

# Trade Idea

## Equity Derivatives Research

January 12th 2009

### Axa & Allianz: embedded in volatility

- We noticed that Allianz – Axa Implied Volatility spread is extremely low, particularly on short maturities. Allianz's Implied Volatility seems really low compared with Axa's.
- CA Cheuvreux has recently published a report on the insurance sector. They have a cautious view on both stocks, but risk structures seem quite different.
- We think Axa appears less risky than Allianz. This is the opposite of the view of the derivatives market. We think we should sell this volatility spread.
- We recommend the following strategy:

**Long ATM Straddle on June 09 on Allianz versus  
Short ATM Straddle on June 09 on Axa.**

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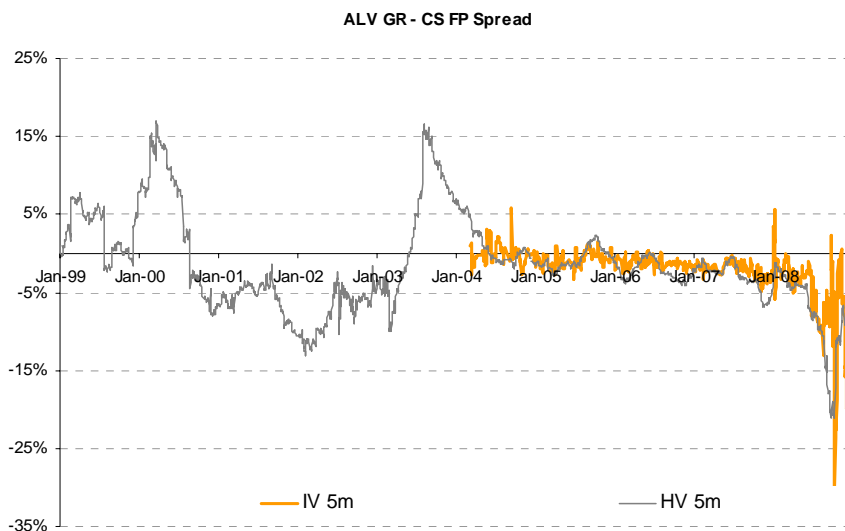
Axa and Allianz are the two main European insurers; however their risk structures are very different. Looking at all risk factors, Axa appears less risky than Allianz. This is the opposite of the view of the derivatives market on which Allianz volatility is a lot higher than Axa. This is why we recommend entering a volatility trade on the two names.

## Risk Profile summary

	AXA	ALLIANZ
Business Mix	☹	☺
Assets Sensitivity to market	☺	☹☹
Financial Structure		☹☹
Banks Exposure		☹
US Exposure (variabilities)	☹	☺
Track Record (Capital increase, M&A integration)	☺	☹

We will first focus on the quantitative aspects of this trade idea and then compare their risk profile in more detail in the second part of this document.

## The volatility arbitrage



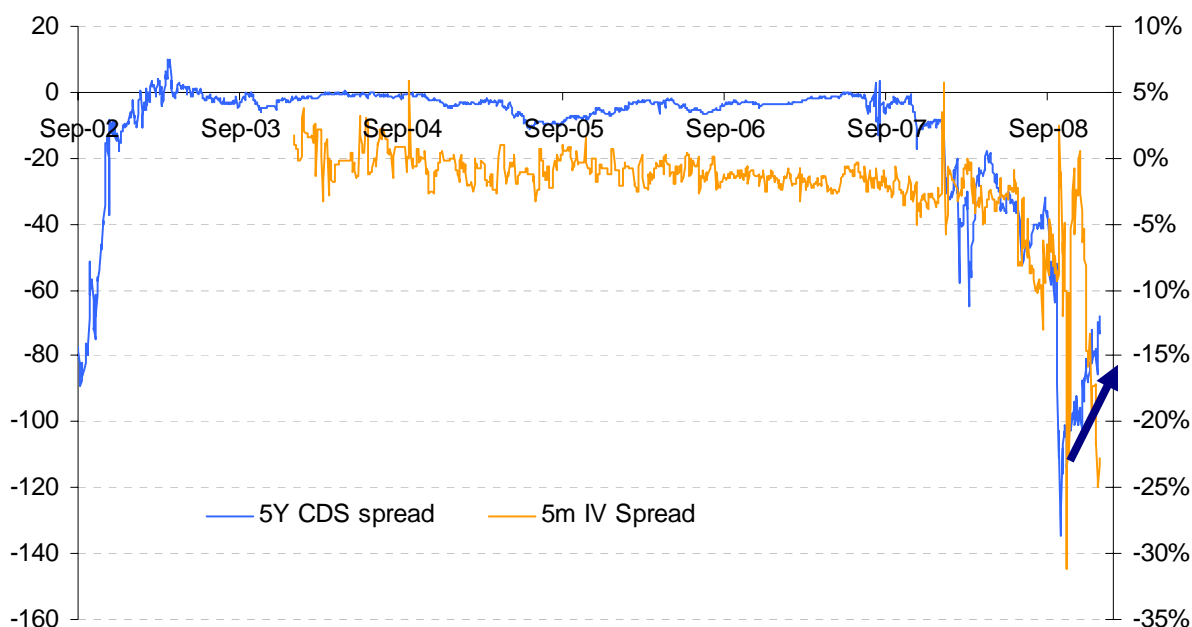
Source: Calyon

ALV GR - CS FP Spread	9-Jan-09
HV 5m	-8.29%
IV 5m	-24.01%
IV Percentile on 2Y	1.10%
Average HV on 2Y	-5.28%

Source: Calyon

We observe a very low volatility spread. We want to benefit from this low entry point since we think fundamental issues do not justify such low levels. As seen below, credit market has already started to correct.

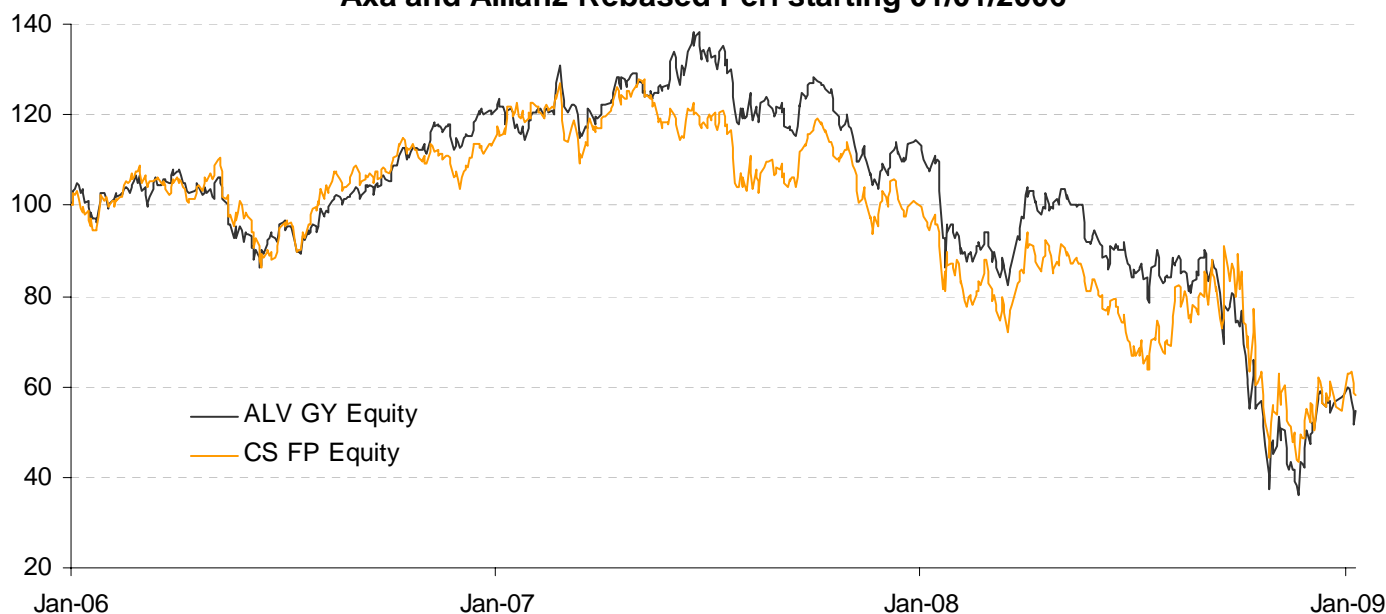
Allianz versus Axa 5Y CDS spreads:



Source: Bloomberg for CDS, Calyon for implied volatility

Focusing on their performances since early 2006, including bull and bear market, we realize that Axa and Allianz are highly correlated, with almost the exact same performance. This is contradictory with the June 09 implied volatility spread which is almost at its lowest level.

#### Axa and Allianz Rebased Perf starting 01/01/2006



Source: Bloomberg

We choose at the money options, on Jun-09 maturity, in order to benefit from a lower volatility spread and a higher gamma.

We recommend to delta hedge each leg as we think the P&L should come from the reduction of the volatility gap.

**Recommendation:**

**Buy an ATM June-09 Straddle on Allianz and sell an ATM June-09 Straddle on Axa.**

**All options are delta hedged, same notional on each leg.**

Indicative pricing, including bid-ask:

Underlying	B/S	Type	Strike	Maturity	Price	Volatility	Delta	Gamma	Vega
AXA	SELL	Straddle	ATM	Jun-09	-37.12%	72%	8%	-1.75	0.50%
ALLIANZ	BUY	Straddle	ATM	Jun-09	30.57%	59%	12%	1.95	0.54%

Source: Calyon

## Risk profile comparison

Most of this risk profile comparison comes from the CA Cheuvreux Insurance Report of January 09.

We will first compare their activity positioning in terms of exposure to life business.

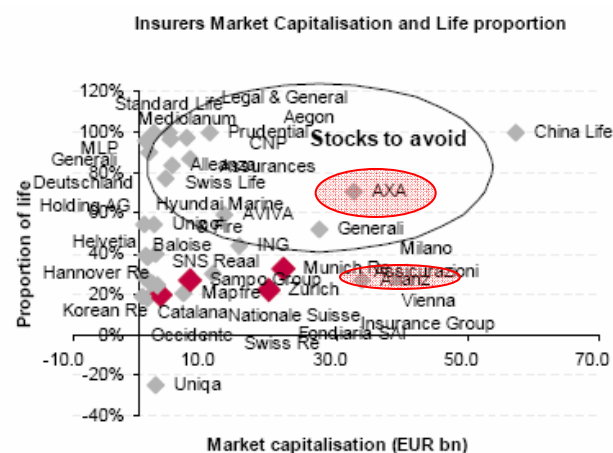
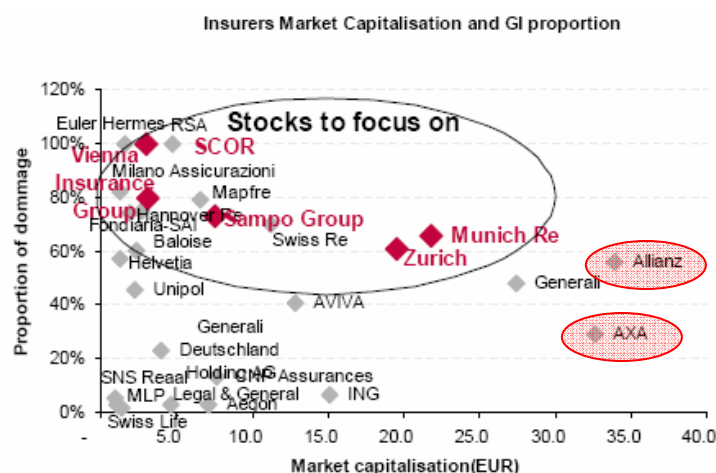
Then, we will compare their balance sheets; first their assets' sensitivity to the market, and then a quick overview of their liabilities.

Finally, we will take into account their respective potential risk factors, mostly their exposure to banks, to the US market (variabilities) and their track record.

### - Business Mix

First of all, let us compare their activity positioning.

Axa is far more exposed to life (65% of 2007 operating profit versus 27% for Allianz).



Source: CA Cheuvreux

(local reporting currency bn)	Aegon	Swiss Life	CNP	Alleanza	AXA	Generali	Baloise	Allianz
Operating profit life in % of total, 2007	97%	90%	85%	84%	65%	52%	40%	27%

Source: CA Cheuvreux

This could be a risk factor for Axa as life's Beta is higher than non life's (1.2 versus 0.8) for an almost equal estimated 09 P/EV.

CHEVREUX	Mkt Cap (bnEUR)	09e	P/E 10e	11e	Beta MSCI	EPS gr. 09-11e	P/gr 09-11e	P/EV 09e	ROEV 09e	P/NAV 09e	ROE 09e	Div Yield 09e	Upside
Life	156.7	7.5	7.3	6.7	1.2	10.3%	0.1	0.7	2.7%	0.9	12.7%	2.5%	-5.6%
Non-Life	78.8	7.3	5.9	4.4	0.8	6.6%	0.4	0.6	1.9%	1.1	12.2%	2.8%	4.0%
Reinsurance	44.0	7.7	7.4	6.9	0.9	10.0%	0.6	0.6	5.0%	0.9	7.6%	5.2%	17.1%
Composites	175.2	8.9	7.0	6.3	1.0	14.9%	0.3	0.9	3.3%	1.0	9.2%	4.2%	16.7%
Bancassurance	18.9	6.5	5.3	3.7	1.2	14.6%	0.1	0.4	1.9%	0.5	2.9%	5.4%	-0.2%
Brokers / distributors	5.2	15.9	12.8	10.0	1.0	16.5%	0.7	1.3	7.3%	3.7	12.7%	4.2%	-6.7%
Insurance sector	478.8	8.5	7.3	6.3	1.1	11.2%	0.3	0.8	3.2%	1.0	10.1%	4.2%	4.8%

Source: CA Cheuvreux

Thus, as detailed in the following table, life is the insurance segment on which CA Cheuvreux has the toughest view.

CA Cheuvreux's view for 2009 and 2010:

	Volumes	Ins Rates	Claims	Investments	Our view	Comment
General Insurance	➔	➔	➔	➔	➔	Just defensive
Global Corporate	➔	➔	➔	➔	➔	End of soft market
Credit Insurance	➔	➔	➔	➔	➔	No recovery before 2010
Reinsurance NL	➔	➔	➔	➔	➔	Growind demand for protection + end of soft market
Life Insurance	➔			➔	➔	Depressed volumes and margins
Asset Management	➔			➔	➔	Depressed volumes and margins

Source: CA Cheuvreux

### - Assets Sensitivity to Market

Now that we have quickly compared their exposure to life, we will focus on their assets.

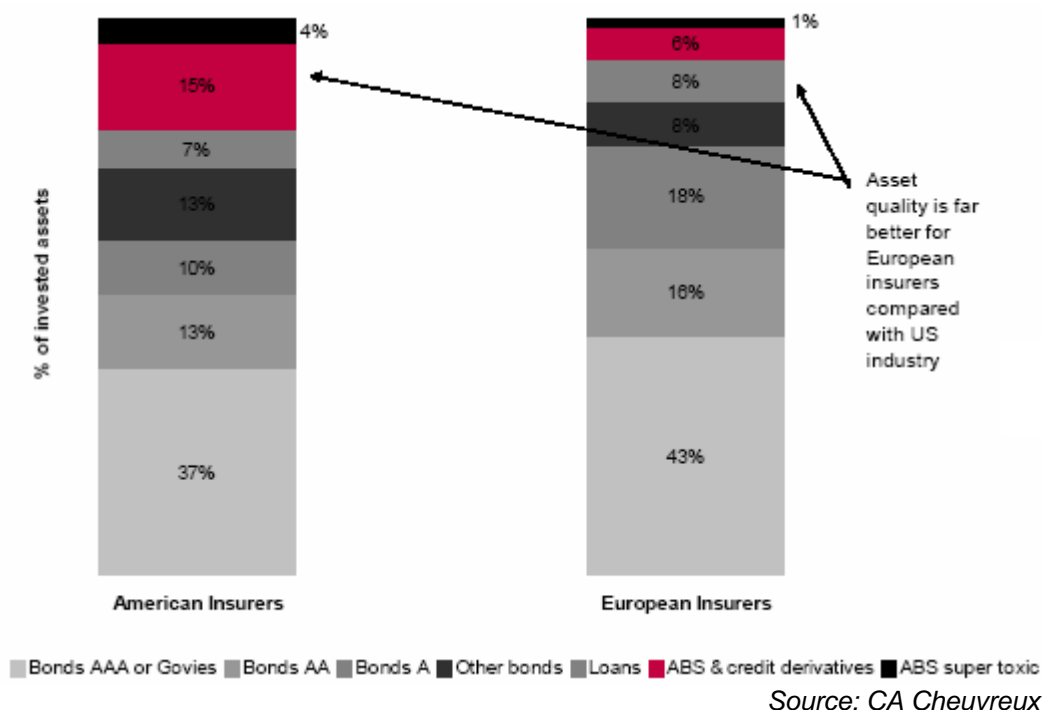
Axa's assets are more secure than Allianz's, with less exposure to equities (4% versus 16%) and to ABS, credit derivatives and super toxic ABS (5% versus 13%).

Detail of assets quality:

	Axa	AVIVA	Sampo	Generali	Fon SAI	Allianz	VIG	Zurich	Aver.
Real Estate	6%	5%	1%	5%	7%	2%	14%	4%	6%
Bonds	75%	53%	64%	57%	76%	60%	61%	65%	66%
Loans	7%	18%	4%	15%	5%	0%	19%	14%	9%
Equity investments	4%	11%	25%	13%	7%	16%	3%	9%	10%
Others	4%	7%	1%	9%	3%	16%	1%	0%	5%
Liquidity	5%	7%	4%	3%	2%	6%	3%	8%	4%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bonds AAA or Govies	33%	31%	33%	36%	10%	44%	11%	43%	34%
Bonds AA	25%	17%	22%	33%	9%	13%	27%	9%	20%
Bonds A	17%	15%	22%	14%	69%	21%	27%	13%	22%
Other bonds	11%	10%	17%	5%	5%	8%	11%	5%	9%
Loans	8%	22%	6%	11%	6%	1%	24%	15%	10%
ABS & credit derivatives	3%	4%	0%	1%	0%	12%	1%	16%	4%
ABS super toxic	2%	1%	0%	0%	0%	1%	0%	0%	1%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: CA Cheuvreux

This is interesting to note that Allianz's asset allocation (particularly the risky part) fits the average American insurers' allocation while Axa's asset allocation fits the average European insurers' one.



The following table details the sensitivity of life portfolios of each insurer, in the case of a drop of the bond market or of the equity market.

Allianz's life portfolio is far more sensitive to the market than Axa's.

#### Life Portfolio's Sensitivity:

(local reporting currency bn)	Aegon	Swiss Life	CNP	Alleanza	AXA	Generali	Baloise	Allianz
In Force sensitivity in % of EV								
100bp drop in bonds and disc. rate	2%	4%	0%	0%	-4%	-3%	-6%	-26%
10% drop in equity market	-3%	-2%	-2%	-3%	-5%	-2%	-5%	-8%

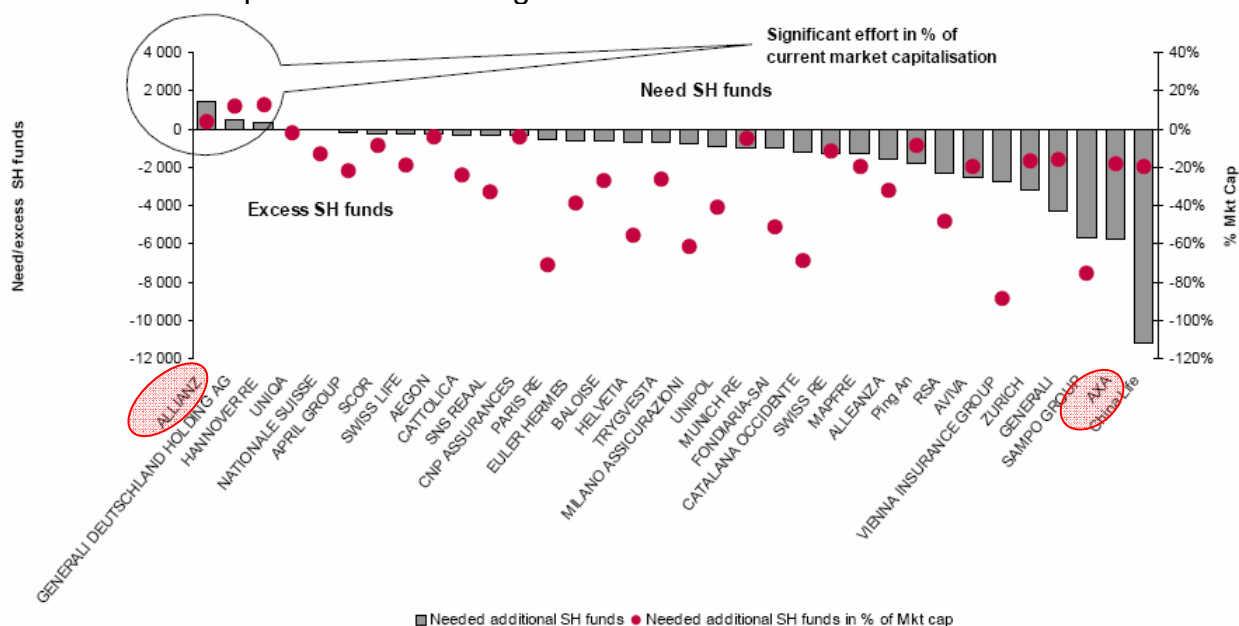
Source: CA Cheuvreux

So despite a riskier positioning on life business for Axa, its assets structure is far more secure being less exposed to the market, particularly low quality assets.

#### - Financial Structure

In order to complete our overview of their balance sheet, we need to look at liabilities. The following graph details the need or excess of capital in order to achieve a 100% target ratio. This is an indicator of the potentiality of an oncoming capital increase.

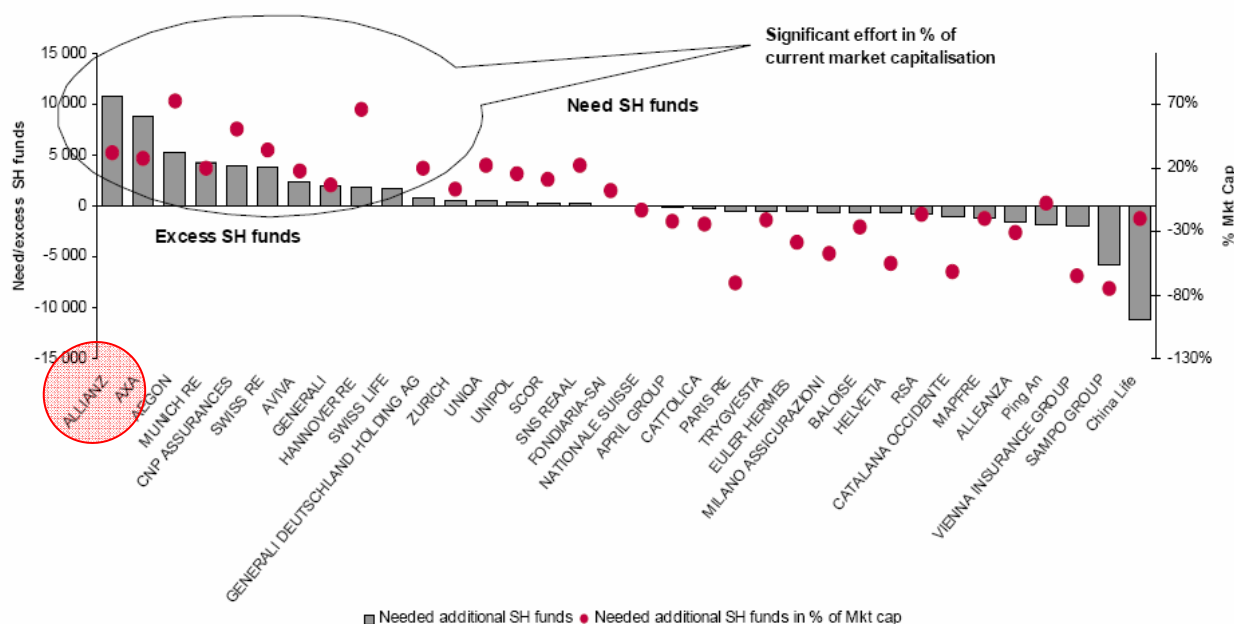
Needs / excess capital for a 100% target ratio:



Source: CA Cheuvreux

Axa is among the more secure players while Allianz being among the worst could need a capital increase.

Now let us take a look at the same graph, but without considering subordinated debt as capital:



Source: CA Cheuvreux

In this case, both Axa and Allianz have the same risky profile, leading to no differentiation from this point of view.

We must not forget that, regarding Axa, over half of its subordinated debt is perpetual and the 2017 convertible bond represents almost 10% of this debt.





## US exposure to variable annuities

Axa is one of the most exposed to embedded guarantees because of its leading position on US variable annuities. This is one of the main risks factor on Axa.

“US variable annuities are on the radar screen of regulators, rating agencies and analysts these days because of the high market volatility. Inadequate pricing of these guarantees, hedging problems and unexpected withdrawals by clients are the main risks for insurance companies. All equity-based products carrying guarantees potentially have some problems these days in markets with abnormal volatility.”

Source: CA Cheuvreux, Insurance Sector Report of January 2009

(USD m)	Account value							Covered	Asset quality	Underlying assumption for DAC
	GMIB	GMDB	GMAB	GMWB	Other	Total	% MR*	Total		
<b>AXA</b>	42 711	78 892				121 603		117 930	75% investment grade and marginal exposure to ABS, but market value trading at 10% BV at end Sept. '08	Long-term UL return 9% with RTM** method on five years and 0-15% corridor
As a % of total	35%	65%				100%	16%	97%		
<b>AEGON</b>	9 300	17 300		5 500	10 800	42 900		15 700		
As a % of total	22%	40%		13%	25%	100%	14%	37%		
<b>ING</b>	16 000	44 563	568	1 325	10 088	72 544		68 707		
As a % of total	22%	61%	1%	2%	14%	100%	22%	95%		
<b>Allianz</b>						20 000				RTM based on long-term equity growth rate of 9% Direct impact method
As a % of total							4%			

\* % of consolidated mathematical life reserves

\*\* RTM: Reverse to mean methodology

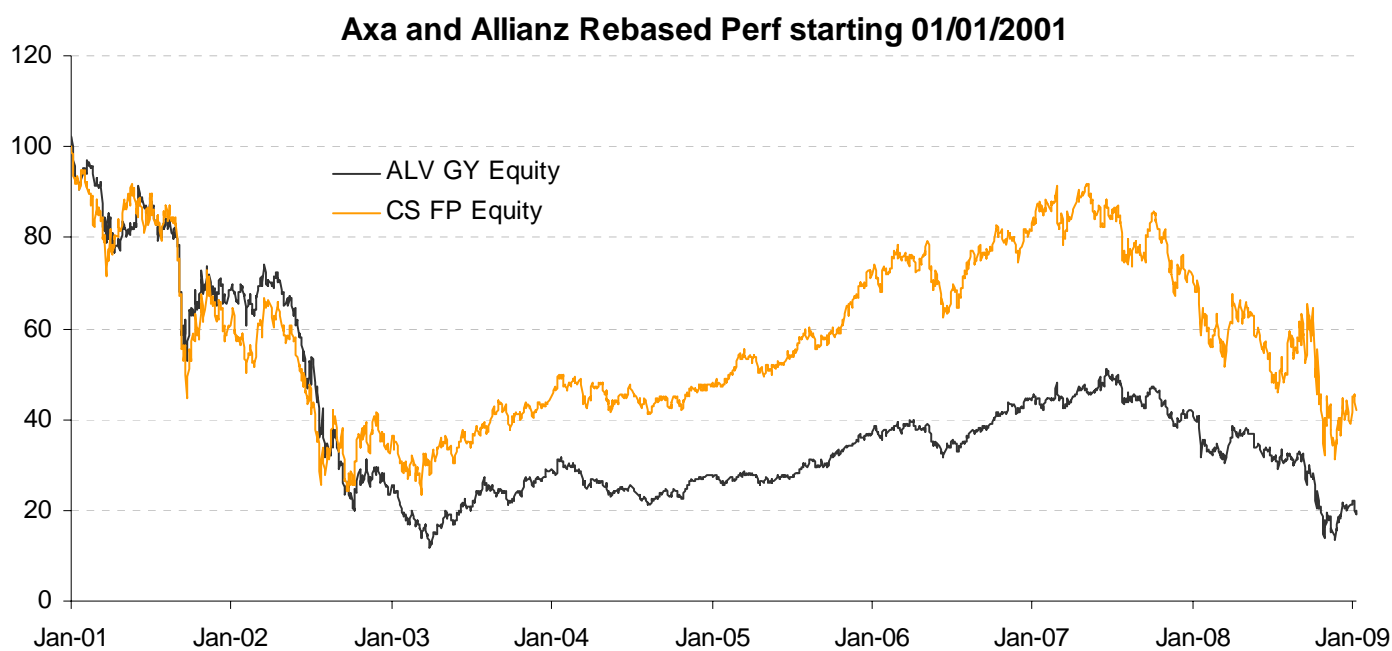
Sources: Company reports

## Track record

On the right hand, Axa was formed by successive successful M&As. It has succeeded in getting through the insurance crisis of 2001-2003 without having to make a capital increase.

On the other hand, Allianz's Dresdner Bank acquisition (completed in April 2001) was painful and value destructive. Also, it had to make a capital increase in order to face 2001-2003 turmoil.

On the graph starting in early 2001, today's over performance of Axa versus Allianz reflects these events.



Source: Bloomberg

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Axa	H

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