai	n	Italy	/	Zurich Inter	rnational	Rest of E	MEA
2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016
2,562	2,876	1,360	1,363	700	600	559	594	1,402	1,518	253	267
_	21	_	(8)	_	3	_	14	(29)	5	35	2
2,562	2,897	1,360	1,355	700	603	559	608	1,373	1,524	288	269
121	77	56	40	115	86	33	(1)	112	109	7	4
(36)	7	2	(1)	11	9	17	28	5	7	7	6
182	78	22	20	27	22	15	5	30	29	12	12
_	-	_	_	_	-	_		_	-	_	
113	8	(32)	42	(49)	29	(27)	(3)	(92)	(282)	(7)	15
100	(285)	(3)	(46)	(69)	(20)	_	(9)	22	(30)	(6)	32
479	(115)	45	55	35	126	38	19	77	(167)	13	70
499	171	38	(10)	20	(7)	58	(64)	46	(6)	5	(26
44	(228)	_	_	12	12	_	12	(121)	241	(1)	(5
1,022	(172)	83	45	66	131	96	(33)	2	69	18	38
(173)	(131)	(94)	_	(8)	(11)	(56)		(21)	21	(35)	(46
116	(32)	186	(40)	100	(22)	79	(15)	121	(212)	36	(9
3,528	2,562	1,535	1,360	858	700	677	559	1,477	1,402	306	253
222	209	183	149	104	153	76	86	261	223	55	18
1,552	1,375	2,942	2,341	2,437	4,360	1,446	1,548	842	334	266	198
377	346	477	383	347	589	220	241	345	256	82	37
 3,535	3,797	4,020	3,216	3,342	5,553	1,901	2,165	2,811	2,238	805	402
121	77	56	40	115	86	33	(1)	112	109	7	4
32.1%	22.3%	11.8%	10.5%	61.7%	28.0%	14.8%	(0.3%)	32.6%	42.6%	9.1%	10.8%
3.4%	2.0%	1.4%	1.3%	6.5%	3.0%	1.7%	(0.0%)	4.0%	4.9%	0.9%	1.0%

North America

New business

North America analysis of new business value and margin

in USD millions	NBV ¹	NBM ¹
New business value 2016	25	40.8%
Change in volumes and business mix	31	(15.8%)
Economic and operating variances	10	4.3%
Foreign currency translation effects	_	n.a.
New business value 2017	66	29.3%

 $^{^{\}scriptsize 1}$ New business value and new business margin (% of APE) are reported net of non-controlling interests.

New business value was USD 66 million, an increase of USD 40 million or 158 percent. The main contributor to the increase related to a large top-up contribution in a corporate protection scheme. Economic variances improved as a result of the higher interest rate environment increasing the profitability of long-term protection products.

Embedded value development

North America analysis of embedded value earnings

Share-	2017 Value of		2016
Share-	Value of		
	value of		
holders'	business		
net assets	in-force	Total	Total
(403)	225	(177)	(20)
_	155	155	_
(403)	380	(23)	(20)
(20)	85	66	25
_	5	5	4
_	-	_	_
17	(17)	_	_
_	(1)	(1)	(62)
39	(26)	12	(85)
36	46	82	(117)
_	(10)	(10)	(13)
_	25	25	(29)
36	61	97	(159)
(11)	_	(11)	2
_	_	_	_
(377)	441	64	(177)
	net assets (403) - (403) (20) - 17 - 39 36 - 36 (11)	net assets in-force (403) 225 - 155 (403) 380 (20) 85 - 5 17 (17) - (1) 39 (26) 36 46 - (10) - 25 36 61 (11)	net assets in-force Total (403) 225 (177) - 155 155 (403) 380 (23) (20) 85 66 - 5 5 - - - 17 (17) - - (1) (1) 39 (26) 12 36 46 82 - (10) (10) - 25 25 36 61 97 (11) - (11) - - -

All metrics are reported net of non-controlling interests.

Embedded value increased mostly as a result of the opening adjustment amounting to USD 155m. This adjustment related to the reclassification of a corporate protection portfolio from the Non-Core Business (non-covered business) to this segment (as part of the covered business). No relevant impacts were noted as a result of the recently announced U.S. Tax Cuts and Jobs Act of 2017, based on Zurich management's current interpretation of the Act.

Other non-operating variances increased embedded value due to the allowance of management actions in the calculation of CRNHR.

Capital movements decreased embedded value as a result of reducing surplus held in shareholders' equity.

For 2017, this includes the change in covered business as noted in section 2 of this report. For 2016, this includes the change in the required capital in Europe, Switzerland and Mexico due to the introduction of new capital regimes.

Latin America

New business

Latin America analysis of new business value and margin

in USD millions		
	NBV ¹	NBM ¹
New business value 2016	126	14.7%
Change in volumes and business mix	11	5.6%
Economic and operating variances	21	2.9%
Foreign currency translation effects	6	n.a.
New business value 2017	164	23.2%

¹ New business value and new business margin (% of APE) are reported net of non-controlling interests.

New business value was USD 164 million, an increase of USD 37 million or a 24 percent increase on a local currency basis.

The new business value increased due to higher individual protection business volumes and improved business mix, in both Brazil Santander and the Zurich operations in Brazil.

Positive economic variances were noted due to a favorable interest rate environment, particularly in Brazil Santander due to a decrease in interest rates benefiting the profitability of the individual protection business.

Favorable currency translation effects were driven by the increase in the Brazilian real.

Embedded value development

Latin America analysis of embedded value earnings

in USD millions,		2017		2016
for the years ended December 31	Share-	Value of		
	holders'	business		
	net assets	in-force	Total	Total
Opening embedded value before the methodology change	891	150	1,041	790
Opening adjustment ¹	_	_	_	0
Opening embedded value after the methodology change	891	150	1,041	790
New business value	(12)	176	164	126
Expected contribution at reference rate	44	37	81	77
Expected contribution in excess of reference rate	58	_	58	55
Expected transfer to shareholders' net assets	65	(65)	_	_
Operating assumption changes	(1)	(67)	(68)	14
Operating variances	42	(23)	20	24
Embedded value operating earnings	197	58	255	296
Economic variances	(13)	76	64	23
Other non-operating variances	20	(13)	8	12
Embedded value earnings	204	122	326	331
Capital movements	(207)	_	(207)	(122)
Foreign currency translation effects	22	(31)	(9)	43
Closing embedded value	910	241	1,151	1,041

All metrics are reported net of non-controlling interests.

Embedded value increased in Latin America from embedded value earnings of USD 326 million, partially offset by the capital movements during the year.

The embedded value operating earnings benefited from the expected returns, especially in Brazil Santander and in the Zurich operations in Chile. This was partially offset by negative operating variances in the Zurich operations in Chile, mostly due to updated maintenance expenses assumptions.

¹ For 2017, this includes the change in covered business as noted in section 2 of this report. For 2016, this includes the change in the required capital in Europe, Switzerland and Mexico due to the introduction of new capital regimes.

Positive economic variances were mainly driven by the higher interest rate environment, benefiting the valuation of the annuity portfolio in the Zurich operations in Chile.

Capital movements reduced the embedded value in Latin America as a result of dividend payments, mostly noted in Zurich Santander.

Asia Pacific

New business

Asia Pacific analysis of new business value and margin

in USD millions	NBV ¹	NBM ¹
New business value 2016	88	57.8%
Change in volumes and business mix	(14)	(16.1%)
Economic and operating variances	91	44.1%
Foreign currency translation effects	(1)	n.a.
New business value 2017	165	85.8%

 $^{^{\}rm 1}$ New business value and new business margin (% of APE) are reported net of non-controlling interests.

New business value was USD 165 million, an increase of USD 76 million or a 91 percent increase on a local currency basis. This increase was mostly driven by the positive operating variances noted in Japan predominantly as a result of morbidity and expense assumptions updates coupled with positive expense variance due to the organic growth noted in both 2016 and 2017. In addition, positive economic variances were noted in Japan due to a higher interest rate environment increasing the profitability of the whole of life protection business.

Changes in business mix decreased the new business value, due to a higher focus on medical expense products in Japan, partially offset by the positive contribution from an increase in individual protection volumes in the Zurich Takaful Malaysia Berhad business.

Embedded value development

Asia Pacific analysis of embedded value earnings

in USD millions,	2017			2016
for the years ended December 31	Share-	Value of		
	holders'	business		
	net assets	in-force	Total	Total
Opening embedded value before the methodology change	1,049	988	2,037	1,495
Opening adjustment	_	_	_	_
Opening embedded value after the methodology change	1,049	988	2,037	1,495
New business value	(110)	275	165	88
Expected contribution at reference rate	24	8	33	35
Expected contribution in excess of reference rate	25	2	27	20
Expected transfer to shareholders' net assets	90	(90)	_	_
Operating assumption changes	(8)	41	33	200
Operating variances	(75)	56	(19)	(90)
Embedded value operating earnings	(54)	292	238	252
Economic variances	42	26	68	20
Other non-operating variances	(2)	22	20	11
Embedded value earnings	(14)	340	326	283
Capital movements	46	_	46	300
Foreign currency translation effects	98	39	137	(42)
Closing embedded value	1,179	1,367	2,546	2,037

All metrics are reported net of non-controlling interests.

Embedded value increased in Asia Pacific as a result of embedded value earnings, capital movements and favorable currency translation effects.

Embedded value operating earnings benefited from a strong new business value growth in the segment. In addition, positive operating assumptions changes were mostly due to improved mortality and morbidity experience in Australia, and an improved maintenance expenses assumption in Japan as a result of organic growth. This was partially offset by negative impacts from higher commissions and higher reinsurance rates in Australia.

Positive economic variances increased embedded value in the segment, primarily due to positive investment results in Hong Kong and beneficial interest rates movements increasing the value of certain protection businesses in Australia.

Capital movements increased embedded value, mostly due to capital injections from the Group to Japan and Indonesia, partially offset by dividend payments by the Zurich Insurance Company Hong Kong branch.

Favorable currency translation effects increased the embedded value due to strengthening of the Australian dollar, Malaysian ringgit and Japanese yen.

Farmers Life

New business

Farmers Life analysis of new business value

in USD millions	NBV ¹
New business value 2016	85
Change in volumes and business mix	5
Economic and operating variances	10
Foreign currency translation effects	_
New business value 2017	100

¹ New business value is reported net of non-controlling interests.

New business value was USD 100 million, an increase of USD 15 million or 18 percent. The increase in value resulted from positive operating variances, primarily due to expense, lapse and mortality assumption updates in line with the improved experience noted in the segment. In addition, an enhanced business mix in certain individual protection portfolios positively contributed to the new business value.

Embedded value development

Farmers Life analysis of embedded value earnings

in USD millions,	2017			2016
for the years ended December 31	Share-	Value of		
	holders'	business		
	net assets	in-force	Total	Total
Opening embedded value before the methodology change	556	2,089	2,646	2,527
Opening adjustment	_	_	_	-
Opening embedded value after the methodology change	556	2,089	2,646	2,527
New business value	(71)	171	100	85
Expected contribution at reference rate	24	26	50	39
Expected contribution in excess of reference rate	78	-	78	67
Expected transfer to shareholders' net assets	104	(104)	_	_
Operating assumption changes	8	211	219	37
Operating variances	6	(42)	(36)	42
Embedded value operating earnings	148	263	411	270
Economic variances	(17)	204	187	(15)
Other non-operating variances	(63)	498	435	(32)
Embedded value earnings	69	964	1,034	223
Capital movements	(130)	178	48	(105)
Foreign currency translation effects	-	_	_	_
Closing embedded value	495	3,232	3,727	2,646

All metrics are reported net of non-controlling interests.

Embedded value increased mostly as a result of beneficial impacts from the recently announced tax regulations in the U.S., positive operating assumption changes, and economic variances due to favorable interest rate movements, coupled with positive capital movements mostly from a reinsurance transfer of certain annuity businesses.

Operating earnings increased the embedded value due to a positive mortality assumptions update in line with the most recent industry experience mortality table, and additionally due to positive impacts from an updated maintenance expenses assumption because of a reduction in costs in the segment. This was partially offset by the negative impact of the worsened persistency assumptions in certain individual protection businesses.

Other non-operating variances notably increased the embedded value, mostly as a result of the U.S. Tax Cuts and Jobs Act of 2017. The most relevant variance related to the reduction in the corporation tax rate from 35% to 21% benefiting the value of the in-force business. The impacts included in this report have been calculated based on Zurich's current interpretation of the recently announced tax changes. In addition, economic variances also benefited from the increased investment results and favorable movements in interest rates increasing the value of the individual protection business.

Capital movements increased the embedded value due to a reinsurance transfer of certain deferred and immediate annuity businesses, no longer considered as key businesses for the Group. This was partially offset by dividend payments made by Farmers Life mainly to Farmers Group, Inc.

9. Embedded value methodology

The Group has applied Market Consistent Embedded Value (MCEV) Principles and Guidance issued by the European Insurance CFO Forum in April 2016 for its embedded value report for the companies and businesses included in the covered business. The embedded value methodology adopted by the Group is based on a bottom-up market consistent approach to allow explicitly for market risk. In particular, asset and liability cash flows are valued using risk discount rates consistent with those applied to similar cash flows in capital markets, and options and guarantees are valued using market consistent models calibrated to observable market prices. Where markets exhibit a limited data availability, the valuation is based on historical averages. Embedded value excludes any value from future new business.

All amounts in the embedded value report, unless otherwise stated, are shown in U.S. dollars, rounded to the nearest million with the consequence that the rounded amounts may not add to the rounded total in all cases. All ratios and variances are calculated using the underlying amounts rather than the rounded amounts.

a) Reporting of embedded value

In line with MCEV Principles, embedded value is split between shareholders' net assets and value of business in-force. See details in next two sections.

The results are disclosed in a format aligned with the segmental reporting in the Group's Annual Report.

b) Shareholders' net assets

Shareholders' net assets represent the market value of net assets held in respect of the covered business under local statutory requirements, and consist of the required capital and free surplus. The level of required capital reflects the amount of capital considered by the directors of each legal entity to be appropriate to manage the business. This is set at least at the level equal to the regulatory required capital of each legal entity, at which the regulator would intervene to request a capital injection and in addition, for the main companies, an adequate buffer to cover short-term volatilities in solvency due to financial and non-financial risks or to achieve the capital required to maintain the desired credit rating.

In Switzerland, required capital for embedded value is based on both the Swiss Solvency Test "SST" and constraints arising from tied assets requirements as defined by Swiss regulation. The SST regime has been included in the MCEV required capital starting from January 1, 2016.

For other European countries, the required capital for embedded value is based on Solvency II. The Solvency II regime has been included in the MCEV required capital starting from January 1, 2016.

Solvency margin (SM) represents the shareholders' portion of the local minimum solvency margins as follows:

Covered business required capital (% SM)

	2017	2016
	Required	Required capital
	capital (% SM)	(% SM)
Life business		
North America	300%	300%
Latin America	127%	127%
EMEA	155%	157%
Asia Pacific	137%	142%
Group Reinsurance	-	-
Farmers Life	310%	350%
Total covered business	153%	159%

Shareholders' net assets are based on local statutory and regulatory accounting. In the UK and Ireland local regulatory balance sheets are based on Solvency II methodology. Adjustments are made to embedded value where appropriate, for example in respect of any unrealized gains attributable to shareholders. Any such adjustments are made consistently with the calculation of the value of business in-force.

c) Value of business in-force

The value of business in-force is the present value of future projected profits, distributable after tax to shareholders from the covered business. It is defined as the certainty equivalent value of business in-force less frictional costs, the time value of financial options and guarantees, and the cost of residual non-hedgeable risk. These components are explained below. The methodology for the calculation of the value of business in-force continues to the based on the full economic boundaries of the life business, with the exception of the run-off life insurance operations in Hong Kong where Solvency II contract boundaries were applied.

Certainty equivalent (CE) value is the value calculated using risk discount rates aligned with those applied to the underlying cash flows in the capital markets. It includes the intrinsic value but excludes the time value of financial options and guarantees which is allowed for separately, as described below.

Frictional costs (FC) reflect a deduction for the cost of holding the required capital. Under the market consistent framework, the FC represents tax in respect of the future investment return on required capital together with the cost of future investment management expenses on required capital.

For the purpose of these calculations, required capital is assumed to run-off in line with existing business.

The allowance for FC is included both in the value of business in-force and in new business value. For new business value, FC is applied to the required capital to be held in respect of that business.

Time value of financial options and guarantees (TVFOG) represents additional costs in excess of the intrinsic value of options and guarantees which are already allowed for in the CE value. These are based on the variability of investment returns which need to be allowed for explicitly under MCEV Principles. The time value is calculated on a market consistent basis using stochastic modeling techniques, and after making allowance for expected management and policyholder behaviors.

For products with significant guarantees, the time value has been calculated on a market consistent basis by deducting the average present value of shareholder cash flows using 1,000 stochastic economic simulations from the CE value (both for the value of business in-force and separately for new business value).

For most products, the average value has been calculated using Monte Carlo simulations. For a small number of products, the TVFOG has been derived using closed form solutions.

Where appropriate, the calculation of the TVFOG makes allowance for:

- → Dynamic actions that would be taken by management under different economic simulations, for example to implement a life business' investment strategy
- → Dynamic policyholder behavior, for example changes in surrender behavior as interest rates rise or fall, or take-up rates of guaranteed annuity options

The **cost of residual non-hedgeable risk (CRNHR)** is an explicit deduction for non-hedgeable financial risks (non-hedgeable asset/liability management risks and reinsurance credit risk), and non-financial risks (mortality, persistency, expenses and operational risk). The CE value allows for best estimate shareholder cash flows. The CRNHR is largely an allowance for uncertainty in shareholder cash flows, and for risks which are not already considered in the CE value or the TVFOG, such as operational risk. Most residual non-hedgeable risks have a symmetric impact on embedded value apart from operational risk.

CRNHR is calculated as a charge on the capital held for residual non-hedgeable risks. This is calculated according to Zurich's internal risk based capital model by applying 2,000 shocks to the embedded value assumptions. To align with the MCEV Principles the risk based capital is scaled to a 99.5 percent confidence level by using empirical distributions where available, or by assuming probability distributions as appropriate.

The capital is projected over the lifetime of the business using appropriate risk drivers for each risk type. The present value of the risk capital is calculated by applying the swap curve as of the valuation date. The CRNHR allows for diversification across risk types and across geographical businesses. No allowance for diversification between covered and non-covered business is made for in line with MCEV principles and guidance set by the CFO Forum.

A 4 percent cost of capital charge has been applied to the diversified present value of non-hedgeable risk based capital.

d) New business

New business covers new contracts sold during the reporting period and includes recurring single premiums, new premiums written during the period on existing contracts and variations to premiums on existing contracts where these premiums and variations have not previously been assumed to be part of the business in-force. Where recurring single premiums are projected over time to derive the corresponding new business value, they are treated as annual premium for the volume definition. Corporate life business valued with a contract renewal assumption is treated as annual premium. The methodology for the calculation of the new business value continues to be based on the full economic boundaries of the life business.

New business is valued at the point of sale. Explicit allowance is made for FC, TVFOG, and CRNHR. New business value is valued using actual new business volumes.

The value generated by new business written during the period is the present value of the projected stream of after tax distributable profits from that business.

In certain profit sharing funds, the new business written can affect the TVFOG for business written in prior years. This effect is taken into account in the new business value by valuing the new business on a marginal approach, the difference between embedded value with and without the new business. This captures the effect of cross-subsidies between business in-force and new business due to, for example, different interest rate guarantees operating in a shared common pool of assets.

New business is valued on a discrete quarter basis. Once calculated and reported, new business value for a quarter does not change in subsequent quarters. For details on the assumptions used for new business see section 10.

New business amounts in the embedded value report are reported after the effect of non-controlling interests.

The analysis of the developments of the new business value during the financial year has been performed as follows:

- → Change in volumes and business mix includes the variance in business volumes written during the current year assuming previous year margins and the change in the type of covered business written during the current year with the most updated margins
- → Economic and operating variances include the effect of changes in economic and non-economic operating assumptions, any effect of model changes impacting the new business value and the change in operating and economic variances. New business operating assumptions are reviewed annually and updated as appropriate with effect from the first quarter of the next calendar year. In general, operating assumptions remain unchanged throughout the year
- → Foreign currency translation effects include the variance in exchange rates from the beginning of period to the end of the period

e) Asset and liability data

The majority of the Group's embedded value has been calculated using a "hard close" approach, such that all asset and liability data reflect the actual position as of the valuation date.

Germany has followed an approach where liability model points are set up in advance, using the structure of a previous run, and then projected to the valuation date by scaling to match the actual balance sheet figures.

f) Market consistent discounting

The Group has adopted a bottom-up market consistent approach for the projection and discounting of future cash flows in the calculation of embedded value. As a result, the risks inherent in the cash flows are allowed for in a way that is consistent with the way the market is expected to allow for such risks.

In principle, this method values each cash flow using a risk discount rate consistent with that applied to such a cash flow in the capital markets. For example, an equity cash flow is valued using an equity risk discount rate, and a debt security cash flow is valued using a debt security discount rate. If a higher return is assumed for equities, the equity cash flow is discounted at this higher rate.

In practice, the Group has applied a computational method known as a "risk neutral" approach. This involves projecting the assets and liabilities using a distribution of asset returns where all asset types, on average, earn the same risk free rate. The projection and discounting are based on the same risk free yield curve.

The risk free yield curve assumptions are based on the swap curve in each major currency (i.e., mainly U.S. dollar, Euro, British pound and Swiss franc). For each entity subject to Solvency II (i.e., mainly Euro countries and the UK), the MCEV yield curve is fully aligned to the Solvency II yield curve used for local solvency calculations, including the Volatility Adjustment where applicable. Further details are set out under economic assumptions in section 10.

For liabilities having material options and guarantees, economic scenarios were used to capture the Time Value of Financial Option and Guarantees ("TVFOG"), in addition to deterministic techniques (referred to as "certainty equivalent").

g) Economic scenario generator

All operations use actual yield curves observable as of the valuation date for the calculation of the certainty equivalent value of business in-force.

The calculation of the TVFOG is based on stochastic simulations using an economic scenario generator provided by Moody's Analytics. The simulations have been calibrated to conform to the economic parameters specified by the Group.

The simulations used for calculation of TVFOG reflect the actual yield curves and implied volatilities observable as of the valuation date. Further details are set out under section 10.

Simulations are produced for the economies in the U.S., the UK, Switzerland and the Eurozone.

Risk free nominal interest rates are modeled using an improved interest rate model, which is a variant of the LIBOR market model with displacement diffusion and stochastic volatility (i.e., so called LMMPlus). This model allows for the modeling of negative nominal interest rates.

The excess return on other asset classes (e.g., equity, property, etc.) relative to the total returns on risk free assets are then modeled using a multifactor lognormal model.

Hong Kong uses U.S. dollar simulations because its principal liabilities are U.S. dollar denominated. Chile uses closed form solutions rather than simulations. Other operations, not mentioned above, have no significant options and guarantees. Further details are set out under economic assumptions in section 10.

h) Holding companies

Holding companies allocated to the Life business have been included in embedded value at IFRS shareholders' equity. Related expenses have been included in the projection assumptions. Holding companies outside the covered business are not included in this report.

i) Consolidation adjustments

Where a reinsurance arrangement exists between two life companies within the Life business, the value of the reinsurance is shown in embedded value of the region to which the ceding company belongs.

j) Debt

Where a loan exists between a company in the Life business and a Group company outside the Life business, the loan is included in embedded value at its market value.

k) "Look through" principle – service companies

There are some companies within the Life business that provide administration and distribution services. These are valued on a look through basis. The results do not include any Group service companies outside the Life business.

In Germany, the majority of distribution and administration is provided by service companies. These are valued on a look through basis. These companies also provide limited services to companies outside the Life business. The value of business in-force and new business value reflect the services provided to companies within the Life business. The shareholders' net assets of the Life business include, however, the full shareholders' net assets of these service companies.

In Switzerland, an investment management company provides asset management services to pension schemes written in foundations and other pension funds. The present value of the net asset management fees, after tax, is included in embedded value and new business value.

I) Employee pension schemes

In the Group's Annual Report, actuarial gains and losses arising from defined benefit pension and other defined benefit post-retirement plans are recognized in full in the period in which they occur and are presented on a separate line in the statement of comprehensive income, with a liability recognized for employee benefit deficits under IAS 19. This adjustment has not been made in the detailed embedded value described in this embedded value report. If the adjustment had been made, embedded value as of the valuation date would have been lower by USD 1,245 million. The actuarial and economic assumptions used for this adjustment are consistent with those used for the equivalent allowance made in the Group's Annual Report.

Expense assumptions for each life business include expected pension scheme costs in respect of future service entitlements.

m) Change in legislation or solvency regime

The impacts of changes in legislation are included in economic variance for the analysis of movement when they occur. Generally the changes in solvency regimes are also included in economic variances, with the exception of 2016, where the impact has been included in the restated opening embedded value.

n) Translation to Group presentation currency

To align embedded value reporting with the Group's Annual Report, relevant results have been translated to the Group presentation currency, U.S. dollar, using average exchange rates for the period. This applies to new business value and new business volumes (APE and PVNBP) for the current period and comparative figures. This approach has also been applied to the analysis of movement. Valuations as at a specified date are translated at end-of-period exchange rates.

The rates can be found in note 1 of the Group's Annual Report as of December 31, 2017.

o) Sensitivities

The key assumption changes represented by each of the sensitivities in section 6 are as follows:

Operating sensitivities

A 10 percent decrease in maintenance expenses means that, for example, a base assumption of USD 30 per annum would decrease to USD 27 per annum.

A 10 percent decrease in voluntary discontinuance rates means that, for example, a base assumption of 5 percent per annum would decrease to 4.5 percent per annum.

A 5 percent improvement in mortality and morbidity assumptions for assurances means that, for example, if the actuarial mortality assumption for assurances was 90 percent of a particular table, this would decrease to 85.5 percent.

A 5 percent improvement in mortality assumptions for annuities means that, for example, if the actuarial mortality assumption for annuities was 90 percent of a particular table, this would decrease to 85.5 percent.

Economic sensitivities

A 50 basis points increase and decrease was applied to the risk free forward yield curve across all durations.

A 10 percent fall in equity and property market values was assessed for embedded value only.

A 25 percent increase in implied risk free volatilities means that, for example, a volatility of 20 percent per annum would increase to 25 percent per annum.

A 25 percent increase in implied equity and property volatilities means that, for example, a volatility of 20 percent per annum would increase to 25 percent per annum.

In each sensitivity calculation, all other assumptions remain unchanged except where they are directly affected by the revised conditions. The results include any impact of the assumptions changes on the time value of financial options and quarantees.

p) Expected contribution

Expected contribution at reference rate

The expected contribution at reference rate is the projected change in embedded value over the year using risk free investment returns applicable at the start of the year. It also allows for the release of the FC, CRNHR and TVFOG of the current year.

Expected contribution in excess of reference rate

The expected contribution in excess of reference rate is the additional embedded value expected to be created if real world expected investment returns applicable at the start of the year were to emerge.

Expected transfer to shareholders' net assets

The expected transfer to shareholders' net assets shows the profits expected to emerge during the year in respect of business in-force at the start of the year. The net effect on embedded value is zero, because the change in the value of business in-force is offset by an equal and opposite change in shareholders' net assets.

q) Operating and economic variances

Operating assumption changes

Changes in assumptions about future operating experience also have an impact on operating variances, including mortality and morbidity, persistency, expenses and other assumptions.

Operating variances

Operating variances include:

- → Operating experience variances: operating experience variances measure the difference between actual experience during the period and that implied by the operating assumptions. Experience variances occur in the normal course of business as short-term experience fluctuates around long-term assumptions
- → Other operating variances: include modeling changes, development and one-off expenses and other operating variances not captured elsewhere

Economic variances

Economic variances arise from the difference between actual economic experience during the year and the expected experience implied by the economic assumptions at the start of the year.

Other non-operating variances

Other non-operating variances include the impact of legal, tax and regulatory changes implemented during the year as well as other one-off items.

10. Embedded value assumptions

Projections of future shareholder cash flows expected to emerge from covered business and for new business are determined using best estimate operating assumptions. These assumptions, including mortality, morbidity, persistency and expenses, reflect recent experience and are reviewed annually and updated as appropriate. Allowance is made for future improvements in annuitant mortality based on experience and externally published data. Favorable changes in future operating efficiency are not anticipated in the assumptions, in particular for expenses and persistency.

For the purposes of calculating the value of business in-force, future economic assumptions, for example, investment returns and inflation, are based on period end conditions and assumed risk discount rates are consistent with these conditions.

For the purposes of calculating new business value, for each discrete quarter of new business, economic assumptions are based on market conditions at the start of the quarter. New business operating assumptions are reviewed annually and updated as appropriate with effect from the first quarter of the next calendar year. In general operating assumptions remain unchanged throughout the year.

a) Economic assumptions

Market consistent framework

The Group has adopted a computational method known as "risk neutral market consistent". With this method the key economic assumptions are:

- → Risk free rates
- → Volatilities implied by different asset prices
- → Correlations between different asset returns

All asset classes are expected to provide an average return in line with the risk free rates, although with different volatilities.

Choice of "risk free yield curve"

The risk free yield curve assumptions are based on the swap curve in each major currency (i.e., U.S. dollar, Euro, British pound and Swiss franc). For each entity subject to Solvency II (i.e., Euro and British pound countries in Europe), the MCEV yield curve is fully aligned to Solvency II yield curve used for local solvency calculations, including the Volatility Adjustment where applicable (i.e., Germany, Italy, Spain and Ireland). For other entities, the risk free yield curve is derived by Zurich from mid-market swap rates as of the valuation date, applying a flat extrapolation after the latest market data point available. For few less material currencies where a swap market is not available, government rates are used instead. Domestic yield curves are used by each business unit except Hong Kong and Argentina which use the U.S. dollar, as their liabilities are principally U.S. dollar-denominated.

Implied asset volatility and correlations

The Group's embedded value model is based on market consistent economic assumptions.

The modeled interest rate volatilities are based on at-the-money and away from the money swaption quotes for different terms and tenors expressed according to the "nominal volatility" market convention. The modeled equity volatilities are based on at-the-money equity quotes from major investment banks. Quotations as of end of December have been used.

Volatilities of property investments are derived from historical returns. Assumptions for long-term equity volatilities and long-term correlations between equity, property and bond indices are derived taking into account available historical data.

Inflation

Inflation assumptions have been derived from the yields on index linked government bonds relative to the corresponding nominal government yield curve, where such index linked government bonds exist. Where appropriate, allowance has been made for expense inflation to exceed the assumed level of price inflation reflecting the contribution of salary related expenses to life company expenses. In Switzerland, in absence of index linked government bonds, an internal estimate from Zurich's Group Investment Management function is used.

Risk discount rate

Under the risk neutral approach, risk discount rates are based on the same risk free yield curves as those used to project the investment return.

For stochastic modeling, the risk discount rates are simulation specific and also vary by calendar year consistently with the projected risk free yields in each simulation.

Real world assumptions and expected contribution

The expected contribution for the analysis of embedded value earnings is based on a projection from the start of period to the end of period. This requires assumptions regarding the investment returns expected to be achieved over the period on different asset classes. The investment return assumptions (for this purpose only) are based on the real world returns expected by the Group. The use of real world investment assumptions gives a more realistic basis for the expected contribution calculation and allows for the risk underlying each asset. Any under or over performance will be reported through economic variances. Future real world undiscounted profits are also calculated with the same real world assumptions.

For fixed interest assets, the real world investment return assumptions are based on the gross redemption yield on the assets, less an allowance for defaults where appropriate, together with an adjustment to reflect the change over the period implied in the yield curve assumptions.

For equity assets for units where there is a substantial equity allocation, the investment return assumption is based on the long-term real world expected return. For equity assets for units without a material equity allocation the investment return assumption is based on the 10 year swap rate at the start of period plus a margin to reflect the additional risk associated with investment in this asset class. The equity risk premium was set equal to 420 basis points to be added on top of the 10 year swap rate of the relevant currency as of December 31, 2017.

For property assets, the investment return assumptions are based on the 10 year swap rate at the start of period plus a margin to reflect the additional risk associated with investment in this asset class. The property risk premium was set equal to 200 basis points to be added on top of the 10 year swap rate of the relevant currency as of December 31, 2017.

These assumptions have been set by asset class and separately for each sub-fund in each life business in order to best reflect the actual assets held.

Participating business

Rates of future bonus or crediting rates have been set at levels consistent with the risk neutral investment return assumptions and current bonus plans. In the UK, bonus rates have been set so as to exhaust any remaining assets in the relevant long-term funds. In certain scenarios shareholder injections may be required to meet existing guaranteed benefits and this additional cost is included in the TVFOG.

In other European life businesses and in the U.S., bonuses have been set to be consistent with the investment return assumptions and with the book value approach used by these life businesses. Existing practice, contractual and regulatory requirements as well as reasonable expectations of policyholders are considered in setting bonuses.

Taxation

Current income tax legislation and rates have been assumed to continue unaltered, except where future changes to such tax rates or tax legislation have been substantively enacted. Note the MCEV report allows for the recent tax changes in the U.S. and UK territories.

b) Operating assumptions

Demographic assumptions

The assumed future mortality, morbidity and lapse rates have been derived from recent operating experience and relevant industry statistics. Where operating experience or industry statistics are limited, the assumptions are derived from a best estimate of future developments and are subject to a regular review as more experience emerges. Where appropriate, surrender and option take-up rates assumptions that vary according to the investment simulation under consideration have been used, based on an assessment of likely policyholder behavior.

Expense assumptions

Management expenses have been analyzed between expenses related to acquisition of new business, the maintenance of business in-force and, where appropriate, development expenses and one-off expenses. Future expense assumptions allow for expected levels of maintenance expenses. Headquarters' expenses relating to covered business have been allocated to business units.

The maintenance expenses assumptions allow for the expected cost of providing future service benefits in respect of the Group staff pension schemes. An adjustment to embedded value is noted in section 9 for pension scheme liabilities and no allowance is made in the expense assumptions for any contributions as a result of past service benefits.

No allowance has been made for future productivity improvements in the expense assumptions.

Where service companies have been valued on a look through basis, the value of profits or losses arising from these services have been included in embedded value and new business value.

The Group is liable for payments to be made to various distributors, each payment being dependent on preceding sales volumes or profits or other factors, in accordance with distribution agreements. As part of the economic valuation, for each such agreements, a liability is included in embedded value shareholders' net assets for the best estimate of the next potential payment attributable to the business issued to date.

In countries where significant development work is performed these are shown under "operating variances".

Any expense excluded from the unit cost base used for assumptions setting requires approval from the Head of Group Planning and Performance.

Expenses excluded from the unit cost base are included in the operating variances and are related to development expenses and one-off expenses. Development expenses relate to expenses incurred to improve the long-term capacity of the business or to reduce its future unit costs, and include certain expenses for start-up operations not reflected in the long-term assumptions of the business units. They also include certain project-based costs and certain distribution expenses. One-off expenses are those that are not expected to recur and are short-term in nature.

All expenses in embedded value are net of tax appropriate to the business unit to which the expense is charged.

c) Dynamic decisions

To reflect more realistically the outcome of stochastic simulations, the assumptions for each simulation make allowance for the behavior of policyholders and management actions in response to the investment conditions modeled.

In many life businesses, policyholders can exercise an option against the life company in certain circumstances, such as to surrender a policy. For example an increase in the lapse rates could be assumed when interest rates rise (or a corresponding reduction when interest rates fall). This dynamic effect in relation to lapse rates has been allowed for in the stochastic models.

The stochastic models allow, where appropriate, for management actions to change investment strategy in response to market conditions.

Statement by Directors

Statement by Directors

This Embedded value report has been prepared in all material respects in accordance with the Market Consistent Embedded Value Principles and Guidance issued by the European Insurance CFO Forum in April 2016.

The methodology and assumptions underlying the report are described in sections 9 and 10.

Auditor's report on embedded value

Auditor's review report on embedded value

Report on the Review of the Embedded Value Report to the Board of Directors of Zurich Insurance Group Ltd

We have selectively reviewed specific sections of the accompanying Embedded Value Report of Zurich Insurance Group Ltd and its subsidiaries (the Group) for the year ended December 31, 2017. The Embedded Value Report has been prepared by the Board of Directors based on the MCEV Principles issued by the European Insurance CFO Forum, as described on pages 27 to 35 of the Embedded Value Report.

Scope

Our review covered the Embedded Value results including the methodology and assumptions consisting of pages 1 to 6, table "Life business new business by quarter" on page 9, table "Farmers Life new business by quarter" on page 10, and 27 to 35 within the Embedded Value Report.

Responsibilities of the Board of Directors for the Embedded Value

The Board of Directors is responsible for the preparation and presentation of the Embedded Value Report in accordance with the MCEV Principles issued by the European Insurance CFO Forum, and for such internal control as the Board of Directors determines is necessary to enable the preparation of an Embedded Value Report that is free from material misstatement, whether due to fraud or error.

Practitioner's Responsibility

Our responsibility is to express a conclusion on specific sections of the Embedded Value Report. We conducted our review in accordance with International Standard on Review Engagements (ISRE) 2400 (Revised), Engagements to Review Historical Financial Statements. ISRE 2400 (Revised) requires us to conclude whether anything has come to our attention that causes us to believe that the specific sections of the Embedded Value Report is not prepared in all material respects in accordance with Market Consistent Embedded Value Principles issued by the European Insurance CFO Forum. This Standard also requires us to comply with relevant ethical requirements.

A review of the specific sections of the Embedded Value Report in accordance with ISRE 2400 (Revised) is a limited assurance engagement. The practitioner performs procedures, primarily consisting of making inquiries of managements and others within the entity as appropriate, and applying analytical procedures, and evaluates the evidence obtained.

The procedures performed in a review are substantially less in scope than those performed in an audit conducted in accordance with International Standards on Auditing. Accordingly we do not express an audit opinion on the Embedded Value Report.

Conclusion

Based on our review and our scope noted above, nothing has come to our attention that causes us to believe that the specific sections of the Embedded Value Report for the year ended December 31, 2017 have not been prepared, in all material respects, in accordance with the Market Consistent Embedded Value Principles issued by the European Insurance CFO Forum.

Basis of Accounting

Without modifying our conclusion, we draw attention to sections 9 and 10 of the Embedded Value Report, which describe the basis of accounting. The Embedded Value Report prepared in compliance with the MCEV Principles referred to above, may not be suitable for another purpose. This report does not extend to any financial statements of Zurich Insurance Group Ltd.

Peter Eberli

Stephen O'Hearn

Disclaimer & Cautionary Statement

Certain statements in this document are forward-looking statements, including, but not limited to, statements that are predictions of or indicate future events, trends, plans or objectives of Zurich Insurance Group Ltd or the Zurich Insurance Group (the Group). Forward-looking statements include statements regarding the Group's targeted profit, return on equity targets, expenses, pricing conditions, dividend policy and undervirting and claims results, as well as statements regarding the Group's understanding of general economic, financial and insurance market conditions and expected developments. Undue reliance should not be placed on such statements because, by their nature, they are subject to known and unknown risks and uncertainties and can be affected by other factors that could cause actual results and plans and objectives of Zurich Insurance Group Ltd or the Group to differ materially from those expressed or implied in the forward-looking statements (or from past results). Factors such as (i) general economic conditions and competitive factors, particularly in key markets; (ii) the risk of a global economic downturn; (iii) performance of financial markets; (iv) levels of interest rates and currency exchange rates; (v) frequency, severity and development of insured claims events; (vi) mortality and morbidity experience; (vii) policy renewal and lapse rates; and (viii) changes in laws and regulations and in the policies of regulators may have a direct bearing on the results of operations of Zurich Insurance Group Ltd and its Group and on whether the targets will be achieved. Zurich Insurance Group Ltd undertakes no obligation to publicly update or revise any of these forward-looking statements, whether to reflect new information, future events or circumstances or otherwise.

All references to "Farmers Exchanges" mean Farmers Insurance Exchange, Fire Insurance Exchange, Truck Insurance Exchange and their subsidiaries and affiliates. The three Exchanges are California domiciled interinsurance exchanges owned by their policyholders with governance oversight by their Boards of Governors. Farmers Group, Inc. and its subsidiaries are appointed as the attorneys-in-fact for the Farmers Exchanges and in that capacity provide certain non-claims administrative and management services to the Farmers Exchanges. Neither Farmers Group, Inc., nor its parent companies, Zurich Insurance Company Ltd and Zurich Insurance Group Ltd, have any ownership interest in the Farmers Exchanges. Financial information about the Farmers Exchanges is proprietary to the Farmers Exchanges, but is provided to support an understanding of the performance of Farmers Group, Inc. and Farmers Reinsurance Company.

It should be noted that past performance is not a guide to future performance.

Persons requiring advice should consult an independent advisor.

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