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Directorate A - Economic and Scientific Policy
Policy Department A.: Economic and Scientific Policy and Quality of Life Unit

Valuation Problems in Models for Solvency II

Workshop report

IP/A/ECON/WS/2008-07 **PE 408.585**

This workshop was requested by the European Parliament's Economic and Monetary Affairs Committee (ECON)

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DIRECTORATE-GENERAL INTERNAL POLICIES OF THE UNION
- DIRECTORATE A -
ECONOMIC AND SCIENTIFIC POLICIES

Workshop: Valuation Problems in Models for Solvency II

26 March 2008
European Parliament, Brussels, Room **ASP5G2**, 16h00-18h30

Programme

16.00-16.10 Introduction by Peter Skinner (Rapporteur Solvency II)

16.10-18.30 I - Financial crisis: How does the volatility and the illiquidity affect hybrid instruments?

- True valuation
- Convertibility
- Accountability

II - Impact on Balance sheet

- Valuation problems in models for Solvency II
- Consequences for own capital and eligible funds;
  Risk if tier structure is too rigid the MCR can be breached
- Proportion of hybrid instruments in debt/equity and their treatment
- Treatment of perpetuals
- What about balance sheets which have quasi equity instruments already issued?

Guest speakers:

1. Mr. Kajal Vandenput, CBFA, Belgian Banking, Finance and Insurance Commission, Brussels and Chair of the Financial Stability Committee of CEIOPS
2. Mr. Mathieu Filippo, Finance Analyst, Achmea-Eureko, Zeist, Netherlands and Chair of the Solvency II working group of the Dutch Association of Insurers
3. Mr. Ulrich Stengele, Senior Risk Manager, Aegon, Netherlands

Curricula Vitae

Kajal Vandenput, Belgian Banking, Finance and Insurance Supervisor

Kajal Vandenput joined the Brussels-based Banking Finance & Insurance Commission in early 2004. Within the Prudential Policy department he is involved in the development of the Solvency II project, more specifically on issues related to insurance group supervision.

Mr. Vandenput is also Chairman of the CEIOPS Financial Stability Committee, who's task is currently devoted to monitoring the impact of the financial markets turmoil on the European insurance and occupational pension funds indutries. Prior to joining the CBFA, Mr. Vandenput held positions at lead international investment banks, both within credit risk management and structured finance departments.

Mathieu Filippo, Eureko

I am graduated at the University of Rotterdam. University degree in business economics.

After my military service (was then mandatory in The Netherlands) I went to work in a service company as financial controller. After six years I become financial director at another service company. This company was acquired by Eureko (insurance group).

In 2003 I became the first member of the IFRS Competency centre within Eureko responsible for the IFRS transition and interpretation of all IFRS requirements. From 2005 onwards the interpretation of Regulatory requirements for Eureko became part of the responsibilities.

As of 2006 the Solvency II developments draw the attention. As of this date within Eureko a Solvency II project was established as of which I am the project manager. As of 2006 I was also member of the Solvency II working group of the Dutch association of Insurers. As of December 2006 I became the Chairman of this working group.

Ulrich (Uli) Stengele, Aegon

Uli Stengele is a Risk Manager for Dutch domiciled AEGON’s Group Risk Department. Uli works in AEGON’s Baltimore office in the US where he is responsible for Group sponsored applications relating to AEGON’s market consistent framework. These include scenario generation, actuarial modeling support, margin calculation and framework documentation.

Prior to joining AEGON in the Fall of 2006, Uli spent 11 years at Nationwide in Columbus, where he was responsible for Nationwide’s living benefit guarantee hedge programs. Uli is a Fellow of the Society of Actuaries and a Chartered Financial Analyst.

Slides

Presentation by
Kajal Vandenput

ECON Workshop: Valuation Problems in Models for Solvency II

Implications of financial crisis for Solvency II

Kajal Vandenput

Thursday, March 27, 2008

1

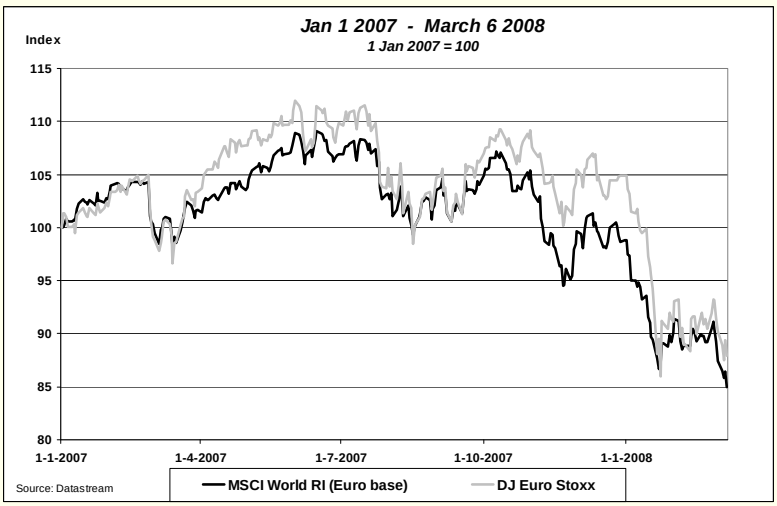
How financial markets are behaving under crisis

Global financial markets are witnessing the following events:

- Increasing default rates on structured credit products related to subprime mortgage assets and potential spill-over effects to other loan classes (credit card, auto loans, commercial mortgages)
- Pressure on AAA rating status of monoline insurers, reducing effectiveness of credit enhancement to ABS tranches
- Increasing pay-outs under the terms of credit default swaps and credit derivatives in general
- Widening bond spreads, reflecting increasing risk aversion by investors
- Equity downturn and increasing volatility of equity prices ahead

2

Global & European equity index movements



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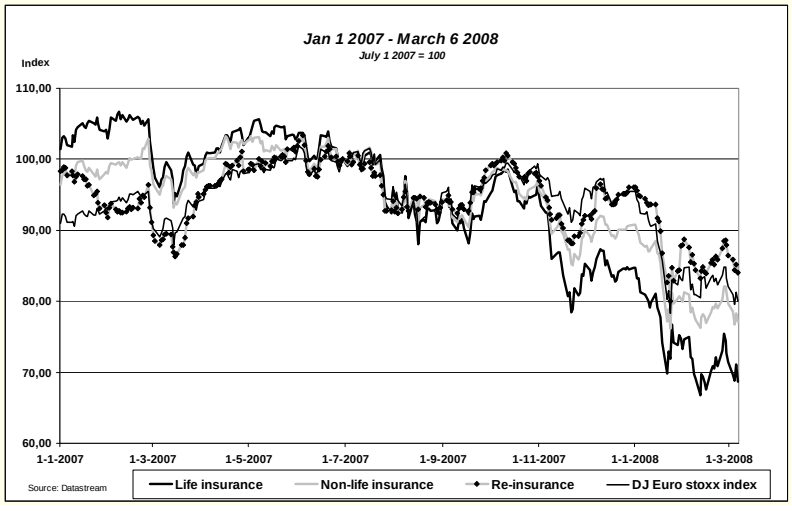
European insurance equity index movement



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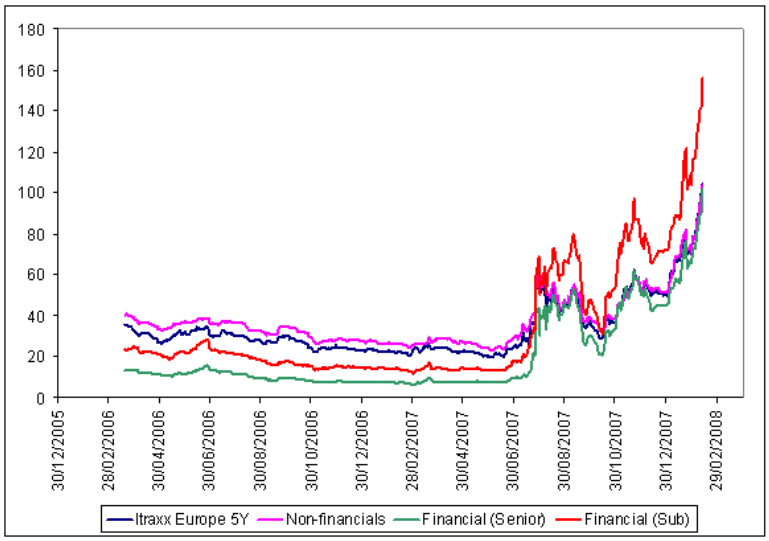
European CDS spreads on investment grade credits



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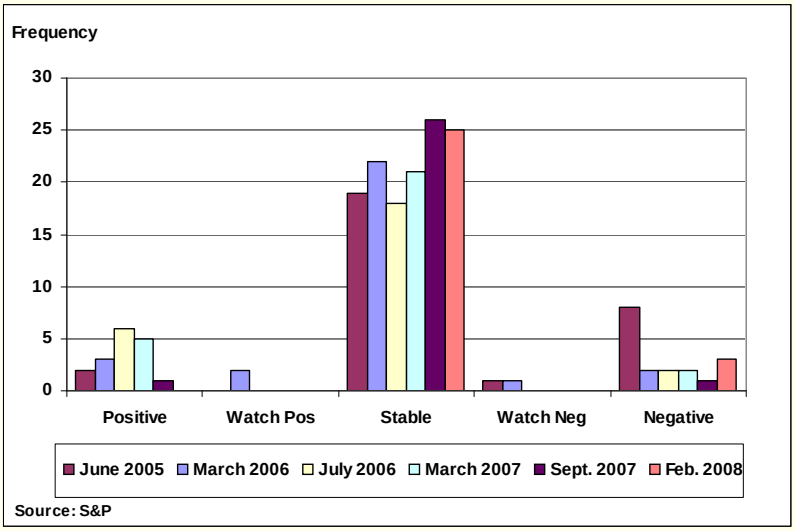
Distribution of European insurance rating outlook



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Supervisory response to the financial turmoil

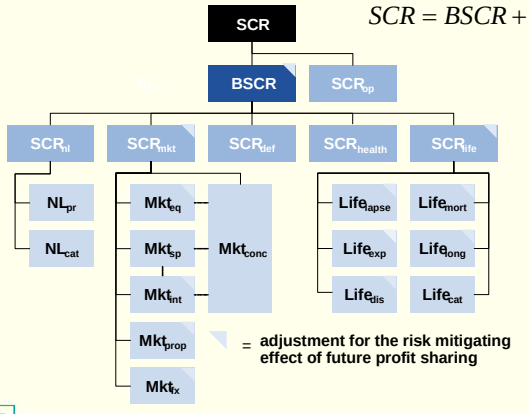
Data collected to date indicates overall limited exposure of EU insurers to subprime related risks. However:

- Close monitoring of insurers that reported investments in structured credit products
- Regular reporting by insurers that are exposed to subprime related risks
- Stress test analysis conducted on equity exposures
- CEIOPS' work on identifying potential effects of contagion risks across financial sectors
- CEIOPS provides regular feedback to EFC on impact of financial crisis on EU insurers and pension funds
- Contributes to developing future policy direction, s.a. proposed modifications for Solvency II to reflect stressed market conditions (QIS4)

SCR Modular approach

- Modular approach allows separate treatment and testing of risk components
- Allows testing diversification through correlation matrix for aggregation of modules

$$SCR = BSCR + SCR_{op}$$



Modifications to reflect stressed financial events

- SCR calibrated at VaR 99.5% to reflect 1 in 200 years events. Is the current financial crisis a 1 in 200 year event ?
- Modifications in MKT_{eq} equity risk sub-module to limit procyclicality (forced selling in stressed circumstances). Equity dampener takes into account low probability of equity value increase if equity index is high and vice versa.
- Modifications in MKT_{sp} spread risk sub-module to reflect structured credit products and credit derivatives. Introduces separate SCR for ABS, CDO,... with higher charges than bonds (up to 100% for unrated exposures). For credit derivatives capital charge is determined as change in value of derivative that would occur following a widening of credit spreads by 300% or narrowing of credit spreads by 75% if this is more onerous.

9

Modifications to reflect stressed financial events

- Modifications in SCR_{mkt} market risk module to reflect correlation between interest rate and equity risk under stressed conditions. Correlation factor of 0.25 in the case where the scenario of a downward shock on interest rates is most onerous. Correlation factor of -0.25 in case the scenario of an upward shock in interest rates is most onerous.

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Presentation by Mathieu Filippo

EUREKO

Hybrid capital issued by Eureko

Two hybrid capital instruments are issued in previous years:

1. 2005:
   - 500 mln Euros, 5.25% non call 10 e.g. a step-up of 100 base points in 10 year from issue date,
   - Conversion feature included towards preference shares
   - Institutional market
   - Classified as Tier 1 under QIS 4 specification

2. 2006:
   - 600 mln Euros, 6.0% – redemption in 2012
   - Retail market
   - Classified as Tier 2 under QIS 4 specification

EUREKO

Possible effect of current crisis in banking on issued Hybrid capital

Illiquidity wholesale market

- Only on hybrids which are to be refinanced on the short term
- Higher price to be paid
- Uncertainty whether full required amount can be raised

Widened credit spreads

- Increased incentive not to redeem at step up e.g. step-up is not assumed to be a punishment when compared to refinancing costs

Fair value

- Current specifications does not allow for inclusion of own creditworthiness into valuation
- Under IFRS: equity instruments are not classified at fair value. Thus difference with quoted prices of hybrids. In quotes, credit spreads are included

EUREKO

Hybrid capital and the Balance sheet

Eureko's accounting principles are IFRS compliant

- Hybrid capital is classified as an equity instrument when applying the "principle of IAS 32"
- The IAS 32 principle is based on economic principles and the question whether Eureko has a possible obligation in the future to transfer cash of cash equivalents to a Third party

Hybrid capital is part of the overall Risk management strategy

- Hybrids are a part of diversified funding strategy. Diversification by having different counterparties, markets, duration, instruments
- Duration of liabilities are included in the equation

Hybrids and Rating agencies

- Limits and requirements of Rating agencies are assessed when issuing new Hybrid capital instruments
- Hybrid is recognised as part of "available capital" within limits

Hybrids and Banking

- Banking requirements are used when structuring the hybrids

Presentation by Ulrich Stengele

Market Consistent Valuation Topics

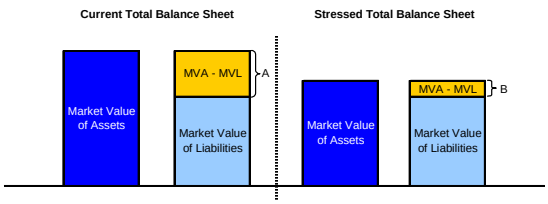
Ulrich Stengele

Workshop - Economic and Monetary Affairs Committee of the European Parliament

March 26, 2008

Pillar 1 – Capital Requirements

- **Total Balance Sheet Approach**
  - "Market Consistent" valuation of all assets and liabilities
  - i.e. asset and liability sides are valued consistently
- **Capital reflects the effect of 1 in 200 year stress on this balance sheet**
  - Solvency Capital Requirement (SCR) (A – B)
- **Result of market consistent valuation forms basis for determining solvency position (A)**

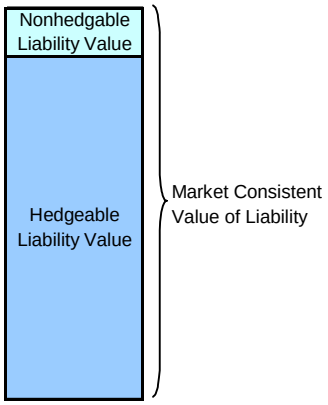


Underlying Principle: Market Consistent Valuation

- **Transfer Value: value at which an asset or liability can be transferred**
  - Objective, transparent and can be applied consistently
- **Valuation is fundamentally about putting an appropriate price on risk**
  - If financial markets trade the risk:
    - risk can be sold in the market
    - market therefore gives us a price for the risk
    - Mostly interest rate and equity risks
  - If financial markets do not trade the risk
    - Need to find alternative way of pricing the risk
    - Mortality, morbidity, policyholder behavior etc
  - Financial markets trade 90+% of most insurance liabilities
  - Markets are evolving (mortality bonds, cat bonds)

Market Consistent Value of Liabilities

- **To value a liability, we split the liability into a hedgeable and a nonhedegable portion**
  - "Hedgeable" risks are traded in the financial markets
    - we can use market prices to determine value
    - Makes up 90+ percent of the value of most liabilities
    - Relevant
  - "Nonhedgeable" means the risk is not traded in the financial markets
    - we use market cost of capital approach to value this risk
- **Supports clear differentiation of value (MVL) and risk (Capital)**
  - Transparent balance sheet and capital positions



Market Volatility

- **Price of risk can be volatile**
- **In general, a more volatile risk will demand a higher risk premium**
  - For example, risk premium for CDOs has historically been significantly higher than the risk premium for “same rating” corporate credit
  - More volatility will also lead to higher capital requirements – risk sensitive capital framework
- **Market consistent balance sheet and derived solvency position**
  - Will reflect this volatility transparently
  - Will also reflect how risks are (or are not) managed transparently
  - Asset and liability sides are valued consistently making explanation possible
- **Are there better alternatives?**

Market Volatility, Own Funds and Tier Structure

- **Rules embedded in tier structure have the potential to exacerbate a financial crisis**
  - Tier 1 capital tends to lose value more quickly than tier 2 or tier 3 capital
- **Important to remember that Pillar 1 is only one of the pillars**
  - Supervisory review process and risk management processes complement absolute levels of capital calculated under Pillar 1
  - Rigid rules under tier structure of capital may or may not lead to a desirable outcome
  - Risk management is a dynamic process that will react to changes in market conditions based on transparent market consistent measurement

Conclusions

- **Market consistent framework is an alternative that will appropriately reflect financial markets' prices of risk**
  - These prices are real as they in fact represent what a market participant would charge to take on the risk
- **Total Balance Sheet approach and derived solvency measures transparently measure an insurer's financial condition**
  - Financial risks can be volatile
  - Balance sheet will reflect risks and any volatility in their price transparently
  - But, management of the risk will also be reflected transparently
  - Enhances comparability and understandability of financial information
- **Alternatives?**