



**Swiss Re Group's Life and Health business  
Embedded value and embedded value earnings for the year ended 31 December 2006**

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## Introduction

The Swiss Re Group is presenting additional information on its Life and Health operations to that shown in its 2006 published financial statements, which were prepared on a US GAAP basis.

An alternative method of reporting the financial results of the life and health insurance operations of an insurance company is to use an embedded value method. This method is used by a number of life insurance groups and bancassurance groups to provide supplementary information to that shown in their published accounts.

The embedded value is an estimate of the value of shareholders' interests in the life and health insurance operations of Swiss Re, excluding any value attributable to future new business.

The embedded value earnings, which includes the value added by new business, is equal to the change in the embedded value over the year, after adjustment for any capital movements such as dividends and capital injections, and provides a measure of the performance of the life and health insurance operations of an insurance company.

The 2006 embedded value supplementary information has been calculated in accordance with the European Embedded Value ("EEV") principles issued in May 2004 by the European Chief Financial Officers' Forum ("CFO Forum").

## Embedded Value Highlights

CHF millions	2005	2006
Embedded value	20 065	22 639
Embedded value of acquired GEIS businesses		1 989
Value added by new business	283	664
Embedded value profit	562	1 039
Embedded value earnings	1 720	2 367

## Coverage

The embedded value results cover all the life and health business written by Swiss Re. This is defined as the "Covered Business". It encompasses :

- all life, health and disability business written through Swiss Re's Life & Health ("L&H") business segment consistent with the 2006 published financial statements;
- current and projected future expenses incurred by Swiss Re's L&H business segment on a look through basis; and
- the portion of investment management charges and Group overheads allocated to the Life and Health business segment consistent with the published accounts.

## Embedded Value

The embedded value of Swiss Re's covered business at 31 December 2006 was CHF 22.6 billion, an increase of CHF 2.6 billion since the previous year end.

CHF millions	2005	2006
Free surplus	2 134	1 892
Required capital	7 266	8 729
Adjusted net worth	9 400	10 621
Value of in-force business	12 248	13 779
Cost of holding required capital	-1 583	-1 762
Embedded value	20 065	22 639

The time value of financial options and guarantees as at 31 December 2006 included in the value of in-force at that date, was as follows:

CHF millions	2005	2006
GMDB business	205	109
US interest spread business	102	101
Other business <sup>1</sup>	49	41
Total time value	356	251

<sup>1</sup> Approximate methods used.

The change in the embedded value over the year is broken down in the table below.

CHF millions	2005	2006
Opening embedded value	17 059	20 065
Embedded value of acquired GEIS businesses <sup>1</sup>		1 989
2005 EEV adjustment <sup>2</sup>	161	
Embedded value earnings	1 720	2 367
Exchange rate movements	1 910	-526
Capital movements	<b>-785</b>	-1 257
Closing embedded value	20 065	22 639

<sup>1</sup> GEIS was acquired with effect from 12 June 2006. The acquired value is the embedded value of GEIS business as at 12 June 2006. The post acquisition earnings in respect of GEIS are included in the 2006 earnings shown above.

<sup>2</sup> The 2005 EEV movement reflects the change as a result of the implementation of the EEV principles in 2005.

## Embedded value earnings

The 2005 and 2006 after-tax embedded value earnings of the Covered Business operations of the Swiss Re Group are shown below.

CHF millions	2005	2006
Value added by New Business	283	664
Op. assumptions change	42	409
Experience variance	237	<b>-35</b>
Embedded value profit	<b>562</b>	<b>1 039</b>
Expected return on in-force	923	1 116
Expected return on shareholder net worth	317	336
Investment variance	234	<b>-35</b>
Eco. assumption changes	<b>-316</b>	<b>-88</b>
Embedded value earnings	<b>1 720</b>	<b>2 367</b>

The 2006 positive operating assumptions change of CHF 409 million is primarily due to favourable mortality and morbidity development. The negative experience variance is due to an increase in variable compensation partly offset by positive mortality development.



## Embedded value compared to the Group balance sheet

Part of the embedded value of the covered business is already recognised in the Swiss Re Group consolidated balance sheet, for example it includes an asset reflecting the present value of future profits in respect of acquired business.

In 2006 the published financial statements were prepared on a US GAAP basis. The introduction of US GAAP has increased the remaining net assets (excluding goodwill), reflected in the GAAP balance sheet primarily due to marking to market of fixed interest assets.

Valuing the covered business on an embedded value basis recognises additional shareholders' equity of CHF 2 539m.

CHF millions	2005	2006
Value of in-force business	12 248	13 779
Adjusted net worth	9 400	10 621
Cost of holding solvency capital	-1 583	-1 762
Embedded value	20 065	22 639
Shareholders' equity recognised in the Group balance sheet	-18,300 <sup>1</sup>	-20 100 <sup>2</sup>
Embedded value not recognised in the balance sheet	1 765	2 539

<sup>1</sup>Prepared under Swiss GAAP

<sup>2</sup> Prepared under US GAAP

The shareholders' equity attributed to the Covered Business does not include any allocation of Group long-term debt or Goodwill.

## Alternative assumptions

The risk adjusted discount rate appropriate to any investor will depend on the investor's own requirements, tax position and perception of risks associated with the realisation of future regulatory profits. In order that potential investors may judge the effect of using alternative assumptions, the estimated sensitivity of the embedded value and the value added by new business to changes in certain key assumptions are shown below:

CHF millions	Change in embedded value	Change in value added by new business
<b>Base value – 2006</b>	<b>22 639</b>	<b>664</b>
Change in risk adjusted discount rate		
- Reduced by 100bps	1 600	190
- Increased by 100bps	-1 400	-160
Change in Interest Rate Environment <sup>1</sup>		
- Reduced by 100bps	300	0
- Increased by 100bps	-200	0
Equity market shock <sup>2</sup>		
- 10% fall	-200	-40
Reduce Required Capital to minimum level <sup>3</sup>	600	70
Reduce Lapse Rates by 10%	-100	20
Decrease maintenance expenses by 10%	300	50
Mortality and morbidity rates reduced by 5% <sup>4,7</sup>		
- Mortality	2 600	130
- Morbidity	600	30
Remove all allowance for future mortality improvement <sup>5,7</sup>	-3 100	-160
Increase mortality improvements to 1% per annum <sup>6,7</sup>	1 800	110

In calculating the impact of each of the above alternative assumptions, all of the other assumptions have been left unchanged.

<sup>1</sup> The test considers the impact of a 100bps change in the interest rate environment at all durations with an equivalent change in risk discount rates and equity returns. This sensitivity is designed to indicate the impact of a sudden parallel shift in the risk-free yield curve, which increases the current market value of fixed-interest assets but reduces future reinvestment rates. Depending on the regulatory basis, the change in the interest rate environment could lead to a change in the valuation interest rate and regulatory reserves.

<sup>2</sup> Assumes returns in percentage terms unchanged after the fall.

<sup>3</sup> The minimum required capital is amount of capital below which the insurer would be in breach of its minimum statutory capital requirements. Most regulators require an insurer to hold capital in excess of this amount.

<sup>4</sup> The assumption is that future mortality /morbidity rates are lower than those assumed in the base calculations, by a uniform 5% in all future years. The related impact on profit share agreements and changes in premium rates at future renewal dates allow for the current premium rates to be maintained.

<sup>5</sup> In certain territories the projected regulatory profits allow for future gradual improvements in mortality rates. The impact of excluding such future improvements is illustrated here. The related impact on profit share agreements and changes in premium rates at future renewal dates have been allowed for.

<sup>6</sup> This illustrates the impact of allowing for a compound 1% pa improvement in mortality rates at all ages throughout the projections, for all life business, in place of the allowance made in the base calculations. The related impact on profit share agreements and changes in premium rates at future renewal dates have been allowed for.

<sup>7</sup> The mortality assumption sensitivities exclude the impact of changes in longevity rates on annuity business. Longevity exposure is not material for Swiss Re.

## Appendix: Embedded value methodology and assumptions

### Embedded value

The embedded value on the covered business is the sum of:

- the value of shareholders' interests in the in-force business (the value in-force), which includes a deduction for the time value of financial options and guarantees,
- the capital required to support the in-force business (the required capital) less a charge for the cost to shareholders of holding the required capital, and
- the free surplus held within the L&H companies.

The adjusted net worth of the covered business is equal to the sum of the free surplus and the required capital on the business.

All significant inter-company transactions and balances have been eliminated on consolidation.

### Value in force

The value of in force is the present value of future profits less a deduction for the time value of financial options and guarantees.

#### *Present value of future after tax regulatory profits*

The value of shareholders' interests in the in-force covered business is the present value of the projected stream of future after-tax regulatory profits that are expected to be generated from the policies in-force at the valuation date. This present value is calculated using risk adjusted discount rates consistent with the economic assumptions and which reflect the risks associated with the emergence of distributable earnings not allowed for elsewhere in the calculations.

The projected stream of future after-tax regulatory profits is computed using best estimate assumptions with regard to future mortality, morbidity, lapse rates, maintenance expenses and taxation.

#### *Financial options and guarantees*

The cost of all material financial options and guarantees have been taken into account. The most material of these are in respect of:

- Guaranteed minimum death benefits on North American business (GMDB). Future premiums and sums assured depend on investment market performance and contain guarantees which result in an asymmetric distribution of possible outcomes.
- US interest sensitive business (Universal Life and Deferred Annuity), which incorporates guaranteed minimum crediting rates.
- Other, mostly consisting of a small exposure to traditional with-profits business in the UK.

Both the intrinsic and the time value of these options and guarantees are taken into account in the calculation of the value of in-force.

For these products the value of future regulatory profits has been determined using stochastic techniques which project regulatory cash flows under a significant number of stochastic scenarios to determine a stochastic present value of future profits. The stochastic investment scenarios are risk neutral and market consistent. Consistent with that, regulatory profit projections use risk neutral investment assumptions for returns on equities and for future investment in (disinvestment of) fixed interest investments.

The stochastic present value of future profits includes both the intrinsic and the time value of embedded options and guarantees. The time value has been calculated separately for information and disclosure purposes. This is the difference between the stochastic value and a single deterministic value using consistent risk neutral investment assumptions.

The projection models make allowances where appropriate for the effect of expected policyholders' behaviour in different economic scenarios.

There is a partial hedge in place against GMDB downside risk, using long equity put options. The hedge cash flows and market values are taken into account in calculating both the embedded value and the embedded value earnings.

## Adjusted net worth

The adjusted net worth comprises the required capital plus free surplus. The assets underlying the adjusted net worth are adjusted to reflect their market value.

### *Required capital*

Required capital is the capital the Swiss Re Group allocates to its life and health operations to demonstrate security to its cedants, to satisfy local regulatory solvency requirements and to ensure that overall Group solvency and rating agency requirements are met. This approach



generally results in capital well in excess of the minimum local regulatory solvency requirements. The financial impact of this excess is set out in this report in the section dealing with alternative assumptions.

Assets backing required capital may be regarded as being locked-in and are projected to earn an after-tax investment return which is less than the risk adjusted discount rates used in the calculation of the value of in-force business.

The annual charge for the cost to shareholders of maintaining required capital is the difference in the year between the after-tax amount earned on assets supporting required capital and the amount expected in accordance with the risk adjusted discount rate. The charge for the cost to shareholders of holding required capital over the outstanding life of in-force policies is the present value of these annual charges.

#### *Free surplus*

The free surplus is the amount of capital and surplus allocated to, but not required to support, the in-force covered business.

No free surplus is allocated to the life and health insurance operations in the composite insurance companies.

## Value added by new business

The value added by new business is defined as the value added to shareholders' interests by new business written during the year, after an allowance for the cost of holding required capital, using closing assumptions and including the value added between the point of sale and the end of the year.

New business includes: new individual business cessions in the year, new group schemes and increments to existing group schemes, new blocks of Admin Re<sup>SM</sup> business and new cessions in the year on any Admin Re<sup>SM</sup> blocks still open to new business, and the full value of business that is subject to active annual renewal (e.g. annual stop-loss covers). This is unchanged from 2005.

The value added by new business is calculated at year-end and includes the statutory cash flows generated by the business during the year.

## Embedded value earnings

Embedded value earnings are defined as the change in the embedded value over the year after adjustment for any capital movements. Consistent with the end of year values these earnings are after-tax.

For the life and health insurance companies, capital movements comprise dividends paid and other capital movements between the life and health insurance companies and the ultimate holding company of the Swiss Re Group. For composite insurance companies, capital movements comprise: life and health regulatory profits arising during the year; changes in required capital and allocated investment returns on required capital in the year; and other relevant capital movements between the composite insurance companies and the ultimate holding company of the Swiss Re Group.

Embedded value earnings comprises the following components, the first three of which in aggregate are referred to as embedded value profit:

- the Embedded Value profit equal to:
  - the value added by new business,
  - the impact of changes in the assumptions for future operating experience,
  - current year experience variance caused by the differences between the actual experience during the year and the expected experience, based on the year end operating assumptions;
- the expected return on the value of the shareholders' interests in the in-force business, including allowance for the cost of holding required capital,
- the expected investment return on the shareholders' net worth, based upon the year end economic assumptions;
- investment variance caused by differences between the actual or, in the case of composite insurance companies, the allocated investment return in the year and the expected experience, based on the year end economic assumptions;
- the impact of changes in economic assumptions in the year (e.g. changes in discount rates and future investment rates).

The effect of currency exchange movements is generally not included as a component of embedded value earnings and is instead shown separately as a movement in embedded value.

There are some exceptions involving business written in minor currencies where exchange effects are included in embedded value earnings as part of experience variance.

## Expenses

All expenses incurred during the year, including development costs, are included in the embedded value earnings.

The GE Life and Pensions expense assumptions allow for the cost synergies and one-off costs of obtaining these synergies expected to be achieved by consolidating this acquired business with the existing UK Admin Re business. No allowance is made for any other future productivity gains.

Acquisition expenses relating to Admin Re<sup>SM</sup> business are allocated in proportion to the amount of capital invested, averaged over a period. Differences in a particular year resulting from this approach are included in current year in-force earnings as experience variance.

## Post-Retirement Benefit Costs

FAS158 "Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans" was introduced by FASB in 2006 for US GAAP reporting from 15 December 2006. This requires companies to recognise the funded status of their benefit plans on their balance sheet. The FAS158 deficit/surplus and ongoing contributions as per the published accounts have been reflected in the embedded value results.

## Securitisation

In 2005 Swiss Re securitised the future profits being generated by several blocks of in-force life policies. The impact of these securitisations (Queensgate and ALPS) on the current year and future projected regulatory profits has been taken into account in calculating the embedded value and embedded value earnings. The impact of the 2005 securitisations on the embedded value earnings are not material.

The Life extreme mortality risk securitisations, VITA Capital, are assumed to be neutral to embedded value. The subsequent cost and benefits are included in embedded value earnings as and when they emerge.

## Assumptions - General

The embedded value method, in common with any valuation method based on projections of the future, involves judgement when establishing the assumptions to be used. The Swiss Re Group actively and carefully reviews assumptions, selecting those which are considered to be appropriate and seeking consistency among operations, whilst reflecting local business portfolios, experience and market environments.

Assumptions such as mortality, morbidity, lapse rates and maintenance expenses are chosen to reflect recent and expected future experience.

Regulatory technical provisions have been projected using current methods. In certain territories the projected regulatory profits allow for future gradual improvements in mortality rates, together with the related impact on regulatory technical provisions, profit share agreements and changes in non-guaranteed premium rates at future renewal dates.

Projected tax has been allowed for on the basis that applies to each legal entity within the Swiss Re Group. Current tax legislation and rates have been assumed to continue unaltered, except where changes in future tax rates or bases have been announced, other than for the recently announced future reduction in UK corporation tax which has not yet been passed into legislation.

The recent announcement regarding the optimisation of the Swiss Re legal entity structure in the EU, has not been reflected in the results.

## Economic Assumptions - General

The investment return assumptions used for life and health insurance companies are consistent with the asset valuation basis used in the regulatory accounts of those companies. In the case of composite insurance companies, the asset allocations and investment return assumptions used are consistent with investment return allocations underlying the regulatory accounts for their life and health insurance business. There is no allocation in the regulatory accounts for the investment return on required capital, so for the purposes of the embedded value and embedded value earnings calculations, a combination of government and corporate bonds and equities is assumed to be hypothecated to cover required capital in the composites, and the allocated investment return on assets backing required capital is based on the actual performance of these asset classes.

## Economic Assumptions - Risk Discount Rate

Future shareholder profits or losses generated by the in-force business have been discounted at the risk adjusted discount rate ("RDR"). Swiss Re calculates the RDR using a bottom up approach which is set separately for each major currency. The RDR is equal to the sum of:

- the risk free rate, based on yield to maturity on 10 year benchmark government fixed income security. The risk free rate is adjusted to allow for the average duration of profit emergence in certain cases (e.g. 15 years for Canada).
- an addition of 0.35% to allow for the non-diversifiable risk, within the projected future after-tax regulatory profits, associated with exposure to equity markets. This reflects a Beta of 10% in respect of the future regulatory profits of in-force Covered Business and an equity risk premium of 3.5%. The low level of Beta reflects the predominance of non-economic risks (such as mortality and morbidity) within the policies reinsured by Swiss Re, and the low equity holdings backing adjusted net worth. The non-diversifiable equity risk within the GMDB products is not taken into account as that risk is taken into account explicitly elsewhere in the calculations (refer to Financial Options and Guarantees subsection above).
- a 2.5% points margin judged to be appropriate for the additional capital costs required to cover insurance risks, agency costs, and the illiquidity of the profit streams.

The principal economic assumptions are listed below for the major currencies.

	<b>Euro</b> %	<b>UK</b> %	<b>USA</b> %	<b>Canada</b> %
<b>Risk adjusted discount rate</b>				
2006	6.8	7.6	7.6	7.0
2005	6.1	7.0	7.3	7.0
<b>Risk free rate<sup>1</sup></b>				
2006	3.9	4.8	4.8	4.2
2005	3.3	4.1	4.4	4.2
<b>Fixed interest reinvestment rate (pre-tax)<sup>1</sup></b>				
2006	4.0	4.6	5.5	4.7
2005	3.5	4.1	5.3	4.7

**Equity rate of return assumed to be equal to risk free plus 350 basis points.**

<sup>1</sup> Based on a reference to current and forward fixed interest market yields.

For products with significant financial options and guarantees the above fixed interest reinvestment rates and equity return assumptions are not used. Instead returns consistent with risk neutral stochastic scenarios are used. These scenarios are based on the term structure of risk free rates and market consistent volatilities at the date of calculation.

## Exchange rates

The embedded value is calculated using closing exchange rates. Value added by new business and embedded value earnings are calculated using the average exchange rate over the previous year.

The key exchange rates used in embedded value results are shown in the table below:

<b>CHF per 1 unit of:</b>	<b>EUR</b>	<b>GBP</b>	<b>USD</b>	<b>CAD</b>
2005 Closing FX	<b>1.55</b>	<b>2.26</b>	<b>1.32</b>	<b>1.13</b>
2006 Average FX	1.57	2.30	1.25	1.11
2006 Closing FX	1.61	2.39	1.22	1.05

## Reinsurance business and data

In common with other reinsurance groups, the business written by Swiss Re Group is more diverse than that written by most primary insurance companies. In addition, in calculating the embedded value, value added by new business and embedded value earnings, less data is usually available than is the case for primary insurance companies and this data is sometimes not available when the financial statements and embedded value calculations are finalised. This means that more estimates must be made in calculating the embedded value and embedded value earnings (including the value added by new business) than is the case for primary insurance companies and that more approximate methods are used where the data does not support full projections of regulatory profits. Consequently, the results should be regarded as less precise than those of some primary insurance groups.

## European Embedded Value Principles

Swiss Re has adopted the European Embedded Value Principles as from the end of 2005. In calculating the embedded value and embedded value earnings all 12 of the Principles have been complied with.

The Principles are accompanied by underlying Guidance. Part of the Guidance states that any areas of non-compliance with the underlying Guidance and reasons for non-compliance should be disclosed. We believe we comply fully with all the underlying Guidance in all material respects where relevant and meaningful to our business. In terms of this Guidance, we list areas of non-compliance:

- G.12.4, Methodology, part (h) . Swiss Re does not publish new business premium volumes in the primary published financial statements, and hence this required disclosure is not applicable.
- G.12.4, analysis of the free surplus and a reconciliation to the consolidated Group GAAP equity. A comparison to the relevant part of the Group GAAP equity hypothecated to L&H business is shown instead.
- Section 5.2 of the Additional Guidance (analysis of return on EV between Adjusted Net Worth and the Value of In-force). Swiss Re believes the current level of disclosure for L&H business is sufficient in the context of a large composite Reinsurance Group.

## Assurance of Embedded Value

To the Board of Directors of  
Swiss Reinsurance Company  
Zurich

### Independent assurance report on the supplementary financial information

We have been engaged to express an independent opinion on Swiss Re Group's Life and Health Business: Embedded value and embedded value earnings for the year ended 31 December 2006, dated 3 April 2007, ("the supplementary financial information") which has been prepared in accordance with the basis set out therein.

The supplementary financial information is the responsibility of the Board of Directors.

Our responsibilities in relation to the supplementary financial information are, as set out in our letter of engagement, to report to you our opinion as to whether the supplementary financial information has been properly prepared in accordance with methods and assumptions described therein and that these are consistent with the European Embedded Value Principles ("EEV Principles") as promulgated by the European Chief Financial Officers' Forum ("CFO Forum").

In this regard, we planned and performed our evidence-gathering procedures to obtain a basis for our conclusions in accordance with the International Standard on Assurance Engagements 3000 (Revised) - "Assurance Engagements other than Audits or Reviews of Historical Financial Information". We have not performed an audit, and therefore do not express an audit opinion, in accordance with auditing standards.

In particular:

- we planned our procedures to have a reasonable expectation of detecting material misstatements or omissions in the supplementary financial information;
- we assessed the significant estimates and judgements made by the Directors and Management in preparation of the supplementary financial information;
- we obtained an understanding of the relevant controls and procedures applied by the Directors and Management of the Company in calculating and preparing the supplementary financial information; and
- we performed tests of these controls and procedures including, to the extent considered necessary, review of detailed work papers and re-performance of testing.

We believe that our work provides a reasonable basis for our conclusions.

In our opinion, the supplementary financial information has been properly prepared, in all material respects and with due regard to the nature of the business, in accordance with the EEV Principles as promulgated by the CFO Forum.

This assurance report, including the opinion, has been prepared for and only for the Directors in accordance with our letter of engagement and for no other purpose. We do not, in giving this opinion, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or in whose hands it may come save where expressly agreed by our prior consent in writing.

PricewaterhouseCoopers AG



David JA Law



Dawn M Kink

Zurich, 3 April 2007

