GROUPAMA

2008 European Embedded Value Report

CONTENTS

INTRODUCTION

Groupama has been calculating its European Embedded Value (EEV) since 31 December 2006 in line with the CFO Forum principles. The covered business corresponds to the Life and Health activities in France and in almost all of the international subsidiaries.
For the 2008 calculation a fast close procedure has been used in order to produce the EEV figures with the 2008 annual account.

EEV includes the following two components:

- **Adjusted Net Asset Value (ANAV)**

  The ANAV corresponds, under CFO guidelines, to the market value of assets backing the shareholders' net equity and other reserves attributable to the shareholders. As at 31 December 2008, the ANAV includes the tangible net asset based on the local statutory account, a share of the unrealised capital gains/losses backing shareholders' net equity, a share of the unrealised capital gains/losses backing non modelled non participating products and the cost related to the holding expenses. These correspond to the present value of Groupama SA's holding expenses attributable to the group's Life business.

- **Value of Business in Force (VIF)**

  The VIF corresponds to the present value of future profits for the in-force portfolio, net of (i) financial options and guarantees costs, (ii) cost of locking-in the required capital and (iii) cost of non-financial risks.

  The VIF includes the following components:

  - **The value of the in-force portfolio without risk premium** (also called the Certainty Equivalent value – CE) corresponding to the present value of future profits calculated using the following method:
    - use of best estimate assumptions for all the non economic assumptions. These best estimate assumptions have been derived from Groupama's portfolio;
    - determination of the projected rates of return without allowance of any risk premium;
    - discounting all the future cash flows using the reference rates. The reference rates are derived from the swap rate curve increased by 70bp on a uniform basis to allow for the current dislocated market conditions in term of liquidity (liquidity premium).

  - **The time value of financial options and guarantees.**

    The time value of financial options and guarantees is the difference between the stochastic value of future profits and their present value calculated using the certainty equivalent approach. The stochastic value of the portfolio is equal to the average discounted future earnings of 5,000 scenarios.

  - **Cost of capital**.

    Groupama has locked-in a capital representing 100% of the minimum solvency margin required by European regulations currently in force (solvency I). The cost of capital is made up of the spread between the reference rate and the reference rate net of tax and net of investment expenses.

- **Cost of non-financial risks**.

  The operational risk has been taken into account using a risk premium.

  In addition, some blocks of business are also exposed to risk factors not taken into account elsewhere. These risk factors consist of, among other things, risk of adverse deviation of claims assumptions (mortality, morbidity, longevity …). An additional risk premium has thus been added to take into account these non financial risks.

  The total of these two risk premiums (for operational risks and technical risks) has been included in the cost of capital calculation in order to assess the cost of non-financial risks.

1. SCOPE

The covered business corresponds to the Life and Health activities in France and in almost all of the international subsidiaries.

France

The scope of calculation represents 93% of the technical reserves.

In 2008, the scope has been extended for the co-insurance and reinsurance of the Provident business

International

In 2008, the values for all the international life subsidiaries have been calculated using the CFO Forum EEV principles, with the exception of Turkey and Greece (calculated using a traditional Embedded Value approach). The scope of the calculation has been expanded in comparison with 2007 by including Groupama Phoenix and Nuova Tirrena.

With regards to the Turkish subsidiary, the calculation has been done using a traditional approach with financial return assumptions based on the Turkish risk-free rate as at 31 December 2008.

With regards to the Greek subsidiary, the calculation has been done using a traditional approach with financial return assumptions corresponding to the Greek government bonds as at 10 December 2008 (before the widening of risk premiums that occurred following the riots at year-end).

The risk discount rate used for the calculation of these two subsidiaries includes a risk premium covering both financial and non-financial risks.

The scope of the EEV calculation covers 93% of the technical reserves of the Life international subsidiaries, and excludes the newly acquired subsidiaries.

The Health portfolio (collective and individual) of all the international subsidiaries has also been included in the calculation (including Groupama Phoenix and Nuova Tirrena).

2. MAIN CHANGES COMPARED TO THE 2007 EEV

Adjustment of the risk-free rate curve

The methodology used implied that future investment returns are calculated such that discounted future cash flows using the reference rate curve match the market value of the assets. Hence, credit risks, as estimated by the market at the valuation date, have been deducted from the coupon which implies a reduction of the future investment return.

For the 2008 calculation, the reference rate used was in excess of the swap rate by 70bp on a uniform basis to allow for the current dislocated market conditions in term of liquidity. In other term, a liquidity premium of 70 bp has been added to the swap rate curve.

This liquidity premium has been estimated through the use of market index for credit risks and considering the percentage of corporate bonds in the portfolio.

The liquidity premium used is identical for all the entities (France and International) with the exception of the Turkish and Greece subsidiaries for which a traditional EV approach has been used.

3. RESULTS

Analysis of movements

(France and international, excluding Groupama Phoenix and Nuova Tirrena)

Million euros	ANAV	VIF	EEV
Value as at 31 Dec. 2007	**2,603.8**	**2,405.2**	**5,009.0**
Model changes and opening adjustments	-142.7	180.4	37.7
Adjusted value as at 31 Dec. 2007	**2,461.1**	**2,585.6**	**5,046.7**
New business contributions	-74.4	117.3	42.8
Expected contributions	333.7	108.6	442.3
Difference in non-economic experience	89.2	-186.8	-97.6
Changes in non-economic assumptions	0.0	85.3	85.3
Contribution from operating businesses	**348.4**	**124.3**	**472.8**
Economic environment contribution	**-694.4**	**-2,019.8**	**-2,714.2**
EEV contribution	**-346.0**	**-1,895.4**	**-2,241.4**
Capital movements	-187.5	0.0	-187.5
Exchange rate movements impact	-11.3	-2.5	-13.8
EEV of business acquired/sold during the period	107.5	30.9	138.4
Value as at 31 Dec. 2008	**2,023.8**	**718.5**	**2,742.3**
Operating return	**14.2%**	**4.8%**	**9.4%**
EEV contribution	**-14.1%**	**-73.3%**	**-44.4%**

The total return on EEV in 2008 was −44.4% before capital movements, before the exchange rate movements and before taken into account the EEV of the entities integrated in the 2008 calculation.

Model changes and opening adjustments (+ 37.7 million euros) derive from the following elements:

- *France*: the adjustments are mainly explained by the increase of the covered business (co-insurance and re-insurance of Provident business) and the recognition of tax deficits that were not considered in the 2007 EEV calculations.
- *International subsidiaries:* the opening adjustments have a small negative impact due to the inclusion of a 15% dividend tax in Turkey, which was not included in the 2007 calculations.
- Some specific reserves that can be released and valued for the shareholders were taken into account in the ANAV in the 2007 calculations. For consistency reason, this year, the release of the reserves has been taken into account in the VIF. The corresponding opening adjustment has in total no impact on the EEV (transfer from the ANAV to the VIF).

The expected contribution corresponds to the effect of moving forward calculated using the implied risk discount rate.

Non-economic adjustments of -97.6 million euros are largely due to the exceptional costs not included in the VIF, which are partially compensated by improved technical elements (claims ratio in Provident business)

Changes in non-economic assumptions of +85.3 million euros mainly related to the improvement of the technical assumptions on various risk products (Provident products).

The operating results (not including Nuova Tirrena and Groupama Phoenix), were therefore 472.8 million euros and correspond to an operating return of 9.4%.

The contribution arising from the economic environment is of –2,714.2 million euros. This large impact of the financial markets is explained by the fall of the equity market during 2008, the widening of the credit spreads and the shape of the swap rate curve with decreasing rates for maturities after 15 years, resulting in very low forward rates.

Capital movements relate to 2007 dividends paid out in 2008.

Exchange rate movements are mainly linked of the business in Turkey and to the health portfolio in the United Kingdom.

Business acquired during the reporting period relates to the integration of the Italian and Greek subsidiaries, Nuova Terrena and Groupama Phoenix in the 2008 scope of calculation.

European Consolidated Embedded Value (France and International)

Million euros	**31 December 2008**	**31 December 2007 after initial adjustments**	**31 December 2007**	**Change (euros)**	**% Change**
Adjusted Net Asset Value	**2,023.8**	**2,461.1**	**2,603.7**	**-437.3**	**-17.8%**
Certainty equivalent value	1,790.6	3,598.6	3,441.4	-1,808.0	-50.2%
Time value of financial options and guarantees	-547.6	-498.4	-530.6	-49.2	-9.9%
Cost of Capital (100% of solvency margin)	-418.3	-419.4	-408.7	1.1	0.3%
Cost of non-financial risks	-106.2	-95.1	-96.8	-11.0	-11.6%
VIF	**718.5**	**2,585.6**	**2,405.2**	**-1,867.1**	-72.2%
Embedded Value	**2,742.3**	**5,046.7**	**5,009.0**	**-2,304.4**	**-45.7%**

European Embedded Value (France)

Million euros	**31 December 2008**	**31 December 2007 after initial adjustments**	**31 December 2007**	**Change (euros)**	**% Change**
Adjusted Net Asset Value	**1,726.2**	**2,270.3**	**2,377.5**	**-544.2**	**-24.0%**
Certainty equivalent value	1,606.6	3,407.2	3,260.6	-1,800.5	-52.8%
Time value of financial options and guarantees	-509.1	-470.7	-494.5	-38.5	-8.2%
Cost of Capital (100% of solvency margin)	-396.2	-403.0	-397.1	6.9	1.7%
Cost of non-financial risks	-101.2	-92.3	-93.1	-8.9	-9.7%
VIF	**600.2**	**2,441.2**	**2,275.9**	**-1,841.1**	-75.4%
Embedded Value	**2,326.3**	**4,711.5**	**4,653.4**	**-2,385.2**	**-50.6%**

European Embedded Value (International)

Million euros	31 December 2008	31 December 2007 after initial adjustments	31 December 2007	Change (euros)	% Change
Adjusted Net Asset Value	**297.6**	**190.8**	**226.2**	**106.9**	**56.0%**
Certainty equivalent value	183.9	191.4	180.8	-7.4	-3.9%
Time value of financial options and guarantees	-38.5	-27.8	-36.1	-10.7	-38.7%
Cost of Capital (100% of solvency margin)	-22.1	-16.4	-11.6	-5.8	-35.1%
Cost of non-financial risks	-4.9	-2.8	-3.7	-2.1	-75.5%
VIF	**118.3**	**144.4**	**129.3**	**-26.1**	-18.0%
Embedded Value	**416.0**	**335.1**	**355.6**	**80.8**	**24.1%**

The 2008 consolidated European Embedded Value was 2,742.3 million euros, of which 2,023.8 million euros corresponds to the ANAV and 718.5 million euros to the VIF. The EEV 2008 has decreased by 45.7% between 2007 and 2008 (after capital movements, exchange rate movement and increase in scope).

ANAV has decreased by 17.8%. This change is explained by the decrease in unrealised capital gains.

The VIF has decreased by 1,867.1 million euros (- 72.2% between 2007 and 2008):

- the certainty equivalent value has decreased by 50.2% resulting essentially from a strong reduction of the projected investment return considering the current market conditions,
- the cost of locking-in solvency margin capital, corresponding to tax changes, has slightly fallen following the interest rate decrease during the entire projection period. In contrast, the cost of non-financial risks has increased as the interest rate have fallen;
- the cost of financial options and guarantees has increased by 10%, essentially following the increase in equity and rate volatility observed in the markets.

The 2008 European Embedded Value for France was 2,326.3 million euros, of which 1,726.2 million euros correspond to the ANAV and 600.2 million euros to the VIF. The EEV has decreased by 50.6% between 2007 and 2008.

The 2008 European Embedded Value at the international level was 416 million euros, of which 297.6 million euros correspond to the ANAV and 118.3 million euros to the VIF. Without the impact of adding the EEV of the new subsidiaries incorporated in the scope during 2008, the international value would have decreased by 17.4% between 2007 and 2008. Including the EEV of Groupama Phoenix and Nuova Tirrena the total value of the international subsidiaries has increased by 24.1%.

In comparison to France, the relatively slight decline in value observed at the international level between 2007 and 2008 is largely explained by a less significant exposure to the equity markets.

The fall in EEV between 2007 and 2008 is primarily explained by the financial market and specifically by the three following elements:

a) the fall in stock markets

b) the widening of credit risk premiums

c) the swap rate curve with decreasing rates for maturities after 15 years, resulting in very low forward rates.

The combination of elements b) and c) results in substantially lower assets rates of returns, on average, in the 2008 EEV compared to those in 2007. Therefore, the consequence is a noticeable decrease in value.

New Business value – Consolidated France and international

Million euros	**31 December 2008**	**31 December 2007**	**Change (M€)**	**% Change**
New business value without risk premium (CE)	113.7	116.7	-3.0	-2.5%
Time value of financial options and guarantees	-39.4	-23.1	-16.3	-70.6%
Cost of Capital (100% of solvency margin)	-27.9	-26.0	-2.0	-7.6%
Cost of non-financial risks	-5.3	-4.7	-0.6	-13.8%
New Business value (NBV)	**41.0**	**62.9**	**-21.9**	**-34.8%**

APE [1]	555.3	532.8	22.5	4.2%
NBV / APE	**7.4%**	**11.8%**	**-4.4 pt**	
PVNBP	4,265.7	4,080.0	185.7	4.6%
NBV / PVNBP	**1.0%**	**1.5%**	**-0.6 pt**	

New Business value – France

Million euros	**31 December 2008**	**31 December 2007**	**Change (M€)**	**% Change**
New business value without risk premium (CE)	106.6	102.0	4.6	4.5%
Time value of financial options and guarantees	-35.9	-22.2	-13.6	-61.4%
Cost of Capital (100% of solvency margin)	-25.1	-23.9	-1.2	-4.9%
Cost of non-financial risks	-4.7	-4.2	-0.5	-12.7%
New Business value (NBV)	**40.9**	**51.7**	**-10.8**	**-20.8%**

APE	436.9	403.1	33.8	8.4%
NBV / APE	**9.4%**	**12.8%**	**-3.5 pt**	
PVNBP	3,569.2	3,519.6	49.6	1.4%
NBV / PVNBP	**1.1%**	**1.5%**	**-0.3 pt**	

[1] Annual Premium Equivalent (APE): 10% of the single premiums and 100% of the regular premiums

APE ratio: value of new business divided by the APE premiums.

PVNBP: VAN premiums corresponding to the current value of the future premiums generated by the new business.

New Business value – International

Million euros	31 December 2008	31 December 2007	Change (M€)	% Change
New business value without risk premium (CE)	7.1	14.6	-7.6	-51.6%
Time value of financial options and guarantees	-3.6	-0.9	-2.7	-298.0%
Cost of Capital (100% of solvency margin)	-2.8	-2.1	-0.8	-38.2%
Cost of non-financial risks	-0.6	-0.5	-0.1	-22.8%
New Business value (NBV)	**0.1**	**11.2**	**-11.1**	**-99.5%**

APE	118.4	129.8	-11.3	-8.7%
NBV / APE	**0.0%**	**8.6%**	**-8.6 pt**	
PVNBP	696.5	560.4	136.1	24.3%
NBV / PVNBP	**0.0%**	**2.0%**	**-2.0 pt**	

New business value has decreased by 34.8% between 2007 and 2008 essentially following the current financial conditions and the fall of future investment return, which are not compensated by the sound technical fundamentals (improvement in Provident insurance claims and increase in the APE volumes, especially in France).

Sensitivities

Definition of sensitivities

For new business, sensitivity to financial markets should be applied just before the policy sale. These sensitivities highlight what would have been 2008 New Business Value if market conditions at the moment of sale had been those corresponding to the sensitivity scenario studied.

The sensitivities carried out throughout the entire perimeter are as follows:

- **Financial Sensitivities**
  - Yield curve of +/- 100bp:

    This sensitivity corresponds to a parallel increase/decrease of the yield curve of 100 basis points at the beginning of the projection. This sensitivity implies a recalculation of the market value of bonds, re-investment rates of all asset classes of 100 basis points and, in accordance with CFO Forum guidelines, adjustment of the discount rate.
  - Decline in equity and property values of –10%:

    This sensitivity corresponds to a sudden decrease in the projected level of equity and property value indices of 10%.
  - Increase in the volatility of equity and property yields of 25%

    This sensitivity corresponds to a sudden increase at the start of the projected level of equity and property volatility of 25%.

- Increase in the interest rate volatility of 25%

  This sensitivity corresponds to a sudden increase at the start of the projected level of swaption volatility.

- **Non-financial sensitivities**

  - Mortality rate - 5%

    Mortality sensitivity is presented by separating mortality sensitivity on annuities policies and on other policies (term insurance).

  - Other claim ratios - 5%

    This sensitivity shows the changes in value under a scenario in which the ratio of claims to premiums on Provident (other than term insurance) and health decline by 5%.

  - Rate of decline – 10%

    This sensitivity corresponds to a decline in the policy surrender rate of 10%.

  - Costs – 10%

    This sensitivity corresponds to a decrease in administrative and management costs (other than commissions and acquisition costs).

EEV financial sensitivities- France

EEV financial sensitivities (France) as at 31 December 2008				
Million euros	**ANAV**	**VIF**	**EEV**	
Central value	**1 726.2**	**600.2**	**2 326.3**	
	(A) Δ ANAV	**(B) Δ VIF**	**(A+B) Δ EEV**	**Δ EEV (%)**
Impact of a 100bp increase in the interest rate curve	-267.6	342.7	75.1	3.2%
Impact of a 100bp decrease in the interest rate curve	183.1	-779.0	-595.9	-25.6%
Impact of a 10% decline in equity and property values	-65.3	-350.3	-415.6	-17.9%
Impact of a 25% increase in interest rate volatility	-	-37.1	-37.1	-1.6%
Impact of a 25% increase in equity and property values volatility	-	-200.6	-200.6	-8.6%

EEV financial sensitivities- International

EEV financial sensitivities (International) as at 31 December 2008				
Million euros	**ANAV**	**VIF**	**EEV**	
Central value	**297.6**	**118term .3**	**416.0**	
	(A) Δ ANAV	**(B) Δ VIF**	**(A+B) Δ EEV**	**Δ EEV (%)**
Impact of a 100bp increase in the interest rate curve	-8.9	3.7	-5.2	-1.3%
Impact of a 100bp decrease in the interest rate curve	6.9	-21.6	-14.6	-3.5%
Impact of a 10% decline in equity and property values	-5.4	-7.3	-12.7	-3.0%
Impact of a 25% increase in interest rate volatility	-	-4.1	-4.1	-1.0%
Impact of a 25% increase in equity and property values volatility	-	-1.6	-1.6	-0.4%

ANAV sensitivity to different market scenarios derives from sensitivities of unrealised capital gains/losses registered on assets backing shareholders' net equity.

A decline in interest rates creates a decline in the EEV. The decrease in investments yields implies margins contraction. The latter is not compensated by the increase in unrealised capital gains on bonds assests backing shareholders' net equity.

The sensitivity to the equity market level (yield and volatility) shows Groupama's exposure to the equity markets.

Groupama has proceeded to a restructuring of the equity portfolios in order to optimise the financial management of its liabilities, to secure the financial profile of group policies with guaranteed minimum interest rates and to reduce its exposure to interest rate movements. In the context of this restructuring, a swap program has been set up in order to hedge the risk of a decrease in interest rate.

EEV non-financial sensitivities – France

Groupama – France – EEV non-financial sensitivities as at 31 December 2008		
Million euros	**EEV (value of holdings)**	
Central value	**2 326.3**	
	(A+B) Δ EEV	**Δ EEV (%)**
Administrative expenses + 10%	186.4	8.0%
Lapse rates -10%	32.9	1.4%
Mortality (annuities) - 5%	-30.5	-1.3%
Mortality (other products) - 5%	20.0	0.9%
Other claim ratios - 5%	136.5	5.9%

EEV non-financial sensitivities – International

Groupama – International – EEV non-financial sensitivities as at 31 December 2008		
Million euros	**EEV (value of holdings)**	
Cantral value	**416.0**	
	(A+B) Δ EEV	**Δ EEV (%)**
Administrative expenses + 10%	18.7	4.5%
Lapse rates -10%	-3.0	-0.7%
Mortality (annuities) - 5%	-0.2	0.0%
Mortality (other products) - 5%	6.1	1.5%
Other claim ratios - 5%	24.9	6.0%

New Business Sensitivities – France

Groupama – France – 2008 EEV new business sensitivities	
Million euros	**NBV:**
Central value	**40.9**
	⊿NBV
Risk-free rate +100 bp	6.4
Risk-free rate -100 bp	-26.5
Decrease in equity and property values of 10%	-1.8
Interest rate volatility + 25%	-9.5
Shares and real estate return volatility +25%	0.0
Administrative expenses +10%	15.0
Lapse rates -10%	7.3
Mortality (annuities) -5%	-0.3
Mortality (other products) -5%	1.5
Other claim ratios - 5%	11.4

New Business Sensitivities (NBV)– International

Groupama – International – 2008 EEV new business sensitivities	
Million euros	**NBV:**
Central value	**0.1**
	⊿NBV
Risk-free rate +100 bp	5.6
Risk-free rate -100 bp	-3.6
Decrease in equity and property values of 10%	0.0
Interest rate volatility + 25%	0.3
Shares and real estate return volatility +25%	0.0
Administrative expenses +10%	3.1
Lapse rates -10%	0.6
Mortality (annuities) -5%	0.0
Mortality (other products) -5%	3.2
Other claim ratios - 5%	4.2

4. EEV Adjustment / consolidated net equity

The table below shows the adjustments to be made to value the items not accounted for in the consolidated shareholders' equity.

Following adjustments do not take into account goodwills:

Million euros	2008				2007/2008 spread
	International	**France**	**TOTAL**	**TOTAL**	
VIF	118	600	**718**	**2,410**	-1,691
Additional elements included in VIF	-94	-363	**-458**	N/A	-458
Amortization of acquisition costs	-5	-40	**-45**	**-43**	-2
Unrealised capital gains entered in consolidated shareholders' net equity	46	612	**658**	**-1,067**	1,726
Unrealised capital gains entered in ANAV	-8	-119	**-128**	**392**	-520
VOBA	-36	0	**-36**	**-27**	-9
Other adjustments	13	94	**107**	**192**	-85
Additional value not taken into account in the IFRS shareholders' net equity (excluding goodwill)	**35**	**783**	**818**	**1857**	**-1,039**

The additional elements included in the value of in-force business for which restatements are needed are tax deficits capitalized in the consolidated accounts (not included in the 2007 EEV calculation) and other specific reserves not allowed for under IFRS (accounted for the ANAV of 2007's EEV).

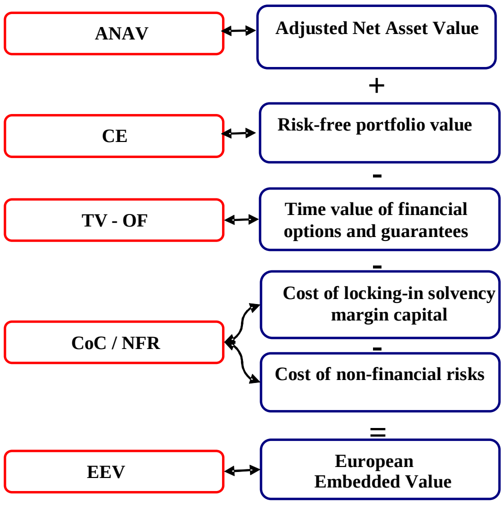
Except for unrealised property value gains, the share of unrealised capital gains or losses attributable to the shareholder is allowed for in the consolidated shareholders' net equity and in the portfolio value. Thus the unrealised gains or losses entered on the books in the net consolidated accounts, after profit sharing and tax, are cancelled out.

The share of unrealised gains or losses in equity, included within the ANAV and not within the portfolio value, is included in the adjustments.

Other adjustments arise from differences between the net book value of the company (EEV view) and the consolidated net book value, specifically in the property assets class, as well as the allowance of holding costs attributable to the Life business of the group in the EEV.

5. Methodology and Assumptions

Groupama presents the following European Embedded Value:



ANAV

Adjusted net asset value (ANAV), in line with CFO Forum Guidelines, corresponds to the market value of the assets in front of the equity and other shareholders' reserves. The Group's ANAV was calculated by consolidating restated company net assets for each entity.

In summary, the ANAV as at 31 Dec. 2008 is comprised of the following individual elements:

- retained shareholders' net equity before dividends distributed in 2009 for fiscal year 2008. The capitalisation reserve was calculated for the shareholder without any tax adjustments.
- the amount of the unrealised gains or losses backing the net equity and mathematical provisions not linked to any profit sharing distribution (from a contractual or regulatory point of view).
- holding costs, which correspond to the share of holding costs attributed to the Group Life insurance business (France and international).

Certainty Equivalent

The certainty equivalent value (CE) corresponds to the present value of future profits generated by policies in force at valuation date and is calculated using the following methods:

The result is defined as being:

- Under credit:
  - collected premiums
  - financial products

- Under debit:
  - claims,
  - commissions,
  - costs: acquisition, administrative and other costs,

- increase/release of technical provisions (including profit sharing and general provisions),
- and corporate taxes.

- Non-economic best estimate assumptions arising from statistical studies carried out on Groupama's policy portfolios.
- Determination of the projected yield rates on the basis of the following principles:
    - **for bonds in force at valuation date:** projection of real actuarial yields, after elimination of spreads rewarding default risk by assuming each bond will be held until maturity,
    - **for all other assets and new investments**: the reference risk-free curve rate used is in excess of the swap rate at 31 Dec. 2008 by a liquidity premium of 0.7%.
- All future cash flow discounted on the basis of the swap rate curve as at Dec. 31, 2008, with the addition of a liquidity premium of 0.7%.

The result of this approach is that the unrealised gains of assets represented by the mathematical provisions are taken into account in the projected future yields.

The Certainty Equivalent includes the intrinsic value of financial options and guarantees, which is the cost generated by these options and financial guarantees in the estimated economic scenario.

Cost of options and financial guarantees

Most of French policies in euro include financial options and/or guarantees: the Minimum Guaranteed Rate (TMG) together with profit sharing (profit sharing option), guaranteed surrender amount taking into account the dynamic behaviour of the policyholder (surrender option). These policies are characterised by an asymmetry of profits and losses share between shareholders and policyholders following changes in financial markets.

On the other hand, the majority of unit linked policies sold by Groupama do not include any financial option or guarantee except for certain minimum guarantees that are part of a mathematical provision in the book, under French regulations. No specific treatment was made for these guarantees, considering that the liability is already covered under this provision. The risk premiums associated with financial risk have been taken into account in valuing the Greek subsidiary's unit-linked contracts containing financial options and guarantees.

"Provident" policies also do not include any material financial option (no asymmetry between shareholders and policyholders).

Insurance liabilities are not in principle traded in an organised market; the Portfolio Market Value can therefore only be theoretical. Groupama's approach assumes that the only source of risk that would influence the Portfolio Market Value is market risk, which is the risk linked to changes in the main macro-economic variables. Specifically, any impact of the following sources of risk has not been taken into account: credit risk, liquidity risk, or risk linked to adverse changes in Best Estimate assumptions used to calculate the outgo of the policies. The risk linked to these Best Estimate assumptions has been taken into account elsewhere in the cost of non-financial risks.

The main financial options and guarantees calculated are the following:

- *the rules of profit sharing* (contractual or regulatory), which, combined with guaranteed rates, create an asymmetry between policyholder return and the shoreholder return,

- *dynamic surrenders* that may occur during unfavourable market conditions for the insurer.

Groupama's option calculations cover the profit sharing option (arising from the asymmetric distribution of financial returns between the shareholder and the policyholder) and the surrender option of the following policies:

- *individual savings policies in euro,*
- *individual retirement pension policies in euro,*
- *traditional policies for which profit sharing and surrender have been considered significant,*
- *policies covered by Article 83 of the General Tax Code,*
- *policies covered by Article L.441 of the Insurance Code.*

<u>Neutral risk approach</u>

Since market risk is the only risk influencing the in-force value, we naturally use calculation techniques currently used in financial theory, and specifically the neutral-risk approach. According to this approach, the in-force value is equal to the current probable value of cash flows allocated to the shareholder during the entire projection period. These cash flows are projected in a neutral risk probability universe, which means that the projected returns do not include any risk premium and that the cashflows are discounted using an instantaneous risk-free rate for each economic scenario (equivalent to the one year rate).

Probable current values are calculated using Monte-Carlo simulations technique. Future cash flows are projected for 5,000 scenarios generated by the Barrie & Hibbert economic scenario generator; the expected value of an element is estimated by the arithmetic average of the values of this element observed on the 5,000 simulations.

The in-force value calculated in this way corresponds to a "Market Consistent" type of valuation, which is estimated using a financial model that allows a valuation of the assets of reference in keeping with the prices observed on the actual financial markets. However, adjustments were specifically performed on the reference rate curve as well as on the volatility assumptions. In the traditional Embedded Value, the discount rate is estimated as the sum of the risk-free rate and a risk premium representing the totality of risk factors potentially influencing the profitability of the company. CFO Forum guidelines require this risk premium adjustment depending on the level of exposure to risk and especially assure a consistency between the discounted rate and the other economic assumptions.

The time value of financial options and guarantees is calculated as the difference between the following amounts:

- *the stochastic value of the future margins within the contracts ("Portfolio Market Value"), and*
- *the Certainty Equivalent or risk-free portfolio value (CE).*

The Portfolio Value is equal to the sum, throughout the whole projection, of the present value of the following items:

- *dividends paid to the shareholder net of corporate taxes,*
- *the shareholder's portion of the capitalisation reserve before tax (measured at the end of the projection horizon) and consistent with the adjustment to the ANAV,*

- *the shareholder's portion of the residual provision for contingent payment risk after tax (measured at the end of the projection horizon),*
- *the shareholder's portion in the unrealised capital gains or losses after tax (measured at the end of the projection horizon).*

Cost of Capital (CoC) / Taking into account non-financial risks

Groupama has locked-in a capital representing 100% of the minimum solvency margin required by European regulations currently in force (solvency I). This capital requirement generates a friction cost for the shareholders in that causing the company to pay financial management costs and taxes (corporate taxes on financial revenues generated).

Under operational risks, an additional risk premium of 25 bp has been included in the cost of holding the solvency margin.

Furthermore, the contracts having technical risks are exposed to risk factors that are not taken into account elsewhere. These consist notably in adverse changes in claims assumptions (mortality, morbidity, longevity…). An additional risk premium of 50bp has therefore been added to all these policies.

The cumulative value of these two risk premiums (25bp for operational risks and 50 bp for technical risks) represents the additional risk premium included in the cost of capital and used to calculate the cost of non-financial risks.

For the subsidiaries in Greece and Turkey, risk premiums of respectively 50bp and 100bp have been retained for operational and technical risks.

New Business value

The value of a year of New Business aims at assessing the contribution of a year of business to the result of the company.

With the exception of future returns, the methodology and assumptions used are the same as those used to calculate the in-force value.

It should be noted that the New Business Value has been calculated using assets made of new investments (the so-called "stand alone" approach), that is without use:

- *of initial unrealised capital gains or losses (whatever their nature),*
- *of the bonus fund at the time of the calculation date.*

The profit-sharing strategy was adapted to this financial environment (no initial underlying wealth). The underlying assumption is that Groupama's competitive environment would experience the same constraint of lack of initial underlying wealth.

The projections used to estimate the value of a year of New Business correspond to the business profile underwritten during 2008 with premium volumes achieved for 2008 new business.

Regarding the allocation of payments between new business and in-force, the following rules have been applied:

- *For savings policies in euro and unit linked policies*, only regular premiums were included in the in-force business (all future payments on existing policies are considered as new business).
- *For "Provident" policies* (covering individual "Provident" contracts, health and traditional policies), loan-insurance policies, regular premiums were included in the value of the in-force business. Thus only the new policies (or policyholders in case of loan-insurance) are considered as new business.

- *For group retirement policies Article 83, and policies of the L.441* type, regular premiums have been included in the value of the in-force business (i.e. only new group contracts are considered as new business).
- For group retirement policies standard Article 39, no future premium has been projected for the in-force business (i.e. all future payments on existing policies are considered as new business).

<u>Analysis of movements</u>

Following the guidelines of the CFO Forum, Groupama has created a reporting to analyze and explain the change in European Embedded Value between 2007 and 2008.

The main items of this reporting are described below:

- **Coverage and methodological changes**

This item includes all the initial adjustments corresponding to changes in model and methodology.

- **Operational activity result**

The item "Operational activity participation" measures the following effects between the initial adjusted value and the final value before closing adjustment:

  - *new business part,*
  - *Expected contribution (effect of a one-year delay on the EEV of the previous year).*
    This item measures the mechanical effect of the passage of time on the EEV, which corresponds to the unwinding of the discount rate. This discount rate used to calculate this effect is the implicit discount rate calculated on the basis of the 2007 EEV.
  - *Differences in non-economic experience.* These are the differences observed during the reporting period with respect to the differences between the assumptions used to calculate the 2007 EEV concerning non-economic factors (such as costs, morality, morbidity, falls,…) and actual observations of these factors over the same period,
  - *Changes in non-economic assumptions*. This effect measures the impact of the portfolio value with respect to the changes in the prospective assumptions concerning all the non-economic factors.

- **Result linked to the change in the economic environment**

The item "Economic environment result" measures the impact on the EEV of:

  - on one hand, the change of experience between projected financial returns and tax rates, respectively, for the past year and the actual ones,
  - on the other hand, the variations of the projected assumptions in the evolution of the economic risk factors (projected future returns, economic stochastic scenarios).

- **Closing adjustments**

These items indicate the effects of capital movements (dividends, recapitalisation, etc.), the impact of the fluctuation of the foreign exchange rates and the EEV of valuated entities included in the scope of calculation at the end of 2008.

Assumptions

- **Reference risk-free rate curve and calibration of the interest rate model**

The reference risk-free rate curve is the swap rate curve as at 23 December 2008 increased by a liquidity premium of 0.7%.

Maturities	Swap rates curve shifted by 70bp EEV 2008
1	3.44%
2	3.48%
3	3.67%
4	3.85%
5	3.99%
6	4.11%
7	4.23%
8	4.34%
9	4.44%
10	4.53%
15	4.72%
20	4.65%
25	4.36%
30	4.16%

The reference risk-free rate curve was used to calibrate the nominal rate model. The initial curve used for calibrating the model of actual rates was extrapolated from the prices, as at 23 Dec. 2008, of a set of Treasury bonds indexed on inflation.

Volatility parameters were estimated from the swaption prices using the average structure of implicit volatilities observed on the financial market in 2008. The swaptions used for the calibration are composed of options expiring from 1 to 30 years and based on swaps of 5, 10, and 20 years.

The volatility rate assumptions considered for calibrating the economic scenarios are the following:

		Swap length		
Maturity		5	10	20
	1	19.3%	15.8%	16.6%
	10	11.8%	12.2%	13.1%
	30	11.8%	11.5%	11.2%

- **Assumption of discount rate and rate of return**

Guidelines of the CFO Forum suggest companies should retain coherent economic assumptions to value future returns and the time value of financial options and guarantees. Groupama has applied this guideline in the following manner:

  - *for calculating the Certainty Equivalent*, no risk premium with respect to the swap rate curve as at 23 December 2008 increased by the liquidity premium of 0.7% has been applied to the financial returns of the futures market,

- *for calculating the time value of financial options and guarantees*, the swap rate curve as at 23 December 2008 increased by the liquidity premium of 0.7% was used to calibrate the economic model.

The stochastic simulations used the 5,000 scenarios provided by the Barrie & Hibbert economic scenarios generator.

The economic scenarios generator used to produce these simulations allows production over 40 years of:

- the stock index and dividend rate evolution: the return of this index is described using a log-normal model with a determinist volatility structure,
- the consumer price index,
- the risk-free swap rate curve for integer maturities from 1 to 30 years: this curve is described using the Black-Karasinski model with two factors,
- the real risk-free swap rate curves for integer maturities between 1 and 30 years: this curve is described using the two factors Vasicek model,
- the change in the real estate index and in the associated rental rate: the return on this index is described using a constant volatility log-normal model.

- **Calibration of the securities model**

The volatility parameters for the securities model were calibrated based on the following volatility structure:

Maturities	Securities volatility EEV 2008
1	22%
2	22%
5	23%
30	29%

- **Calibration of the real estate model**

In the absence of liquidity in real-estate derivatives products, the volatility parameters used to calibrate the real estate model were based on the historical volatility of the IPD of a set of European countries. Real Estate volatility is considered constant at 15%.

- **Profit sharing and financial margin policies**

Profit sharing policies are in accordance with the objectives and practices of each of the entities. Thus, the distributed financial returns correspond to share of financial profits historically distributed to the policyholders without this amount being less than the technical interest or the contractual or regulatory required amounts.

In order to calculate the options value within the model, a profit sharing sales target is defined for each product. This profit sharing target reflects the rate expected by the policyholders in various market environments. When the target is not reached, this triggers additional surrenders. This compensatory component takes into account policyholders's ability to surrender their policies if the payments received do not seem satisfactory.

- **Asset allocation**

The initial allocation corresponds to the allocation as at 31 December 2008 of each of the calculated asset portfolios.

The allocation of equities was modified to take into account the market conditions as at 31 December 2008 and the correlation between the investment policy in risky assets and the level of unrealized gains. This allocation decreases in function of the duration of the liabilities.

The initial market value allocation of the portfolios is 77%/16%/7% in France and 94%/4%/2% abroad respectively for bonds/equity/property.

- **Costs**

Following CFO Forum guidelines, no productivity gain has been taken into account in the portfolio values. Consequently, costs linked to exceptional projects that will achieve productivity gains have not been projected.

Changes created by not taking these costs into account in the EEV appear under non-economic adjustments in the analysis of movements.

- **Holding costs**

A proportion of these costs are attributed to the Group Life Insurance business (France and international). Allocation rules are based on the gross margin generated by the various businesses.

- **Tax Treatment**

For total projections of in-force and new business profits, Groupama applied a tax rate of 34.43% for France and local rates for Italy of 32.3%, Turkey of 20%, Portugal of 26.5%, Spain of 30%, Greece of 25% and England of 28%.

Adjustments were made in order to take into account the specific tax rates not taken into account elsewhere in EEV calculations. These adjustments are of two orders:

  - *Taking into account the tax system allowing for strategic interests:* a significant part of the R.332-20 net unrealized gains or losses arises from a specific tax treatment for strategic participations. This system allows a reduction of the tax rate used in projections to 0% on unrealised losses and 1.72% on unrealised gains.
  - *Report on corporate tax deficits*: the corporate tax deficits of the entities connected to Groupama SA as part of tax integration were recognized

Other tax adjustments: since certain non-deductible provisions (stability funds, overall management provisions, revaluation funds) and other unrealized gains or losses have already been taxed, they were included in EEV and taxed at the rate of 34.43%. In order to avoid counting taxes twice, an adjustment was made.

6. **Milliman Opinion**

Milliman, independent actuarial firm, has reviewed the European Embedded Value of Groupama as of December 31, 2008. In this context we have reviewed the methodology, the assumptions used and the calculations done internally by the Company according to the directives and under the responsibility of the management. Our review has covered the European Embedded Value (EEV) as of December 31, 2008, the 2008 New Business Value (NBV), the analysis of movements and the sensitivities.

Milliman has concluded that the methodology and the assumptions used comply with the CFO forum EEV Principles and that the calculations have been produced in accordance with the methodology and the assumptions.

The calculation makes allowance for the financial risks through a market consistent methodology with the following exceptions:

- The reference rate used is in excess of the swap rate by 70bp on a uniform basis to allow for the current dislocated market conditions in term of liquidity (liquidity premium);
- The equities volatility used are the following:

Maturity	1 year	2 years	5 years	30 years
Volatility	22%	22%	23%	29%

- The interest rate volatilities are based on market data averaged over a one year period.

Sensitivities have been calculated for all these parameters.

The calculations performed for the Greek and Turkish subsidiaries (Groupama Phoenix Asfalistiki and Groupama Basak Emeklilik) have been carried out according to a Traditional Embedded Value approach which allows for the risks through the use of a risk premium.

In arriving at these conclusions, we have relied on data and information provided by Groupama without undertaking an exhaustive review of them. We have performed limited high-level checks and reconciliations as well as more detailed analyses on some specific portfolios. We have confirmed that any issues discovered do not have a material impact at the group level

The calculation of Embedded Values necessarily makes numerous assumptions with respect to economic conditions, operating conditions, policyholder behaviours, taxes and other matters, many of which are beyond the Company’s control. Although the assumptions used represent estimates which Groupama and Milliman believe are together reasonable, actual future experience may vary from that assumed in the calculation of the Embedded Value results. Such deviation may materially impact the value calculated.

This opinion is made solely to Groupama in accordance with the engagement letter between Groupama and Milliman. Milliman does not accept or assume any responsibility, duty of care or liability to anyone else than Groupama for or in connection with its review work, the opinion Milliman has formed or for any statements sets forth in this opinion, to the fullest extent permitted by applicable law.