

Optimizing risk: Risk Management as a growth enabler

François Robinet, Chief Risk Officer

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Be Life Confident

Agenda

1: Insurance industry's appetite for risk management should take off

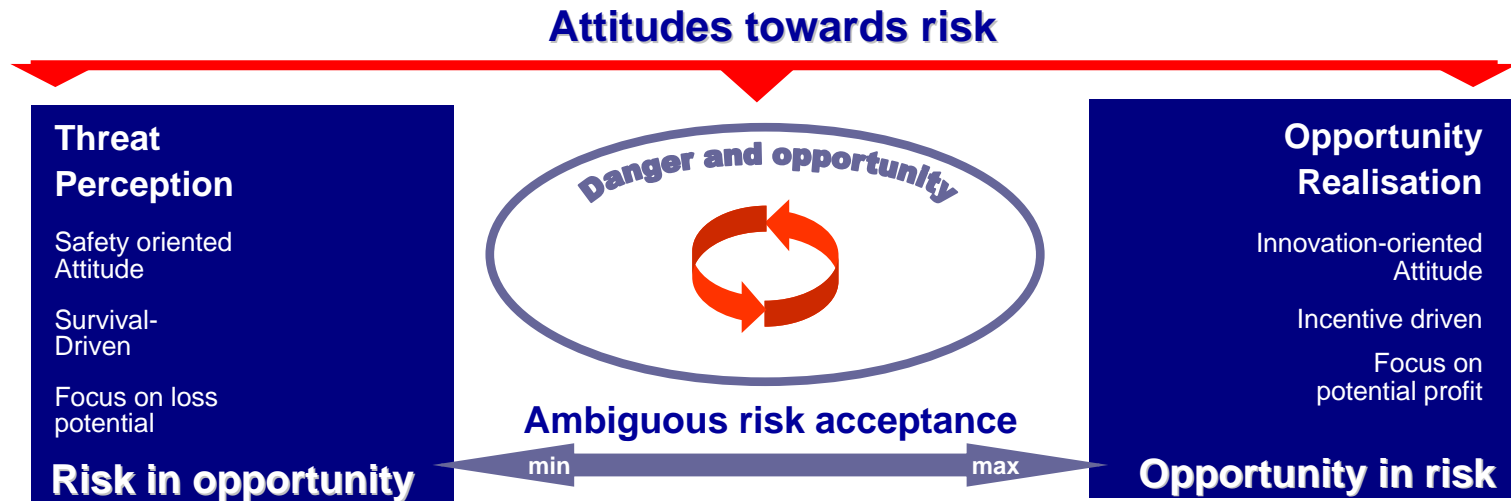
- A necessary change in business culture
- New risk management tools at disposal
- A changing environment

2: AXA's businesses development relies increasingly on risk management processes

- General approach
- Specific developments

A necessary change in business culture: creating a risk culture to optimize risk taking activity

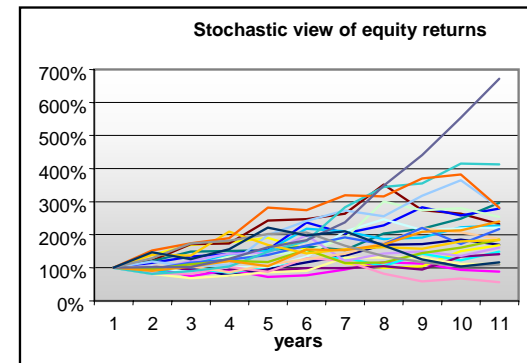
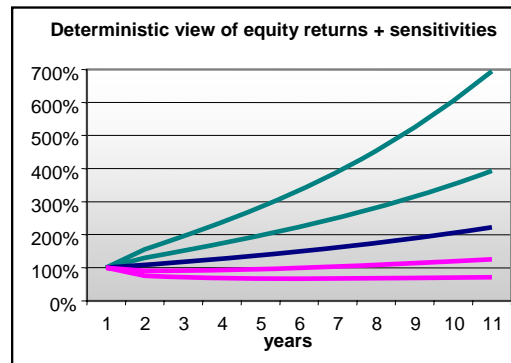
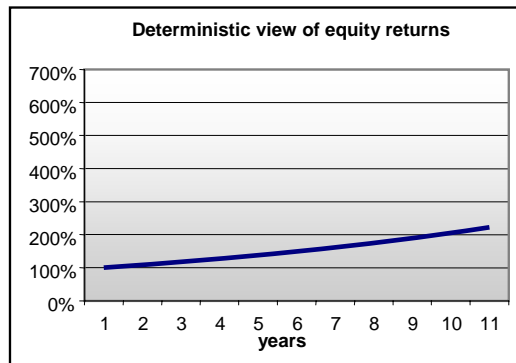
- The objective of Risk Management in financial services is not **to prevent** people from taking risks but **to allow** people to understand and manage in the optimal way the risks they take (from a risk return standpoint)
- **Attitude** towards risk is often **ambivalent**



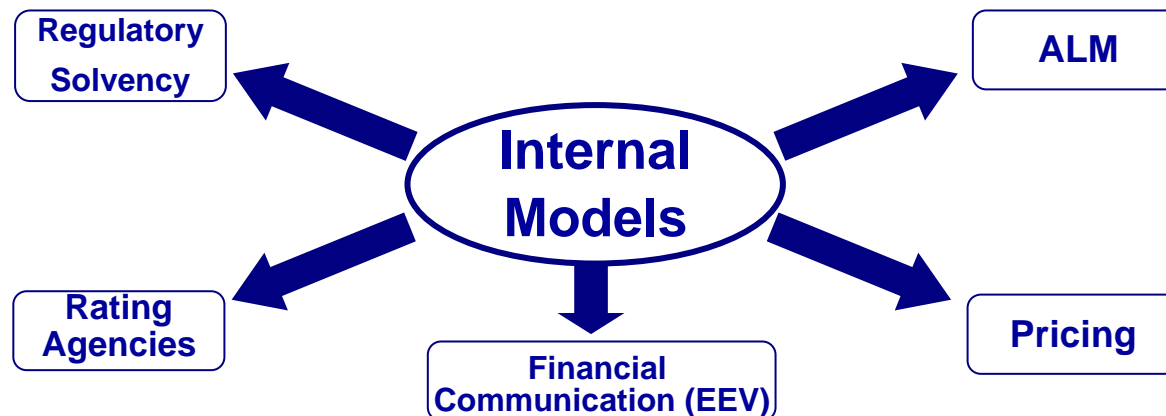
- Understanding of risks is the most efficient way to ensure that the right risks are taken. **Risk Management** is therefore a "**business enabler**" rather than a "control function"

New risk management tools at disposal

- In the insurance industry, development of Risk Management has been also allowed by the development of modeling techniques coming from the banking industry (capital market) and the improvement of IT capabilities.



- Models used to assess regulatory capital requirements **must** be the ones used for business management purposes



A changing environment increasingly favorable to companies that are developing a true and consistent risk culture

Regulatory frameworks

- **US** (1994): Introduction of RBC
- **UK** (2004): FSA initiatives (ICA /ICG, Realistic Balance Sheet...)
- **Netherlands** (2004)
- **Swiss** (2006): Swiss Solvency Test
- **EU** (2010/2011 ?): SOLVENCY 2
“Three pillars” approach, strongly influenced by banking approach (Basel II)
 - Standard model
 - Internal model
 - Harmonization of supervision
 - Recognition of diversification

Rating Agencies

Rating agencies are increasingly factoring risk management in their assessment of insurers' financial strength, either through:

- specific review of risk management (e.g. S&P's new ERM practice), or
- proprietary economic/stochastic modeling (e.g. Moody's capital model introduced in 2005 for US P&C insurers, of Fitch Rating's stochastic capital model to be launched in 2007)

Capital markets

Equity analysts are also increasingly stressing the benefits of risk management

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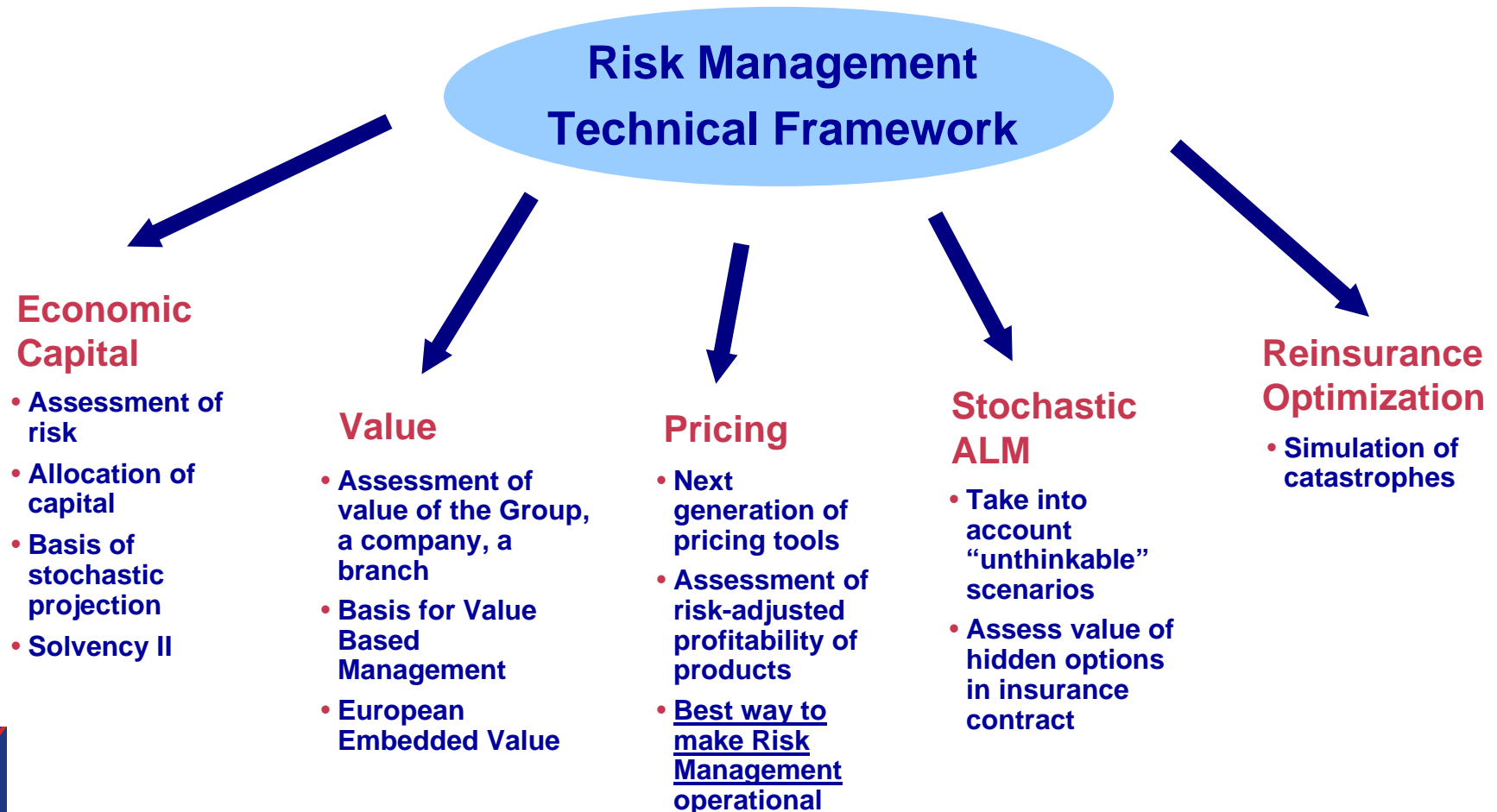
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2: AXA's businesses development relies increasingly on risk management processes

- General approach
- Specific developments

AXA's approach: Producing a combined risk and performance framework

At AXA, a consistent stochastic modelization framework, called "Risk Management Framework", is used in a series of application



AXA's approach: Risk management is now embedded to most processes, from product design to financial communication

Business Processes (pricing, investment)

Performance Management

External Communication

- Define the level of risk we want

- Risk limits (concentration, pricing...)

- Allocation of Economic Capital by entity

- Rating objective

- Measure the level of risk we have

- Economic Capital
 - By product
 - By portfolio

- Economic Capital
 - By country
 - By business
 - By risk

- Economic Capital

- Assess the performance taking risk into account

- Product Approval Process indicators
- Investment performance

- Return on EV/NBV
 - By country
 - By business

- EEV
- NBV

Concrete developments to support business

- Measuring profitability of products taking into account guarantees:
 - Product Approval Process (PAP)
 - European Embedded Value (EEV)

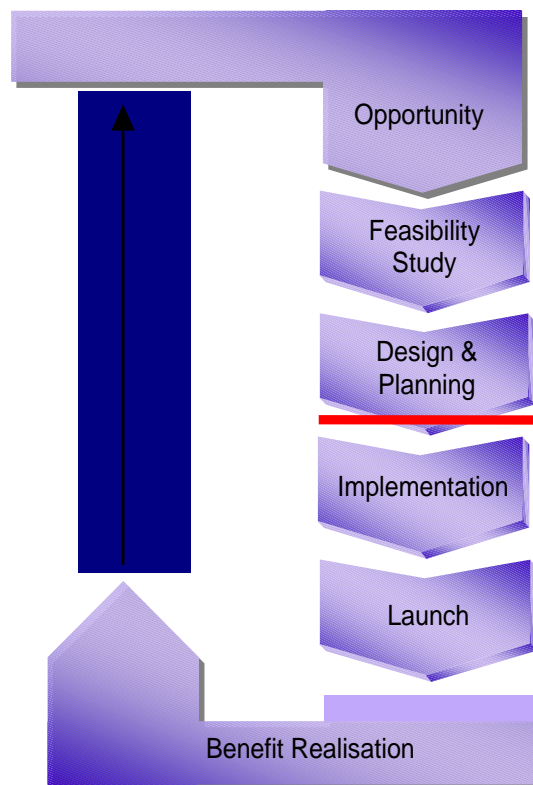
- Expanding while consuming less capital:
 - Liability Backed Securities (LBS)
 - Economic Capital (EC)

- Bringing higher value while hedging risk exposure
 - Guaranteed Minimum Benefits

Product Approval Process

Risk adjusted profitability key to product pricing 1/2

- The **Product Approval Process** formalizes the approval that is necessary for every product and requires risk adjusted profitability assessment of all new products. It has been introduced for life and non-life
 - Launched in 2003 in AXA and fully operational for all Individual Life products in 2005
 - 65 products planned to go through PAP in 2006
- It allows in particular to identify and measure the cost of guarantees in Life products

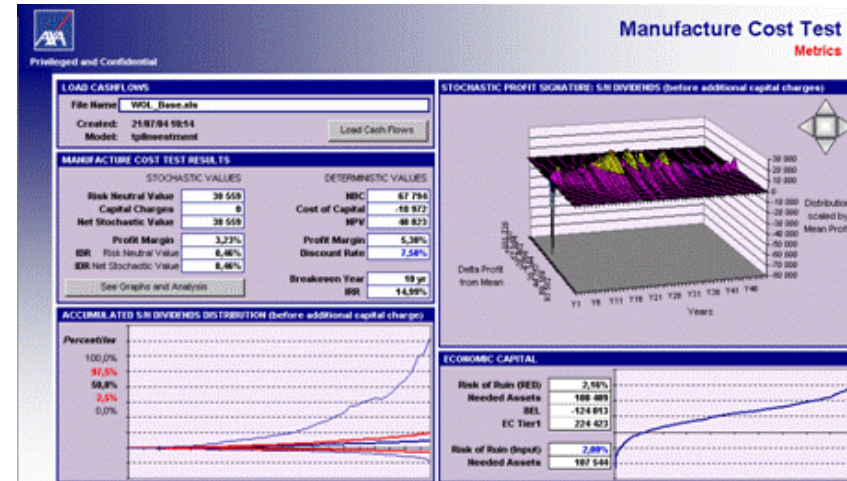


- Product developments go through a number of toll-gates: **PAP formalizes the approval before significant investments are made**
- It is a local governance process that involves:
 - Top Management
 - People across the entire organisation (Product management, ALM, Risk Management, ...)
- **This AXA Standard requires, among others, risk-adjusted profitability assessment**

Product Approval Process

Risk adjusted profitability key to product pricing 2/2

- It is essential that, as part of product development pricing, the costs of risks be assessed, particularly where there are significant embedded options (e.g., VA with guaranteed living benefits, or highly volatile P&C commercial business)
- AXA has developed centrally and cascaded locally a methodology with supporting tools
 - Consistent across the Group
 - Applied locally
 - Involve top management, operational teams and risk management teams
- It is key that the framework supporting this analysis be transversal across product development, financial reporting, MIS and remuneration KPIs



Product management and financial reporting are completely aligned

European Embedded Value (EEV)

Opting for a bottom-up market consistent approach

- For AXA, EEV means bottom-up market consistent value:
 - ▶ Earned Rate = Risk Discount Rate = Risk Free Rate
 - ▶ Explicit allowance for the **time value of O&G** based on stochastic scenarios, consistent with the approach used in financial markets
 - ▶ Specific charge for **cost of capital/non-financial risks** based on holding capital required to obtain at least a AA rating locally

- Directly leverages the DFA Stochastic Framework developed over the past five years, i.e. consistent with economic capital, product pricing, ALM, etc.

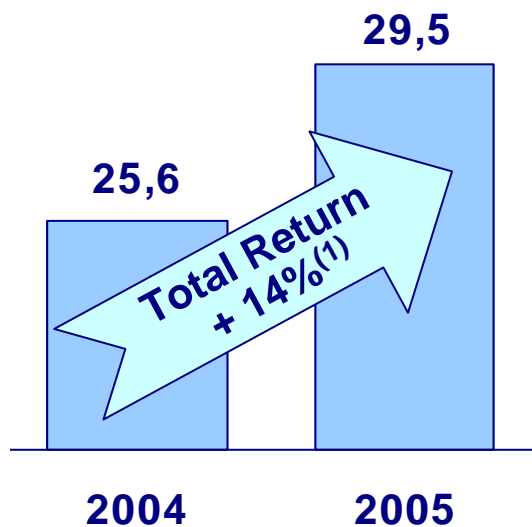
- A bottom up market consistent approach:
 - ▶ Provides the most transparent information on value to the shareholder
 - ▶ Makes results independent from the choice of market assumptions
 - ▶ **Is better aligned with the way the business is managed internally**
 - ▶ Allows to measure risk-adjusted values by product
 - ▶ Differentiates risks for inforce and new business

European Embedded Value (EEV)

AXA delivered strong results in 2005

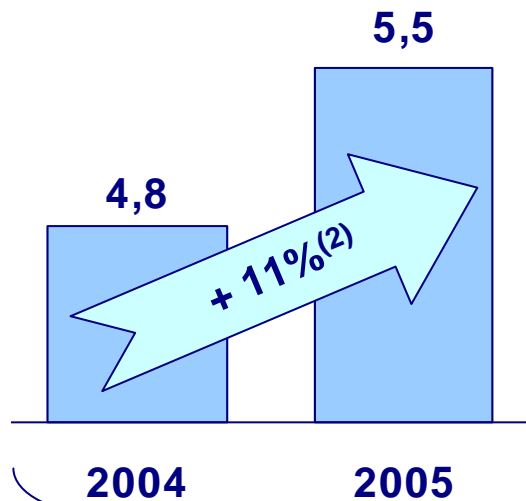
Life & Savings EEV

Euro billion



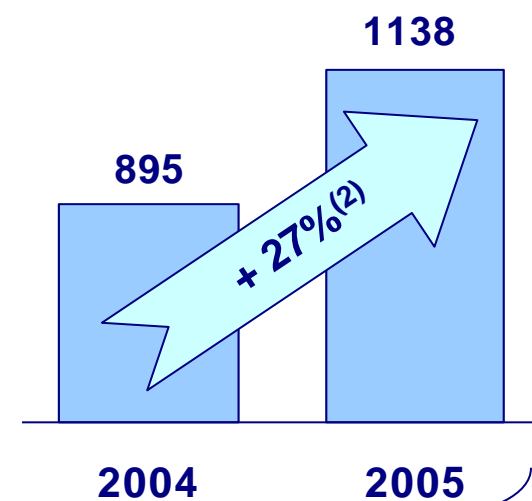
Annual Premium Equivalent (APE)

Euro billion



New Business Value (NBV)

Euro million



	2004	2005	Change ⁽²⁾
NBV/APE margin	18.6%	20.8%	+2.8 pts



(1) Total return excludes the impact of capital transfers, modeling changes and foreign exchange.

(2) On a comparable basis (constant exchange rates and scope (MONY 1H05)).

Liability Backed Securities (LBS)

A growing outlet for the transfer of risk

1/2

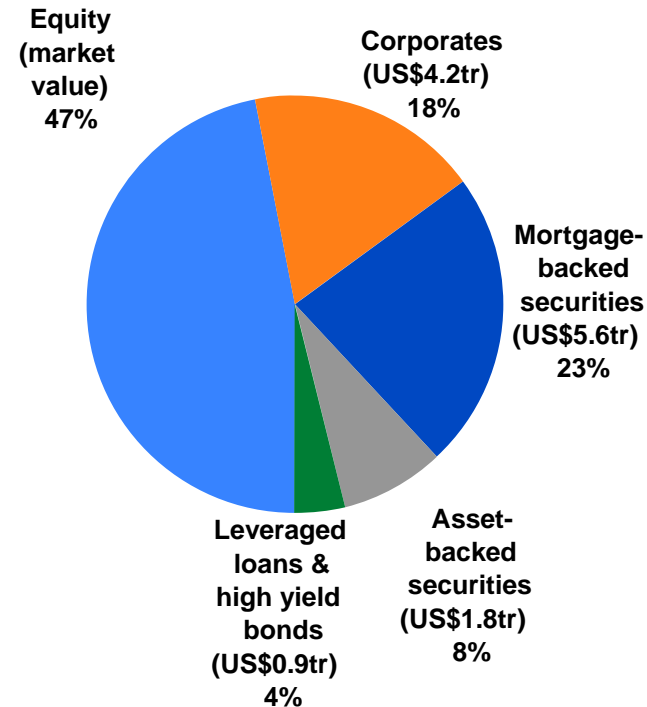
- It is anticipated that capital markets will be increasingly used as outlets for risk transfer
- The types of risks transferred will take three forms:
 - Portfolio based securitization characterized by “high frequency, low impact” risks, such as the securitization of automobile insurance,
 - Specific event risk securitization characterized by “low frequency, high impact” risks, e.g., natural disaster, epidemic...
 - Structural risk securitization ...
- In the context of Solvency II, it is important that the regulations accommodate for the allowance of the impact of these new forms of risk transfer
- From a regulatory perspective, using capital markets should give benefits to the issuer:
 - Greater capacity at a reasonable price
 - Elimination of credit risk
- The development of Solvency II should encourage the incorporation of these instruments in a company’s risk management program

Liability Backed Securities (LBS)

A growing outlet for the transfer of risk

2/2

- The asset backed securities market is continuing to develop strongly, and is getting similar in size to other traditional asset classes:



- In terms of the balance sheets of European insurers:
 - €5,200 billion reserves in life (including €1,000 billion for unit-linked products),
 - €600 billion reserves in indemnity insurance

And if only 10% of these amounts were securitized...

Liability Backed Securities (LBS)

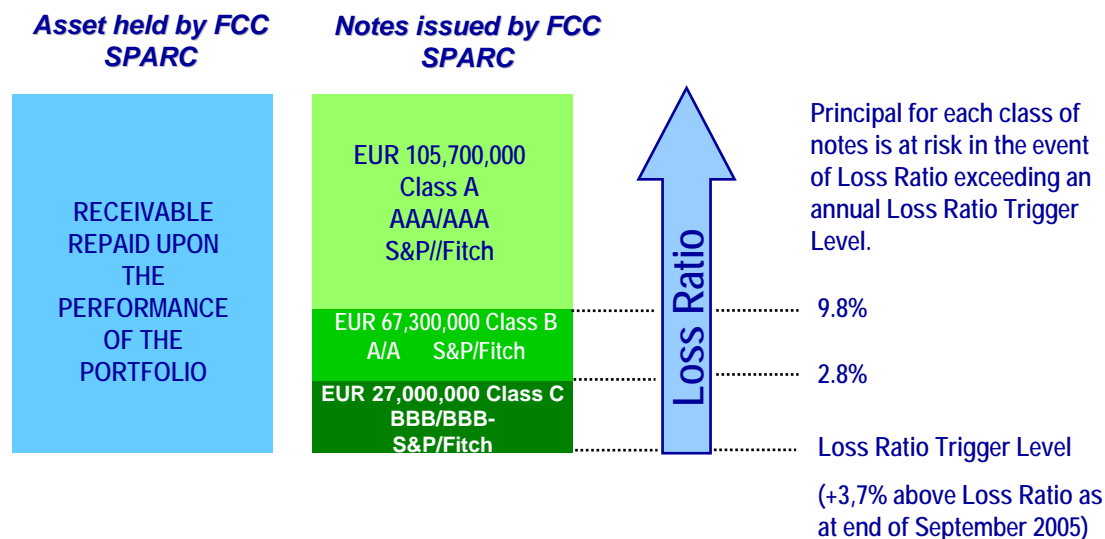
FCC SPARC – AXA's motor portfolio securitization 1/2

- The objective was to securitize the risk of deviation of the cost of claims of AXA France IARD's motor insurance portfolio
 - ▶ Approximately 3 million contracts
 - ▶ Annual cost of claims of around €800k
 - ▶ Claims characteristics: high frequency, low severity and low volatility
- The transaction was undertaken with the reinsurer Nexgen Re and the FCC (fonds commun de créances, a French securitization vehicle)
- FCC SPARC was launched December 9, 2005
 - ▶ Enabled the transfer of 200 million euros of risks to the financial markets for a duration of four years
 - ▶ Primarily European investors seeking to diversify risk to a new asset class
- Key outcome for AXA
 - ▶ Diversification of the sources of reinsurance outside of traditional markets and eliminating credit risk
 - ▶ Improved balance sheet efficiency and capital management

Liability Backed Securities (LBS)

FCC SPARC – AXA’s motor portfolio securitization 2/2

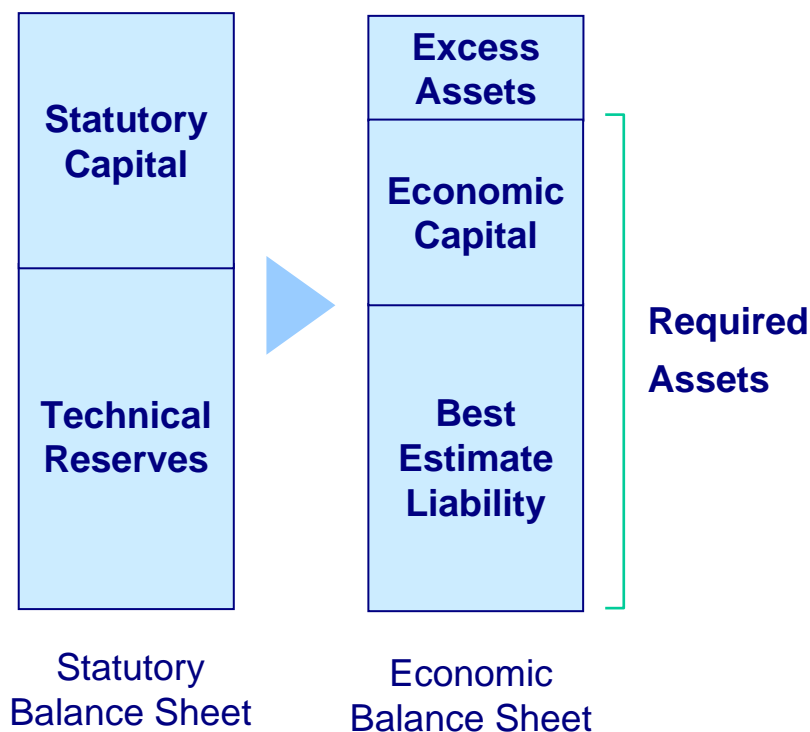
- The transaction, structured via FCC SPARC, a French debt mutual fund, is similar to a synthetic securitization by which the risk of performance of the securitized motor insurance portfolio is transferred to investors at certain defined levels.
- The risk is measured via the Loss Ratio, which is the ratio of:
$$\frac{\text{Claims}}{\text{Earned Premiums}}$$
- The main risk for investors is the deviation of the Loss Ratio above the Loss Ratio Trigger Level.



Economic Capital

Measuring AXA's risk and diversification benefit 1/2

Economic Capital represents the required capital to support the business with a probability of default equivalent to a AA company



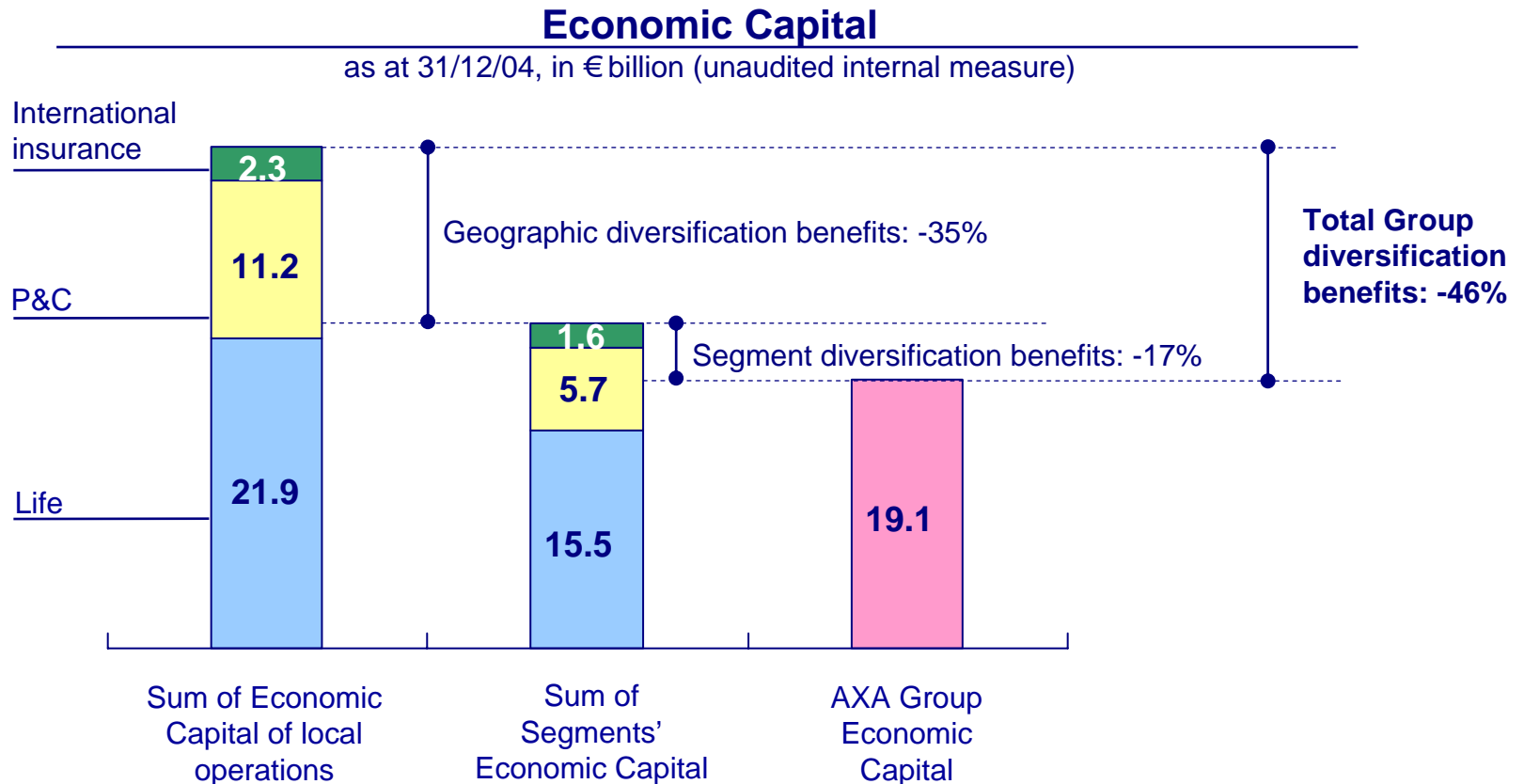
Key assumptions:

- AA calibration
- Run-off of existing policies (30 years horizon)
- 4 years of New Business
- Intermediary solvency risk is taken into account

The **Best Estimate Liability** (BEL) is the level of assets required to pay future policyholder benefits in a best estimate scenario (50% of chances to be under reserved and 50% of chance to be over reserved = Economic view of the reserves)

Economic Capital

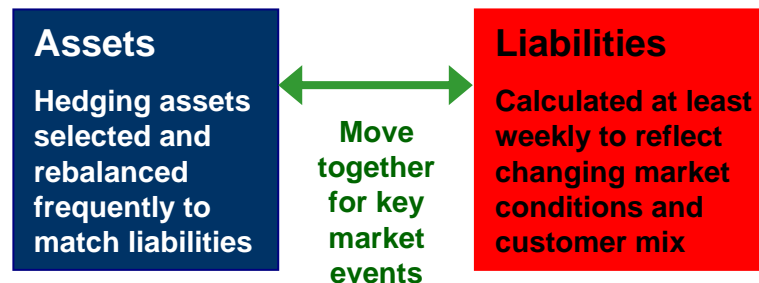
Measuring AXA's risk and diversification benefit 2/2



The diversification benefits (excluding diversification benefits within each local operation, which are not measured) **amounted to €16 bn**

Guaranteed Minimum Benefits Advanced Risk Management at the AXA Group

- **Products with guaranteed minimum benefits are being developed by many life entities within the Group following the success of Accumulator in the US.** These guarantees are similar to equity and interest rate put options and are therefore very exposed to poor market performance, especially equity, and also interest rate risk.
- To manage the exposure to these risks, AXA has implemented a **dynamic hedging strategy** in the US, and is developing hedging for Europe and the rest of the Group. This technique is the one used by banks to manage books of financial options (calls and puts).
- **The aim of the hedging strategy is for assets and liabilities to move together for key market events**, e.g., variations in equity markets and interest rates. Matching assets and liabilities will in turn significantly reduce P&L volatility for the product.
- Dynamic hedging is organized as a business in the US and contribution of dynamic hedging to overall product profitability is carefully tracked.



Guaranteed Minimum Benefits: success of US risk management is allowing creation of a European platform

Risk management is a key driver of product innovation and acceleration of time to market

AXA is rolling out US-type GMxB products in Europe by leveraging its risk management expertise through the AXA Life Europe platform

AXA Life Europe

Governance

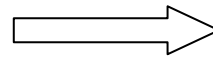
Legal Structure

Asset strategy

Hedging strategies

Accounting for derivatives (2007)

Business Development



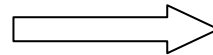
Product development

Ownership of product revenue and profitability

Group reporting

Customer interface

Strategic planning



AXA
European
companies

Germany

First TwinStar policies issued on April 10, 2006

Entity 2

Entity 3

Conclusion

- Risk is the raw material of the insurance industry, and Risk Management is a key component of business management and value creation

- Sound Risk Management must cover all aspects of business management
 - Business processes (pricing, ALM, Reinsurance...)
 - Internal performance monitoring
 - External communication

- The different ingredients of Risk Management, such as:
 - Quantification / Measurement
 - Governance
 - Disclosure / Transparency

...must be taken into account

- At AXA, we have been through this journey and we see today Risk Management as one of the key drivers towards our 2012 Ambition

CV of François Robinet



François Robinet is currently the Group Chief Risk Office for the AXA Group, with general responsibility for the management of risks for all operations including Life & Savings, P&C, investment management and banking business. The Group Risk Management area has approximately 60 people centrally, covering a broad range of areas including asset liability management, the reserving process, application of the product approval process, risk monitoring, operational risk, economic capital and risk management systems. Since 2003, François has been responsible for the development and implementation of the broader risk management organization which now encompasses more than 300 additional people integrated into local operations.

Prior to his current role, he was the Chief Executive Officer of AXA Rosenberg Group. François has over thirteen years' experience in the financial services industry, eleven of which have been spent with the AXA Group. He holds an MS in Engineering Economic Systems from Stanford University, and is a fellow of the Institut des Actuaire Français. He is also a member of a number of AXA committees and Boards.

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