

MARKET CONSISTENT EMBEDDED VALUE REPORT 2017

Baloise Group

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1. INTRODUCTION

1.1. Basis of Preparation

Since 2001 the Baloise Group has published Embedded Value (“EV”) results for its Life Insurance businesses as supplementary information to its statutory and IFRS accounts. EV represents shareholders’ economic value of the in-force business from the IFRS Life Insurance segment at the valuation date, excluding future new business. It measures the shareholder value that an insurance portfolio is expected to create over its lifetime, taking a long term view of profitability. This differs from other accounting standards such as IFRS which currently focus on revenues and expenses occurring during a single past reporting period.

Since 2009 the Baloise Group has published the EV results in line with the European Insurance CFO Forum ‘Market Consistent Embedded Value Principles’¹ (“MCEV Principles”).

This document provides details of the results, methodology and assumptions used to calculate the 2017 MCEV for the Baloise Group in accordance with the disclosure requirements of the MCEV Principles.

The methodology and assumptions used to determine the 2017 embedded value results for the Baloise Group, as well as the new business value and the analysis of movement between 2016 and 2017, have been subject to external review by Ernst & Young AG. Their opinion is included in the section ‘External Reviewer’s Statement’.

1.2. Covered Business

Baloise Group’s MCEV results cover all its material life insurance operations and entities, consistent with the business covered in its IFRS Life Insurance segment as consolidated into the Group’s IFRS accounts.

A Market Consistent Embedded Value is calculated for all the life entities of the Baloise Group except for the life business in Liechtenstein which has been included in Baloise’s MCEV at its IFRS equity value². The Baloise Group has completed in 2017 the sale of the life insurance portfolio of Basler Leben AG Direction für Deutschland to Frankfurter Leben-Gruppe. This transaction is reflected in the analysis of movement of the MCEV between 2016 and 2017.

The embedded value results are reported separately for Switzerland and the segment “International”. The latter includes the life entities in Germany, Belgium, Luxembourg and Liechtenstein as well as consolidation effects.

All calculations are net of external reinsurance; results for individual operations are gross of internal reinsurance within the Life segment. All results reflect the interest of Baloise shareholders in the business.

Although no future new business is included in the valuation, the results are produced based on the assumption that all operations remain open to new business and continue to operate in a similar manner and scale relative to the current position, i.e. on a “going concern” basis.

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² At year-end 2016 the life insurance portfolio of Basler Leben AG Direktion für Deutschland has also been included with its IFRS equity value

1.3. Definitions

According to the MCEV Principles, the MCEV represents the present value of shareholders' interests in the earnings distributable from assets allocated to the covered business after allowance for the aggregate risks in the covered business, where the allowance for risk is calibrated to match the market price where reliably observable.

The MCEV consists of the following components³:

- Shareholders' Net Assets ("SNA") – the market value of assets attributed to covered business, which are not backing the liabilities from the covered business.
- Value of In-Force ("VIF"), made up of the following components:
 - Present Value of Future Profits – the present value of future post-tax shareholder profits from the assets backing the liabilities associated with the in-force covered business. Baloise calculates this value on a 'certainty equivalent' basis and refers to it as the Certainty Equivalent Value of Business in-Force ("CEVBF")
 - Time Value of Financial Options and Guarantees ("TVFOG") – an allowance for the potential impact on future shareholder cash flows of all financial options and guarantees in the in-force covered business, valued in line with similar cash flows (from a timing and risk perspective) that are traded in capital markets⁴;
 - Frictional Costs of Capital ("FCC") reflecting the taxation and investment management costs on shareholder assets locked into the business. Baloise's approach is to apply this cost to the whole SNA, whereas the MCEV Principles only require it to be applied to Required Capital;
 - Cost of Non-Hedgeable Risks ("CNHR") - an allowance for the potential impact on shareholder cash flows of risks, both financial and non-financial, not allowed for in the CEVBF or the TVFOG.

Baloise also refers to the CEVBF net of TVFOG as the Net Present Value of Future Profits ("NPVFP").

New business is the sale of new Life Insurance segment contracts during the reporting year, including cash flows arising from the projected renewal of those new contracts. Its definition and the derivation of the Market Consistent Value of New Business ("MCVNB") are discussed below under Methodology.

Two measures of the volume of new business are used to derive the margin on new business. The measures of volume are APE (Annual Premium Equivalent)⁵ and PVNBP (Present Value of New Business Premiums)⁶.

³ Further details of Baloise's approach to defining and calculating these items are given in the Methodology section below.

⁴ Further details on the methods employed and the Economic Scenario Generator used are given in the Methodology section below.

⁵ APE is the annual amount of new regular premiums plus 10% of new single premiums written.

⁶ PVNBP is calculated as the present value from new business, discounting using the reference yield curve, of its initial and expected future premiums using assumptions and projection periods that are consistent with those used to calculate the MCVNB.

2. MCEV AND MCVNB RESULTS

2.1. Baloise MCEV

The Baloise MCEV was CHF 4'897m at 31 December 2017 with a total return of +12.4%, split into a positive operating return on MCEV of +5.7% and a positive economic return on MCEV of +6.7% in 2017.

The MCEV increased due to strong operating earnings of CHF 270m and favorable economic variances of CHF 255m. All entities contributed to the operating earnings with positive operating returns on the in-force business and profitable new business. The new business increased Baloise's MCEV by CHF 126m in 2017.

Table 1 – Baloise MCEV

CHF Mio.	31.12.2016	31.12.2017	Change	RoEV ⁷
Switzerland	3'170	3'313	143	5.8%
International	1'239	1'584	345	29.4%
Total	4'409	4'897	487	12.4%

The Baloise Embedded Value is the sum of the individual entity Embedded Values subject to consolidation adjustments. The values of the life entities in Germany, Belgium, Luxembourg and Liechtenstein as well as the consolidation adjustments are included in the segment International. The consolidation adjustments result from the effect on CNHR of diversification of risk between companies. Baloise's MCEV can be further broken down into the following components as shown in Table 2:

Table 2 – Breakdown of Baloise MCEV

CHF Mio.	31.12.2016			31.12.2017		
	Switzerland	International	Total	Switzerland	International	Total
CEVBF	2'588	651	3'239	2'950	906	3'857
TVFOG	-408	-102	-510	-568	-104	-672
CNHR	-195	-42	-237	-241	-37	-278
FCC	-41	-60	-102	-39	-63	-102
VIF	1'945	446	2'391	2'102	702	2'804
SNA	1'225	793	2'019	1'211	882	2'093
MCEV	3'170	1'239	4'409	3'313	1'584	4'897

The components of the Value of In-Force (VIF) and the definition of the Shareholders' Net Assets (SNA) follow the MCEV Principles and are described in the Methodology section below.

2.2. Volume and Value of New Business

The Baloise new business value was CHF 126m in 2017, 83.5% higher than the previous year. Baloise new business value and new business margin increased group wide, driven by the ongoing improving business mix towards biometric and capital-light products and by operational measures which include - among others - reduced guarantee levels and selective underwriting. The APE increased by 17.0%. All entities reported higher volumes, especially in Luxembourg.

⁷ The returns on opening MCEV are net of capital movements and intercompany effects.

Table 3a shows the new business volumes, value and margins using APE (Annual Premium Equivalent) and PVNBP (Present Value of New Business Premiums) as measures for the volume of new business.

Table 3a – Baloise New Business - Premium Volumes, Values and Margins

CHF Mio.	2016			2017		
	Switzerland	International	Total	Switzerland	International	Total
MCVNB	27	41	69	35	91	126
APE	115	207	322	130	247	377
NB Margin on APE	23.7%	19.9%	21.3%	26.9%	36.8%	33.4%
PVNBP	1'760	2'238	3'998	2'056	2'783	4'839
NB Margin on PVNBP	1.5%	1.8%	1.7%	1.7%	3.3%	2.6%

In **Switzerland** the value of new business rose driven by greater volumes and higher margins. The new business margin increased reflecting the improved business mix and operational measures such as disciplined pricing and selective underwriting.

The new business volumes, values and margins of the segment **International** can be further broken down by business unit as shown in Table 3b.⁸

Table 3b – Breakdown of Baloise International New Business Volumes, Values and Margins

CHF Mio.	2016				2017			
	Germany	Belgium	Luxembourg	International	Germany	Belgium	Luxembourg	International
MCVNB	10	19	13	41	20	53	18	91
APE	39	58	110	207	46	62	139	247
NB Margin on APE	25.1%	32.4%	11.5%	19.9%	43.8%	85.4%	12.7%	36.8%
PVNBP	414	722	1'102	2'238	524	855	1'404	2'783
NB Margin on PVNBP	2.4%	2.6%	1.1%	1.8%	3.9%	6.2%	1.3%	3.3%

In **Germany** APE increased driven by the successful sales of biometric and unit-linked products. Due to the updated operating assumptions and further improved business mix, the new business margin on APE increased by 18.6% pts.

In **Belgium** the new business value and the new business margin increased significantly driven by the introduction of the regulatory maximum guarantee in the model and by significantly lower guarantees in the new business production.

The fast-growing business in **Luxembourg** reported again a high APE, 26.5% higher than the previous year. The new business margin increased slightly due to updated operating assumptions.

⁸ New business of Baloise Life Liechtenstein is not included in Baloise MCEV reporting for materiality reasons.

2.3. Analysis of Change in MCEV

Elements in the movement in Baloise's MCEV over the year are shown below:

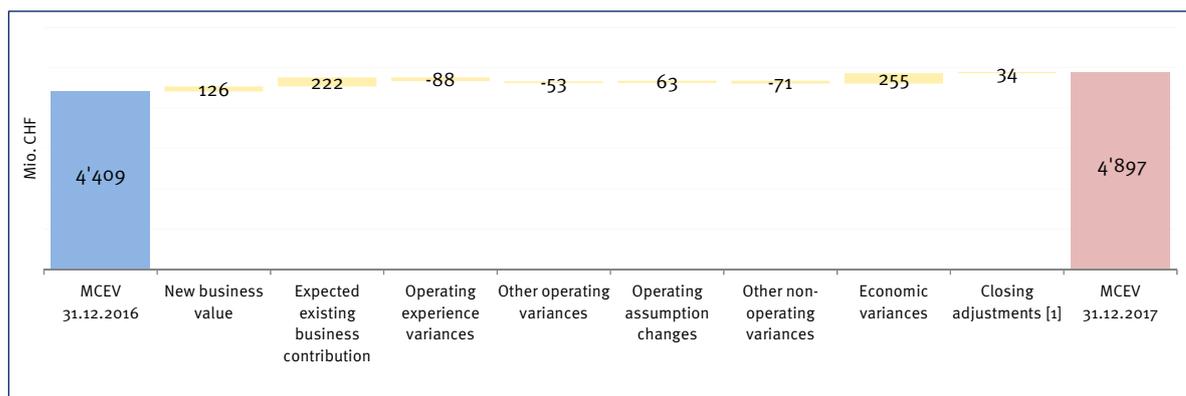


Table 4 – Baloise MCEV Movement and Earnings Analysis

CHF Mio.	Switzerland	International	SNA	VIF	Total MCEV
	MCEV	MCEV			
Opening values	3'170	1'239	2'019	2'391	4'409
New business value	35	91	-43	168	126
Expected contribution at reference rate	9	38	-7	54	47
Expected contribution in excess of reference rate	152	23	49	126	175
Expected transfers to SNA	0	0	198	-198	0
Operating experience variances	-85	-3	-56	-32	-88
Other operating variances	-27	-27	-282	229	-53
Operating assumption changes	15	48	0	63	63
Operating earnings	99	171	-141	410	270
Other non-operating variances	-104	33	3	-74	-71
Economic variances	189	66	221	34	255
Total earnings	183	270	84	370	454
Closing adjustments	-41	75	-9	43	34
Closing values	3'313	1'584	2'093	2'804	4'897

The total **return on the opening MCEV** amounts to +12.4% and splits into an operating return on MCEV of +5.7% and an economic return on MCEV of +6.7% in 2017.⁹

The **value of new business** of CHF +126m consists of the shareholders' share of initial expenses which decreases the SNA and the shareholders' share of the future profits from new business which increases the VIF. The value shown is that of new business still in force at the year-end, using year-end projection assumptions and adjusted to point of sale to reflect discounting and changes in unrealised gains.

The **expected existing business contributions** include:

- i. expected earnings on the opening SNA and VIF at the opening reference yields including the impact of release from risk in TVFOG and CNHR (CHF +47m), and
- ii. management's expectation of additional earnings (CHF +175m) primarily in respect of risky assets expected to earn long term returns in excess of reference yields.¹⁰

⁹The total return is calculated as the sum of total earnings, acquired / divested business and currency translation effects divided by the opening MCEV.

¹⁰The risk premiums over the reference yields used for this calculation are shown in the Economic Assumptions section below.

As the in-force business runs off during the year [transfers to SNA](#) shows the expected release of profit from the in-force portfolio into shareholder equity. This release of profits has no net impact on the MCEV.

[Operating experience variances](#) (CHF -88m) include the impact of experience versus expectations in the insurance contract portfolios in non-economic areas such as mortality, expenses, and persistency. In Switzerland, deviations between expected and actual renewal rates due to stricter underwriting selection result in negative operating experience variances.

[Other operating variances](#) include the impact on MCEV of adjustments of the bonus rates and of changes in the bonus rules except for those which are directly driven by the change in economic conditions and are therefore captured in the economic variances. The position also contains the variance due to modelling changes, the impact of management decisions such as the changes in the asset allocation, as well as adjustments to comply with a point of sale valuation of the new business written during the year.

In 2017, the other operating variances have an impact of CHF -53m, of which CHF -27m come from Switzerland and CHF -27m from the segment International. In Switzerland, the largest impact stems primarily from the financing cost for the new external hybrid debt. The main effects in International come from Belgium, due to model refinements.

Assumptions for experience in areas such as lapses, mortality and expenses are reviewed on a regular basis. The impact (CHF +63m for 2017) of any changes in expectations is captured in [Operating Assumption Changes](#). In Switzerland (CHF +15m) reflects the updates in morbidity, mortality and expense assumptions. The positive impact in International (CHF +48m) is mainly caused by Germany, where adjusted policyholder behaviour assumptions explain the largest part of the effect.

[Other non-operating variances](#) (CHF -71m) include any other non-economic deviations from expectation that are not captured by the items above, e.g. the impact of tax and regulatory changes. In Switzerland the negative impact is due to more conservative conversion rate assumptions after the rejection of the 2017 occupational pension reform referendum, as well as the group pensions mandatory minimum guarantee rate not following the low market rates. In Belgium and Luxembourg the corporate tax rates are reduced.

[Economic variances](#) (CHF +255m) include the impact of both economic experience during the year and assumption changes at the year-end with respect to economic assumptions such as reference yields, volatilities, inflation rates, returns on investments, and taxes. The positive economic variances in Switzerland (CHF +189m) are driven by strong investment performances of properties and equities and by lower volatilities. In International, the economic variances are positive with +66m mainly due to the favorable equity performance, tightening of the credit spreads and higher interest rates. These positive effects are reduced by the change to a new stochastic interest rate model. In the current low interest rate environment this model suits better to replicate interest rate volatilities in a transparent and consistent manner.

[Closing adjustments](#) include the impact of acquired/divested business, capital movements, intercompany and currency translation effects. The life insurance portfolio of Basler Leben AG Direktion für Deutschland has been sold to Frankfurter Leben-Gruppe in February 2017. The impact of the transaction is taken into account under [acquired/divested business](#). The item [Capital movements](#) include dividends due from the Life segment to Baloise Group during 2017 and capital contributions to the Life segment business. [Intercompany effects](#) reflect profit transfers from the Life Segment into other segments. [Currency translation effects](#) finally result from the consolidation in Swiss Francs. In 2017, the closing adjustments include currency translation effects of CHF +112m, the impact of intercompany effects which amount to CHF -33m and a dividend of -28m.

2.4. Sensitivities

Sensitivities are an important part of the MCEV analysis in order to judge those areas in which shareholder value can change with experience. The following tables show changes in Baloise's MCEV resulting from changes

in various economic and operating assumptions. These sensitivities follow the descriptions given in the Methodology section below.

Table 5a – Baloise Economic Sensitivities

CHF Mio.	2016		2017	
	Δ MCEV	in %	Δ MCEV	in %
Base Value	4'409	-	4'897	-
+50 bps to reference yields	166	4%	200	4%
-50 bps to reference yields	-164	-4%	-193	-4%
10% decrease in equity / property values	-531	-12%	-649	-13%
25% increase in equity / property implied volatilities	-79	-2%	-53	-1%
25% increase in swaption implied volatilities	-82	-2%	-138	-3%

The MCEV is particularly sensitive to a decrease in equity / property values due to the high proportion of property investments in the asset portfolio of Baloise's Life Insurance business. The interest rate sensitivities stay at the same level as in 2016.

Table 5b – Baloise Operating Sensitivities

CHF Mio.	2016		2017	
	Δ MCEV	in %	Δ MCEV	in %
Base Value	4'409	-	4'897	-
10% decrease in lapse rates	51	1%	88	2%
10% decrease in maintenance expenses	131	3%	121	2%
5% improvement in mortality assumptions – insurance	11	0%	18	0%
5% improvement in morbidity assumptions	25	1%	31	1%
5% improvement in mortality assumptions – annuity	-53	-1%	-119	-2%
1%-pt decrease for CNHR	47	1%	45	1%

Lower lapse rates keep the business on Baloise's books for longer, increasing the average period over which shareholder profits are earned. In some markets this positive impact is offset by lower projected profits on surrenders. Overall the impact on Baloise's 2017 MCEV is slightly positive (+2%). As expected, lower projected expenses increase the MCEV. Mortality improvements affect different types of products in different ways. Lower mortality rates increase profits on products with mortality risk and reduce profits on annuity-type products with longevity risk. Improvements in morbidity increase the MCEV. Baloise also provides the sensitivity of the MCEV to a different rate of capital charge for the CNHR (3% instead of 4%) so that analysts can make their own estimates of this cost.

No sensitivity to the level of Required Capital has been provided as Baloise calculates the FCC on the whole SNA. Hence a different level of Required Capital has a neutral impact on the overall MCEV, simply affecting the way the SNA would be split between Required Capital and Free Surplus.

2.5. Reconciling MCEV Shareholders' Net Assets to IFRS Equity

The local statutory balance sheets, rather than IFRS balance sheets, are the starting point for the MCEV projections. It is possible, however, to reconcile the net assets used in determining the MCEV for Baloise's Life business with those published under IFRS, by considering the adjustments necessary to reach statutory net assets:

CHF Mio.	Total
IFRS Shareholders' Equity as at 31.12.2017	4'407
Removal of DAC & intangible assets	-126
Unrealised capital gains included in VIF instead of SNA under MCEV	-1'756
Difference in IFRS reserves compared to statutory reserves	-999
Other adjustments	568
Shareholders' Net Assets as at 31.12.2017	2'093

The major elements of the reconciliation are as follows:

- Elimination of all Deferred Acquisition Costs (DAC) and intangible assets from the IFRS balance sheet;
- Deduction from IFRS net assets of unrealised gains that are projected in the MCEV as part of the VIF but form part of the IFRS net assets;
- Further reconciliation steps between the Statutory and IFRS balance sheets, predominantly reflecting different reserving bases.

3. METHODOLOGY

The MCEV is a measure of the consolidated value of shareholder investments in the covered business, determined as the value arising from the run-off of business in force at the year-end using assumptions consistent with a going concern basis. To determine the assumptions for valuing in-force business it is assumed that the company continues to write new business at levels consistent with recent years, although no value of future new business is included in the MCEV.

Projections are made of future cash flows net of external reinsurance and net of taxes over 40 years, with a split between shareholders and policyholders of the residual balance sheet at the end of the projections consistent with a going concern basis.

Baloise's MCEV is the sum of the Shareholders' Net Assets (SNA) and the Value of In-Force (VIF) of its Life Insurance Segment business, terms which are described further below.

The Baloise Group provides each reporting entity with detailed methodological guidelines based on the MCEV principles and with basic economic assumptions used in the calculation of its MCEV. MCEV results are signed off against these by the local CEO.

3.1. Covered Business

For the purposes of Baloise Group MCEV reporting, covered business is defined as all the business included in the Life Insurance segment of the published IFRS accounts. This includes a range of traditional and unit linked life insurance, risk protection, savings / investment and retirement products distributed to individuals and companies by the life entities of the Baloise Group. Descriptions of terms below apply to legal entities and businesses within the Life Insurance segment.

A Market Consistent Embedded Value is calculated for Basler Leben AG ("Baloise Switzerland"), Basler Lebensversicherungs-Aktiengesellschaft ("Baloise Germany"), the life business of Baloise Belgium NV ("Baloise Belgium"), and for Baloise Vie Luxembourg SA ("Baloise Luxembourg"). The life businesses of Baloise Life Liechtenstein AG ("Baloise Liechtenstein") has been included at its IFRS equity values.

The Baloise Group completed the sale of the life insurance portfolio of Basler Leben AG Direktion für Deutschland to Frankfurter Leben-Gruppe as part of its strategy to focus on biometric risk products and capital-efficient fund products. The transaction was completed in February 2017. This transaction is taken into account in the analysis of movement of the MCEV between 2016 and 2017.

3.2. Components of MCEV

Shareholders' Net Assets

The SNA is given by the statutory shareholders' equity¹¹ plus the amount of undisclosed surplus allocated to the SNA after tax plus the pension scheme deficit / surplus cost after tax¹².

The starting point for determining SNA is shareholders' equity as reported in the local statutory balance sheet.

¹¹ Includes dividend for the year reported on, which is payable in the following year

¹² See 'Employee Pension Schemes' below for details

In some territories this balance sheet includes some assets at values other than market value¹³ and some technical reserves set up¹⁴ voluntarily, which together can be significant. Where relevant an ‘undisclosed surplus’ is determined as the sum of such hidden reserves in the assets (unrealised gains) and in the liabilities. To determine the proportion of this surplus included in projections to calculate the NPVFP, appropriate assets are selected with a statutory book value exactly sufficient to back technical reserves (net of any applicable deferred acquisition costs) and funds for future appropriation and bonuses. The unrealised gains on these assets are included in the calculation of NPVFP in accordance with local rules and any relevant past practice, in particular regarding the timing of realisation and proportion of gains expected to be allocated to policyholders as bonus. Any remaining assets, together with their unrealised gains, are included in SNA.

The SNA can be split into Required Capital (RC) and Free Surplus (FS) in line with MCEV Principles 3, 4 and 5. In line with its policy of charging the same rate of FCC to the entire SNA (see ‘Frictional Costs of Capital’ below), Baloise does not report such a split.

Value of In-Force

The Value of In-Force is defined to be the Net Present Value of Future Profits (NPVFP) minus Frictional Costs of Capital (FCC) minus Cost of Non-Hedgeable Risks (CNHR). The NPVFP is given by the Certainty Equivalent Value of the Business in-Force (CEVBF) minus the Time Value of Financial Options and Guarantees (TVFOG).

These two items are described below. Both involve projections of a balance sheet consisting of local statutory liabilities and assets in line with local legal obligations, company practice due to commercial and competitive constraints and local market practice in the calculation of Embedded Values.

Certainty Equivalent Value of Business in-Force

Financial projections of the statutory balance sheet are carried out allowing for expected behaviour of the in-force business. The Certainty Equivalent Value of Business in-Force (“CEVBF”) is the present value of the expected future profits (net of tax) attributable to shareholders. It is based on the assumption that all asset classes earn the forward reference yield, from which general investment management costs¹⁵ are deducted. All projected best-estimate cash flows are discounted using the same reference yield curve. However, the existing bond portfolio is assumed to run off at the running yield, while new money is invested at the reference yield. For business with financial options or guarantees the CEVBF includes the intrinsic value of the options / guarantees.

Time Value of Financial Options and Guarantees

The CEVBF does not allow for asymmetries in the risks that financial outcomes for shareholders could be better or worse than expected in the CEVBF scenario, in particular where products or funds include a guarantee or option of which the policyholder could take advantage in adverse circumstances. Options and guarantees with significant financial risk explicitly valued in the MCEV include:

- Minimum guaranteed interest rates;
- Bonus options;
- Maturity guarantees;
- Guaranteed minimum death benefits (GMDB);
- Guaranteed annuity options (GAO) / conversion factor for Swiss Group business;
- Surrender options.

¹³ E.g. historical cost, lowest ever value

¹⁴ E.g. financial reserves

¹⁵ Excluding specific property management costs

For products with such features a stochastic financial projection¹⁶ is run allowing for the range of possible scenarios for financial markets. The Time Value of Financial Options and Guarantees (“TVFOG”) is calculated as the difference between the average over all scenarios of the net present value of future profits to Baloise Group shareholders, and the (usually higher) value from the deterministic (certainty equivalent) projection described above under CEVBF. It therefore captures the cost to shareholders in those scenarios where the options / guarantees come into the money and are exercised.

Such calculations can be particularly important to capture the potential cost to shareholders of providing support to ‘participating’ funds in order to provide the basic policyholder guarantees in scenarios where the unrealised gains and reserves such as bonus funds are exhausted (shareholder burn-through cost). In such scenarios, where assets are projected in any year to be insufficient, shareholders are assumed to inject sufficient capital to meet basic policyholder guarantees. At the end of the projection shareholders are assumed to meet any shortfall of assets against liabilities, or receive a part of any residual assets, the amount of which reflects local practice and local requirements and is consistent with a going concern basis.

Where the result is not expected to be materially different from a full stochastic projection, some guarantees and options are valued using closed form solutions. This is the case for Baloise Luxembourg, most of whose business is unit-linked without guarantees.

Frictional Costs of Capital

Frictional costs of capital (“FCC”) are costs incurred by shareholders due to investment via the structure of an insurance company compared to investment as individuals, such as tax on profits within the insurance company or the costs of investment management.

Such costs on reserves held to meet expected policyholder benefits are reflected in the calculation of the NPVFP. Baloise’s MCEV and MCVNB also allow for the deduction of the following FCC on the total SNA (and not only on the RC as required by MCEV Principle 8), as at the valuation date the whole SNA is held by the Group to support it as a going concern backing both in-force business and the development of future new business:

- Taxation of the investment income on shareholders’ net assets held by the insurance company, at the rate paid locally by each entity;
- Investment expenses (net of tax relief) incurred in managing the shareholders’ net assets.

Cost of Non-Hedgeable Risks

The volatility of the returns on risky assets (such as stock market-listed equities), whose risk is for the most part readily hedgeable in financial markets, is reflected in the determination of the NPVFP. The MCEV also allows for the cost of volatility of non-hedgeable risk factors such as mortality, morbidity, expenses and lapse rates. As – by definition – there is no clear market for such risks, their valuation is open to interpretation. MCEV Principle 9 proposes a standard method – a ‘cost of capital’ approach – which Baloise follows.

The initial amount of capital at risk is calculated in a similar manner to the Swiss Solvency Test (SST) analytical model for insurance risk, i.e. based on a number of sensitivities and using the same correlation matrix between sensitivities. However, the assumptions used for the calculations are those from the MCEV rather than those from the SST. For example, reference yields are swap rates and not government bond rates. This initial capital at risk is then projected for future years in line with the evolution of an appropriate proxy measure such as reserves

¹⁶ See ‘Economic Scenario Generator’ below for details

or premiums. A capital charge of 4% is applied to the resulting projected capital at risk. It represents the excess return or risk premium that a shareholder might expect on capital exposed to non-hedgeable risks. These annual charges are discounted using the reference yields and summed up to give the part of the Cost of Non-Hedgeable Risks (“CNHR”) for insurance risks.

In addition, the CNHR also includes an allowance for the estimated potential impact on shareholder cash flows of credit risk (i.e. defaults and rating migrations) where this is not otherwise captured in the CEVBF or TVFOG. This allowance is made by including a cost of capital approach for credit risk, adapted to take into account the shareholder’s share in those risks.

Allowance is made within CNHR for diversification of risk between countries and risk factors including credit risk using a matrix of estimates of correlations between the various risks.

3.3. Dynamic Actions, Bonus Policy and Policyholder Behaviour

The actions taken by policyholders and management are likely to vary in different financial scenarios. Baloise has set up Management Decision Rules for each business unit setting out its expected approach to managing, amongst others, targets for asset realizations, the choice of the investment strategy – asset allocations and mix – and setting bonuses or allocation of investment surplus depending on experience and expectations of the financial performance of the business. These Management Decision Rules can have a significant impact on the MCEV, as they define the timing of the cash flows and the distribution of income between the policyholder and the shareholder. The Rules are implemented in cash flow projections for calculating MCEV and New Business Values and have regard to:

- The behaviour of the insurance business in each country;
- The past application of discretion;
- The influence of market practice regarding that discretion;
- Past public communication; and
- Legal requirements.

Bonus Rates

The amount of bonus allocated to policyholders is chiefly dependent on:

- The technical result and financial return of the companies;
- The local regulatory environment, in particular regarding the existence of a ‘legal quote’;
- The guaranteed interest rate of the products;
- The policyholders' expectation given local market practice; and
- The solvency situation of the company (with respect to unrealised gains, bonus fund or financial reserves).

Dynamic Assumptions in Stochastic Models

For stochastic modelling certain assumptions vary with the scenario being modelled. These include:

- Bonus rates are linked to the dynamic realisation of gains of the fund and the fund performance, reflecting past and expected future management behaviour in different scenarios. Bonus rates dependent on scenario-dependent projected returns follow the kind of rules described above.
- Option take-up rate(s), such as annuity take-up rates, are scenario-dependent where financial scenarios are expected to, or have in the past, affected policyholder take-up rates.

- Dynamic policyholder lapse rates and contract renewal rates are implemented if appropriate and where stochastic projections are performed. Where possible such lapse rules reflect the local observed past behaviour, and expected future behaviour of policyholders.
- The model includes management rules about how the business model reacts to certain economic situations. In addition, dynamic asset allocation strategies are incorporated into the stochastic models, where appropriate. They reflect past behaviour, and expected future behaviour of the management.

3.4. New Business

In line with MCEV Principle 10 new business is defined as covered business arising from the sale of new contracts during the reporting year, including cash flows arising from the projected renewal of those new contracts. The distinction between new business and variations on existing business for each product is based on the specific policy conditions, is consistent from year to year, and corresponds to the classification used for Baloise's published new business figures. In each case account is taken of:

- The contract terms;
- Whether increments are automatic or whether additional sales effort is required;
- The manner in which management and the industry treat such cases in managing the business;
- Whether further initial commission is paid.

Values of new business are calculated using similar approaches to those applied for in-force – dependent on the type of business (participating, non-participating, unit linked) and the type of options / guarantees attached. These allow for TVFOG on new business, FCC and CNHR. Subject to appropriate allocation of assets and unrealised gains (see below) the FCC is calculated in proportion to the solvency margin in respect of new business. The CNHR for new business written during the year is derived either directly, similarly as for in-force, or from the CNHR for the in-force portfolio based on the respective size of the present value of future mathematical reserves for the new business and for the in-force, thus allowing for both the relative size of new business at inception and the relative size of its future development compared to the in-force.

The value calculated is for the business still in force at the end of the year, using year-end projection assumptions adjusted to be consistent with a point of sale valuation.

Consistent with the 'going concern' approach to calculating MCEV, the MCVNB for funds containing participating business is calculated using a marginal approach. This means that the MCVNB (before acquisition expenses) is calculated by performing valuations of the portfolio at the year-end including and excluding new business. The MCVNB is the difference in NPVFP between the two portfolios after acquisition expenses to the company, after allowing for frictional costs and costs of non hedgeable risk related to new business and after adjustments to point of sale. Note that no proportional sharing of the unrealised capital gains between in-force and new business is done, as this would artificially increase the value added by new business. In order to ensure that the value of new business correctly reflects the additional shareholder value created, the expenses allocated to new business for our fast-growing business in Luxembourg take into account the volumes expected to be achieved by 2020.

3.5. Asset and Liability Data

Market values of individual investments are taken where available ("marked-to-market"), or estimated where there is no liquid market ("marked-to-model"), for example by discounting unquoted loan and mortgage asset proceeds. Credit risk is captured via an increase in the CNHR (as explained above).

For bonds, market and book values are calculated at each point in time in order to project the realisation of gains. The book value is amortised according to local accounting rules.

For equities, the current total book value and market value are input to projection models – future realisations are calculated at an aggregate, rather than a single stock, basis. Local regulatory and accounting frameworks, for example the ‘lowest value’ principle, are incorporated in the model where appropriate.

For property investments price and income indices are applied in projection models to the current value and income to generate changes in property values and regular income.

Other bond-like securities such as loans (including policy loans) and mortgages are modelled as separate ‘buckets’ of government bonds in their respective currency. For policy loans in Switzerland, the theoretical duration of the loans has been shortened to take into account expected policy lapses. For all other purposes these assets are modelled as regular government bonds.

Other equity-like securities such as private equity and minority participations in non-group companies, as well as alternative investments (mainly hedge funds) have been modelled either as separate index similar to equity or as linear combinations of existing cash and equity categories, with weights aiming to ensure that the overall volatility of the asset class is in line with market data.

When a substantial part of the assets are held in foreign currencies (in practice, only those assets of Baloise Switzerland denominated in Euros or US Dollars) they are modelled explicitly, including the foreign exchange risk. For other assets denominated in foreign currency but modelled as local currency assets, the modelled volatilities are adjusted to reflect the foreign exchange risk.

Liabilities are calculated in line with local statutory requirements using individual policy data. For projection purposes policies of the same product with similar term, duration and risk profile are grouped to form ‘model points’. Checks are made to ensure that modelled values are sufficiently close to those for individual policies.

3.6. Sensitivities

The sensitivities shown in this report follow the descriptions in the MCEV Principles

- +/- 50 bp to reference yields - indicates the impact of a sudden parallel shift in the reference yields,¹⁷ including allowance for consequent movements in fixed interest asset values and other assumptions.
- 10% decrease in equity/property market values - indicates the impact of a sudden change in the market-values of equity and property assets, without a corresponding change in dividend / rental yields, the situation being equivalent to a fall of 10% of the absolute amount of the future dividends or rental yields.
- 25% increase in equity/property implied volatilities - indicates the impact of a (multiplicative, i.e. volatilities x 1.25) 25% increase in market implied equity/property volatilities on the cost of options and guarantees.
- 25% increase in swaption implied volatilities - indicates the impact of a (multiplicative) 25% increase in market implied swaption volatilities on the cost of options and guarantees.
- 10% decrease in maintenance expenses – indicates the impact of a reduction in the projected future cost of administering contracts, with no change in inflation assumptions.

¹⁷ Up to the last liquid point of the market. Beyond that point the shifted reference yields are extrapolated to reach the ultimate forward rate (see the Economic Assumptions section below). The shifted reference yields are floored at the minimum of zero and the base reference rate curve.

- **10% decrease in lapse rates** – indicates the impact of a (multiplicative) reduction in projected lapse / surrender rates. Depending on the terms for lapses the impact on MCEV could be positive or negative for different types of contracts or for an individual contract at different times.
- **5% improvement in mortality rates** – indicates the impact of a (multiplicative) reduction in deaths at all ages. The distinction is made between death coverage and annuity contracts where the risk to shareholder cash flows is from higher (death coverage) versus lower (annuities) mortality.
- **5% improvement in morbidity rates** – indicates the impact of a (multiplicative) reduction in disability insurance claims incidence rates at all ages.
- **1%-pt decrease in capital charge for CNHR** – indicates the impact of changing the rate of charge for capital for non-hedgeable risks from 4% to 3%.

The events described are assumed to occur immediately after the valuation date. The sensitivities allow for consistent changes in future cash flows and experience assumptions directly affected by the changed assumption, for example bonus rates. Each sensitivity is treated independently of the others, though in practice there is likely to be some correlation between them. The sensitivities show the impact of only one from a continuum of possible changes in the parameters tested – note that impacts may not be linear with respect to variation of any given parameter.

Sensitivity projections include the same set of dynamic management and policyholder reaction rules as the main MCEV projection. For some types of business the impacts of changing experience are mitigated by the requirement / decision to share profits and losses with policyholders.

3.7. Further Definitions and Assumptions

MCEV theory

The overall approach under MCEV aims to value future statutory profits in line with the way in which financial markets value cash flows with similar timing and uncertainty. In the absence of variations in experience (of investment performance, claims, lapses, expenses...) against that expected, in particular asymmetries in the effect of such variations on shareholder profit, this is achieved by summing SNA and using the ‘certainty equivalent’ approach (as described above) to determine a VIF. Calculation of the TVFOG as described above makes a market-based allowance for the cost to shareholders of future variation in financial market risks that are generally hedgeable, whilst the calculation and deduction of FCC and CNHR make allowance – albeit in areas for which prices are not generally visible in markets – respectively for the direct cost of holding capital within the insurance business in excess of that needed to meet reserves, and the price that shareholders require for exposing their capital to risks that are not generally hedgeable.

Beyond the approach described above no allowance is made for other costs sometimes associated with market consistent valuation of a business - ‘Agency costs’, ‘Limited liability put option’, or ‘Costs of financial distress’. Allowing for the Limited liability put option would be inappropriate under the assumption of the business as a going concern in which shareholders are assumed to contribute capital to meet shortfalls of assets over liabilities. Allowance for costs of financial distress, being largely related to future new business, is inappropriate in the context of a valuation excluding any value of future new business.

Economic Scenario Generator (ESG)

For stochastic modelling Baloise uses the XSG model developed by Deloitte Capital Markets. XSG is an economic model that generates risk-neutral and arbitrage-free simulations of market scenarios for all years of the projection period (currently 40 years for Baloise) and for several economies (in effect CHF, EUR and USD for Baloise). The model allows for simulations with negative interest rates and with twisted yield curves. The

underlying stochastic interest rate model has been updated this year (in the current low interest rate environment, the new model is better suited to replicate the interest rate volatility in a transparent and consistent manner). For stochastic simulations 1,000 to 5,000 simulations are used in the projections (e.g. 5,000 for Switzerland). The economic model is calibrated to observable market data as at the valuation date in such a way that modelled market values of equities, bonds, some specific swaptions and equity options are market consistent. The model calibration is described below in the Economic Assumptions section.

Consolidation Adjustments

MCEV and MCVNB are calculated as described above on an entity-by-entity basis. Each entity models its business gross of Life segment internal group reinsurance so that all corresponding reinsurance contracts consolidate out.

The Baloise Group's MCEV / MCVNB is the sum of these individual entity MCEV / MCVNB, where the MCEV is subject to consolidation adjustments to allow for the effect on CNHR of diversification of risks between countries.

Holding Companies, Service Companies and "Look Through" Principle

In the Baloise Group, all expenses incurred with regard to covered business are passed down to the life insurance entities and these costs are included¹⁸ in the expenses modelled in the NPVFP. The expenses passed to the Life Insurance companies include an allocation of Head Office expenses incurred by the Baloise Holding which are split between life, non-life and asset management segments and pushed down to the respective entities. Thus expenses allowed for in the MCEV are consistent with the IFRS reporting for the Life Insurance segment of the Baloise Group.

MCEV Principles Guidance (G11.13) requires that profits for the covered business are measured on a "look-through" basis. On this basis, where services such as investment management are provided and charged for by another Group entity the cost reflected in the MCEV should be that to the group as a whole (rather than just that to the Life entity). In line with the "look-through" principle, Baloise's MCEV allows for services provided to the covered business by all suppliers – whether within the Life segment, within the Baloise Group but outside the Life segment, or external to the Baloise Group – at their cost to the Baloise Group. This approach applies to expenses allowed for in calculation of both the NPVFP and the MCVNB. Profit or loss to the Baloise Group companies outside the Life Segment on services provided to the Life Segment is thereby included in the MCEV and MCVNB.

Employee Pension Schemes

For the Baloise MCEV calculation adjustments are made to the SNA in respect of any employee pension scheme surplus / deficit and ongoing obligations relative to those as calculated under IAS 19 except of those which are already included in the NPVFP at their market consistent value. The SNA is adjusted¹⁹ to allow for:

- The net of tax shareholders' share (as some will effectively be allocated to policyholders) of the proportion allocated in respect of employees working in the Life Insurance Segment (vs. other IFRS segments) of the surplus / deficit in the pension fund as per the IAS 19 Defined Benefit Obligation ("DBO").

¹⁸ Except for those investment expenses allowed for in FCC.

¹⁹ Increased for a surplus, decreased for a deficit.

- Any excess / shortfall²⁰ of the IFRS future contribution rate²¹ compared to the pension fund contributions allowed for in the statutory expense basis (which forms the basis for expenses in the NPVFP), multiplied by a Net Present Value factor to allow for its continuation over the projected run-off of in-force business, adjusted for any surplus / deficit to allow for its net of tax impact on shareholders in the Life Insurance segment.

Employee Share Options

All employee benefits are accounted for. Wherever there is an obligation this is reflected in a market consistent liability in line with IAS 19 which is included in the liabilities for the MCEV calculations. All actual expenditure is allowed for in the expense used to produce future expense assumptions.

Currency Conversion for Group Presentation

MCEV and MCVNB calculated in local currency are converted to CHF at year-end rates and year-average rates, respectively, as disclosed below in the MCEV Assumptions Section.

Group MCEV

Although MCEV Principles Guidance (Appendix C) describes an approach to disclosure of a measure of the consolidated value of shareholders' interests in both covered business and other business segments combining covered business at MCEV and other business segments at (adjusted) IFRS net asset values, Baloise does not disclose such a 'Group MCEV'.

²⁰ Reduction / increase in SNA.

²¹ That projected to be sufficient to maintain assets at the level of the IAS19 DBO.

4. MCEV ASSUMPTIONS

4.1. Economic Assumptions

The economic assumptions are updated at each valuation and, taken together, aim to ensure that projected cash flows are valued in line with similar cash flows traded on capital markets.

Reference Yield Curves

In 2015 Baloise aligned its methodology to derive the reference yield curves used for the calculation of the MCEV with the EIOPA guidance for Solvency II. The reference yield curves are based on swap rates as at the valuation date with the following adjustments which follow EIOPA's December 2017 technical documentation of the methodology to derive the risk-free interest rate term structures:

- **Credit risk adjustment:** To account for the credit risk inherent in swap rates, a reduction of the swap rates is made. The credit risk adjustment is determined on the basis of the difference between rates capturing the credit risk reflected in the floating rate of interest rate swaps and overnight indexed swap rates of the same maturity, where both rates are available from deep, liquid and transparent financial markets. The calculation of the adjustment is based on 50 percent of the daily average of that difference over a time period of one year. The adjustment is at least 10 basis points and at most 35 basis points.
- **Volatility adjustment:** To mitigate the effect of bond spreads, insurance undertakings are allowed in Solvency II to adjust the relevant risk-free interest rate term structure by a volatility adjustment. The volatility adjustment is based on the spread between the interest rate that could be earned from assets included in a reference portfolio for the relevant currency and the rates of the relevant basic risk-free interest rate term structure for the currency.

Both credit risk and volatility adjustment are applied as fixed adjustments to the spot rates of the risk-free curve in the liquid part of the curve only (i.e. only until the last liquid point (LLP) of the market). For the extrapolation beyond the LLP the Smith-Wilson extrapolation methodology is used to reach the currency specific ultimate forward rate (UFR), which reflects a long term equilibrium interest rate.²² The extrapolation is in line with the current EIOPA guidance for Solvency II except that Baloise applies for CHF a LLP of 15 years instead of 25 years, following the specifications of the Swiss regulator for the Swiss Solvency Test.

The following table summarizes the parameters which underlie the construction of the reference yield curves.

Table 7 – Parameters Reference Yield Curves

Currency	credit risk adjustment		volatility adjustment		last liquid point		ultimate forward rate	
	31.12.2016	31.12.2017	31.12.2016	31.12.2017	31.12.2016	31.12.2017	31.12.2016	31.12.2017
CHF	10 bp	10 bp	5 bp	-3 bp	15 years	15 years	3.20%	3.20%
EUR	10 bp	10 bp	13 bp	4 bp	20 years	20 years	4.20%	4.20%
USD	15 bp	10 bp	50 bp	28 bp	50 years	50 years	4.20%	4.20%

The reference yield curves after extrapolation and after allowance for credit risk and volatility adjustment used for the certainty equivalent and the stochastic projections are shown in the following table.

²² The UFR is reached in year 60 for EUR and CHF and for USD in year 90 according to the formula $\max(\text{LLP} + 40Y, 60Y)$ from EIOPA's December 2017 technical documentation of the methodology to derive the risk-free interest rate term structures.

Table 8 - Reference Yield Curves

Term	CHF		EUR		USD	
	31.12.2016	31.12.2017	31.12.2016	31.12.2017	31.12.2016	31.12.2017
1 year	-0.72%	-0.75%	-0.17%	-0.32%	1.54%	2.09%
3 years	-0.58%	-0.48%	-0.08%	-0.05%	2.05%	2.36%
5 years	-0.37%	-0.27%	0.11%	0.25%	2.35%	2.44%
10 years	0.10%	0.15%	0.70%	0.84%	2.73%	2.61%
15 years	0.39%	0.40%	1.09%	1.22%	2.90%	2.71%
20 years	0.78%	0.66%	1.25%	1.40%	2.97%	2.76%
30 years	1.42%	1.26%	1.86%	1.99%	3.00%	2.76%

Equity and Property Volatilities

The equity volatility statistics shown below are based on an analysis of the stochastic simulations produced by the ESG. The following table shows the annualised volatilities of equity indices used in the EV calculation, calibrated to market-implied volatilities of at-the-money SMI (CHF), EuroStoxx 50 (EUR) and S&P 500 (USD) capital return options.

Table 9a - Equity implied volatility

	Switzerland		Euro Zone		United States	
	31.12.2016	31.12.2017	31.12.2016	31.12.2017	31.12.2016	31.12.2017
1 year term	16.1%	13.7%	19.9%	15.3%	16.6%	13.9%
5 year term	16.4%	14.8%	21.5%	18.4%	22.0%	18.8%
10 year term	18.1%	15.1%	22.8%	19.9%	28.4%	23.7%

Baloise also makes assumptions regarding the volatility of property investments, estimated from relevant historical data. The following table shows the average of the forward at-the-money property implied volatilities over all 40 years of the projection period based on analysis of the stochastic simulations produced by the ESG.

Table 9b - Property implied volatility

	Switzerland		Germany		Belgium	
	31.12.2016	31.12.2017	31.12.2016	31.12.2017	31.12.2016	31.12.2017
Property volatility	8.9%	9.8%	9.0%	8.4%	16.9%	16.9%

Interest Rate Volatilities²³

Interest rate volatility can be described by the implied volatility of interest rate swaptions. Swaption implied volatilities vary both by the term of the option and also the term of the underlying swap contract. The following tables show swaption normal-implied volatilities based on the stochastic simulations used for the EV calculation and calibrated to market-implied at-the-money swaption volatilities:

Table 10a - Swaption normal-implied volatilities CHF, 31.12.2016

option term \ swap term	10 year	15 year	20 year
10 year	61 bp	63 bp	58 bp
15 year	84 bp	76 bp	67 bp

²³ Since year-end 2015 swaption normal-implied volatilities are used for the calibration of the interest rate model. Due to a change of the interest rate model within the ESG, there was an adjustment of the CHF calibration points from [10,15]x[10,15,20] to [5,10,15]x[5,10,15] as of year-end 2017.

Table 10b - Swaption normal-implied volatilities CHF, 31.12.2017

option term \ swap term	5 year	10 year	15 year
5 year	71 bp	70 bp	69 bp
10 year	69 bp	68 bp	66 bp
15 year	68 bp	67 bp	65 bp

Table 10c - Swaption normal-implied volatilities EUR, 31.12.2016

option term \ swap term	5 year	10 year	15 year
5 year	67 bp	68 bp	60 bp
10 year	84 bp	68 bp	62 bp
15 year	65 bp	65 bp	60 bp

Table 10d - Swaption normal-implied volatilities EUR, 31.12.2017

option term \ swap term	5 year	10 year	15 year
5 year	63 bp	63 bp	61 bp
10 year	67 bp	62 bp	59 bp
15 year	62 bp	58 bp	55 bp

Table 10e - Swaption normal-implied volatilities USD, 31.12.2016

option term \ swap term	5 year	10 year	15 year
5 year	88 bp	83 bp	78 bp
10 year	83 bp	77 bp	72 bp
15 year	73 bp	68 bp	64 bp

Table 10f - Swaption normal-implied volatilities USD, 31.12.2017

option term \ swap term	5 year	10 year	15 year
5 year	71 bp	68 bp	64 bp
10 year	65 bp	61 bp	57 bp
15 year	58 bp	55 bp	52 bp

Risk—Adjusted Returns

For the expected existing business contribution in excess of reference rates, risk premiums on bonds, equity and real estate are applied. For bonds, the risk premium is estimated based on each entity's bond portfolio taking into account a reduction to allow for the default risk. For equities the risk premium is assumed to be 300 bp. For properties, the risk premium above reference yield is set to 150 bp in Switzerland, to 250 bp in Belgium and to 100 bp in Germany and Luxembourg. These risk premiums contribute to the expected existing business contribution in the analysis of earnings but do not have any impact on the Baloise MCEV.

Correlations

Assumptions are also derived regarding the correlations between returns on different asset classes. Correlation targets are based on historical market data. The resulting correlations between 10-year bond returns and equity excess returns are +8% (CHF), +39% (EUR) and +16% (USD) at 31 December 2017.

Inflation

The forward rates used for the projection of price inflation are shown below and are derived as follows:

- For short term projections in CHF we use the conditional (Libor) inflation forecasts of the Swiss National Bank. In the absence of a market for inflation-linked bonds, the long term forward inflation corresponds to the inflation target of the Swiss National Bank.
- For projections in EUR the average inflation is calibrated to a short term inflation target derived from a consumer price index. The long term target is based on inflation-linked bonds and the inflation target of the European Central Bank.
- For projections in USD the average inflation is calibrated to a short term inflation target derived from a consumer price index. The long term target is based on inflation-linked bonds and the inflation target of the Federal Reserve.

Table 11a – Inflation, 31.12.2016

Currency	1 year	2 years	5 years	10 years	20 years	40 years
CHF	0.2%	0.8%	1.1%	1.2%	1.3%	1.5%
EUR	0.8%	1.0%	1.3%	1.4%	1.6%	2.0%
USD	1.6%	1.6%	1.6%	1.6%	1.8%	2.2%

Table 11b – Inflation, 31.12.2017

Currency	1 year	2 years	5 years	10 years	20 years	40 years
CHF	0.6%	1.4%	1.4%	1.3%	1.3%	1.5%
EUR	0.9%	1.1%	1.3%	1.4%	1.6%	2.0%
USD	1.5%	1.5%	1.5%	1.6%	1.7%	2.1%

Expenses are assumed to grow in line with price inflation. For Group contracts where contributions are salary-dependent, salaries are assumed to grow slightly above price inflation.

Foreign Exchange Rates

For businesses operating outside Switzerland, values calculated in local currency are converted to CHF at the following rates – year-end rates for year-end items (e.g. MCEV) and average rates over the year for items representing values spread throughout the year (e.g. MCVNB).

Table 12 - Exchange Rates

	31.12.2016	CHF per EUR		CHF per USD	
		31.12.2017	31.12.2016	31.12.2017	31.12.2017
Year-end	1.073	1.170	1.017	0.974	
Year average	1.090	1.112	0.985	0.985	

4.2. Taxation and Legislation

All components of tax, including tax payable on investment returns, are modelled as explicit cash flows, at the rates expected to be incurred by each entity in the Life Insurance Segment. Tax rate assumptions are summarised in the following table:

Country	2016	2017
Switzerland	20.0%	20.0%
Germany	31.9%	31.9%
Belgium	34.0%	25.0%
Luxembourg	29.3%	28.3%

Values allow for all current local regulation and any known future changes.

4.3. Operating Assumptions

Demographic Assumptions

Assumptions used in projections for variables such as lapse / surrender, paid-up policies, withdrawal, mortality and morbidity rates are based on analyses of Baloise's recent experience with the aim of projecting a best estimate of future experience.

Experience analyses for each of these factors are undertaken on a regular basis and attention paid particularly to the most recent experience as well as longer term trends. Adjustments are made where the experience or trends are not expected to continue in the long term.

Lapse rates are measured and projected by product type and, where possible, by duration in force. Experience analyses are normally weighted by annual premium or reserves for single premium policies rather than by numbers of policies.

Experienced mortality rates are normally investigated by sex, age and product type, weighted by sum assured or annuity rather than by numbers of policies or lives.

Expense Assumptions

Expense assumptions are based on allocations of all expenses incurred by the Baloise Group on Life Insurance segment business ("Look-Through Basis" – see section 'Further Definitions and Assumptions' above) during the reporting year, including allocations of overheads within the Segment and of Baloise Holding expenses allocated to the Segment, plus expected expense inflation. No allowance is made for any future productivity gains. In total, expenses of CHF 11m are treated as 'one-off' or non-recurring costs. Expenses are split into the following categories:

- Investment management expenses – allocated in projections as a percentage of invested assets by reducing future investment returns.
- Acquisition costs allocated to new business consisting of:
 - Commissions;
 - Other acquisition costs.

- Maintenance costs allocated via a combination of ‘unit costs’ and proportional costs to the existing business, consisting of:
 - Policy maintenance costs;
 - Adjusted administration expenses;
 - Investment expenses, where these are not directly deducted from investment returns.

Dynamic Management Actions and Policyholder Behaviour

Management’s selection of bonus rates and policyholder lapse rates are key variables for which dynamic assumptions – varying depending on the economic scenario – are applied in stochastic projections. Local application of dynamic bonus rates is consistent with current market and company practices as well as local regulatory requirements. In particular the 90% minimum legal quote for Group business in Switzerland and the “Mindestzuführungsverordnung” in Germany are respected. In the Swiss Individual business, in Belgium and Luxembourg there is no legal quote. Here bonuses are essentially driven by market competition and modelled through a target credited rate, and by constraints on the bonus fund or on statutory solvency rules.

Where appropriate, dynamic asset allocation strategies are incorporated into the stochastic models reflecting the past behaviour and expected future behaviour of the management.

For local application of dynamic lapse rates the yields available on bonds are generally used as a proxy for policyholder expectations. The lapse parameters depend on the company and on the type of the policy.

5. DIRECTORS' STATEMENT AND EXTERNAL REVIEWER'S STATEMENT

Directors' Statement

The MCEV Accounts have been prepared in accordance with the latest MCEV Principles launched by the European Insurance CFO Forum in June 2008 and amended in April 2016. Any deviation from the MCEV Principles or interpretation is stated in the Methodology section of this report.

We hereby confirm that the data, assumptions, models and methodology used to prepare the MCEV accounts:

- Are materially accurate;
- Appropriately reflect the way the Life business is managed, as well as its regulatory constraints and market environment;
- Cover the essential drivers of the Company's profitability and risks.

External Reviewer's Statement

Independent Report on the Market Consistent Embedded Value of Baloise Group's Life Segment

To the Board of Directors of Baloise Holding

We have performed the procedures detailed below on the accompanying Market Consistent Embedded Value Report ("MCEV Report") of Baloise Holding AG ("Baloise" or "the Company") as of 31 December 2017 and for the year then ended, which comprises the value of business in force, the new business value, the analysis of movements on embedded value, the sensitivities and the related notes. MCEV is an alternative method of reporting the value and performance of the Life Segment, and should not be considered as a substitute for Baloise's primary financial statements. MCEV should not be interpreted as a market valuation of the Company since it does not encompass all of the many factors that may bear upon a market value, in particular franchise value from future New Business as well as value from Non-Covered (e.g. Non-Life) business.

Management's responsibilities for the MCEV report

Management is responsible for the preparation and fair presentation of the MCEV Report in accordance with the Market Consistent Embedded Value Principles and Guidance published by the European Insurance CFO Forum in April 2016, using the market consistent methodology and the assumptions set out in the MCEV Report. MCEV results, the assumptions underlying them and the information contained in the MCEV Report are the sole responsibility of the Board of Directors of Baloise.

Reviewer's responsibilities and inherent limitations

It is our responsibility to issue this statement, based on the work performed, as to whether the MCEV Report of the Company has been properly prepared in accordance with MCEV Principles and Guidance. The MCEV Report is based upon assumptions as to future best estimate operating experience, and economic assumptions set in a market consistent framework. Significant actuarial assumptions and estimates are used to determine the MCEV and, accordingly, actual outcomes may differ significantly from those assumed. Such deviations are normal and are to be expected.

Our work has been undertaken so that we might state to the directors of the Company those matters we are required to state to them in a report and for no other purpose. Our report is made solely to the directors of the Company, as a body. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the

Company and the directors of the Company as a body, for our work, for this report, or for the conclusions we have formed.

Scope of our work

The scope of our review covered Baloise's major life insurance companies and considered the methodology adopted together with the assumptions and calculations made by Baloise in its Embedded Value. The nature, timing and extent of procedures for gathering sufficient appropriate evidence in such a limited assurance engagement are, however, less thorough than an audit and, accordingly, we do not express an audit opinion. We have relied without verification upon the completeness and accuracy of data and information supplied by Baloise.

Basis of our Conclusions

Our review was conducted in accordance with generally accepted actuarial practices. It comprised a combination of such reasonableness checks, analytical review and checks of clerical accuracy as we considered necessary to provide limited assurance that the MCEV results have been compiled free of significant error. Our work included, but was not limited to, the following procedures:

- understanding of the procedures adopted by management to prepare the MCEV Report;*
- analysis of the market consistent approach adopted by management, described in the MCEV Report, for consistency with the MCEV Principles and Guidance defined by the European Insurance CFO Forum;*
- analysis of the consistency of the methodology used and implemented by management with that described in the MCEV Report;*
- analysis of the internal consistency of the economic assumptions and of their consistency with observable market data;*
- analysis of the consistency of the operational assumptions with regard to past, current and expected future experience;*
- performing high-level checks on results to check consistency with methodology and assumptions applied;*
- obtaining the information and explanations as deemed necessary to deliver our conclusion.*

Conclusions

Based on our work nothing came to our attention that caused us to believe that the MCEV Report of the Company in respect of the year ended 31 December 2017 has not been properly prepared, in all material aspects, in accordance with the methodology and assumptions disclosed. Furthermore nothing came to our attention that caused us to believe that we did not receive all the information and explanations we required for our review. In addition, we conclude that:

- The methodology and assumptions comply with the MCEV Principles and Guidance (except as explained by the company in the MCEV Report with respect to some disclosure requirements and that the calculation of the Frictional Costs is applied on the total Shareholders' Net Assets instead of on the Required Capital only) and with Baloise's internal MCEV Guidelines;*
- The operating assumptions and the management rules are reasonable in the context of recent available experience, generally accepted industry practice on the life insurance market, and management expectations about the future operating environment;*
- The MCEV results have been properly compiled on the basis of the methodology and assumptions chosen.*

Zurich, 13 March 2018

Andrew Gallacher, Partner, Ernst & Young AG

6. LIST OF ABBREVIATIONS

APE	Annual Premium Equivalent
CEO	Chief Executive Officer
CEVBF	Certainty Equivalent Value of Business in Force
CFO	Chief Financial Officer
CNHR	Cost of Non Hedgeable Risks
DAC	Deferred Acquisition Costs
DBO	Defined Benefit Obligation
ESG	Economic Scenario Generator
EV	Embedded Value
FCC	Frictional Cost of Capital
FS	Free Surplus
GAO	Guaranteed Annuity Option
GMDB	Guaranteed Minimum Death Benefit
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
LLP	Last Liquid Point
MCEV	Market Consistent Embedded Value (= SNA + VIF)
MCVNB	Market Consistent Value of New Business
NPVFP	Net Present Value of Future Profits (= CEVBF – TVFOG)
PVNBP	Present Value of New Business Premiums
RC	Required Capital
SMI	Swiss Market Index
SNA	Shareholders Net Assets (= RC + FS)
SST	Swiss Solvency Test
TVFOG	Time Value of Financial Options and Guarantees
UFR	Ultimate Forward Rate
UL	Unit Linked
VIF	Value of In Force (= CEVBF – TVFOG – FCC – CNHR)

Information on the Baloise Group

The Market Consistent Embedded Value Report 2017 is only published in English.

AVAILABILITY AND ORDERING

The Market Consistent Embedded Value Report 2017 will be available on the Internet at www.baloise.com/annualreport from 27 March 2018.

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