Zurich Insurance Group

Embedded value report

Annual results 2019

Embedded value report

Zurich Insurance Group Ltd and its subsidiaries (collectively the Group) 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. MCEV provides 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.

Contents

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 Group for the year ended December 31, 2019. For further details, see section 1 of this report.

The opening embedded value for 2019 has been adjusted to reflect changes in the covered business (a holding company in Chile allocated to Group Functions and Operations) and acquisitions (the life operations of OnePath acquisition – OnePath Life – in Australia). For further details, see section 2 of this report.

Embedded value report (continued)

1. Basis for preparation

The statements in this report relate to a representation of the shareholders' economic value of Zurich's in-force covered life and related businesses on an 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 and best estimate
- 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 produces and reports embedded value in accordance with the MCEV Principles and Guidance issued by the CFO Forum in April 2016.

The Group pursues a customer-centric strategy, where the Property & Casualty (P&C) and Life businesses are managed on a regional basis. The Group's reportable segments have been identified on the basis of the businesses operated by the Group and how these are strategically managed to offer different products and services to specific customer groups. The Group has identified 13 reportable segments in accordance with IFRS 8 'Operating Segments' and segment information is presented in the Group's Consolidated financial statements.

Out of the Group's 13 reportable segments, the Embedded value report covers the life regions of EMEA (Europe, Middle East & Africa), North America, Asia Pacific, Latin America and Group Reinsurance as well as the life insurance business of Farmers (Farmers Life).

Life regions provide a comprehensive range of life and health insurance products on both an individual and a group basis, including annuities, endowment and term insurance, unit-linked and investment-oriented products, as well as full private health, supplemental health and long-term care insurance. In addition to the agent distribution channel, certain of these products are offered via bank distribution channels and financial advisors (Brokers and IFA's).

Farmers Life provides individual life insurance products in the U.S.

Zurich has engaged PwC to review the methodology, assumptions and results in accordance with the MCEV Principles issued by the CFO Forum 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.

Embedded value report (continued)

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 the covered business.

The opening balance of the embedded value has been adjusted by USD 1,097 million to reflect changes in the covered business. The opening adjustment includes USD 918 million for the year end embedded value of the remaining part of OnePath Life, in excess of the reinsurance agreement already consolidated in 2018, and USD 179 million to reverse a prior year consolidation entry following the reclassification of a Chilean holding company to non-covered business.

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

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

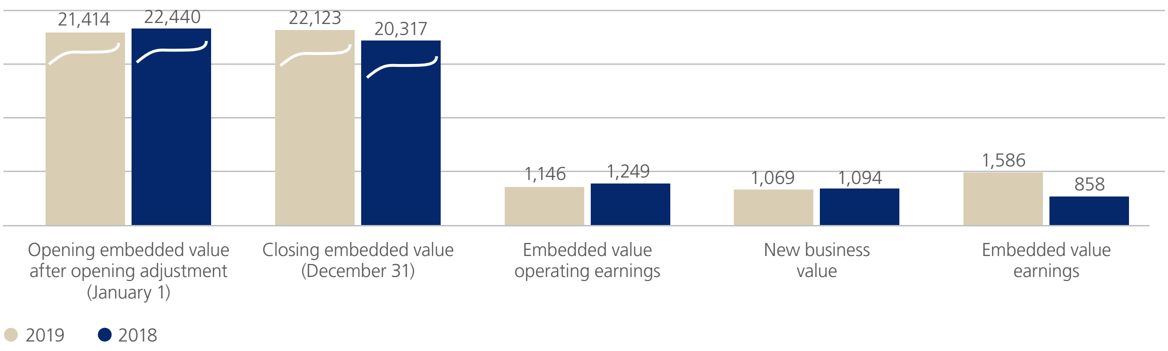
The MCEV for the entire Group would be the sum of the value of the covered business using MCEV Principles and Guidance and the value of the non-covered business at the unadjusted IFRS shareholders' equity value as reported in the Group's Annual Report.

Embedded value report (continued)

3. Embedded value report – executive summary

Key results

in USD millions, for the years ended December 31



Embedded value key results for the covered business

in USD millions, for the years ended December 31	2019	2018	Change
Opening embedded value before opening adjustment	20,317	22,135	(1,819)
Opening adjustment[1]	1,097	304	792
Opening embedded value after opening adjustment	21,414	22,440	(1,027)
Closing embedded value	22,123	20,317	1,806
Embedded value operating earnings	1,146	1,249	(103)
of which new business value	*1,069*	*1,094*	*(26)*
Embedded value earnings	1,586	858	728

All metrics are reported net of non-controlling interests.
[1] For 2019, this includes the change in covered business and acquisitions as noted in section 2 of this report. For 2018, this includes the change in covered business as noted in section 2 of the 2018 Embedded value report.

The Life business continues to perform in line with the Group's strategy. New business value remained relatively stable as a result of improved business mix and operating variances, offset by unfavorable economic and currency translation effects across the major currencies. In addition to the above, new business margin also slightly increased as a result of favorable changes in the regional mix of new business.

The increase in embedded value was mainly driven by the stable contribution from new business and in-force books across most regions in the Life business and positive investment variance from asset revaluation and market performance, particularly in EMEA. This was partially offset by capital movements, due to dividend payments, mostly in EMEA, and as a result of certain assumption changes in Asia Pacific and the UK.

Embedded value report (continued)

New business value was USD 1,069 million, a decrease of 26 million in U.S. dollar terms, but an increase of 2.1 percent in local currency terms. The slightly lower performance was attributable to unfavorable currency translation effects. On a local currency basis, positive impacts from improved business mix and operating variances, were partially offset by lower swap rates in certain EMEA and Latin America markets.

Business volumes decreased mainly driven by prior year large corporate life protection contracts issued in the Zurich operations in Chile and the UK that were not repeated this year. In addition there were no UK Retail Wealth new business volumes added in the last quarter of the year following the announcement of the planned disposal of the business in November 2019.

Embedded value operating earnings were USD 1,146 million representing a return of 5.4 percent[1], primarily driven by the stable contribution from new business and in-force books across most regions in the Life business. This was partially offset as a result of certain assumption changes in Asia Pacific and the UK.

Embedded value earnings were USD 1,586 million representing a return of 7.4 percent[1]. Embedded value earnings benefitted from positive investment variances only partially offset by economic assumption changes reflecting a general reduction in interest rate yield.

[1] Returns have been calculated based on 2019 opening embedded value after opening adjustments.

Embedded value report (continued)

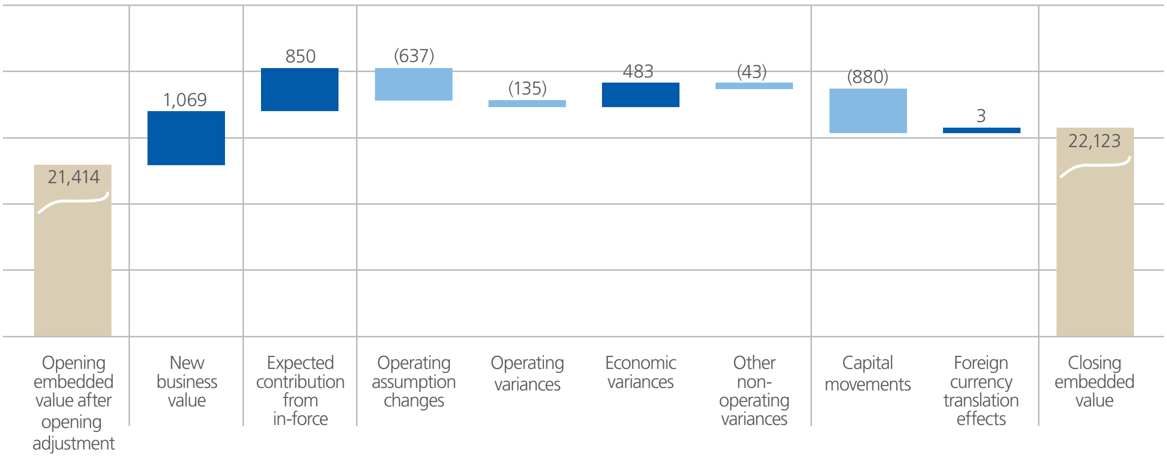
4. Analysis of embedded value earnings and value of business in-force

The graph and table below show how embedded value of the covered business has increased from USD 21,414 million (after adjusting the opening embedded value for the change in covered business as noted in section 2 of this report) to USD 22,123 million during 2019.

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, 2019



Analysis of embedded value earnings for the covered business

in USD millions, for the years ended December 31	2019 Share-holders' net assets	2019 Value of business in-force	2019 Total	2018 Total
Opening embedded value before opening adjustment	**7,645**	**12,672**	**20,317**	**22,135**
Opening adjustment[1]	**947**	**149**	**1,097**	**304**
Opening embedded value after opening adjustment	**8,593**	**12,821**	**21,414**	**22,440**
New business value	**(473)**	**1,541**	**1,069**	**1,094**
Expected contribution at reference rate	73	272	**345**	**217**
Expected contribution in excess of reference rate	267	238	**505**	**585**
Expected transfer to shareholders' net assets	1,059	(1,059)	**–**	**–**
Operating assumption changes	6	(643)	**(637)**	**51**
Operating variances	(195)	60	**(135)**	**(699)**
Embedded value operating earnings	**737**	**409**	**1,146**	**1,249**
Economic variances	842	(359)	**483**	**(374)**
Other non-operating variances	(23)	(20)	**(43)**	**(17)**
Embedded value earnings	**1,557**	**30**	**1,586**	**858**
Capital movements	(822)	(58)	**(880)**	**(2,113)**
Foreign currency translation effects	(38)	42	**3**	**(867)**
Closing embedded value	**9,289**	**12,834**	**22,123**	**20,317**

All metrics are reported net of non-controlling interests.

[1] For 2019, this includes the change in covered business and acquisitions as noted in section 2 of this report. For 2018, this includes the change in covered business as noted in section 2 of the 2018 Embedded value report.

Embedded value report (continued)

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

in USD millions, as of December 31	2019					2018
	CE[1]	FC[2]	TVFOG[3]	CRNHR[4]	Value of business in-force	Value of business in-force
Life business						
North America	*598*	*(2)*	*(19)*	*(64)*	**513**	**528**
Latin America	*(60)*	*(21)*	*–*	*(113)*	**(194)**	**233**
EMEA	*8,987*	*(179)*	*(540)*	*(1,420)*	**6,848**	**6,220**
Asia Pacific	*3,432*	*(142)*	*(24)*	*(785)*	**2,481**	**2,676**
Group Reinsurance	*–*	*–*	*–*	*–*	**–**	**–**
Farmers Life	3,580	(36)	(39)	(318)	**3,187**	**3,015**
Total covered business	**16,537**	**(381)**	**(622)**	**(2,700)**	**12,834**	**12,672**

[1] CE is the certainty equivalent value of business in-force.
[2] FC is the frictional costs.
[3] TVFOG is the time value of financial options and guarantees.
[4] CRNHR is the cost of residual non-hedgeable risk (see section 9 for further details).

The value of business in-force slightly increased during the current financial year. The increase noted in EMEA was driven by the stable contribution from new business. The positive impact from new sales also applies to Farmers Life with the addition of favorable economic variances and operating assumption updates. This was partially offset by a decrease in Latin America mainly from the impact of the reduction in yields in the Zurich operations in Chile and in Asia Pacific as a result of updated operating assumptions across the region. Largest CRNHR increases were noted in EMEA and Asia Pacific mainly due to increases in life risks and strengthening of biometric assumptions. CE increased mostly in EMEA mainly due to favorable economic variances.

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 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 23 percent over the following five years. The VIF profit profile remained relatively stable compared to prior year.

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

in USD millions, as of December 31	2019		2018	
	VIF	% of Total	VIF	% of Total
1 to 5 years	3,915	31%	4,058	32%
6 to 10 years	2,964	23%	2,996	24%
11 to 15 years	2,132	17%	2,163	17%
16 to 20 years	1,465	11%	1,426	11%
more than 20 years	2,358	18%	2,029	16%
Total covered business	**12,834**	**100%**	**12,672**	**100%**

Embedded value report (continued)

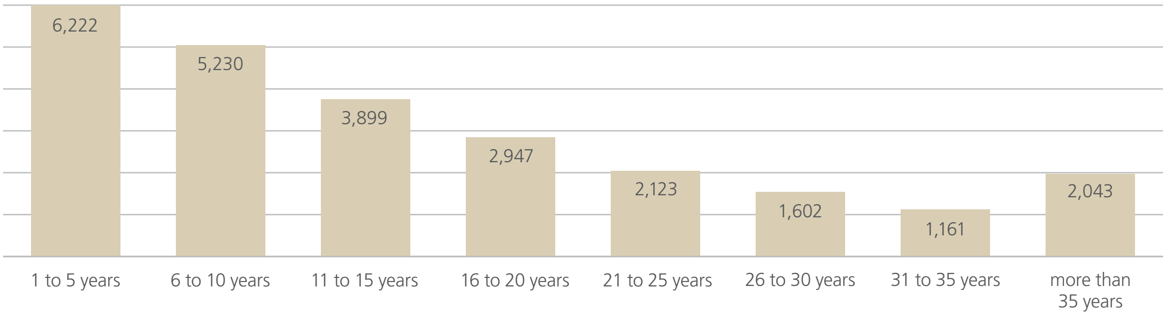
Projected profit on a real world basis

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, 2019 (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.

Future real world undiscounted profits for the covered business

in USD millions, for the year ended December 31, 2019



Embedded value report (continued)

5. Value of new business

New business by geographical region for the covered business

in USD millions, for the years ended December 31	Annual premium equivalent (APE)[1,2]		New business value[3]		New business margin[2] % of APE	
	2019	2018	**2019**	2018	**2019**	2018
Life business						
North America	*139*	*82*	*49*	*15*	*35.2%*	*18.3%*
Latin America	*1,164*	*1,437*	*140*	*161*	*18.9%*	*15.3%*
EMEA	*2,760*	*2,890*	*576*	*619*	*21.9%*	*22.8%*
Asia Pacific	*268*	*231*	*211*	*186*	*79.9%*	*82.2%*
Farmers Life	82	84	93	113	112.9%	134.2%
Total covered business	**4,414**	**4,723**	**1,069**	**1,094**	**27.7%**	**26.3%**

[1] APE is measured as new annual premiums plus 10 percent of new single premiums.
[2] APE is shown gross of non-controlling interests.
[3] New business value and new business margin are shown net 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 2019 Group's Annual Report.

New business by quarter

Life business new business by quarter

in USD millions	2019					2018				
	Q1	Q2	Q3	Q4	FY	Q1	Q2	Q3	Q4	FY
APE[2]	**1,183**	**1,046**	**944**	**1,159**	**4,331**	**1,254**	**1,038**	**1,279**	**1,069**	**4,639**
New annual premiums	698	589	478	696	2,461	770	598	880	634	2,883
New single premiums	4,849	4,568	4,658	4,628	18,702	4,837	4,393	3,981	4,349	17,560
Present value of new business premiums (PVNBP)[1]	9,706	8,702	7,834	10,201	36,443	12,469	8,753	8,006	8,896	38,124
New business value[3]	**266**	**239**	**223**	**248**	**976**	**273**	**249**	**210**	**249**	**981**
New business margin[3] (% of APE)	**25.5%**	**26.2%**	**27.6%**	**24.5%**	**25.8%**	**25.2%**	**27.8%**	**18.1%**	**26.7%**	**24.1%**
New business margin[3] (% of PVNBP)	**3.0%**	**3.1%**	**3.2%**	**2.7%**	**3.0%**	**2.4%**	**3.2%**	**2.9%**	**3.1%**	**2.9%**

[1] PVNBP is measured as new single premiums plus the present value of new annual premiums.
[2] Premiums, APE and PVNBP are shown gross of non-controlling interests.
[3] New business value and new business margin are reported net of non-controlling interests.

APE was USD 4,331 million, a decrease of USD 307 million in U.S. dollar terms or a 1.1 percent decrease on a local currency basis. The decrease in new business volumes was mainly driven by prior year large corporate life protection contracts issued in the Zurich operations in Chile and in the UK not repeated this year. In addition there were no UK Retail Wealth new business volumes added in the last quarter of the year following the announcement of the planned disposal of the business in November 2019. Excluding these effects, there were higher new business sales mainly in Switzerland in corporate business, Italy in individual savings, unit-linked and corporate businesses and in Zurich Santander in Brazil in unit-linked business. This was partially offset by lower new business sales in Spain in individual savings business.

PVNBP was USD 36,443 million, a decrease of USD 1,681 million in U.S. dollar terms, but an increase of 0.9 percent on a local currency basis, consistent with APE movements noted above and lower discount rates.

Embedded value report (continued)

Farmers Life new business by quarter

in USD millions	2019					2018				
	Q1	Q2	Q3	Q4	FY	Q1	Q2	Q3	Q4	FY
APE[2]	**18**	**21**	**22**	**21**	**82**	**21**	**24**	**21**	**19**	**84**
New annual premiums	18	21	22	21	82	20	23	21	19	83
New single premiums	0	0	0	0	0	8	8	2	0	18
PVNBP[1]	177	219	240	245	881	214	233	202	185	834
New business value[3]	**20**	**25**	**24**	**24**	**93**	**30**	**34**	**26**	**23**	**113**

[1] PVNBP is measured as new single premiums plus the present value of new annual premiums.
[2] Premiums, APE and PVNBP are shown gross of non-controlling interests.
[3] New business value is reported net of non-controlling interests.

APE was USD 82 million, a decrease of USD 2 million or a 2.6 percent decrease in U.S. dollar terms.

PVNBP was USD 881 million, an increase of USD 47 million or a 5.6 percent increase, due to lower discount rates.

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 2018	**1,094**	**26.3%**
Change in volumes and business mix	72	2.8%
Economic and operating variances	(55)	(1.4%)
Foreign currency translation effects	(42)	n.a.
New business value 2019	**1,069**	**27.7%**

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

New business value was USD 1,069 million, a decrease of USD 26 million in U.S. dollar terms, but an increase of 2.1 percent on a local currency basis. The slightly lower performance was attributable to unfavorable currency translation effects. Changes in business mix and new business volumes contributed positively to the new business value, particularly in EMEA and North America. This was offset by the reduction in risk free rates impacting the participating business in Germany, Italy, Switzerland, and the annuity business in the Zurich operations in Chile. Viewed through a products lens, the protection business continued to perform strongly and was the main contributor to the new business value results.

New business margin increased by 1.4 percentage points to 27.7 percent. This resulted from an improvement in underlying regional and business mix together with positive operating variances. This was partially offset by economic variances and to a lesser extent from model refinements.

Embedded value report (continued)

6. Sensitivities

Sensitivities for the covered business

in USD millions, as of December 31, 2019	Change in embedded value[1]	Change in new business value[2]
Reported embedded value and new business value	**22,123**	**1,069**
Base embedded value and base new business value[1,2]	**21,205**	**1,073**
Operating sensitivities		
10% decrease in maintenance expenses	4%	8%
10% increase in voluntary discontinuance rates	(5%)	(11%)
10% decrease in voluntary discontinuance rates	7%	13%
5% improvement in mortality for annuities	(1%)	(1%)
5% increase in mortality and morbidity rates for protection products	(6%)	(14%)
Economic sensitivities		
50 basis points increase in risk free yield curve	0%	4%
50 basis points decrease in risk free yield curve	(1%)	(7%)
10% fall in equity market values	(2%)	(1%)
100 basis points increase in credit spreads	(6%)	(1%)
100 basis points decrease in credit spreads	6%	1%
25% increase in implied volatilities for risk free yields	(1%)	(2%)

[1] Values used to calculate the embedded value sensitivities exclude the effect of the opening adjustments as noted in section 2 of this report.
[2] Values used to calculate the new business value sensitivities include the effect of using the end of year best estimate assumptions (rather than the 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.

Embedded value report (continued)

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, 2019	Life business	Farmers Life	Total
Shareholders' equity[1]	**18.0**	**2.0**	**20.0**
Less intangible assets			
Goodwill	*(1.2)*	*0.0*	*(1.2)*
Deferred policy acquisition costs and deferred origination costs	*(12.1)*	*(1.8)*	*(13.9)*
Other intangibles and present value of future profits	*(2.1)*	*(0.1)*	*(2.2)*
Deferred front-end fees	*5.0*	*0.2*	*5.2*
Pension scheme liabilities[2]	0.8	0.0	0.8
Less non-controlling interests[3]	(0.1)	0.0	(0.1)
Other adjustments[4]	0.6	0.1	0.7
Embedded value shareholders' net assets	**8.8**	**0.5**	**9.3**
Value of business in-force	9.6	3.2	12.8
Embedded value	**18.5**	**3.7**	**22.1**

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.
2 Pension scheme liabilities are deducted from shareholders' equity but are not deducted from embedded value shareholders' net assets.
3 Primarily from non-controlling interests in Zurich Santander and Spain.
4 Other adjustments include tax differences, policyholders' share of intangibles, reserving differences and asset valuation differences.

Embedded value report (continued)

8. Segmental analysis of embedded value and new business value

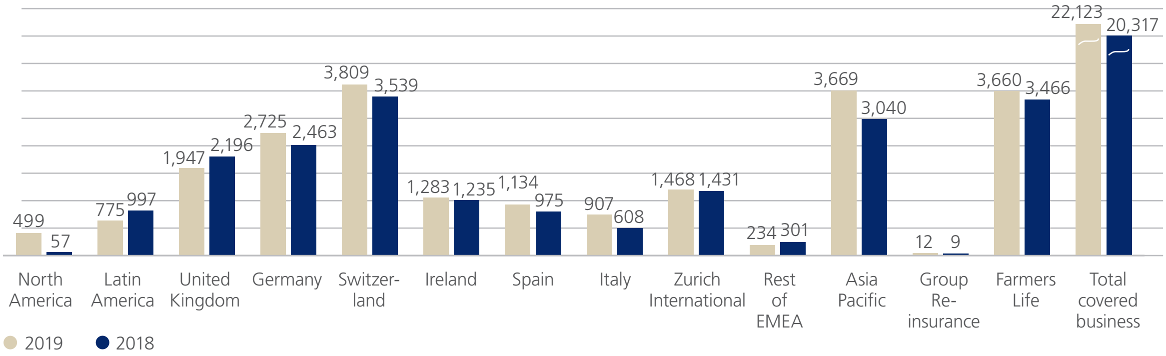
Analysis of embedded value earnings by segments for the covered business

in USD millions, for the year ended December 31, 2019	Life business North America	Latin America	EMEA	Asia Pacific	Group Reinsurance	Farmers Life	Total covered business
Opening embedded value before opening adjustment	**57**	**997**	**12,747**	**3,040**	**9**	**3,466**	**20,317**
Opening adjustment[1]	**–**	**179**	**–**	**918**	**–**	**–**	**1,097**
Opening embedded value after opening adjustment	**57**	**1,176**	**12,747**	**3,958**	**9**	**3,466**	**21,414**
New business value	**49**	**140**	**576**	**211**	**–**	**93**	**1,069**
Expected contribution at reference rate	18	81	70	58	–	118	345
Expected contribution in excess of reference rate	–	53	395	31	–	26	505
Expected transfer to shareholders' net assets	–	–	–	–	–	–	–
Operating assumption changes	(34)	(75)	(0)	(595)	–	68	(637)
Operating variances	(50)	(139)	258	(183)	3	(24)	(135)
Embedded value operating earnings	**(18)**	**60**	**1,299**	**(478)**	**3**	**280**	**1,146**
Economic variances	6	(177)	539	33	–	82	483
Other non-operating variances	(5)	(61)	(76)	95	–	3	(43)
Embedded value earnings	**(17)**	**(178)**	**1,762**	**(350)**	**3**	**366**	**1,586**
Capital movements	459	(143)	(1,079)	54	–	(172)	(880)
Foreign currency translation effects	–	(80)	77	6	–	–	3
Closing embedded value	**499**	**775**	**13,508**	**3,669**	**12**	**3,660**	**22,123**

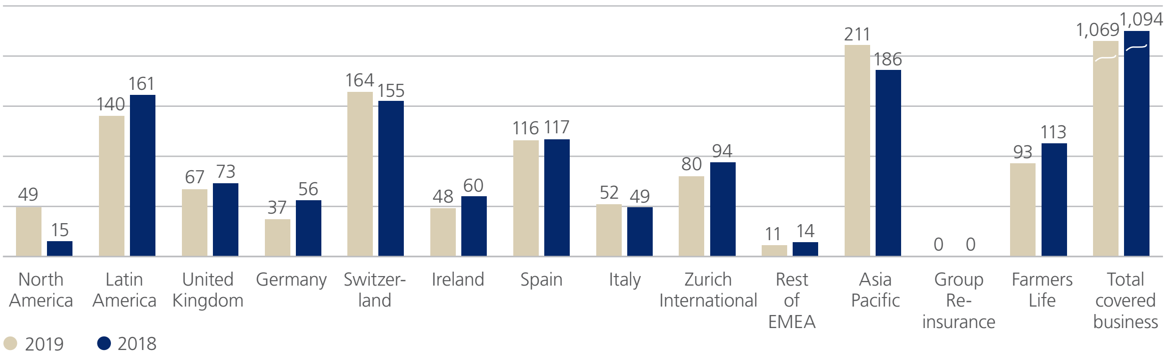
All metrics are reported net of non-controlling interests.
[1] This includes the change in covered business and acquisitions as noted in section 2 of this report.

Embedded value report (continued)

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



Embedded value report (continued)

EMEA

New business

EMEA analysis of new business value and margin

in USD millions	NBV[1]	NBM[1]
New business value 2018	**619**	**22.8%**
Change in volumes and business mix	53	1.7%
Economic and operating variances	(71)	(2.7%)
Foreign currency translation effects	(25)	n.a.
New business value 2019	**576**	**21.9%**

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

New business value was USD 576 million, representing a decrease of USD 43 million or a 3.1 percent decrease on a local currency basis.

Business volumes decreased by USD 129 million or a 0.2 percent decrease on a local currency basis, mainly from:

- UK, as last year included a large corporate protection contract not repeated this year. In addition there were no UK Retail Wealth new business volumes added in the last quarter of the year following the announcement of the planned disposal of the business in November 2019
- Spain, due to lower individual savings business volumes
- Zurich International Life Limited (ZILL) due to reduced sales of corporate life pensions business

This was partially offset by business volume increases in Switzerland in corporate business and in Italy across all lines of businesses. Despite the lower business volumes, the new business value benefits from the positive contribution from shifting the underlying product mix towards protection and savings products without guarantees.

Lower interest rates particularly for the Euro and Swiss franc (decreasing over 120 bps on mid-term [10 to 12 years] compared to the same period last year) adversely affected NBV development in the year mainly in the participating businesses in Italy, Germany and Switzerland. This was further exacerbated by the devaluation of the European currencies against the dollar.

New business margin benefited primarily from a more favorable business mix across countries in the region. This was partially offset by economic variances.

Embedded value report (continued)

Embedded value development

EMEA analysis of embedded value earnings

in USD millions, for the years ended December 31	Share-holders' net assets 2019	Value of business in-force 2019	Total 2019	Total 2018
Opening embedded value before opening adjustment	**6,528**	**6,220**	**12,747**	**14,646**
Opening adjustment	**–**	**–**	**–**	**–**
Opening embedded value after opening adjustment	**6,528**	**6,220**	**12,747**	**14,646**
New business value	**(227)**	**804**	**576**	**619**
Expected contribution at reference rate	1	69	**70**	**1**
Expected contribution in excess of reference rate	157	237	**395**	**417**
Expected transfer to shareholders' net assets	545	(545)	**–**	**–**
Operating assumption changes	(22)	22	**(0)**	**203**
Operating variances	55	203	**258**	**(618)**
Embedded value operating earnings	**510**	**790**	**1,299**	**622**
Economic variances	624	(85)	**539**	**(327)**
Other non-operating variances	(20)	(55)	**(76)**	**(89)**
Embedded value earnings	**1,113**	**650**	**1,762**	**207**
Capital movements	(1,019)	(60)	**(1,079)**	**(1,567)**
Foreign currency translation effects	39	38	**77**	**(539)**
Closing embedded value	**6,660**	**6,848**	**13,508**	**12,747**

All metrics are reported net of non-controlling interests.

Embedded value increased from positive investment variances across most asset classes, new business and expected in-force contribution in addition to the impact from model refinements.

Capital movements, mostly due to dividend payments, in Switzerland, Germany, Rest of EMEA, Spain and the UK, decreased embedded value by USD 1,079 million.

Updated operating assumption changes had an immaterial effect for the EMEA region, with offsetting impacts between Continental Europe and the rest of EMEA. Favorable persistency for corporate life in Switzerland and an expense assumption update in Germany, were offset by persistency and mortality assumption updates (despite the benefits from the lower updated expense basis) in the UK and updated unit cost assumptions in Ireland and ZILL.

Positive operating variances were mainly related to model refinements, primarily in Germany. The most material of which was a change in the treatment of policyholder participation in unrealized capital gains to align to actual practice.

Positive economic variances included an overall improvement in investment results in the region, particularly in Switzerland, Ireland and Italy. This was partially offset by negative economic assumption updates across the region.

Other non-operating variances decreased the embedded value due to unfavorable currency translation effects in the multi-currency business sold by ZILL, and to a lesser extent from the impact on the CRNHR from updated risk profiles in Italy and the UK. This was partially offset by Switzerland benefiting from the reduction in tax rates.

Embedded value report (continued)

Embedded value results EMEA

in USD millions, for the years ended December 31

	United Kingdom		Germany	
	2019	2018	**2019**	2018
Embedded value information:				
Opening embedded value before opening adjustment	**2,196**	**3,010**	**2,463**	**3,255**
Opening adjustment	**–**	**–**	**–**	**–**
Opening embedded value after opening adjustment	**2,196**	**3,010**	**2,463**	**3,255**
New business value	67	73	37	56
Expected contribution at reference rate	24	20	21	5
Expected contribution in excess of reference rate	28	30	112	55
Expected transfer to shareholders' net assets	–	–	–	–
Operating assumption changes	(171)	(119)	69	148
Operating variances	6	6	223	(582)
Embedded value operating earnings	**(45)**	**10**	**463**	**(318)**
Economic variances	(22)	(116)	(67)	181
Other non-operating variances	(33)	(76)	1	(66)
Embedded value earnings	**(100)**	**(182)**	**397**	**(203)**
Capital movements	(222)	(491)	(86)	(459)
Foreign currency translation effects	74	(141)	(48)	(131)
Closing embedded value	**1,947**	**2,196**	**2,725**	**2,463**
New business information:[1]				
Annual premiums	183	312	183	175
Single premiums	1,839	2,955	1,187	779
APE	366	608	302	252
PVNBP	3,985	7,923	2,998	2,576
New business value	**67**	**73**	**37**	**56**
New business margin (% of APE)	18.3%	12.1%	12.3%	22.5%
New business margin (% of PVNBP)	1.7%	0.9%	1.2%	2.2%

[1] Premiums, APE and PVNBP are reported gross of non-controlling interests.
[2] Mainly includes business written through licenses into Asia-Pacific, Middle East and Luxembourg.

Embedded value report (continued)

EMEA											
Switzerland		Ireland		Spain		Italy		ZILL[2]		Rest of EMEA	
2019	2018	**2019**	2018	**2019**	2018	**2019**	2018	**2019**	2018	**2019**	2018
3,539	**3,528**	**1,235**	**1,535**	**975**	**858**	**608**	**677**	**1,431**	**1,477**	**301**	**306**
–	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
3,539	**3,528**	**1,235**	**1,535**	**975**	**858**	**608**	**677**	**1,431**	**1,477**	**301**	**306**
164	155	48	60	116	117	52	49	80	94	11	14
(4)	(69)	–	1	7	7	7	23	10	6	4	8
146	211	17	24	40	34	19	18	22	35	10	10
–	–	–	–	–	–	–	–	–	–	–	–
133	286	(17)	(83)	22	(11)	20	(17)	(67)	27	10	(29)
(14)	(100)	(22)	(56)	14	14	17	14	(30)	(21)	64	108
425	**483**	**26**	**(54)**	**199**	**162**	**115**	**87**	**17**	**142**	**99**	**110**
143	(28)	96	(52)	93	19	206	(206)	85	(97)	5	(27)
34	(43)	–	–	(10)	(16)	(11)	39	(66)	75	9	–
601	**412**	**123**	**(107)**	**283**	**164**	**311**	**(81)**	**36**	**119**	**113**	**84**
(393)	(367)	(50)	(130)	(105)	(3)	–	41	(49)	(84)	(174)	(74)
62	(34)	(24)	(64)	(19)	(45)	(11)	(30)	50	(80)	(6)	(15)
3,809	**3,539**	**1,283**	**1,235**	**1,134**	**975**	**907**	**608**	**1,468**	**1,431**	**234**	**301**
317	238	229	215	108	145	109	92	234	271	61	57
2,066	1,908	2,902	3,145	1,679	2,316	2,939	2,245	252	290	504	211
524	429	519	529	276	377	403	317	259	300	111	78
5,400	4,430	4,197	4,404	2,601	3,508	3,548	3,071	1,909	2,250	985	619
164	**155**	**48**	**60**	**116**	**117**	**52**	**49**	**80**	**94**	**11**	**14**
31.4%	36.1%	9.3%	11.4%	77.6%	58.9%	12.8%	15.5%	31.1%	31.3%	10.3%	17.9%
3.0%	3.5%	1.1%	1.4%	8.3%	6.4%	1.5%	1.6%	4.2%	4.2%	1.2%	2.2%

Embedded value report (continued)

North America

New business

North America analysis of new business value and margin

in USD millions	NBV[1]	NBM[1]
New business value 2018	**15**	**18.3%**
Change in volumes and business mix	19	6.6%
Economic and operating variances	14	10.4%
Foreign currency translation effects	–	n.a.
New business value 2019	**49**	**35.2%**

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

New business value was USD 49 million, an increase of USD 34 million or 226.3 percent and the new business volume increased by USD 57 million or 69.4% compared to last year.

The new business value benefitted from higher volumes and improved margins in corporate protection business, higher volumes of the affluent market universal life proposition and a positive mortality assumption update from updated industry mortality tables.

Embedded value development

North America analysis of embedded value earnings

in USD millions, for the years ended December 31	2019			2018
	Share-holders' net assets	Value of business in-force	Total	Total
Opening embedded value before opening adjustment	**(471)**	**528**	**57**	**64**
Opening adjustment	**–**	**–**	**–**	**–**
Opening embedded value after opening adjustment	**(471)**	**528**	**57**	**64**
New business value	**(26)**	**75**	**49**	**15**
Expected contribution at reference rate	–	18	**18**	**12**
Expected contribution in excess of reference rate	–	–	**–**	**–**
Expected transfer to shareholders' net assets	36	(36)	**–**	**–**
Operating assumption changes	–	(34)	**(34)**	**83**
Operating variances	(11)	(39)	**(50)**	**(41)**
Embedded value operating earnings	**(1)**	**(17)**	**(18)**	**69**
Economic variances	(1)	7	**6**	**(19)**
Other non-operating variances	–	(5)	**(5)**	**49**
Embedded value earnings	**(2)**	**(15)**	**(17)**	**99**
Capital movements	459	–	**459**	**(106)**
Foreign currency translation effects	–	–	**–**	**–**
Closing embedded value	**(14)**	**513**	**499**	**57**

All metrics are reported net of non-controlling interests.

Embedded value increased mostly as a result of a write down of intercompany balances (reported in capital movements), between two different entities within the same legal entity but one part in covered business and the other in non-covered business.

Negative operating assumption changes were observed mainly from updating persistency assumptions in the individual protection business.

Negative operating variances were mainly due to start-up expenses and persistency experience variance.

Embedded value report (continued)

Latin America

New business

Latin America analysis of new business value and margin

in USD millions	NBV[1]	NBM[1]
New business value 2018	**161**	**15.3%**
Change in volumes and business mix	5	4.9%
Economic and operating variances	(10)	(1.3%)
Foreign currency translation effects	(16)	n.a.
New business value 2019	**140**	**18.9%**

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

New business value was USD 140 million, a decrease of USD 21 million, but an increase of 0.6 percent on a local currency basis. The slightly lower performance was attributable to unfavorable currency translation effects noted in the most relevant currencies across the region.

New business volumes decreased by USD 272 million or a 10.1 percent decrease on a local currency basis.

The decrease was observed in the Zurich operations, mainly in Chile as last year included a material corporate protection contract, while Zurich Santander contributed with additional USD 90 million or a 21.5% increase on a local currency basis mainly in Brazil due to higher unit linked and Mexico.

On a local currency basis, new business value increased predominately from the positive contribution of unit linked volumes mainly in Zurich Santander in Brazil.

This was partially offset by a worse business mix mainly in the Zurich operations in Chile from a higher share of low margin individual immediate annuity new business volumes compared to prior year, that included the benefits of a large corporate protection scheme. Furthermore, the impact of the reduction in interest rates was mainly noted in the Zurich operations in Chile in the individual immediate annuity business.

New business margin increased mainly as a result of the regional business mix attributable to Zurich Santander in Brazil.

Embedded value development

Latin America analysis of embedded value earnings

in USD millions, for the years ended December 31	2019			2018
	Share-holders' net assets	Value of business in-force	Total	Total
Opening embedded value before opening adjustment	**764**	**233**	**997**	**1,151**
Opening adjustment[1]	**178**	**1**	**179**	**(89)**
Opening embedded value after opening adjustment	**942**	**233**	**1,176**	**1,062**
New business value	**(32)**	**172**	**140**	**161**
Expected contribution at reference rate	42	39	**81**	**74**
Expected contribution in excess of reference rate	53	–	**53**	**74**
Expected transfer to shareholders' net assets	100	(100)	**–**	**–**
Operating assumption changes	32	(108)	**(75)**	**(1)**
Operating variances	(102)	(37)	**(139)**	**25**
Embedded value operating earnings	**94**	**(34)**	**60**	**332**
Economic variances	158	(335)	**(177)**	**(86)**
Other non-operating variances	(5)	(56)	**(61)**	**45**
Embedded value earnings	**247**	**(426)**	**(178)**	**292**
Capital movements	(143)	–	**(143)**	**(137)**
Foreign currency translation effects	(78)	(2)	**(80)**	**(220)**
Closing embedded value	**969**	**(194)**	**775**	**997**

All metrics are reported net of non-controlling interests.
[1] For 2019, this includes the change in covered business as noted in section 2 of this report. For 2018, this includes the change in covered business as noted in section 2 of the 2018 Embedded value report.

Embedded value report (continued)

Embedded value decreased in Latin America from negative embedded value earnings mainly from the Zurich operations in Chile, in addition to capital movements, mainly due to dividend payments from Zurich Santander, and unfavorable currency translation effects across the region. This was partially offset by the contribution from the in-force books across the region and the new business written in the retail protections business across the Zurich Santander region.

The opening adjustment reflects the reversal of a prior year consolidation entry following the reclassification of a Chilean holding company to non-covered business.

A longevity assumption update in the Zurich operations in Chile explains most of the negative impact for operating assumption changes.

Negative operating variances were spread across all Latin America countries and particularly from the Zurich operations in Chile from mortality, disability and expense experience variances.

Economic variances reflect the impact of lower interest rate developments in the Zurich operations in Chile more than offsetting positive investment variances observed across the region.

Other non-operating variances are mostly driven by the Zurich operations in Chile, largely explained by lower market rates impacting policyholder benefits on an industry-regulated corporate protection scheme, in addition to updated estimates on the life insurance and investment vehicle portfolio acquired in late 2018. These impacts had an additional effect on the risk profile of the business, reflected in an increased CRNHR.

Foreign currency translation effects decreased the embedded value as a result of the weakening of the Argentine peso and the Brazilian real against the U.S. dollar.

Embedded value report (continued)

Asia Pacific

New business

Asia Pacific analysis of new business value and margin

in USD millions	NBV[1]	NBM[1]
New business value 2018	**186**	**82.2%**
Change in volumes and business mix	(4)	(13.5%)
Economic and operating variances	30	11.2%
Foreign currency translation effects	(1)	n.a.
New business value 2019	**211**	**79.9%**

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

New business value was USD 211 million, an increase of USD 24 million or a 14.9 percent increase on a local currency basis.

New business volumes increased by USD 37 million or 19.4% on a local currency basis predominantly as a result of the OnePath Life acquisition in May 2019 in Australia.

The increase in new business value was mainly driven by positive operating variances noted in Japan following a lapse assumption update and to a lesser extent in Australia mainly due to morbidity assumption updates and lower expenses. Furthermore, the positive economic impact was mainly noted in Australia from risk protection business due to lower risk free rates.

New business margins decreased by 2.3% as the positive contribution from economic and operating variances was more than offset by the adverse business mix in Japan and the first-time consolidation effect of the acquired OnePath Life business in Australia.

Embedded value development

Asia Pacific analysis of embedded value earnings

in USD millions, for the years ended December 31	2019			2018
	Share-holders' net assets	Value of business in-force	Total	Total
Opening embedded value before opening adjustment	**365**	**2,676**	**3,040**	**2,546**
Opening adjustment[1]	**769**	**149**	**918**	**393**
Opening embedded value after opening adjustment	**1,134**	**2,824**	**3,958**	**2,939**
New business value	**(113)**	**324**	**211**	**186**
Expected contribution at reference rate	17	41	**58**	**44**
Expected contribution in excess of reference rate	31	–	**31**	**27**
Expected transfer to shareholders' net assets	173	(173)	**–**	**–**
Operating assumption changes	(5)	(590)	**(595)**	**55**
Operating variances	(159)	(24)	**(183)**	**(49)**
Embedded value operating earnings	**(57)**	**(421)**	**(478)**	**263**
Economic variances	56	(22)	**33**	**44**
Other non-operating variances	2	93	**95**	**17**
Embedded value earnings	**1**	**(350)**	**(350)**	**323**
Capital movements	53	2	**54**	**(113)**
Foreign currency translation effects	–	6	**6**	**(109)**
Closing embedded value	**1,188**	**2,481**	**3,669**	**3,040**

All metrics are reported net of non-controlling interests.
[1] For 2019, this includes the change in covered business and acquisitions as noted in section 2 of this report. For 2018, this includes the change in covered business as noted in section 2 of the 2018 Embedded value report.

Embedded value decreased in Asia Pacific as a result of updated assumptions and one-off costs across the region.

The opening adjustment reflects the acquisition of the OnePath Life business in Australia.

Embedded value report (continued)

Embedded value operating earnings decreased from negative operating assumption changes predominantly in Australia due to morbidity assumption updates and the lowering of benefits insured and in Japan due to a morbidity assumption change for the cancer product. This was partially offset by a lapse assumption change and the impact of re-pricing in the individual protection portfolios in Australia and also the continuous strong new business value growth particularly in Japan and Australia.

Operating variances decreased the embedded value mainly due to adverse reinsurance experience variances and one-off costs in Australia related to the OnePath Life business acquisition.

Other non-operating variances increased the embedded value mainly due to an economic modeling enhancement for the reinsurance with the OnePath Life business in Australia.

Capital movements increased embedded value, mostly from capital injections mainly in Indonesia and Malaysia.

Embedded value report (continued)

Farmers Life

New business

Farmers Life analysis of new business value

in USD millions	NBV[1]
New business value 2018	**113**
Change in volumes and business mix	(2)
Economic and operating variances	(19)
Foreign currency translation effects	–
New business value 2019	**93**

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

New business value was USD 93 million, a decrease of USD 21 million or 18.1 percent.

New business volumes decreased by USD 2 million, or a 2.6 percent decrease compared to last year.

The decrease in new business value is the result of modeling refinements and adverse post level term mortality and expense assumption updates.

To a lesser extent, impacts from lower volumes were more than offset by the positive contribution on protection business from lower interest rates.

Embedded value development

Farmers Life analysis of embedded value earnings

in USD millions, for the years ended December 31	2019			2018
	Share-holders' net assets	Value of business in-force	Total	Total
Opening embedded value before opening adjustment	**451**	**3,015**	**3,466**	**3,727**
Opening adjustment	**–**	**–**	**–**	**–**
Opening embedded value after opening adjustment	**451**	**3,015**	**3,466**	**3,727**
New business value	**(74)**	**167**	**93**	**113**
Expected contribution at reference rate	13	105	**118**	**87**
Expected contribution in excess of reference rate	26	–	**26**	**68**
Expected transfer to shareholders' net assets	205	(205)	**–**	**–**
Operating assumption changes	1	67	**68**	**(289)**
Operating variances	19	(43)	**(24)**	**(25)**
Embedded value operating earnings	**189**	**92**	**280**	**(45)**
Economic variances	5	77	**82**	**14**
Other non-operating variances	–	3	**3**	**(40)**
Embedded value earnings	**194**	**171**	**366**	**(71)**
Capital movements	(172)	–	**(172)**	**(190)**
Foreign currency translation effects	–	–	**–**	**–**
Closing embedded value	**473**	**3,187**	**3,660**	**3,466**

All metrics are reported net of non-controlling interests.

Embedded value increased mostly as a result of new business and expected in-force contribution in addition to positive economic variances and operating assumption updates, partially offset by the dividend payment made by Farmers New World Life Insurance Company to Farmers Group, Inc.

Operating assumption changes increased the embedded value driven by the revised post level term persistency assumption update, partially offset by an adverse mortality assumption update.

Favorable persistency experience variances were more than offset by a modeling refinement on an individual indexed universal life protection product.

Lower interest rates favorably impacted the protection business, and in addition, positive investment variance contributed to the increase in embedded value in the period.

Embedded value report (continued)

9. Embedded value methodology

The Group applies 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.

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 constraints related to the Swiss Solvency Test "SST", tied assets requirements as well as local statutory requirements 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)

	2019 Required capital (% SM)	2018 Required capital (% SM)
Life business		
North America	*300%*	*300%*
Latin America	*125%*	*123%*
EMEA	*152%*	*166%*
Asia Pacific	*122%*	*131%*
Group Reinsurance		
Farmers Life	310%	310%
Total covered business	**145%**	**161%**

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 be 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.

Embedded value report (continued)

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 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.

Embedded value report (continued)

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 TVFOG, in addition to deterministic techniques (referred to as "certainty equivalent").

Embedded value report (continued)

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 excluding intangibles. 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, within others, asset management services to pension schemes written in foundations, other pension funds and unit-linked products. The present value of the net asset management fees only related to those activities, after tax, is included in embedded value and new business value.

l) 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 819 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.

Embedded value report (continued)

m) Change in legislation or solvency regime

The impacts of changes in legislation or solvency regimes are included in economic variance for the analysis of movement when they occur.

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, 2019.

o) Sensitivities

The sensitivities have been adjusted to better reflect the nature of the business and financial risks. 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 increase/decrease in voluntary discontinuance rates means that, for example, a base assumption of 5 percent per annum would increase/decrease to 5.5/4.5 percent per annum.

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.

A 5 percent increase in the mortality and morbidity rates for protection products means that, for example, if the actuarial mortality and morbidity rates for protection products was 80 percent of a particular table, this would increase to 84 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 was assessed for both the embedded value and the new business value.

A 100 basis points increase and decrease in credit spreads shows the impact of a widening or narrowing in credit spreads on corporate bond assets. For credit spread increases, the market value of assets will fall since future defaults are expected to rise. For credit spread decreases, the market value of assets will rise since future defaults are expected to decline.

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.

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 assumption changes on all the embedded value components, including the time value of financial options and guarantees.

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.

Embedded value report (continued)

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.

Embedded value report (continued)

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. Please note that this could cause a divergence in assumptions used for the new business value and embedded value reporting due to timing differences when assumptions are adopted into the different reporting metrics. 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.

Embedded value report (continued)

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, 2019.

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, 2019.

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.

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 rate 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.

Embedded value report (continued)

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 Management.

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.

Embedded value report (continued)

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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 underwriting 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 services and ancillary 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. Please also note that interim results are not necessarily indicative of full year results.

Persons requiring advice should consult an independent advisor.

This communication does not constitute an offer or an invitation for the sale or purchase of securities in any jurisdiction.

THIS COMMUNICATION DOES NOT CONTAIN AN OFFER OF SECURITIES FOR SALE IN THE UNITED STATES; SECURITIES MAY NOT BE OFFERED OR SOLD IN THE UNITED STATES ABSENT REGISTRATION OR EXEMPTION FROM REGISTRATION, AND ANY PUBLIC OFFERING OF SECURITIES TO BE MADE IN THE UNITED STATES WILL BE MADE BY MEANS OF A PROSPECTUS THAT MAY BE OBTAINED FROM THE ISSUER AND THAT WILL CONTAIN DETAILED INFORMATION ABOUT THE COMPANY AND MANAGEMENT, AS WELL AS FINANCIAL STATEMENTS.

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 (continued)

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 Zurich

Introduction

We have 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, 2019.

Our review covered specific sections of the accompanying Embedded value report, which consists of pages 1 to 5, table 'Life business new business by quarter' on page 8, table "Farmers Life new business by quarter" on page 9, and the methodology and assumptions within pages 24 to 32.

Management's Responsibility for the Embedded value report

Management is responsible for the preparation of the Embedded value report in accordance with the Market Consistent Embedded Value ('MCEV') Principles issued by the European Insurance CFO Forum, and for such internal control as management 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 the aforementioned sections of the accompanying 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 aforementioned sections of the accompanying Embedded value report are not prepared in all material respects in accordance with the MCEV Principles issued by the European Insurance CFO Forum. This Standard also requires us to comply with relevant ethical requirements.

A review of an Embedded value report in accordance with ISRE 2400 (Revised) is a limited assurance engagement. The practitioner performs procedures, primarily consisting of making inquiries of management and others within the Group, as appropriate, and applying analytical procedures, and evaluates the evidence obtained.

The procedures performed in a review are substantially less than those performed in an audit conducted in accordance with International Standards on Auditing or Swiss Auditing Standards. Accordingly, we do not express an audit opinion on the accompanying Embedded value report.

Conclusion

Based on our review, nothing has come to our attention that causes us to believe that the aforementioned sections of the accompanying Embedded value report have not been prepared, in all material respects, in accordance with the MCEV Principles issued by the European Insurance CFO Forum.

PricewaterhouseCoopers AG

Peter Eberli Alex Finn

Zurich, February 12, 2020