

2013 Embedded Value Results Overview Focus on Switzerland



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Executive summary

Welcome to this special edition of our Embedded Value Results Overview

We decided this year to produce a special Swiss edition of Deloitte's annual analysis of Embedded Value (EV) publications by major European insurers. We selected 7 insurance groups with significant direct life insurance operations in Switzerland (Allianz, AXA, Baloise, Generali, Helvetia, Swiss Life and Zurich), and we analyzed their 2013 EV results, methodologies, assumptions and disclosures to highlight similarities and differences. Most insurers in our sample published their results in line with the European Insurance CFO Forum Market Consistent Embedded Value (MCEV) Principles¹ or under the (similar) market consistent version of the EEV principles. As in previous years, only Helvetia used a different methodology and published traditional EV results.

All insurers in our sample report an increase in EV over 2013, both globally and (for those who disclose it) for Switzerland. For a majority of them, the main source of value creation over the year was the positive impact from financial markets' performance: 2013 featured rising interest rates, steady equity gains, narrower spreads and decreasing volatility. Most insurers also reported increasing New Business volumes and margins, both globally and in Switzerland.

There were no major changes in EV methodology in 2013 (nor in the Swiss Solvency Test), but some of the uncertainty regarding Solvency II and IFRS 4 was lifted. In June, the IASB published a revised Exposure Draft for IFRS 4 Phase II, with a tentative earliest effective date of 2018. Then in November the European Parliament voted to amend and finalize the date for implementation of the Solvency II Directive, now set to January 2016. No significant additional impact on EV methodologies has been observed yet, as some key technical details of both Solvency II and IFRS 4 are still unknown. However, we note that many insurers now publish additional disclosures not required by the MCEV Principles.

The following report presents the results of our analysis, which is based solely on publicly available information from the companies' EV reports and financial statements². We aimed to provide as many relevant comparisons as possible, but as insurers use different approaches and disclose different levels of details, not all information was (publicly) available for all companies. We also assumed that the reader is already familiar with EV. Please note that all results are presented here in Swiss Francs (CHF), even when it is not the original reference currency of the EV publication. We hope you will find the following report interesting, and we are eager to hear your feedback and your views on the topics we cover. Please feel free to contact us to contribute to the debate or ask questions.

Jérôme Crugnola-Humbert



Tamara Zajc



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² Which at times can make a few of our comments sound frustratingly imprecise!

1 Global Life Insurance

In this first section, we analyze the total EV results across all regions (here referred to as Global Life) for the 7 insurers in our sample. Later sections will focus on Swiss EV results and on Group MCEV results (which include non-covered business such as non-life as well).

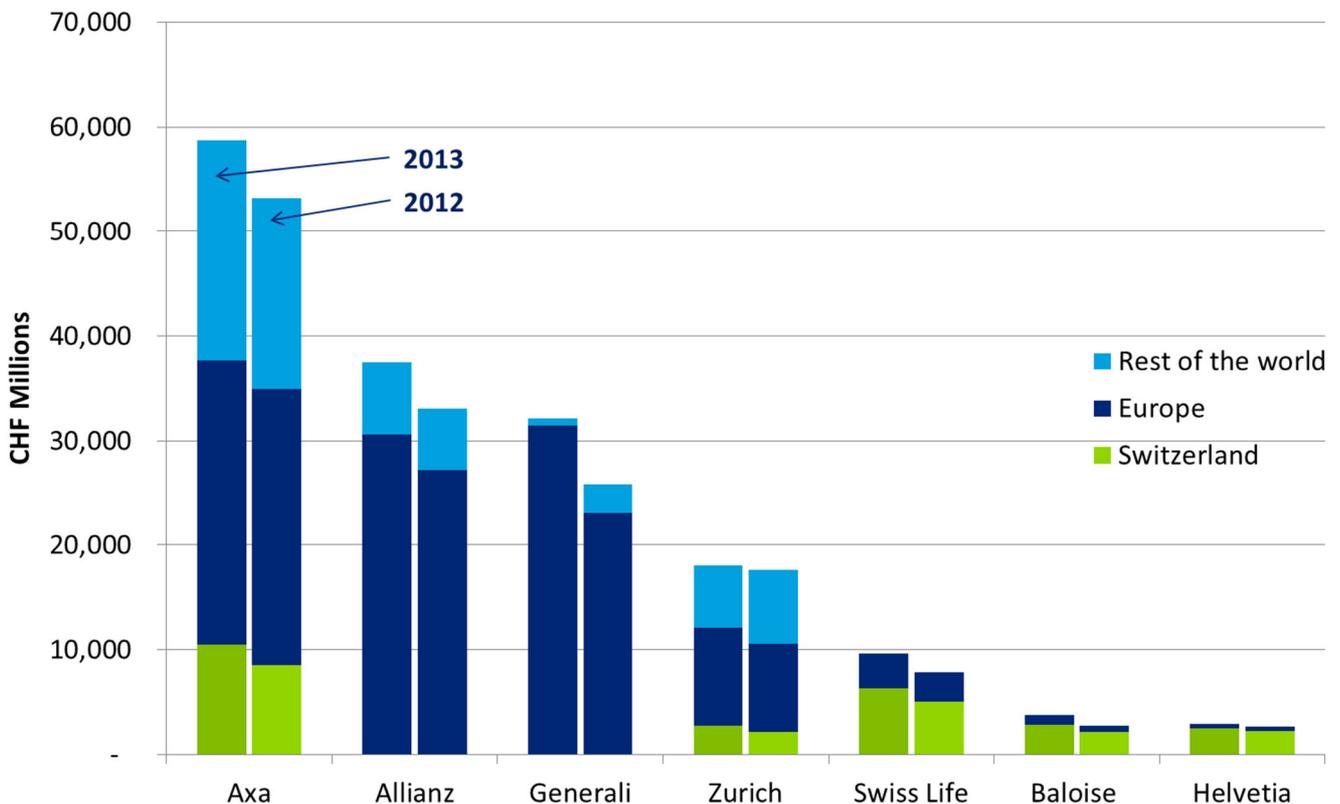
Global Life Embedded Value

All 7 insurance companies in our sample recorded an increase in global EV in 2013 (with the largest relative EV growth for Baloise, and the smallest for Zurich). The aggregate global EV for covered business in our sample increased to CHF 163bn this year from CHF 143bn the year before (+14%). The graph below shows the total EV for each company over the last 2 years split by region (in descending order of global EV 2013). On an EV basis, AXA remains the largest life insurer in our sample globally, in Europe and in Switzerland.

When splitting the business into Switzerland, Europe and Rest of the world, the following adjustments were made due to the heterogeneous level of disclosure of EV results between insurers:

- Generali and Allianz do not disclose separate EV results for Switzerland, so the value is included in Europe. For the other companies, “Europe” should be understood as “Europe excluding Switzerland”;
- Part of Allianz’s and AXA’s business in Latin America is included in the European figures;
- Part of Allianz’s business in North Africa is also included in the European figures;
- Generali’s business in the Middle East is included in the European figures; and
- Swiss Life’s business in Singapore is not reported separately and is thus included in the European figures.

Global Life EV



Embedded Value split by component

We also compiled the split of the Global Life EV between its various components. This was available for all companies, with the following exceptions:

- AXA does not provide a split of their cost of capital between the Cost of Residual Non-Hedgeable Risks and the Frictional Costs of Capital;
- Baloise does not provide a split of their Shareholder Net Assets between Free Surplus and Required Capital; and
- As Helvetia uses a traditional EV methodology, they only disclose the main components of their EV.

Split Global Life EV 2013 (CHFm)	Allianz	Axa	Baloise	Generali	Helvetia	Swiss Life	Zurich
Shareholder Net Asset	18,067	24,698	1,649	14,361	1,780	3,313	7,747
- Free Surplus	672	6,451	n.a.	3,012	n.a.	1,238	2,607
- Required Capital	17,385	18,124	n.a.	11,300	n.a.	2,075	5,161
Value of In-Force	19,439	34,185	2,159	17,786	1,143	6,356	10,324
- Present Value of Future Profits	25,050	36,616	2,618	20,593	1,978	7,355	11,871
- Certainty Equivalent Value	29,772	41,339	2,969	23,802	n.a.	7,857	12,792
- Time Value of Financial Options & Guarantees	- 4,722	- 4,723	- 351	- 3,209	n.a.	- 502	- 921
- Costs of Capital	- 5,612	- 2,429	- 459	- 2,807	- 835	- 999	- 1,548
- Cost of Residual Non-Hedgeable Risks	- 3,597	n.a.	- 307	- 1,403	n.a.	- 651	- 867
- Frictional Costs of Capital	- 2,016	n.a.	- 152	- 1,403	n.a.	- 348	- 681
Global Life EV	37,505	58,884	3,809	32,147	2,923	9,669	18,071

The direct analysis and comparison of absolute numbers is not always straightforward, so we have also considered each component as a proportion of the total EV, which led us to the following observations:

- For 5 out of 7 companies, the Shareholder Net Assets (i.e. the available capital which is not dependent on future profits) represent 40%-50% of the Global Life EV in 2013. The 2 outliers are Helvetia (61%, which is understandable as in traditional EV some unrealized gains are reported in the Shareholder Net Assets and not in the Value of In-Force) and Swiss Life (34%, which make their EV relatively more dependent on future profits than other companies in our sample);
- For the companies who report the split of the Shareholder Net Assets, there are large discrepancies in the repartition between Free Surplus and Required Capital. At one extreme, roughly 1/3rd of Swiss Life's and Zurich's Shareholder Net Assets are considered Free Surplus (i.e. in theory immediately distributable to shareholders), whereas at the other extreme virtually all of Allianz's Shareholder Net Assets are considered to be Required Capital³;
- The Time Value of Financial Options & Guarantees represents between -5% (for Swiss Life and Zurich) and -13% (for Allianz) of the total EV;
- For 5 out of 7 companies, the costs of capital taken together represent between -9% (for Generali and Zurich) and -15% (for Allianz) of the total EV. The 2 outliers are AXA (-4%) and Helvetia (-29%): in both cases, this is linked to their using a specific approach for their cost of capital calculation that diverges from standard market practice (see also pages 16-17); and
- It is also interesting to note the very similar relative weight of the Frictional Costs of Capital for the 5 companies who calculate and report it (a negative 4%-5% of their Global Life EV).

Further insight is limited by the fact that the Global Life EV may blend together different regional situations. A similar analysis is thus provided for Switzerland alone in the next section.

³ Please note that this does not translate directly into a view regarding how well capitalized companies are. There is a degree of freedom regarding how to determine the level of Required Capital, which may include various degrees of prudence.

Analysis of Embedded Value Earnings

We compiled the Analyses of EV Earnings to identify the factors that contributed the most to changes in EV over 2013. Please note that this kind of analysis is conceptually similar to the analysis of the economic P&L that will be required under IFRS 4 Phase II (and partly in Solvency II). The level of detail disclosed by the 7 companies in our sample is broadly similar, but differences in the definitions of some components exist nevertheless. We decided to look at 3 main change drivers, namely New Business, Economic Variance (including foreign currency translation effects) and Operating Variance (combining expected contribution, experience variance, assumption changes and other operating variances). We also calculated an overall average change (weighted by the opening EV).

Analysis of EV Earnings	New Business	Operating variance	Economic variance
Allianz	+3.5%	+6.3%	+8.7%
AXA	+5.0%	+5.7%	+6.1%
Baloise	+1.6%	+5.8%	+28.4%
Generali	+4.4%	+9.4%	+21.9%
Helvetia	+2.0%	+4.5%	+5.4%
Swiss Life	+3.7%	+17.6%	-0.5%
Zurich	+6.6%	-2.1%	+3.2%
Average	+4.5%	+6.2%	+9.3%

As noted in the introduction, the economic environment was favorable to life insurers in 2013, featuring rising interest rates, steady equity gains, narrower spreads and decreasing volatility (see Appendix for more details). As a consequence, Economic variance was the greatest contributor to EV growth for most of the insurers we analyzed (in particular for Baloise and Generali). Most companies also reported positive New Business values (discussed in more details on pages 6-7) and Operating Variance. The exceptions to this general picture are the following:

- Swiss Life reported a slightly negative Economic Variance (driven by Switzerland), and Operating variance was the greatest contributor to the increase in EV (notably due to improved persistency in Swiss group business); and
- Zurich reported a negative Operating Variance (driven by changes in expense methodology), and the increase in EV was dominated by a large positive New Business value (notably from the recent acquisition of 51% of Santander in Latin America).

One of the key components of EV Operating variance is the in-force business' mechanical unwind (expected contribution) before experience variance and assumption changes. This expected contribution varied from 3.7% of the opening EV (for Zurich) to 7.2% (for AXA) in our sample. Once this mechanical unwinding effect is deducted, only 2 insurers show a positive net Operating variance this year (Generali and Swiss Life).

Under the MCEV Principles, companies are not obliged to split out the impact on EV of the movements of financial markets, deviations between actual and expected investment performance, and economic assumption changes. For most companies in our sample, Economic variance is hence the total of all these elements, with no split of the underlying key drivers provided. An exception was found with AXA, who started this year to report operating investment experience in Operating (and not Economic) variance. On the topic of asset management driving value creation, it is interesting to note that Allianz also indicated that they are reducing their assets' duration as they expect interest rates to keep increasing.

Sensitivities

Analyzing sensitivities provides analysts and investors with an indication of how the EV moves for a given change in underlying parameters (e.g. interest rates). In order to better gauge the potential impact of market movement on the insurers' EV, we analyzed the main economic and operating sensitivities disclosed by the companies in our survey. We excluded Helvetia from our analysis of the EV sensitivities as their traditional EV methodology make economic sensitivities difficult to compare with other companies in our sample, and they do not disclose operating sensitivities.

Sensitivities	Reference rate +100bp	Reference rate -100bp	Removal of Liquidity Premium	Equity values -10%	Property values -10%
Allianz	+3%	-8%	n.a.	-3% ⁴	n.a.
AXA	+3%	-8%	-5%	-3%	-1%
Baloise	+8%	-19%	-2%	-9%	-9%
Generali	+3%	-6%	-5%	-3%	-3%
Swiss Life	+4%	-7%	n.a.	-7%	-7%
Zurich	-2%	+2%	n.a.	-1%	-1%

Sensitivities	Equity volatility +25%	Swaption volatility +25%	Lapse -10%	Expenses -10%
Allianz	-2%	-2%	+2%	+3%
AXA	-1%	-2%	+2%	+3%
Baloise	-1%	-3%	+2%	+3%
Generali	-1%	-2%	+4%	+4%
Swiss Life	-3%	+2%	+2%	+2%
Zurich	-1%	-1%	+4%	+3%

Despite increases in interest rates in 2013 (please see Appendix), the interest rate environment remains low enough to keep causing high reference rate sensitivities for companies who mostly have business associated with options and guarantees. Zurich alone reports a positive sensitivity to a decrease in reference rate, in line with the company's message that they continue to shift towards protection and unit-linked business. At the opposite end of the spectrum, Baloise retains the highest interest rate sensitivity in our sample this year. Given the decreasing level of liquidity premiums levels in 2013 (please see details on page 13-14) compared to 2012, the impact of removing the illiquidity adjustment is significantly reduced for the companies who disclose this sensitivity (namely AXA, Baloise and Generali). The main operating sensitivities (lapse and expenses) are fairly comparable between the companies in our sample.

Please note that while the disclosure of sensitivities is required by MCEV Principles, the exact level of disclosure still varies between companies. In particular, MCEV Principles generally require sensitivities to be published in one direction only (with the exception of the interest rate sensitivity, which is often the most material for classical life insurance contracts with a long policy horizon and/or interest guarantees). However, MCEV Principle G17.7 provides the following caveat: "*It is only necessary to calculate sensitivities in a single direction unless stated otherwise and unless a movement in the opposite direction gives a significantly different movement in which case both directions should be shown*". In line with this, many companies in our sample publish economic sensitivities in both directions (AXA, Swiss Life, Zurich and to some extent Generali) as well as the sensitivity to lapses in both directions (Generali, Swiss Life and Zurich).

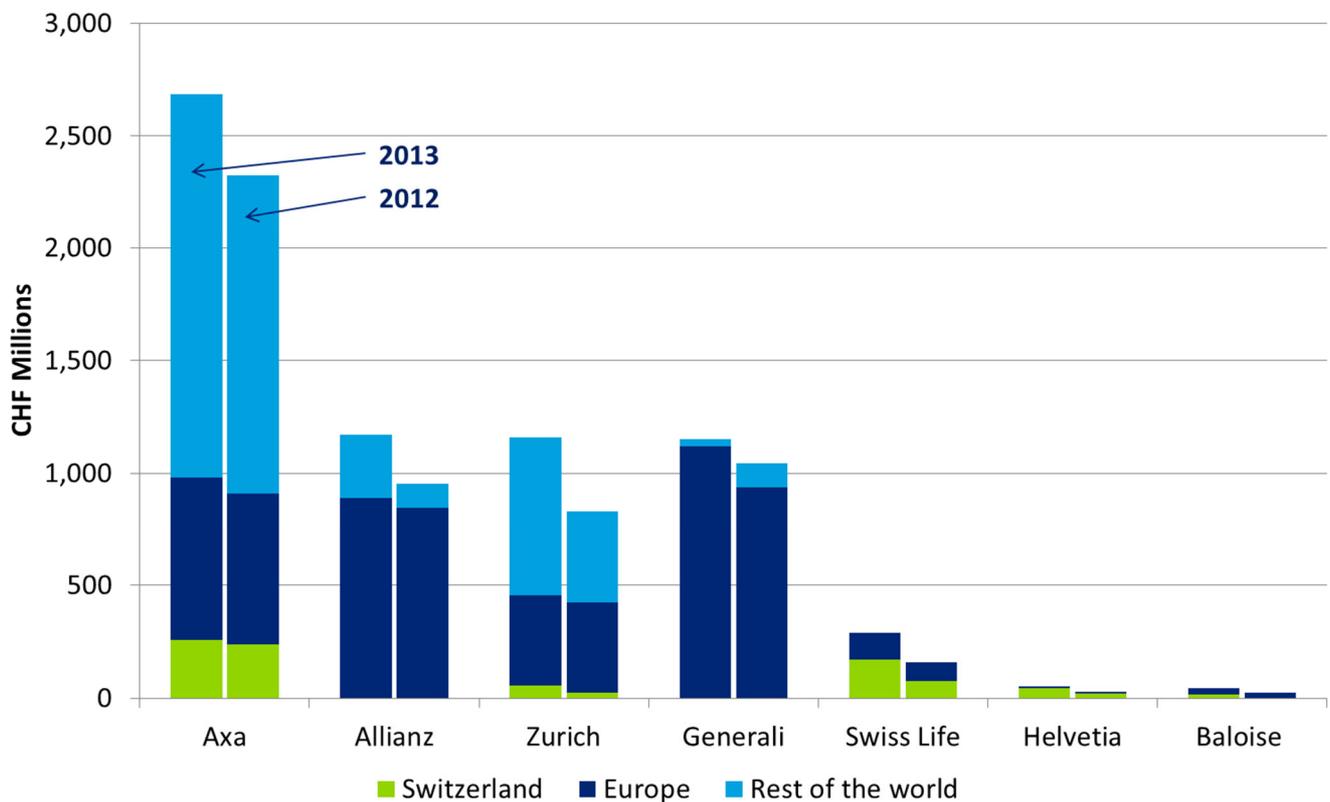
⁴ Allianz disclose a -20% sensitivity to equity values. We scaled it down to -10% linearly.

New Business

New Business Value is another key contributor to the EV profit this year. Overall, the total volume of New Business of our 7-company sample (as measured by Present Value of New Business Premium – “PVNBP”⁵) went up from CHF 230bn in 2012 to CHF 241bn in 2013 (an increase of 5%). Over the same time period, the value of New Business (net of tax) increased by 22% from CHF 5.4bn to CHF 6.6bn. This reflects an improvement in the underlying margins for all companies in our sample. On average New Business margins on PVNBP increased from 2.3% in 2012 to 2.7% in 2013.

The graph below shows the value of New Business for 2013 and 2012 by region. The same comment as for the geographical split of the EV itself (see page 2) applies. In particular, as Allianz and Generali do not report separate values for Switzerland, their Swiss New Business is included in “Europe” (for the other companies, “Europe” should be understood as “Europe excluding Switzerland”). AXA generated again the largest amount of New Business Value in our sample this year, both globally and in Switzerland. However, like last year, Generali generated the largest amount of New Business Value in Europe. Zurich caught up with Allianz and Generali this year for New Business value generated globally, but please note that Zurich’s New Business value numbers are reported gross of minority interests in Latin America and Spain (notably including 100% of Santander’s New Business, whereas Zurich actually owns 51%).

Value of New Business



⁵ We chose PVNBP over APE (Annualized Premium Equivalent), as PVNBP takes into account the duration of new contracts, and not only the volume of premiums.

2013	PVNBP (CHF billion)			Margin (% PVNBP)		
	Europe incl. Switzerland	Rest of the world	Total	Europe incl. Switzerland	Rest of the world	Total
Allianz	41	14	56	2.2%	1.9%	2.1%
Axa	48	29	77	2.0%	5.9%	3.5%
Baloise	4	-	4	1.2%	n.a.	1.2%
Generali	49	1	50	2.3%	3.2%	2.3%
Helvetia	3	-	3	1.6%	n.a.	1.6%
Swiss Life	13	-	13	2.2%	n.a.	2.2%
Zurich	26	12	38	1.8%	5.9%	3.1%
Total	184	57	241	2.1%	4.8%	2.7%

AXA reported the largest New Business volumes in 2013 globally, while Generali (closely followed by AXA) reported the largest New Business volumes in Europe. AXA also reported the highest New Business margins globally (boosted by high margins in Asia), while Generali (closely followed by Allianz and Swiss Life) reported the highest margins in Europe.

Change in 2013	VNB (%)	PVNBP (%)	Margin (%-points)
Allianz	+22%	+6%	+0.3%
AXA	+16%	+2%	+0.4%
Baloise	+96%	+28%	+0.4%
Generali	+10%	-2%	+0.3%
Helvetia	+86%	+7%	+0.7%
Swiss Life	+83%	+15%	+0.8%
Zurich	+39%	+14%	+0.6%
Average	+22%	+5%	+0.4%

With one minor exception (Generali's PVNBP decreased slightly in 2013), all 7 companies in our sample simultaneously increased their New Business value, volumes and margins in 2013. The largest relative increases in value and volume were observed for Baloise, while the largest increase in margins was observed for Swiss Life. Although the MCEV Principles only require the disclosure of an Analysis of MCEV Earnings, many companies now publish an analysis of the changes in New Business value as well. Most companies report that they improved their product mix in 2013, focusing on margin management and active new business steering. Similarly to the in-force business, the more favorable economic environment also contributed significantly to the improved profitability of the New Business written.

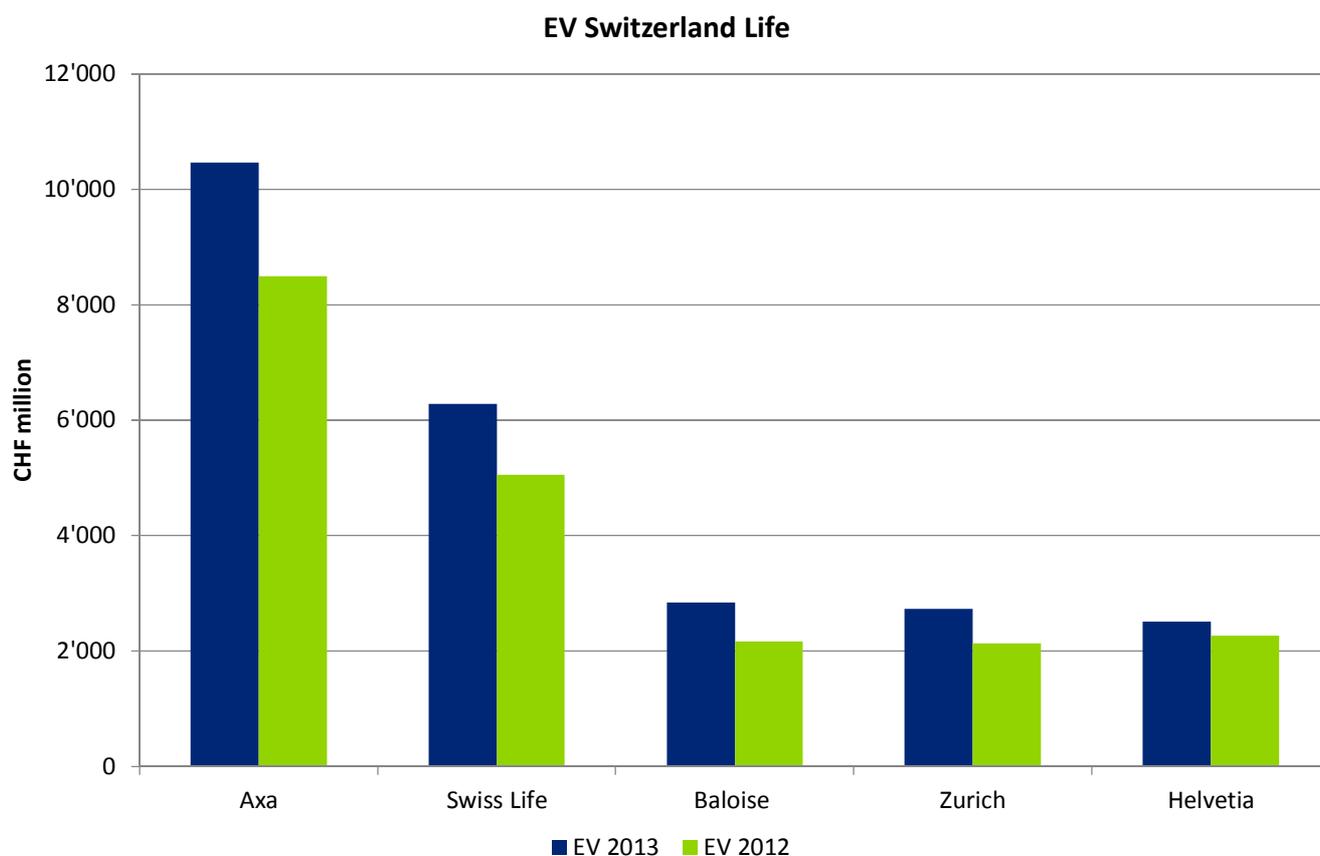
2 Switzerland Life Insurance

In this section, we analyze the EV results in Switzerland for the 5 insurers in our sample who publish separate Swiss EV results (both Allianz and Generali report Switzerland together with other groups of countries within Europe, so they are not included here). Sensitivities are generally not disclosed on a regional level, so no Swiss sensitivities are discussed here.

Please note that individual business and group pensions business are segregated in Switzerland, and are subject to very different regulation (group pensions in particular has a legal minimum profit sharing, and guarantees that can be amended based on political decisions). However, no company discloses a split of their EV between individual and group, and no information on the detailed assumptions made for the future guarantees of group pensions business (which are key to determining the EV of this very long-term business) is publicly available.

Switzerland Embedded Value

All 5 insurance companies in our sub-sample recorded an increase in EV in Switzerland (with the largest relative EV growth for Baloise and the smallest for Helvetia). The aggregate Swiss EV in our 5-company sub-sample increased to CHF 25bn from CHF 20bn the year before (+23%). The graph below shows the total EV for each company over the last 2 years (in descending order of Swiss EV 2013). On an EV basis, AXA remains the largest life insurer in Switzerland, followed by Swiss Life, and then by a group of 3 companies with an EV of roughly similar size for Switzerland (Baloise, Zurich and Helvetia).



Embedded Value split by component

Similarly to Global Life, we compiled the split of the EV in Switzerland into its various components. The same remarks as before regarding the availability of components at different companies apply.

Split Global Life EV 2013 (CHFm)	Axa	Baloise	Helvetia	Swiss Life	Zurich
Shareholder Net Asset	5,807	971	1,485	1,633	581
- Free Surplus	2,266	n.a.	n.a.	1,192	150
- Required Capital	3,498	n.a.	n.a.	442	433
Value of In-Force	4,662	1,872	1,024	4,653	2,149
- Present Value of Future Profits	4,926	2,127	1,741	5,155	2,275
- Certainty Equivalent Value	5,678	2,330	n.a.	5,180	2,416
- Time Value of Financial Options & Guarantees	- 752	- 203	n.a.	- 25	- 141
- Costs of Capital	- 266	- 255	- 717	- 502	- 126
- Cost of Residual Non-Hedgeable Risks	n.a.	- 196	n.a.	- 291	- 98
- Frictional Costs of Capital	n.a.	- 59	n.a.	- 211	- 28
Global Life EV	10,469	2,844	2,509	6,286	2,730

We analyzed each component as a proportion of the total EV, which led us to the following observations:

- The relative weight of the Shareholder Net Assets (i.e. the available capital which is not dependent on future profits) in the 2013 Swiss EV varies widely between companies, from 59% at Helvetia and 55% at AXA, down to 21% at Zurich and 26% at Swiss Life;
- Among the 3 companies who reported the split of the Shareholder Net Assets in Switzerland, Swiss Life's situation is exceptional as only 7% of the total Swiss EV (compared to 33% at AXA at the other extreme) are considered to be Required Capital;
- The Time Value of Financial Options & Guarantees represents a negative 5%-7% of the total Swiss EV for AXA, Baloise and Zurich. Swiss Life is also exceptional here, who reports virtually zero Time Value of Financial Options and Guarantees in Switzerland this year (including the cost of credit risk, see pages 16-17); and
- For 4 out of 5 companies, the costs of capital taken together represents between -3% (for AXA) and -9% (for Baloise) of the total EV. The outlier is Helvetia (-29%, due to their using a traditional EV approach for the cost of capital calculation).

Analysis of Embedded Value Earnings

We compiled the regional Analyses of EV Earnings to identify the factors that contributed the most to changes in EV over 2013 in Switzerland. Similarly to the global EV, we decided to look at the 3 main change drivers, namely New Business, Economic variance and Operating variance (please see page 4 for the exact definition of what is included in each category). We also calculated an overall average change (weighted by the opening EV). Please note that Helvetia does not split their Analysis of EV Earnings by region, so there are only 4 companies to compare here (albeit the 4 largest when measured by EV).

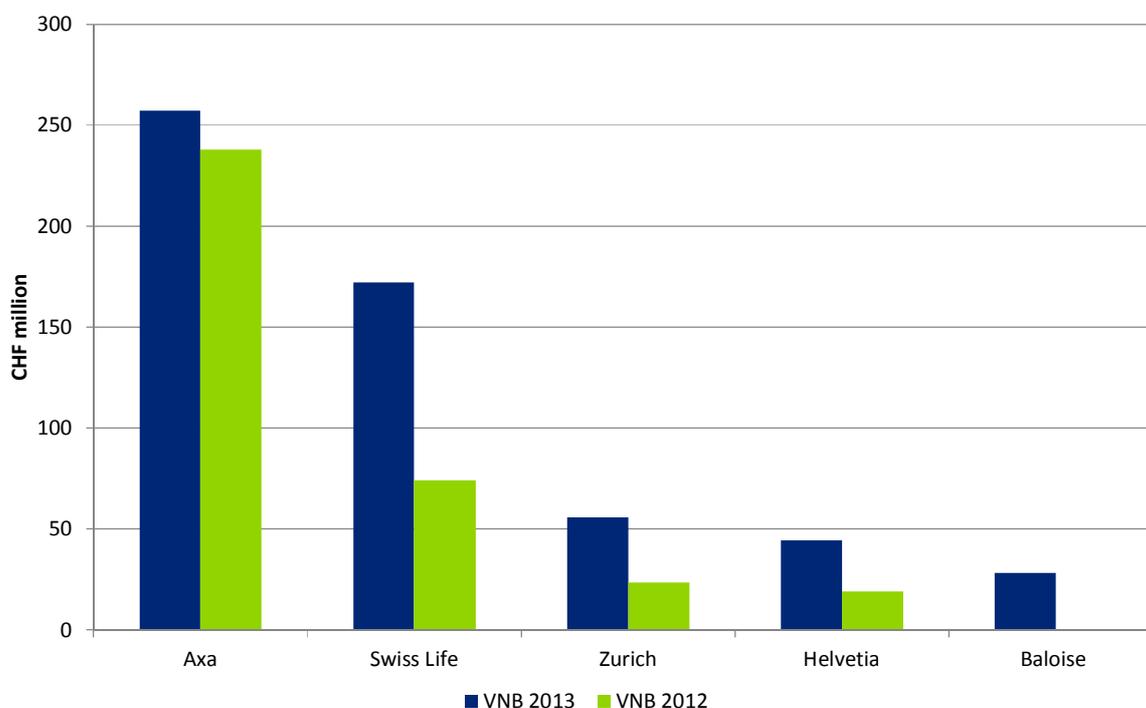
Analysis of EV Earnings	New Business	Operating variance	Economic variance
AXA	+3.0%	+5.9%	-2.3%
Baloise	+0.8%	+3.7%	+28.2%
Swiss Life	+3.4%	+22.7%	-4.7%
Zurich	+2.6%	+9.9%	+13.2%
Average	+2.8%	+10.3%	+2.6%

Despite the more favorable economic environment for life insurers in 2013, not all 4 insurers in our sub-sample report positive Economic variance in Switzerland, with AXA and Swiss Life reporting a negative variance here. At the other end of the spectrum, Zurich and first and foremost Baloise report a very large positive Economic variance. However, all 4 companies report positive New Business Values (analyzed in more details below) and Operating variance in Switzerland. Swiss Life in particular reports an extremely large positive Operating variance (notably due to improved persistency in group pensions business).

New Business

Overall, the total volume of New Business written in Switzerland for our 5-company sub-sample (as measured by PVNBP) went up from CHF 18bn in 2012 to CHF 21bn in 2013 (an increase of 19%). Over the same time period, the value of New Business (net of tax) increased by 58% from CHF 0.35bn to CHF 0.56bn. This reflects an improvement in the underlying margins for all companies in our sub-sample. On average New Business margins on PVNBP increased from 2.0% in 2012 to 2.6% in 2013. The graph below shows the value of New Business for 2013 and 2012 in Switzerland. AXA generated again the largest amount of New Business Value in our sample this year, followed by Swiss Life.

Switzerland Value of New Business



Switzerland	PVNB 2013 (CHF millions)	PVNB 2012 (CHF millions)	Margin 2013	Margin 2012
AXA	8'779	8'165	2.9%	2.9%
Baloise	2'105	1'493	0.8%	0.0%
Helvetia	2'311	2'059	1.9%	0.9%
Swiss Life	5'791	3'915	3.0%	1.9%
Zurich	2'457	2'378	2.3%	1.0%
Total	21'443	18'010	2.6%	2.0%

AXA reports the largest New Business volumes in 2013 in Switzerland (followed by Swiss Life). Swiss Life reports the highest New Business margins in Switzerland this year (closely followed by AXA).

Change in 2013	VNB (%)	PVNB (%)	Margin (%-points)
AXA	+8%	+8%	+0.0%
Baloise	n.a.	+41%	+0.8%
Helvetia	+131%	+12%	+1.0%
Swiss Life	+132%	+48%	+1.1%
Zurich	+138%	+3%	+1.3%
Average	+57%	+19%	+0.6%

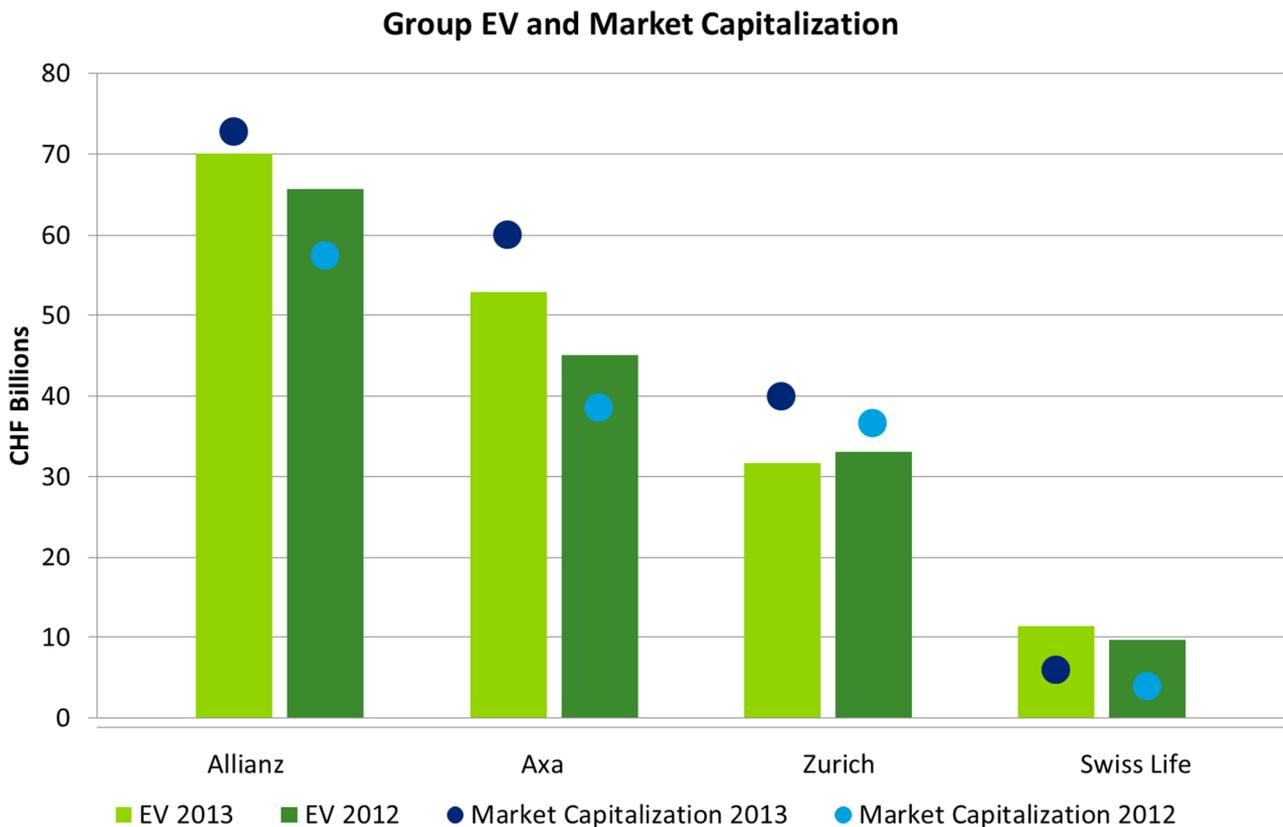
All 5 companies in our sub-sample increased their New Business value, volumes and margins in Switzerland in 2013. The largest relative increases in value and volume were observed for Baloise⁶, while the largest increase in margin was observed for Zurich (following re-pricing for individual life and changes in the business mix, the exact same reasons mentioned by Swiss Life in their comments on New Business).

⁶ Baloise reported zero New Business value for Switzerland in 2012.

3 Group Embedded Value

In this section, we analyze the Group EV results for the 4 insurance groups in our sample who publish such figures (which are normally required by MCEV Principles): Allianz, AXA, Swiss Life and Zurich. In addition to Global Life EV, Group EV also includes business non-covered in Global Life EV (such as non-life business) at IFRS shareholder equity value. It is interesting to note that:

- While AXA is the largest global life insurer in our sample on an EV basis, Allianz is the largest insurance group on a Group EV basis; and
- Despite an increase in Global Life EV, Zurich’s Group EV decreased in 2013.



Both Group EV and market capitalization are key metrics in assessing the value of a company. There are many reasons why EV and market capitalization will diverge, including the absence of future New Business value in EV and the complexity of the calculations. Significant additional value can also be placed on a company’s goodwill and non-covered business. Assuming that an insurer is writing profitable New Business, their market capitalization should in theory, all other things being equal, exceed their EV. This was the case last year for Allianz, AXA and Swiss Life (but not for Zurich). This year, Allianz, AXA and Zurich are all trading above EV, with only Swiss Life having a significantly lower market capitalization than their EV. For these 4 companies taken together, the average ratio of market capitalization to EV increased to 108% at the end of 2013, up from 89% at the end of 2013⁷ – in other words, the value of this group of companies on the stock exchange increased more than their EV. MCEV Principles also require the disclosure of an Analysis of Group EV Earnings. All 4 companies mentioned above disclose such an analysis, although with a slightly different presentation, and in general with a limited amount of details.

⁷ Source: Companies’ disclosures, Bloomberg & Deloitte analysis

4 Methodology and Disclosures

In this section, we analyze and compare the methodology and assumptions of the insurers in our sample, highlighting how their approaches converge or diverge. We also provide a list of the additional non-mandatory disclosures that a number of companies are providing to investors and analysts.

Methodology

Except for Helvetia who is still using a traditional EV approach, all other companies in our sample use a market consistent EV methodology (although AXA and Generali elected to call it market-consistent EEV, there are no material differences with MCEV⁸). Most companies use swap rates as the basis for determining reference rates (except Allianz who deduct 10bp for credit risk, similarly to FINMA's current approach for the Swiss Solvency Test) before applying a liquidity premium. For their stochastic generator of economic scenarios, a majority of companies uses Barrie & Hibbert.

Company	Methodology	Economic Scenario Generator	Basis for reference rates
Allianz	MCEV	Barrie & Hibbert	Swap rates -10bps (credit risk adjustment)
AXA	EEV (Market consistent)	Barrie & Hibbert	Swap rates
Baloise	MCEV	Deloitte TSM	Swap rates
Generali	EEV (Market consistent)	Barrie & Hibbert ⁹	Swap rates
Helvetia	TEV (i.e. deterministic & real-world)	n.a.	Risk discount rates (6.5%-8.5%)
Swiss Life	MCEV	Barrie & Hibbert	Swap rates
Zurich	MCEV	Barrie & Hibbert	Swap rates

Liquidity premiums

All the companies in our sample apply liquidity premiums to their reference rates, except Helvetia who are using a traditional EV approach and are thus not comparable. 5 companies out of 6 state that they use the proxy formula from Solvency II's QIS5¹⁰ to determine the basis liquidity premium (Baloise does not disclose their methodology). The basis liquidity premium is then weighted by a factor between 0% and 100%, depending on the business mix and the liquidity of liabilities (with weights inspired by the successive tentative versions of Solvency II, but usually customized by each insurer). Except for Zurich who apply the liquidity premium flat across the whole term structure of interest rates, other companies apply the liquidity premium across the term structure only up to the year from which the swap curve is extrapolated (typically with a 5-year phasing out period during which the liquidity premium is reduced to 0).

⁸ Except for CRNHR calculations for AXA, see page 17.

⁹ Referred to as Moody's Analytics (Barrie & Hibbert's parent company) in Generali's disclosures.

¹⁰ Maximum(0,50% x (corporate spreads – 40bps))

Basis (100%) liquidity premium	CHF (bp)	EUR (bp)	Weights by liability bucket
Allianz	3	28	- 75% for participating and other business - 0% for unit-linked and variable annuities
AXA	0	30	- 100% for annuities - 75% for participating business or high guaranteed rates - 50% for protection and other business - 0% for unit-linked and variable annuities
Baloise	0	22	- 100% for annuities in payment - 75% for participating business - 0% for other business
Generali	3	28	- 100% for annuities in payment - 75% for participating business and unit-linked with guarantees - 50% for other business
Swiss Life	22	29	- 75% for participating and other business - 50% for health insurance - 0% for unit-linked and variable annuities
Zurich	3	22	- 100% for annuities - 75% for participating business - 0% for other business

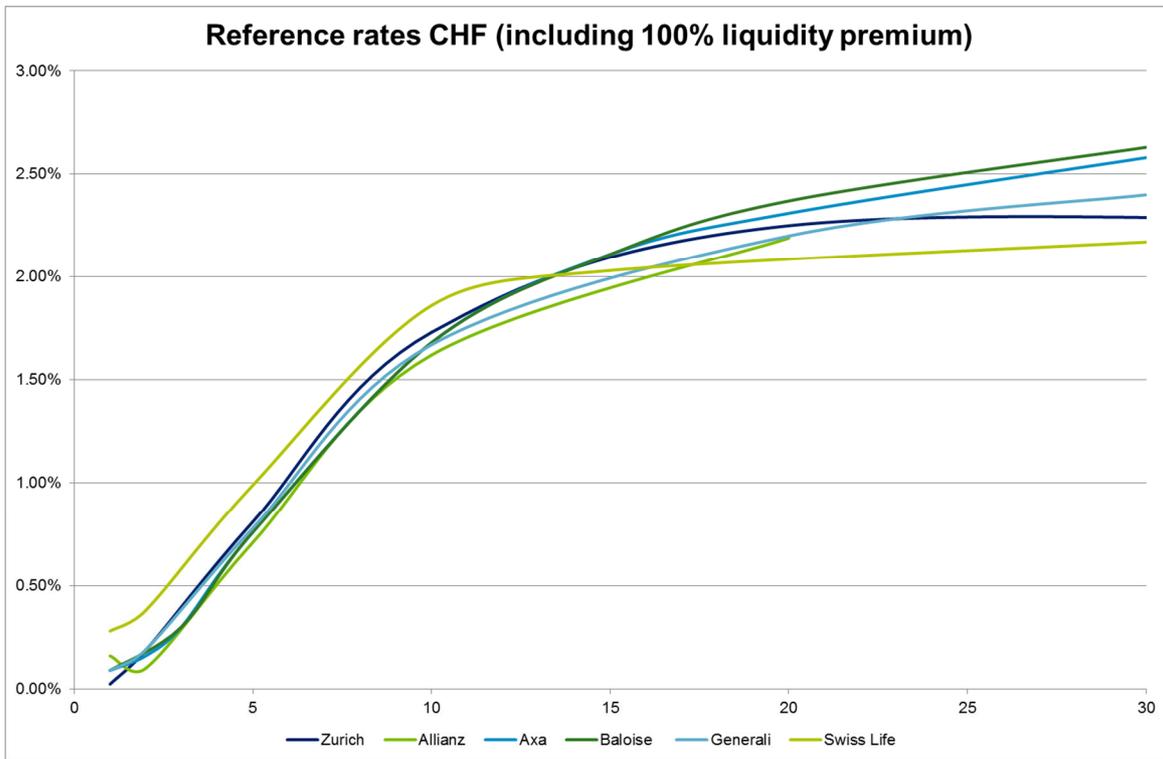
Liability premiums are generally comparable between companies, except for:

- Swiss Life's higher basis liquidity premium for CHF; and
- Generali's more liberal application of liquidity premiums to liability buckets (with a minimum liquidity premium applied of at least 50% of the basis).

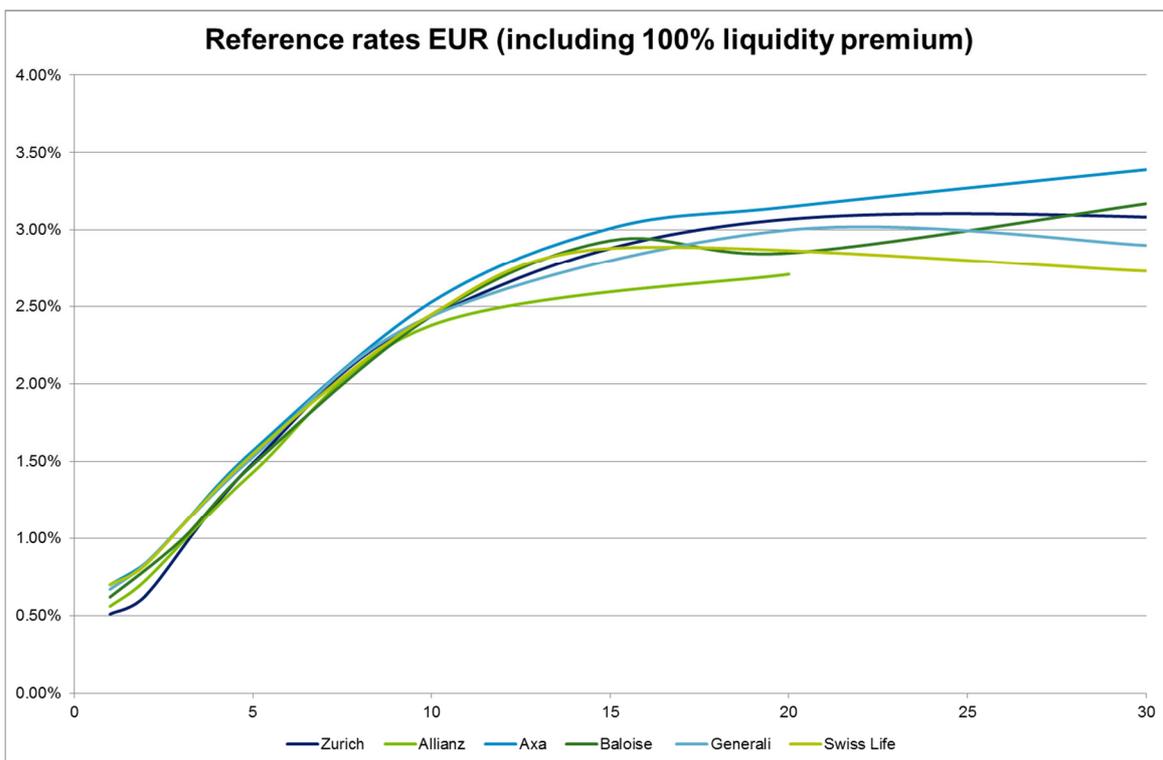
Reference rates

Although most companies use swaps as reference rates, in practice they use slightly different smoothing, interpolation and extrapolation techniques, as well as different levels of liquidity premium. For these reasons, their final reference rates differ. Like liquidity premiums, extrapolation is another assumption which has been influenced by Solvency II, but with currently no single unified approach: some companies still use the suggested approach from QIS5, others use the Omnibus II version, and yet others adopted this year the proposals from the LTGA. Total reference rates (including 100% liquidity premiums) are presented for CHF and EUR in the graphs below¹¹.

¹¹ Please note that for Allianz, explicit reference rate disclosures are only available up to a maturity of 20 years. Helvetia uses traditional (non-market) risk discount rates and has not been included in the graphs.



For CHF, there are only minor divergences between companies up to a maturity of 10 years, except for Swiss Life who uses higher reference rates than their peers. Over the long term differences can be observed (with Baloise and AXA having the highest reference rates, and Swiss Life the lowest).



For EUR, there are only minor divergences between companies up to a maturity of 10 years. Like CHF, differences can be observed over the long term (with AXA having the highest reference rates, and Allianz and Swiss Life the lowest).

Volatilities

Volatilities of asset classes have a major impact on the value of options and guarantees. Higher volatilities usually lead to lower EV results (except for Swiss Life for interest rates this year, see sensitivities page 5). The companies we have investigated all use implied volatilities from at-the money forward swaptions and equity options (except Helvetia who performs only traditional EV calculations on a deterministic basis). For property volatilities, historical data is generally used (except Zurich who use implied volatility data for property as well). The level of details disclosed regarding the methodology and the numerical assumptions varies between companies. We show a comparison of the disclosed volatilities in the table below:

- 10-year at-the-money forward equity option;
- 10x10-year at-the-money forward swaption¹²; and
- Property index.

Company	Interest rate (CHF)	Interest rate (EUR)	Equity (CHF)	Equity (EUR)	Property (CHF)	Property (EUR)
Allianz	28%	22%	20%	20%	10%	14%
AXA	28%	22%	18%	21%	n.a.	n.a.
Baloise	28%	22%	17%	21%	4%	4-13%
Generali	29%	22%	18%	21%	n.a.	n.a.
Swiss Life	29%	22%	19%	21%	8%	13%
Zurich	24%	20%	19%	21%	16%	16%

There is in general a strong convergence between companies for volatility assumptions, with the following notable exceptions:

- Zurich uses lower interest rate volatility assumptions for CHF than their peers;
- There is a discrepancy between property volatility assumptions, in particular in Switzerland where the range of assumptions is extremely large (from as little as 4% for Baloise to as much as 16% for Zurich). This assumption usually has a material impact on the valuation of options in Switzerland due to the large property portfolios of life insurers.

Cost of Residual Non-Hedgeable Risks

According to MCEV Principle 9, an allowance should be made for the Cost of Residual Non-Hedgeable Risks (CRNHR) not already captured explicitly in the value of options and guarantees in the projection model. CRNHR is similar to the Risk Margin / Market Value Margin from the Swiss Solvency Test / Solvency II. Residual non-hedgeable risks can be either non-financial risks (e.g. biometric, persistency, expenses and/or operational) or financial non-hedgeable risks. CRNHR is generally calculated using a cost of capital approach, but there are differences between individual companies regarding the annual cost of capital, the risks covered and the diversification taken into account.

Let us first consider a group of 5 companies formed by Allianz, Baloise, Generali, Swiss Life and Zurich. Within this sub-sample:

- A majority of companies (Baloise, Generali, Swiss Life and Zurich) assume a 4% capital charge per annum. Allianz uses a 3.25% capital charge;
- All insurers cover insurance risks in their CRNHR calculations. Some also cover operational risk (this is mentioned by Allianz, Generali and Zurich) and/or credit risk (this is notably mentioned by Baloise and Swiss Life¹³);

¹² For Allianz and Swiss Life, the implied volatility for EUR corresponds to 10x20 swaptions.

¹³ Swiss Life calculates the cost of credit risk using a CRNHR-like approach but reports it under the Time Value of Financial Options and Guarantees.

- All companies use modern solvency models to assess the required capital (e.g. Swiss Solvency Test, Solvency II or internal capital models, often adapted for MCEV); and
- Generali and Swiss Life do not apply diversification at Group level, but Baloise and Zurich do. Zurich goes further in applying diversification between covered and non-covered business.

Helvetia uses a traditional EV approach, whereby costs of capital are based on the risk discount rates and not explicitly split between CRNHR and Frictional Costs of Capital.

AXA also uses a methodology conceptually more comparable to traditional EV, whereby the allowance for non-financial risk is made assuming additional Frictional Costs of Capital (based on 150% of minimum solvency margin required by local regulators). Numerically however, this leads to low comparatively low costs of capital for AXA (see page 3).

Additional disclosures

Over the last years, insurance companies have started publishing additional disclosures compared to the minimum required by the MCEV Principles. We summarize here what these additional disclosures typically are, and which companies from our sample published them this year.

Although the MCEV Principles only require the disclosure of an Analysis of MCEV Earnings, many companies also publish an analysis of the changes in New Business value. This was the case this year for Allianz, AXA, Generali and Swiss Life in our sample. Each company has a different presentation (number, nature and order of the steps); it is however worth noting that all companies analyze the impact of changes in business mix and volume.

MCEV Guidance requires that profits or losses from managing covered business incurred in service companies (such as administrative support or asset management for example) are measured on a “look-through” basis i.e. that they are incorporated into the EV and New Business Value (NBV). In our sample:

- Allianz does not include look-through profits (linked to fund management companies within the group) in their EV and NBV, but they provide the potential impact as additional information;
- Baloise includes look-through profits for investment management services. Except for the amount of profit transferred for the year 2013, the numerical impact on EV and NBV is not disclosed;
- Generali includes look-through profits for holding companies with respect to direct life insurance and intra-group life reinsurance, and for the group’s asset management companies who are directly associated with life insurance business. The numerical impact on EV and NBV is not disclosed;
- Swiss Life includes look-through profits for asset management and corporate center services. The numerical impact on EV and NBV is not disclosed; and
- Zurich includes look-through profits for service companies within the group in Germany (distribution and administration) and Switzerland (investment management services to pension schemes). The numerical impact on MCEV and MCVNB is not disclosed either.

Many companies also publish a profit maturity profile over the projection horizon. In our sample, this is the case this year for Allianz (who give the most details), AXA, Generali and Zurich. Although disclaimers rightly note that this does not directly correspond to future distributable cash-flows, it allows educated investors to form an opinion on the timing of future profits (which in life insurance can be very long-term).

In accordance with the MCEV Principles, all companies in our sample except Baloise publish a split of their Shareholder Net Assets between Required Capital and Free Surplus (although Zurich, like Baloise, calculates Frictional Cost of Capital based on the whole Shareholder Net Assets and not just Required Capital). Some companies (Allianz, Zurich and Generali, ranked here by decreasing order regarding the amount of details provided) go further and publish detailed information regarding the generation of distributable profits (Free Surplus) during the reporting period.

With the exception of the interest rate sensitivity, MCEV Principles primarily require sensitivities to be published in one direction only, unless there are marked asymmetries. However, many companies in our sample publish economic sensitivities in both directions (AXA, Swiss Life, Zurich and to some extent Generali), as well as the sensitivity to lapses (Generali, Swiss Life and Zurich).

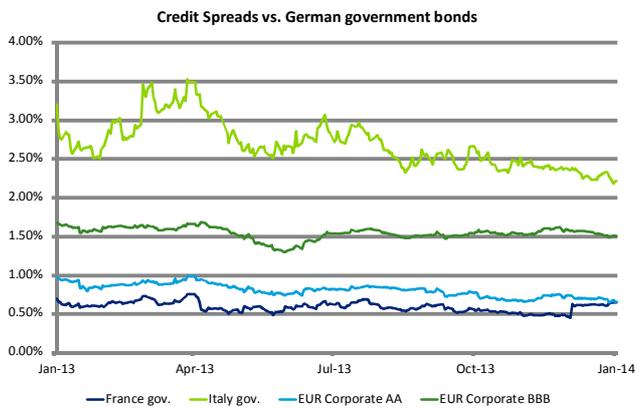
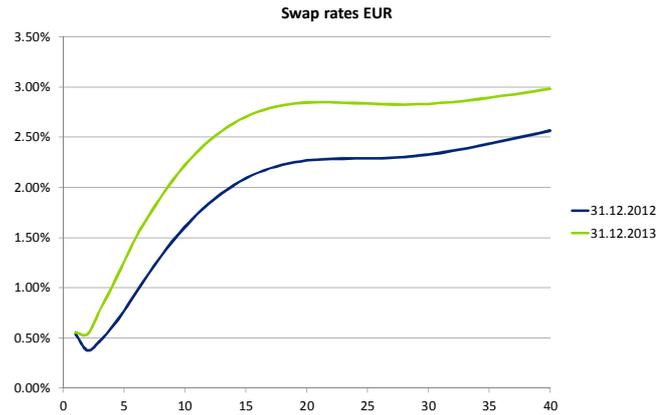
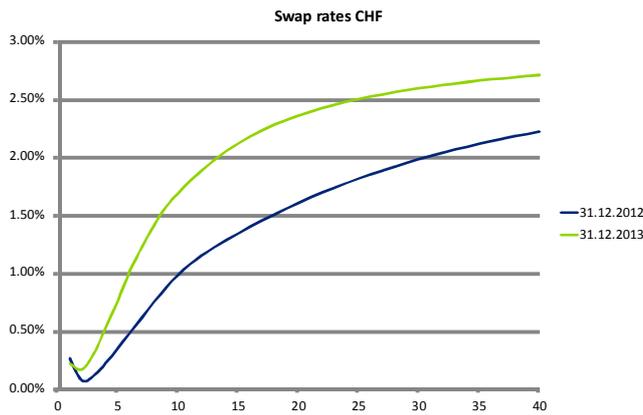
AXA has also started this year to report operating investment experience in Operating return (operating investment experience is usually included in Economic return). We appreciate this change as enhancing the transparency of the Analysis of MCEV Earnings as this tries to separate the active part of asset management (Operating) from the changes in financial markets (Economic).

A couple of companies in our sample (AXA and Generali) publish Internal Rates of Return (IRR) for New Business, corresponding to the rate that equals the New Business Value to zero. AXA alone still publishes equivalent Implied risk Discount Rates (IDR, for the in-force as well as for the New Business), corresponding to the discount rate that would reproduce a traditional EV calculation. Both the IDR and the IRR provide indicators regarding the expected real-world profitability.

5 Appendix: Financial Markets

To illustrate the development of financial markets in 2013 (rising interest rates, steady equity gains, and narrower spreads), we present in this Appendix a few select indicators (source: Bloomberg and Deloitte analysis):

- CHF and EUR swap rates;
- EUR credit spreads (French & Italian government bonds, AA & BBB corporate bonds); and
- Major equity indices.



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