Hans Wagner
AXA Group Life Chief Risk Officer

Ferdia Byrne
Partner, KPMG

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Congrès Annuel des Actuaires

redefining / standards

Contents

- Perspectives from an insurer
  - Brief reminder of Solvency II
  - Lessons from the Financial Crisis
  - Key metrics
- Perspectives from an advisor
- Perspectives from an insurer, part 2
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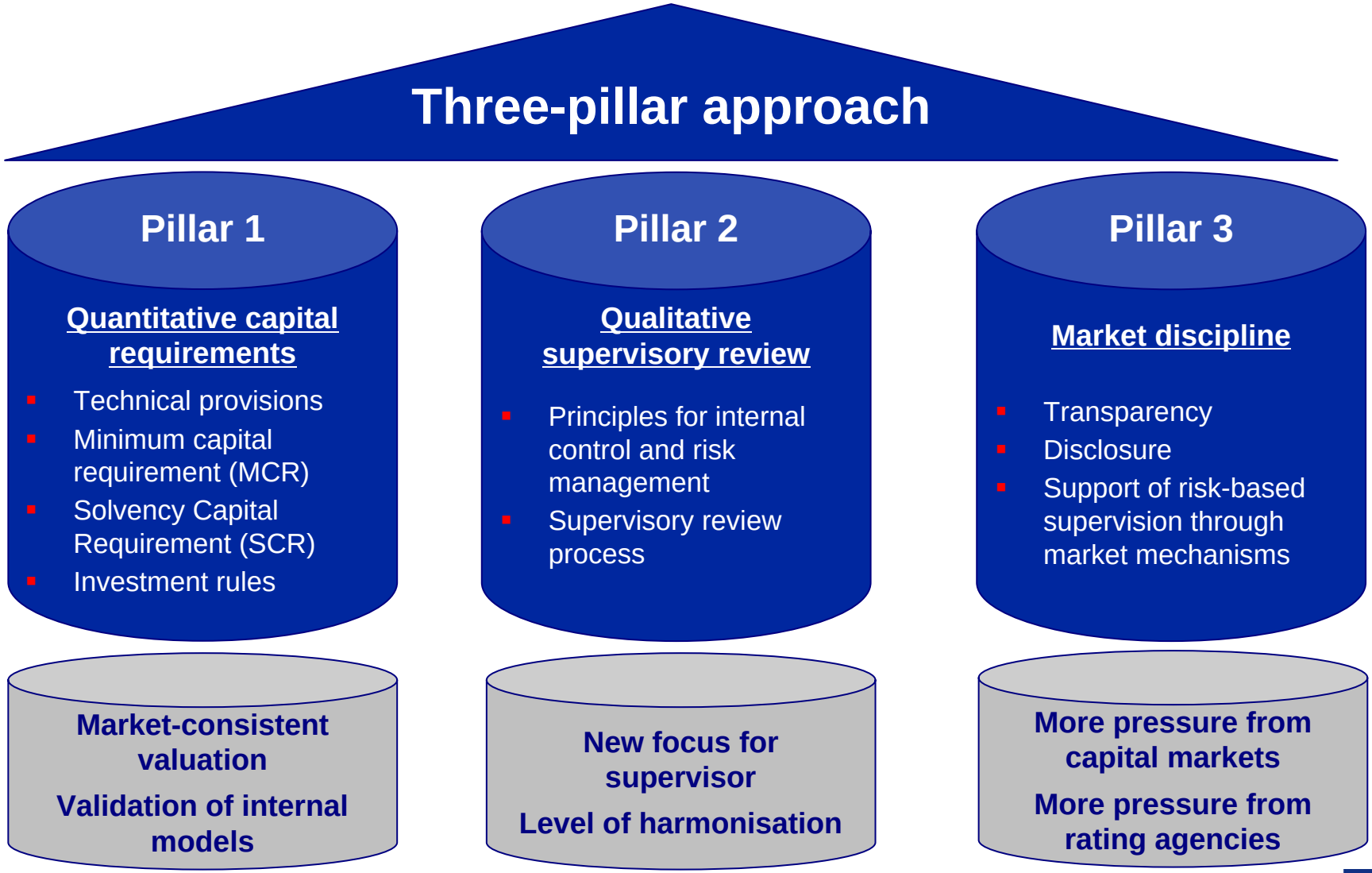
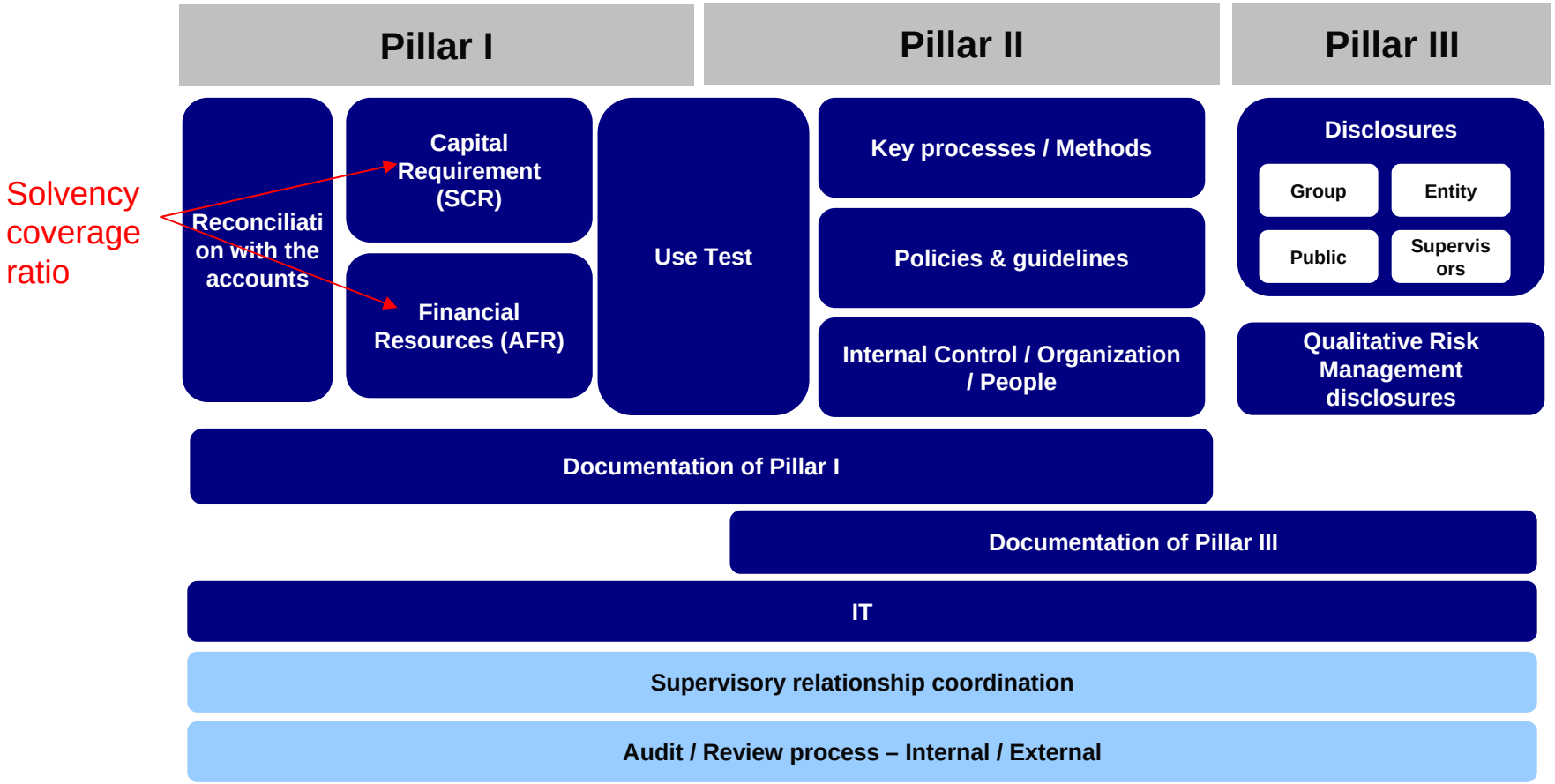
  - Conclusions

3 pillar approach



Solvency II
A scope much broader than only Solvency Assessment

High level vision of Solvency II framework



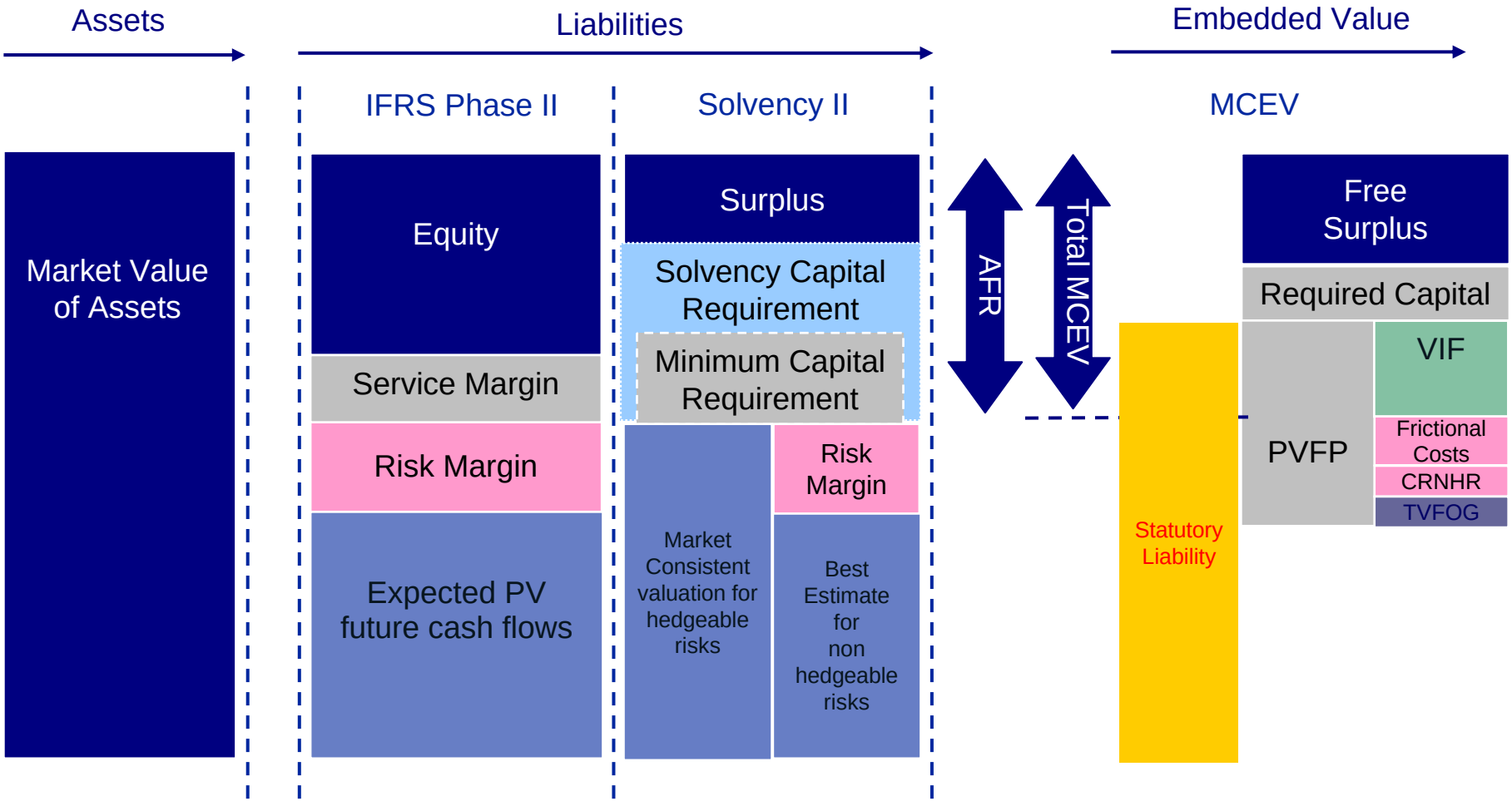
The scope covered is much broader than only the Solvency Assessment

(*) SCR: Solvency Capital Requirement (in SII world)

(*) AFR: Available Financial Resources ; Solvency Coverage Ratio = (AFR / SCR)

Solvency II, MCEV & IFRS Phase II

Reconciling the presentation formats



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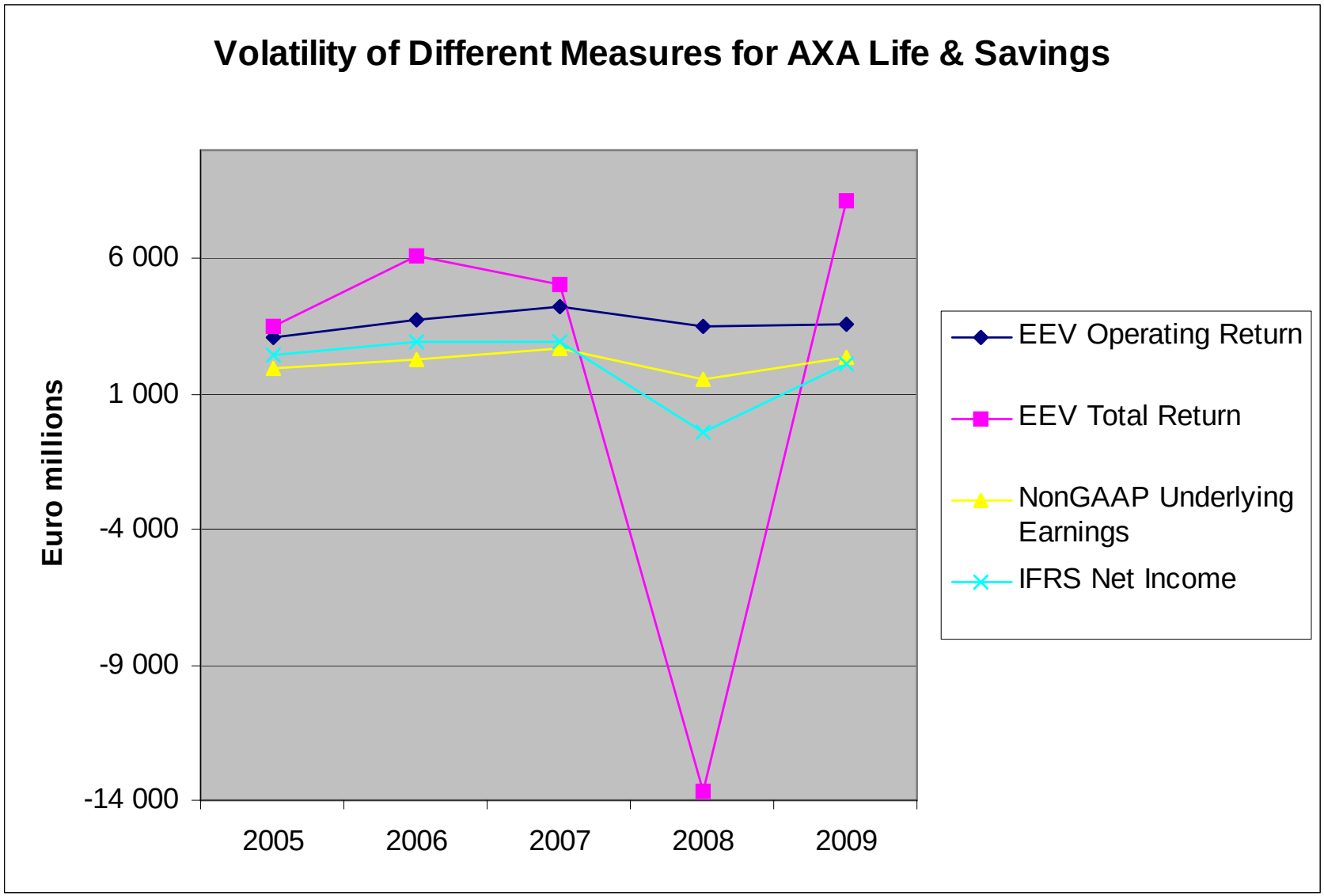
Solvency II measures will be more volatile, unless business practices change



The unthinkable can happen: more weight on stress test scenarios

Our internal framework based on stochastic calculations was in place and embedded in business decision…

VALUE	**CAPITAL**
EARNINGS	**LIQUIDITY**

…still, we have changed

calculation frequency (quarterly basis) &
tail risk scenarios on corporate spreads and correlations

Adverse events (1/20 years)

- Equities **-25%**
- Interest rates **-100bps/+100bps**
- Credit spreads (corp) **+75bps**
- Credit defaults (corp) **1%**
- Other: ABS, real estate, private equity, hedge funds, volatility…

Combined scenarios

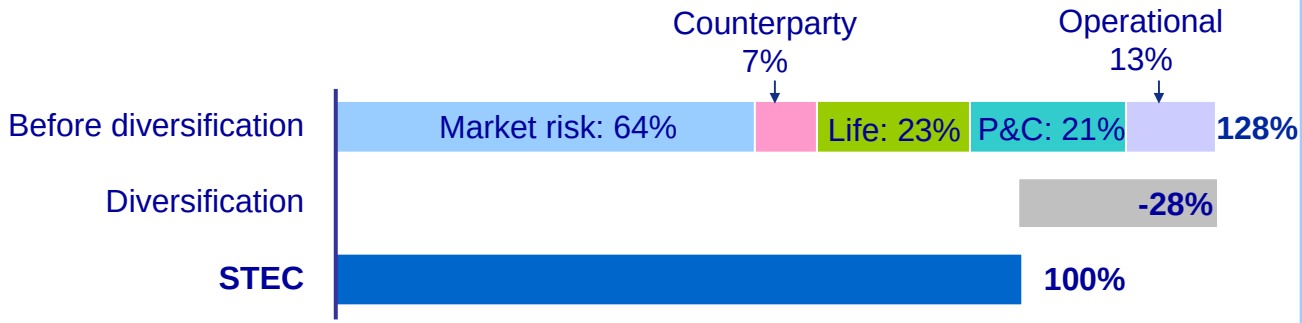
Extreme events (1/200 years)

- Equities **-40%**
- Interest rates **-150bps/+250bps**
- Credit spreads (corp) **+150bps**
- Credit defaults (corp) **2%**
- Other: ABS, real estate, private equity, hedge funds, volatility…

A high proportion of financial risk

Extreme financial scenarios in light of the crisis

Breakdown of STEC by risk categories



- **Market risk represents 64% of total Internal STEC before diversification: how to maintain it at a reasonable level?**
- **How does this measure of Internal STEC impact our key performance indicators?**

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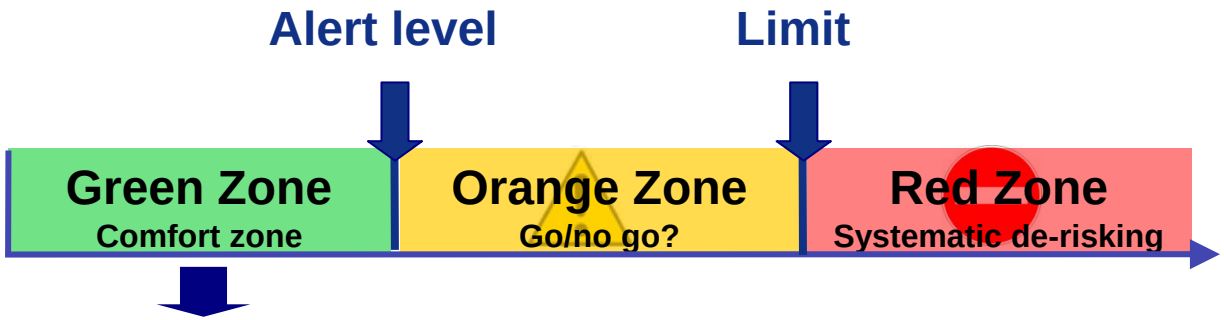
We have target limits to monitor our asset allocation



Invested assets (100%) In Euro billion	%
Fixed income	**79%**
o/w Govies	*37%*
o/w Corporate bonds	*36%*
o/w Asset backed securities	*3%*
o/w Mortgage loans & other	*4%*
Cash	**7%**
Listed equities	**4%**
Real Estate	**5%**
Alternative Investments	**2%**
Policy loans	**2%**
Total G/A and Bank Assets	**100%**

Our asset allocation is in line with our risk limits guidance with some potential for further optimization …

New KPIs using Internal Short Term Economic Capital (STEC)

Systematic measure of return on risk adjusted capital

- **Definition:** $\frac{\text{Net Income}}{\text{STEC}}$

- **Granularity:**

Life & Savings

- Protection, investment & savings, mixed
- Individual, Group

Property & Casualty

- Motor, property, liability, health
- Personal, Commercial

Systematic measure of Value creation

- **Definition:** $\frac{\Delta \text{ AFR*}}{\text{STEC}}$

* Available Financial Resources

Developments on the P&C front
A new Combined Ratio

Economic Combined Ratio (ECR) has become one of our KPI's, reflecting:

- Current year experience
- Cost of risk
- Business duration
- Normalized Natural Catastrophe costs

Making Combined Ratios comparable
across the various business lines and across the years

Calculation

Objective: ECR ≤ 100%

- ECR = 100% → return/STEC = 10% (RFR + Equity risk premium)
- ECR < 100% → return/STEC > 10%

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Companies need to move quickly to prepare for making decisions in the Solvency II world

- Typical areas of focus in the French market:
  - Pillar 1 calculations
  - Data quality
  - Reporting processes
  - Initial reflection on risk appetite, mainly “top down”
  - Risk organisation and governance
  - ORSA (?)
- Many aspects of the business will need to be reviewed in Solvency II, bottom up, and possibly changed to be optimal in the new environment
  - And in many cases, there will be conflicts (statutory vs. IFRS vs. Solvency II/economic)
- Making changes in insurance organisations takes time, and should be a priority for more work in 2010

There are a limited number of areas where companies can take action

- Standard model
  - ORSA
- Internal model approval
  - Use test

1. Asset allocation
2. Pricing & products
3. Risk mitigation
   - Hedging
   - Reinsurance
4. Other
   - Legal structures & domicile
   - Pension liabilities

1. Asset allocation

- Irrespective of the final calibration, asset allocation will need to be reviewed:
  - Unquoted securities
  - Equities
  - Real estate
  - Corporate bonds
  - Government bonds (non-OECD, e.g. China, South Africa)
  - ....
- Concentrations
- Volatility of market values & triggers for derisking

- Need to deal with accounting conflicts
  - e.g. Private equity has favourable accounting treatment under IFRS but not under Solvency II
  - no reserve de capi
- Governance issues for asset managers
  - Decision authorities
  - Outsourcing may require additional controls

2. Pricing & products

- Pricing frameworks and approvals will need to be put in place, on a basis consistent with the frameworks for managing and accepting risk
  - and documented!
- All products and prices will need to be reviewed to reflect the Solvency II calibration
  - and will need to be more dynamic in the volatile Solvency II world (e.g. pricing for financial options & guarantees)
- Product structures can be optimised through sharing of risk with policyholders, and formalisation of management actions

3. Reinsurance and hedging

- Reinsurance arrangements
  - Will they be effective from a capital perspective under Solvency II?
  - Do they provide adequate protection?
  - Credit-worthiness of reinsurers
  - Complexity of measuring intra-group arrangements
  - Issues with treaty terms under Solvency II
- Hedging
  - Effectiveness of instruments and policies
  - Need for additional hedging to manage volatility

4. Other

Legal structures

- Effectiveness of capital transferability to obtain credit in group model
  - Merger of solo entities
  - Branch structures in EU
- Treatment of non-EU businesses under Solvency II
  - e.g. USA, Asia
  - Move HQ outside of EU?

Pension liabilities

- IFRS deficit is deducted
- Although not explicitly stated, insurers need to apply stress tests to defined benefit pension schemes
  - Probably a minor issue for French entities, but potentially significant for multinationals
- Could accelerate restructuring

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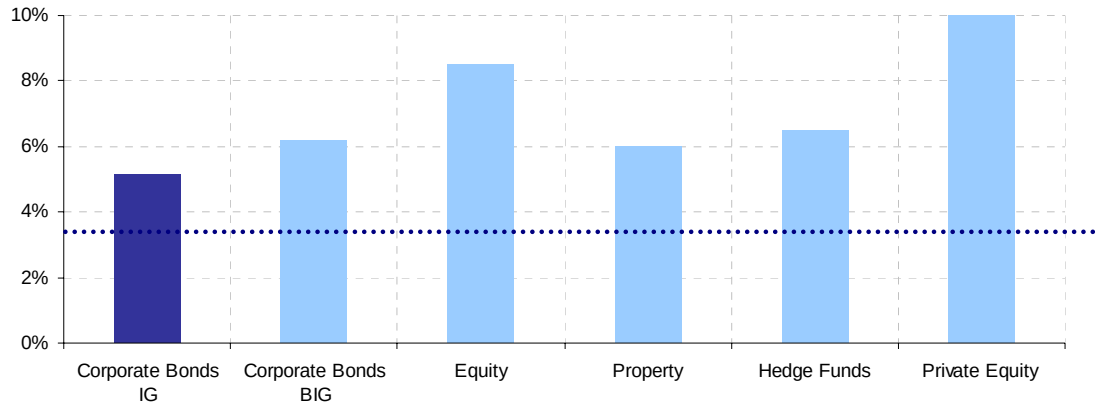
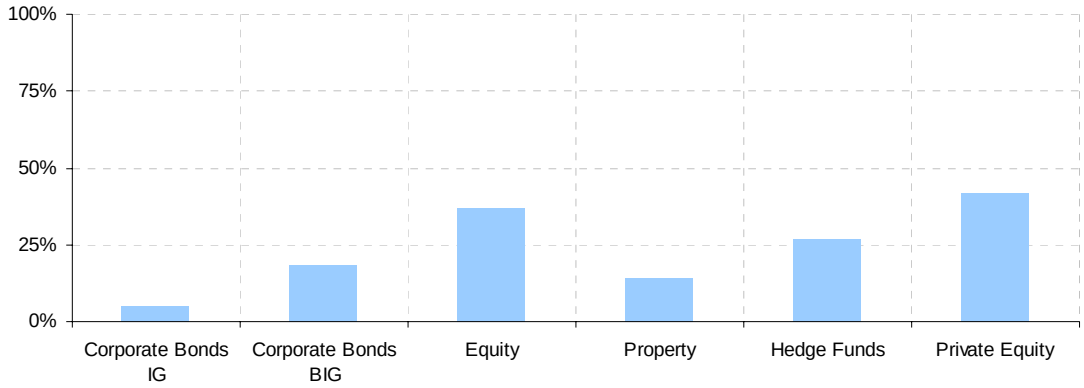
Illustrative expected return by asset class & internal STEC requirements

Expected return by asset class



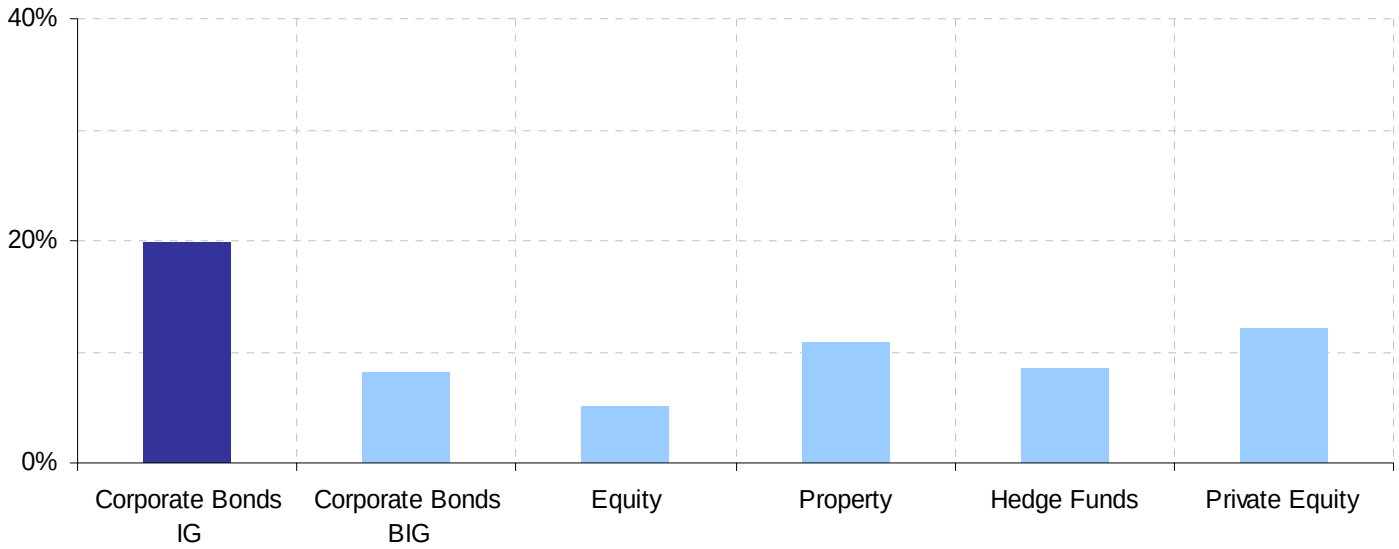
Internal STEC requirements*



* STEC calibration is more conservative than QIS4 but less conservative than QIS5 (third consultation paper)

Corporate bonds: relatively attractive assets

Expected risk premium on required Internal STEC capital*



Under Solvency II, with the illustrative assumptions, corporate bonds have a better risk / return trade off than all other asset classes.

* Shareholders' share net of cost of capital and diversification benefits

Managing corporate bond risk

Underwriting:

- Selection process based on a dual credit analysis (Asset Management analyst + Insurance company analyst)
- Second opinion from risk management
- Group Chief Investment Officer review/approval

Risk management:

- Diversification at Group level (country, issuer, sector…)
- Corporate bonds portfolio duration limited to 4/5 years

Evolution of Variable Annuities

Improved hedging efficiency across the board

- ✓ Basis risk action plan
- ✓ Volatility action plan

Japan developments

- Very limited involvement in the under priced Variable Annuities market expansion until 2008
- First mover in 2009 to reduce commissions and reprice GMIB products
- Market share gains since 2009 with a double digit NBV margin

US developments

November 2008
- Reduced rollup rate (6.5% to 6%)
- Eliminated GWBL
- Increased pricing
- Lowered annuitization rate

February 2009
- Reduced rollup rate (5%)
- Limit fund lineup

February 2009
- New Accumulator 9.0
- Allocation funds & guided architecture

November 2009
- Retirement Cornerstone

Germany developments

Early 2009
- Stopped parts of “Twinstar Invest” new business
- Optimized swaption strategy on Inforce books to reduce exposure to long term interest rates convexity

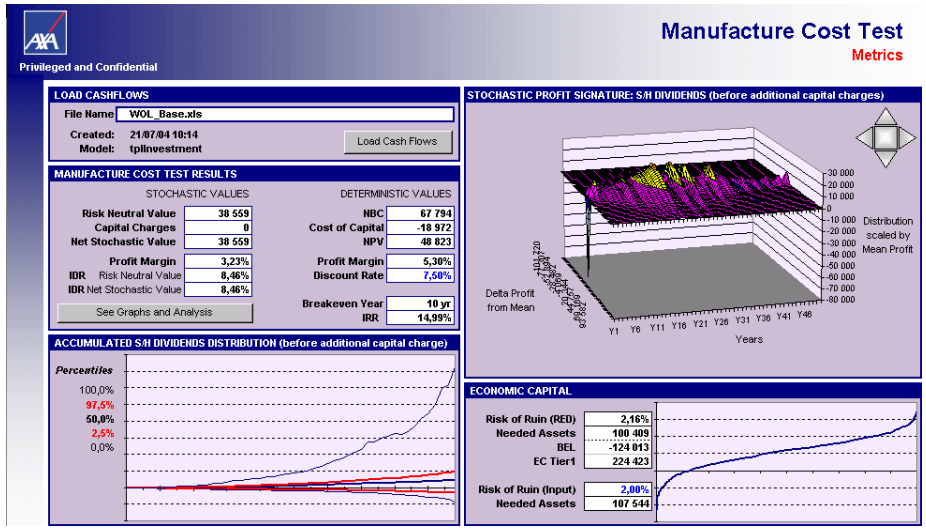
2010
- Redesigning “Twinstar Invest”

Product Management

Risk adjusted profitability key to product pricing

- It is essential that, as part of product development pricing, the costs of risks can be assessed, particularly where there are significant embedded options (e.g., VA with guaranteed living benefits, or participating business with underlying guarantees)

- AXA has developed and applied across the Group risk neutral pricing tests since 2003
  - Consistent across the Group
  - Applied locally



- The key element is that the framework supporting this analysis should be transversal across product development, financial reporting, management information systems and remuneration key performance indicators

Product management aligned with financial reporting

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Solvency II
A positive outcome for the industry & AXA

There are no good reasons to anticipate forced capital increases for the sector as a whole

- ✓ Insurers are not banks
  No liquidity issue, assets at fair value, no forced capital increases
- ✓ European Commission showing some encouraging signs
- ✓ We expect favorable review of certain assumptions
  Liquidity premium, grandfathering, future profits as Tier 1, economic calibrations…

Solvency II principles are favorable to the industry

- ✓ Higher consistency & transparency
  Rating agencies, regulators and companies using the same metrics
- ✓ Better risk management discipline
  Impacting day to day decisions on ALM, pricing underwriting & reserving

Solvency II principles are favorable to AXA

- ✓ Recognition of AXA's strong diversification benefits
- ✓ AXA's business is already based on a well developed internal economic model
- ✓ Confirmation of AXA's focus on unit-linked & protection products

Implementing measures negotiations, what is at stake?

Implementing measures (level 2 measures) could depart from the principles of the level 1 directive with an overly conservative approach.

This would mean a level of prudence higher than 99.5% without any economic justification

- ✓ The crisis did not demonstrate that insurance underwriting risk was under-calibrated (QIS IV)
- ✓ The crisis did not demonstrate that the insurance sector was under-capitalised

→ ***The Commission conveyed reassuring public messages lately***

Overly conservative calibrations would have serious macro and micro-economic consequences…

… on consumers	… on insurance industry	… on the economy
• **Price increases** • Policyholders incentivised to choose less expensive protections	• **Decrease of investors' interest** • **Hamper competitiveness of EU companies** • **Decrease of diversity in the sector**	• **Less capacity to finance the economy** and the recovery • **Decrease of the traditional role of institutional investors** to governments and companies

“The Era of Insurers”

“Era of the Banking Industry”

- People saved – but weren’t investors
- Bought stocks and held
- Defined-Benefit Plans

“Era of Asset Management and Mutual Funds”

- Savers Becoming Active Investors
- 401(k) & money markets lead to Mutual Fund domination

The current crisis does not impair the growth outlook for the insurance industry, despite its short-term effects

Opportunity for the “Era of Insurers”

- Growing risk aversion
- Increasing longevity
- Widening pension gap

Short term headwinds
Drop in equity markets
Lower interest rates