

# Counter-cyclical measures in insurance

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(\*) The view and opinions represent my own and do not necessarily reflect those of institutions or organizations I am affiliated with unless stated explicitly

# Agenda

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- The banking approach
- The insurance framework
  - The solutions in the SII Directive
  - Do we need something different ?
- The proposed adjustments
- Conclusions

# The banking approach

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- Assets (i.e. Loans) and Liabilities (i.e. Deposits) are both valued at their book value (nominal value)
- The capital requirement  $K^*$  is a function of the riskiness of L
  - In particular,  $K^* = r * \text{Loans}$  where  $r = \text{riskiness/rating}$
- The problem is that the  $r$  varies across time and in cross-section, thus regulatory capital requirements vary not only with changes in portfolio composition but also with the credit cycle:
  - during an economic downturn, when overall credit quality deteriorates, capital requirements become more stringent, inducing banks to deleverage and forcing fresh default in the real economy

# The banking approach

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- The adopted solution is to calculate  $r$  “through the cycle”
- But since regulators believe that the rating agencies (so the banks in their internal models) are not able to smooth  $r$ , they prefer to increase the requirements so that  $KK^* > K^*$

# The insurance framework

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- Under Solvency II, A and L are valued at market value (market consistent approach, MCA)
  - Since L are not traded/tradable, the value is obtained by discounting future cash flows with the “(credit) risk free” rate
- in the MCA,  $A-L=K$
- K should be compared with  $K^*$  (**SCR, solvency capital requirement**) which is a nonlinear function of both A and L, with  $K^* = F(A-L)$
- Keep in mind that, in insurance, there are 3 types of liabilities
  - 1) Liabilities which do not depend on A (P&C, non life business, death)
  - 2) With profit life business, where L is a nonlinear function of A (usually, there is a minimum guaranteed benefit and future discretionary benefits)
  - 3) Life business where L is linked to A (unit/equity linked policies and matched products)

# The solutions in the SII Directive

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- The mechanism of pro-cyclicality: in a downturn, the increased likelihood of breaches of the capital requirement might lead insurance companies to sell equities and bonds, exacerbating the market trend
- Solvency II is the first Directive/Regulation which explicitly mentions the risks of pro-cyclicality
- The Directive includes two solutions, both finalized to adjust  $K^*$ 
  - $K^*$  takes into account a symmetric adjustment mechanism with respect to changes in the level of equity prices
  - In the event of exceptional falls in financial markets... a provision should be made to allow supervisory authorities to extend the time period within which insurance and reinsurance undertakings have to re-establish the level of eligible own funds covering the SCR

# The solutions in the SII Directive

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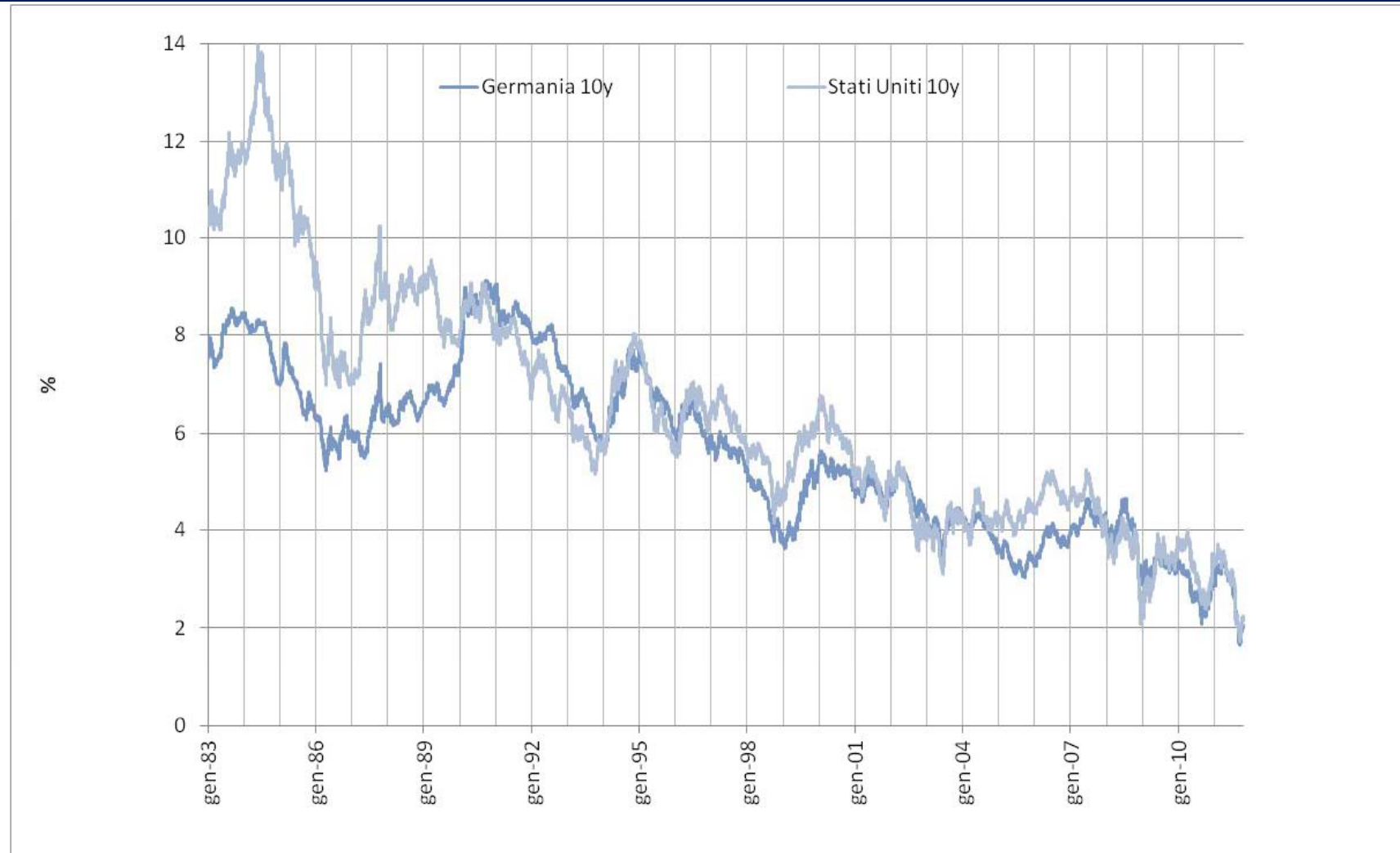
- The adjustment of  $K^*$  is coupled with the definition of MCR (minimum capital requirement, a “less risk sensitive” value) thus designing an approach *à la* Goodhart and Persaud (2008) which does not interfere with the accounting
- In practice,  $K'$  is defined as a minimum level below which the amount of financial resources should not fall (MCR)
- MCR is calculated in accordance with a simple formula based on technical provisions, written premiums, capital-at-risk, deferred tax and administrative expenses
  - MCR shall not fall below 25% nor exceed 45% of the undertaking’s SCR
- Is it enough ? Unfortunately NOT

# Do we need something different ?

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- We discovered during such turbulent years that there is another powerful source of procyclicality: the “risk free interest rate”
  - Namely, the rate used to calculate L
- One problem is that yields on AAA sovereign bonds seem to be persistently low, possibly given a worldwide shortage of safe assets (Bernanke, Caballero among others)
  - In order to hedge the exposure from fluctuations on the asset value, insurance companies might buy only AAA assets, thus exacerbating the problem

# Do we need something different ?



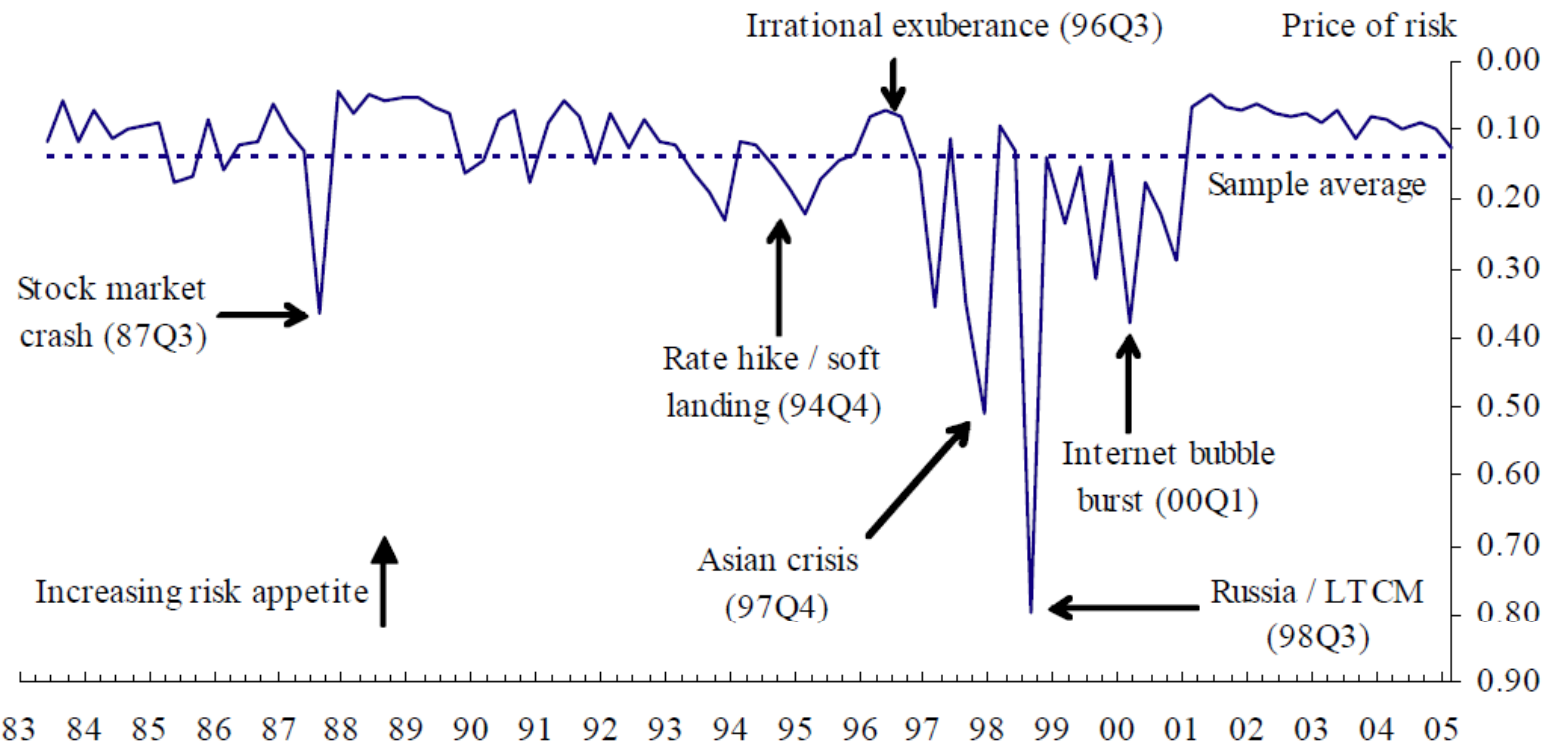
# Do we need something different ?

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- The other problem (possibly more important) is that we observe large swings in market risk aversion
- In other words, risk appetite varies through the cycle
  - Thus, changes in the differentials between the risk free rate (used for calculating L) and other rates (used for calculating A) directly modify K
  - The problem is aggravated by the maturity transformation (duration mismatch). Given the very long term nature of certain insurance liabilities, it may be difficult to find assets carrying a similar duration and extreme volatility is more severe as duration gets longer

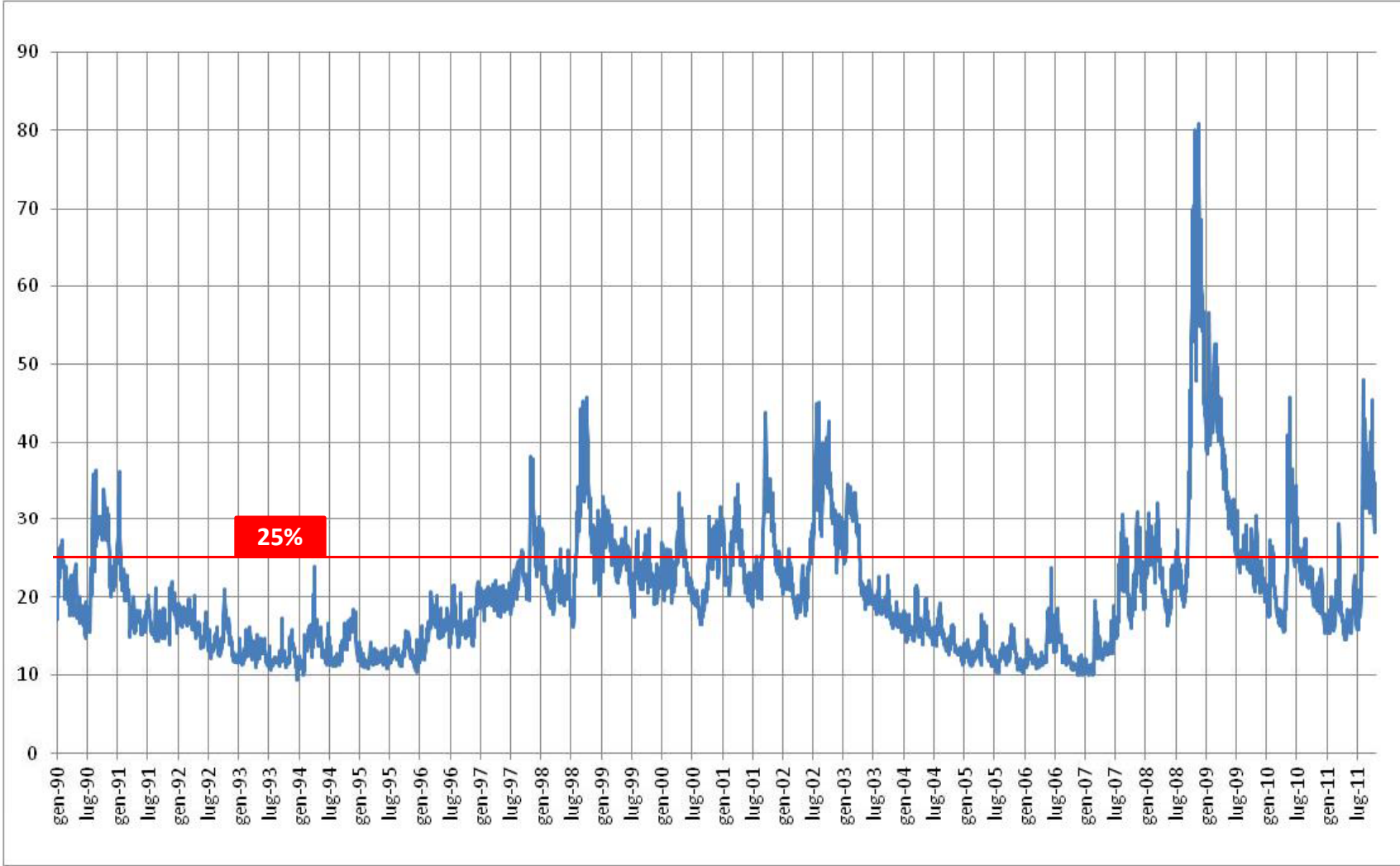
# Risk appetite

Chart 3: Estimated risk appetite



Measuring investors' risk appetite Gai and Vause, Bank of England Working Paper no. 283 (2005)

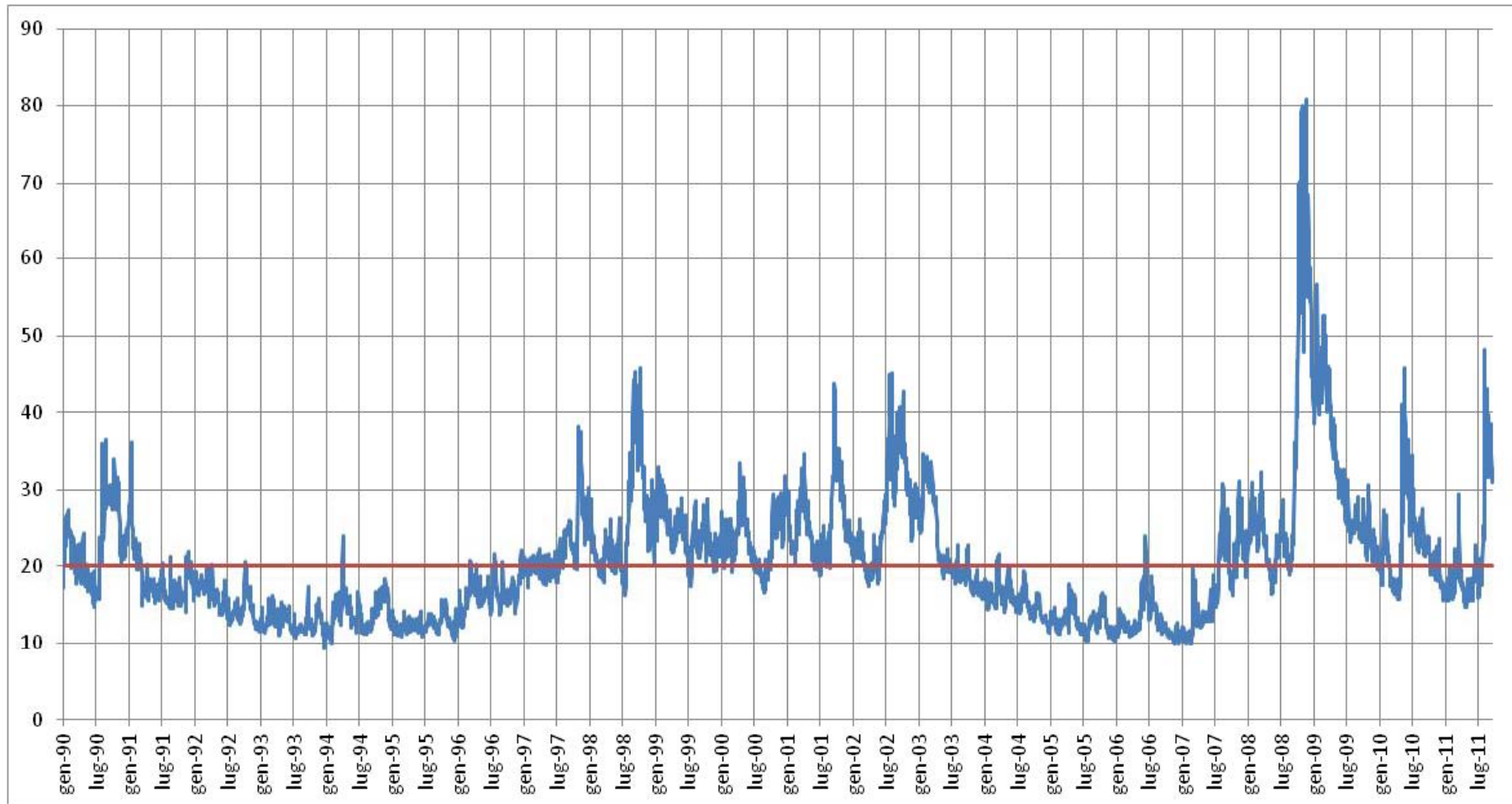
# CBOE SPX VOLATILITY - VIX



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Conference on Reform of Financial Regulation  
Lisbon 28.10.2011

# CBOE SPX VOLATILITY - VIX



# The proposed adjustments

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- It means that  $K$  varies a lot, while  $K^*$  is relatively stable
- Against this background, the idea is to smooth  $K$ 
  - It started with the so called “illiquidity premium” (namely an increase in the discount rate applied to the calculation of the present value of future payments under certain long-term insurance contracts).
  - This reduction in liability valuation is justified by reference to similar reductions in the value of the assets backing these liabilities. The underlying insurance liabilities tend to be funded by investments in correspondingly illiquid fixed-interest assets (usually, corporate bonds). In this way, a potential mismatch between asset and liability valuations is avoided.
- As a result of intense discussions, the European Commission has recently developed two new approaches to calculate the discount rate

# The proposed adjustments

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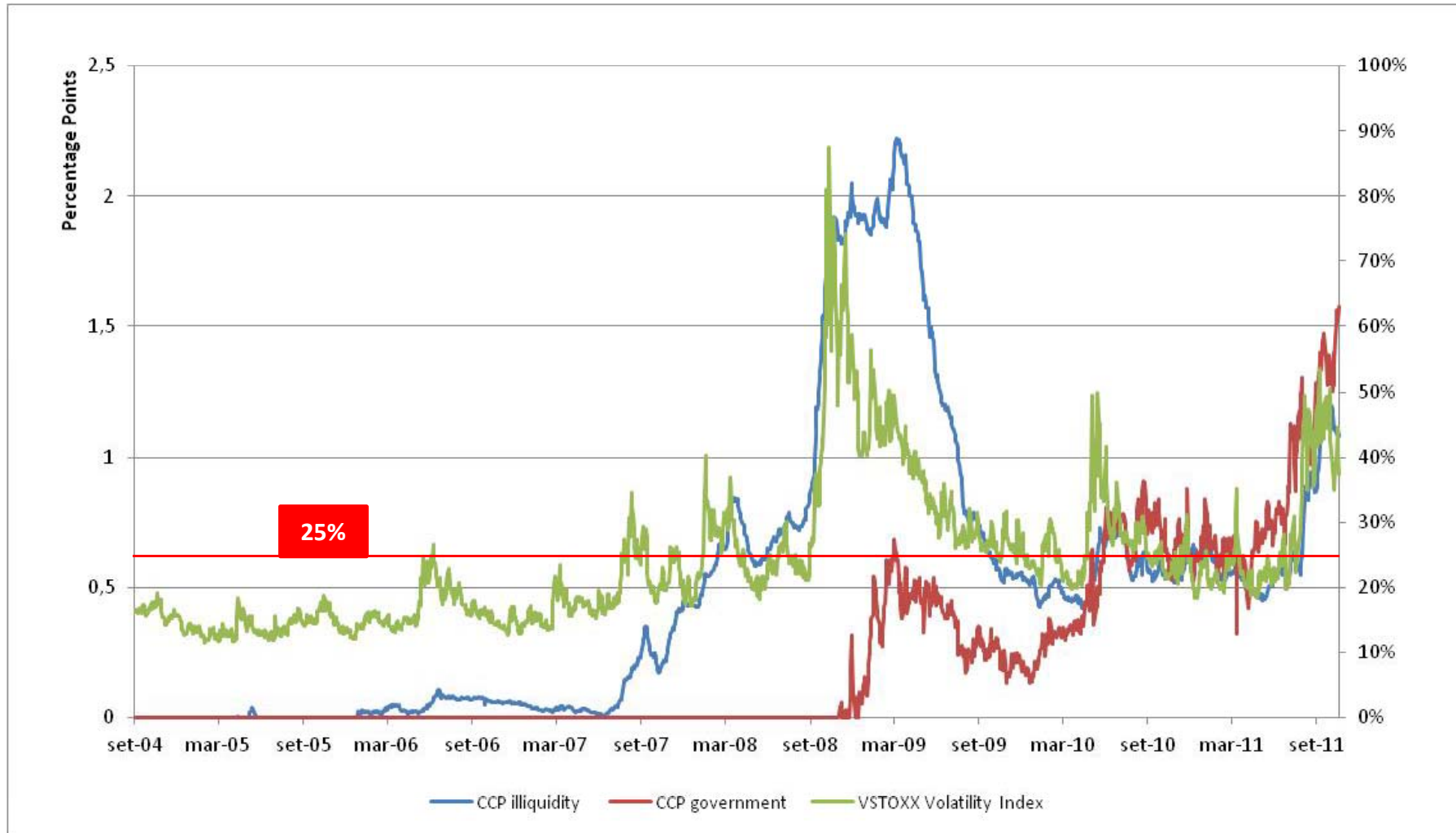
- a) A so-called matching premium, which reflects spread movements on the asset side and counterbalances these changes in the valuation of L
  - This proposal can be applied only when there is a perfect match between A and L (so called matched products, see n.3 p. 4)
  - $k$  varies only for changes in the credit risk
  - Basically, the idea is to go back at the book value of A and L
- b) A counter-cyclical premium, which applies to all product types (see nn. 1-2 p.4) and takes into account also changes of government bond spreads, and might therefore help to solve issues around procyclicality and artificial volatility
  - Large changes of “market risk aversion” are offset by reducing the spread between the rates of A and that of L
  - The idea is similar to the one described for the illiquidity premium

# The proposed adjustments

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- As of now, the decision on how to apply the counter-cyclical premium is delegated to EIOPA
- The industry is asking to have a clear formula, in order to reduce arbitrage problems
- Ideally, the formula for the counter-cyclical premium should weight the 2 components (illiquidity and government adjustment) without forcing the portfolio allocation of the industry
- A proposal: the  $CCP_{\text{premium}}$  is determined as a combination of  $CCP_{\text{IP}}$  (IP illiquidity premium defined in QIS5) and  $CCP_{\text{GOV}}$ 
  - $CCP_{\text{IP}} = \text{Max}[0 ; 0,5*(\text{IBOX-SWAP} - 40\text{bps})]$
  - $CCP_{\text{GOV}} = \text{Max}[0 ; (\text{ECBAAA and others-SWAP})]$

# The proposed adjustments



# A critique

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- Danielsson, de Jong, Laeven, Laux, Perotti, Wüthrich (referring to the illiquidity premium)
  - *Capital (reserve) requirements are prudential buffers to back future nominal promises to policyholders. To compute such requirements, promises should not be discounted at a risk premium. .. Risk free discounting cannot be questioned as a basis to compute the present value of insurer liabilities. Illiquid assets held to maturity do not constitute a riskless hedge. Different valuation schemes, market-consistent valuation and hold-to-maturity view, cannot be mixed in an inconsistent way.*
  - *Using a liquidity premium to discount liabilities is in essence a fudge discount rate that is financially unsound and economically indefensible. It would induce risk arbitrage and risk reallocation, e.g. from banking to insurance” ...*
  - *There are, however, good economic arguments and legitimate concerns for long-term insurers to be addressed under Solvency II’s transition to market consistent valuation.*
  - *The change leads in many countries to a higher value of longer-term promises, in particular at the time that massive monetary support and a flight to liquidity has led to very low risk-free rates.*
  - *There is a sound rationale for a gradual transition to market consistent reserve requirements ...*
  - *Yet favouring stable funding should be achieved by other means than by manipulating a discount factor, which is an opaque, financially unsound solution, distorting maturity choices and inducing risk shifting.*
  - *Other measures may include a regulatory buffer on the asset side of the balance sheet or a ladder of intervention.*

# A comment on the critique

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- Only some products offer benefits in nominal (actuarial) terms (those n.1, p.4) independently from the asset value and are due in the short-term. Those products account for a limited share of the insurance portfolio
- It is true that different valuation criteria cannot be mixed in an inconsistent way. However:
- The need for adjustments to MCA is clearly showed by the financial crisis ...
  - Not only in the counter-cyclical mechanism but also in the extrapolation for the long maturities . My preferred example is Blinder
    - *“When I was at the FED, I asked .... to compute the (daily) correlation between changes in the current one-year interest rate and changes in the implied one-year forward rate 29 years in the future. Using 1994 as an example, the answer was 0.54!”*
    - This is the reason why particular attention should be paid to the extrapolated part of the discount curve which should be fairly stable
- .... and the return to a non risk-sensitive financial regulation is not a solution

# Conclusions

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- Banking and Insurance regulation are fairly different, even if they share a similar framework (such as three pillars, VAR approach ... )
- The long-term nature of some insurance products makes evaluations crucial, and the need for counter-cyclical adjustments is even more important than in banking
- Academics, regulators and market participants should cooperate to define a solution which is
  - Transparent
  - Effective
  - European