



Fundamental Review Trading Books

New perspectives

21st November 2011

By Harmenjan Sijtsma

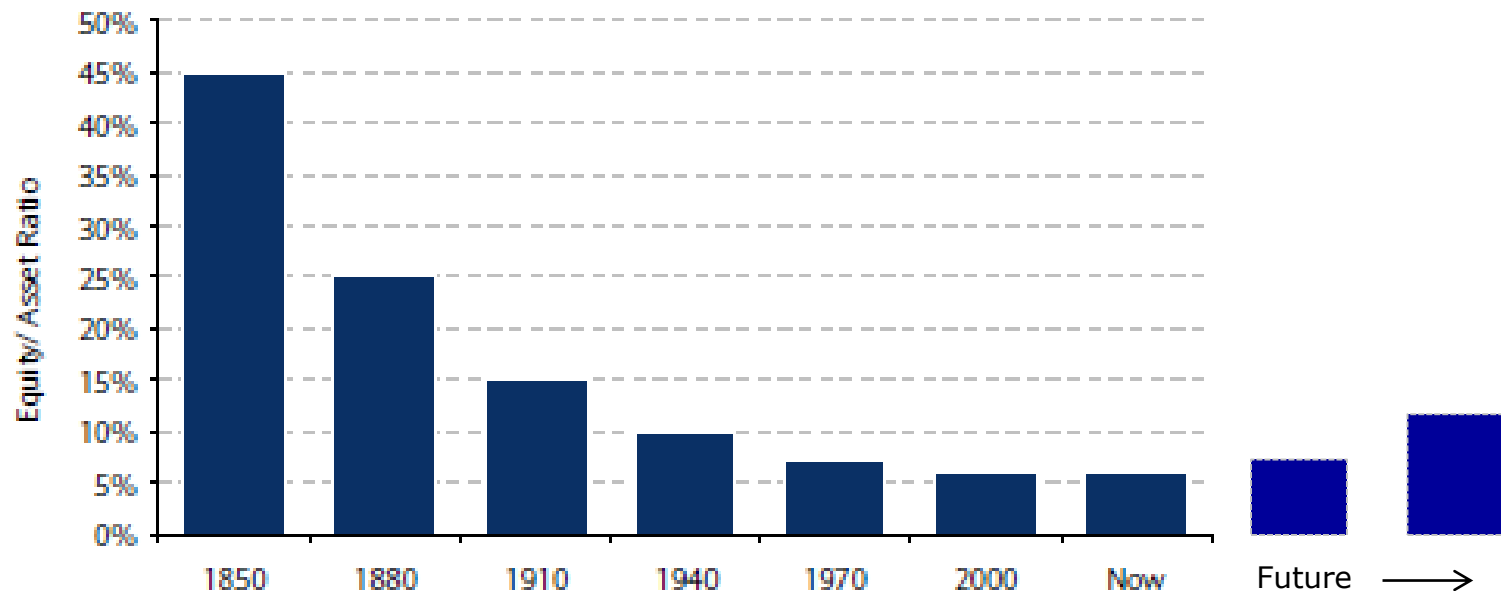
Agenda



- A historical perspective on market risk regulation
- Fundamental review of trading books

History capital banks

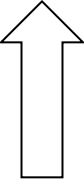
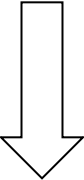
Figure 12: US banks – equity/asset ratio, 1850-present



Source: Berger, Herring & Szego

- Capital ratios came down substantially over time.
- Since crisis, perception is that banks are under capitalised.
- In near future strong capital increase, effects come from two sides

BIS3: capital (base)

A	L
 <p>Risk Weighted Assets</p>	<p>Capital Availability</p> 

- Double whammy:
 - Risk Weighted Asset go up: so **capital requirement** goes up
 - **Capital availability** goes down: hybrid capital not seen as relevant capital.
- Risk Weighted Assets increase mainly stemming from:
 - Counterparty Credit Risk – CVA adjustment (BIS3)
 - Market risk (BIS2.5)



Introduction to market risk

Starting 1988

BISI text:

The central focus of this framework is credit risk and, as a further aspect of credit risk, country transfer risk. In addition, individual supervisory authorities have discretion to build in certain other types of risk. Some countries will wish to retain a weighting for open foreign exchange positions or for some aspects of investment risk. No standardisation has been attempted in the treatment of these other kinds of risk in the framework at the present stage.

- **No (explicit) capital for the trading books**

History market risk regulations 1996

- Early 1990, VaR invented by back-office JPMorgan
- Regulation responded by means of allowing VaR approach / standardised weights (embedded in 1998).
- In-house models or standardised weights
- Banks using proprietary models must compute VaR daily, using 99th percentile.
- Capital goes up from 0 to 3 times VaR.

- **So in 1996: 3 * VaR suffices**

VaR

- The VaR capitalizes for market risk fluctuations in risk drivers such as credit spreads, interest rates and equity prices.
- Take current position and apply 250 historical shocks to this position.
- These involve shocks over a 10 day period, as the assumption is that the products can be sold / hedged in 10 days
- Then to derive capital:
 - Take VaR(99%): 3rd worst PL of the 250 PLs.
 - Capital is multiplier times VaR
 - Multiplier is subject to backtesting results.

Zone	# exceptions	multiplier
Green	0	3.00
Green	1	3.00
Green	2	3.00
Green	3	3.00
Yellow	4	3.00
Yellow	5	3.40
Yellow	6	3.50
Yellow	7	3.65
Yellow	8	3.75
Yellow	9	3.85
Red	10 or more	4.00

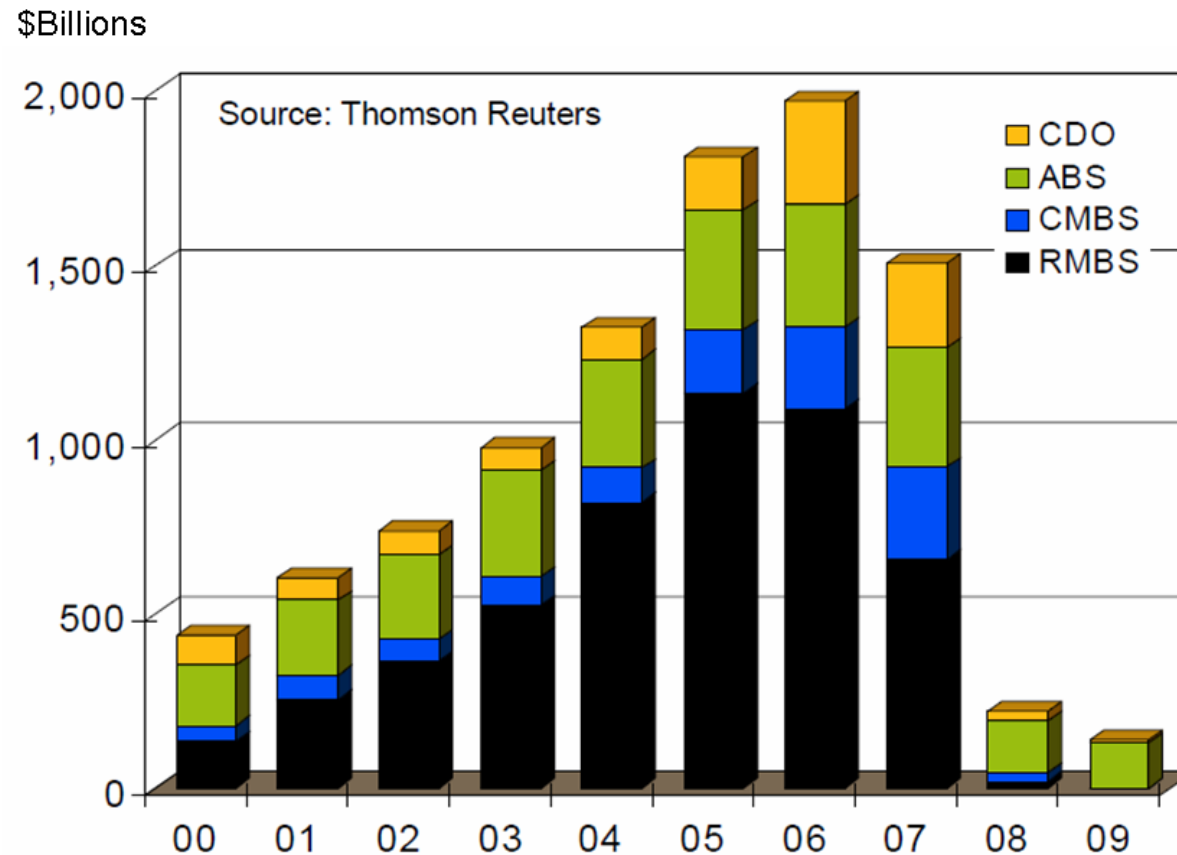
History market risk regulations 2005

- Capitalisation for Incremental Default Risk Charge
 - Involves issuer risk in the portfolio
 - For example, default risk on bonds, or providing CDS protection
 - Defaults are not captured in the VaR history which considers only spread changes
 - Deduction approach for securitization transactions
 - Policies on boundaries of trading books.
-
- **Tendency we should do something, but not very clear direction / no required embedding.**

History market risk regulation Crisis 2008-2009



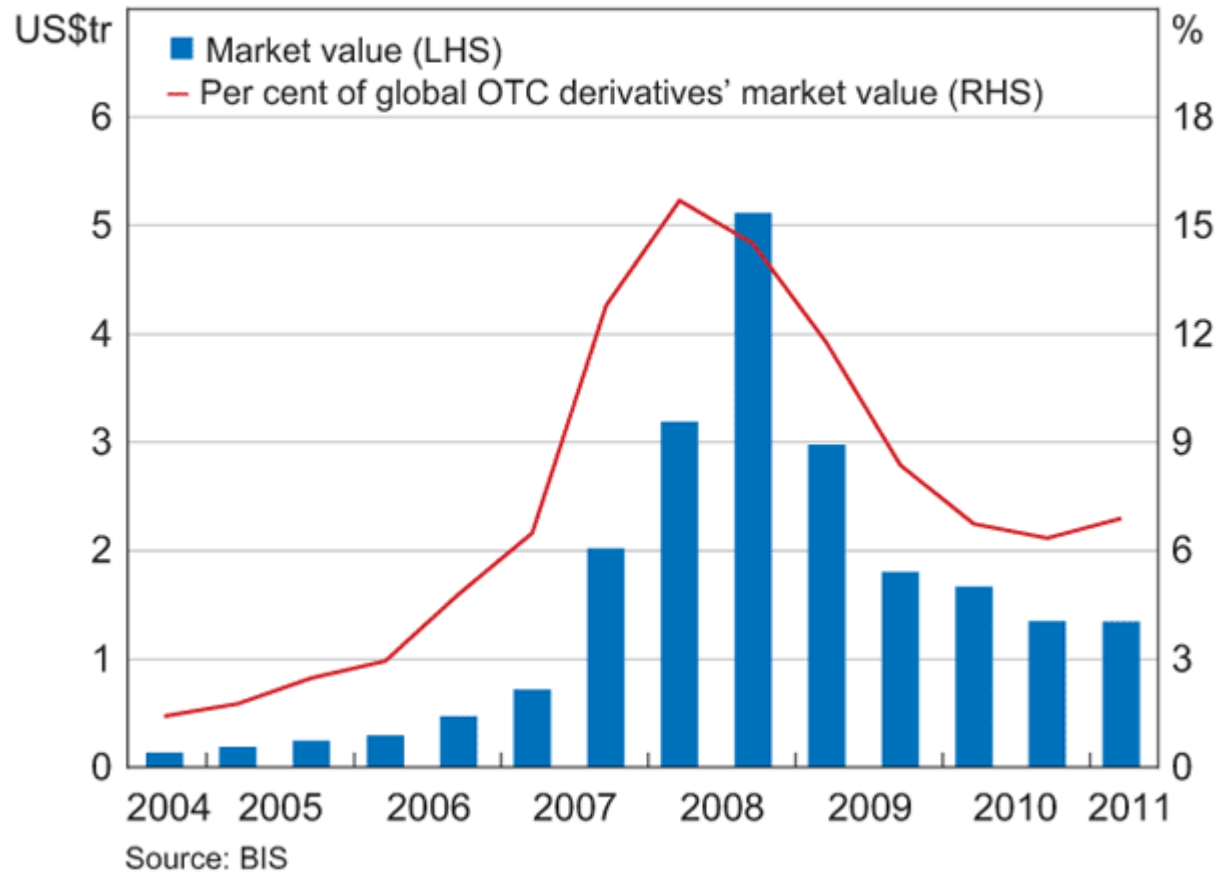
Securitization Market Activity



History market risk regulation Crisis 2008-2009



Market Value of Global Outstanding CDS Contracts



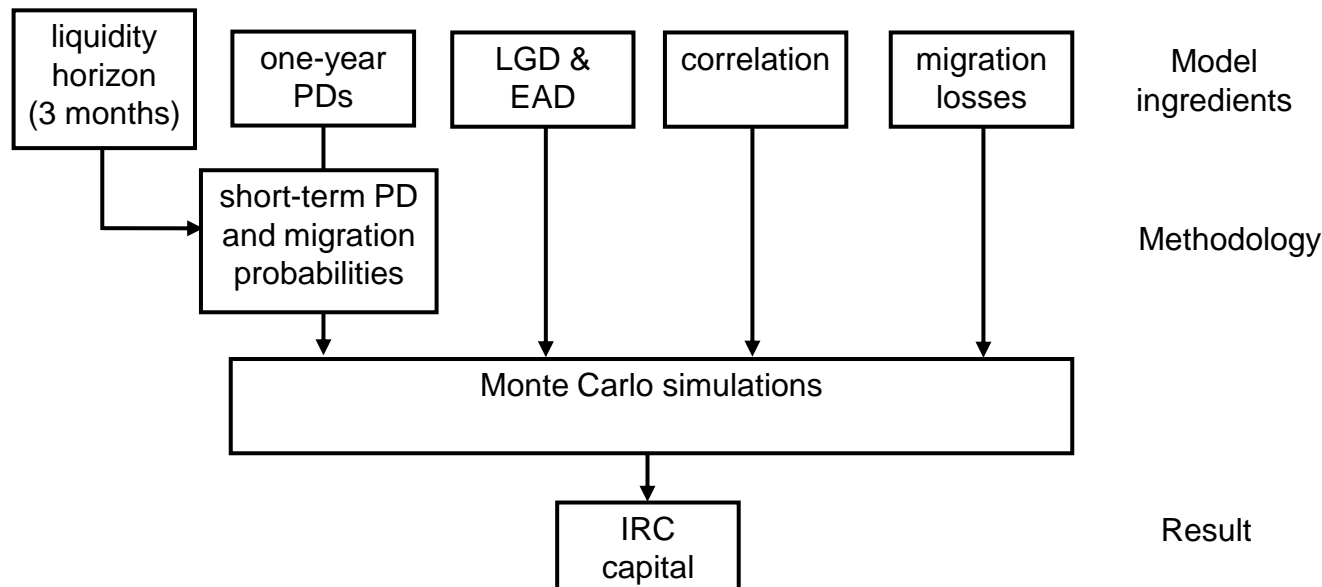
History market risk regulations 2012



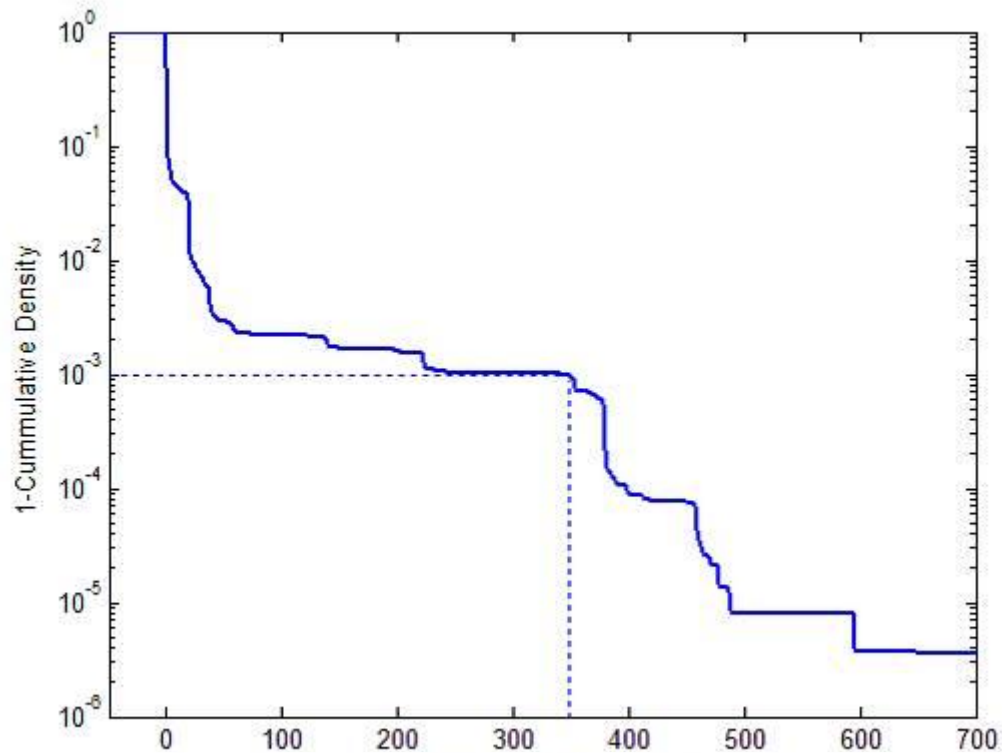
- Response: strong increase of capital per 2012
- Introduction of stressed VaR
 - Same as VaR but history involves a year of stress (instead of last year)
- Introduction of Incremental Risk Change
 - Includes migration risk next to default risk
 - Migration risk involves the spread losses in case of a migration to another rating bucket (for example from A to BBB)
 - This is not captured by the VaR that only considers the spread changes in the same rating bucket
- Securitization risk
 - Standard risk weight depending on the rating

High-Level IRC Framework

- Monte Carlo simulation based on one-factor model
 - Usage PD and LGD (models) from the Banking Book
 - Monte Carlo simulation for only the trading books (with often name concentrations)
 - Constant risk assumption:
 - Draw portfolio loss for one liquidity horizon
 - Repeat drawing and sum losses until one year
 - Take 99.9% level



IRC



- Any idea why we see a humped loss distribution?

Total requirements 2012

$$\begin{aligned} \text{RC} &= && 3 * \text{VaR} \\ &+ && 3 * \text{Stressed VaR} \\ &+ && \text{IRC} \\ &+ && \text{securitisation risk} \end{aligned}$$

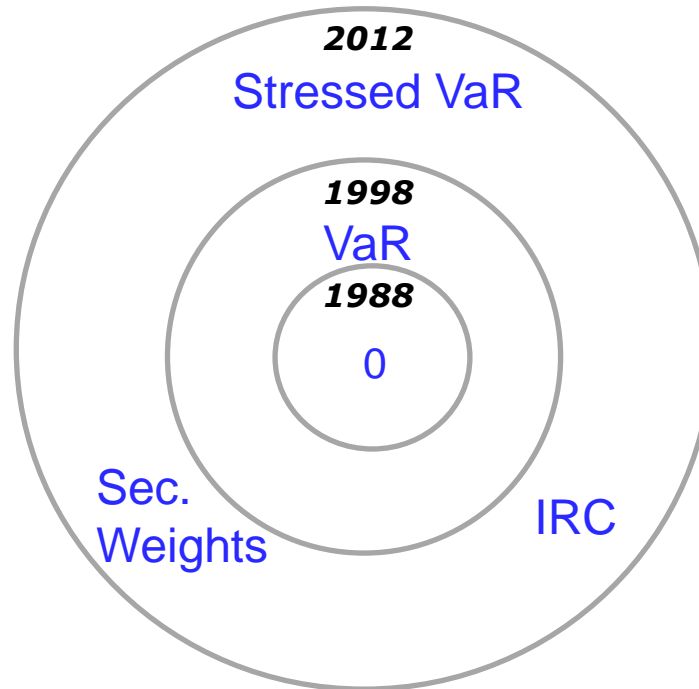
- Backtests remains the same.
 - Multiplier increases in case of lot of exceptions.
 - Quite strange to only backtest VaR
 - Also strange is that multiplier of Stressed VaR changes, if backtest fails
- Lot of double effects
 - VaR and stress-VaR measure the same thing.
 - Stressed VaR implies strong spread changes, almost implying default situations
- **Severe increase of capital**



History market risk regulations

- Market risk regulation generally reactive.
- Double counting in the framework
- Strong capital impact, but is coverage sufficient?
- Positions may be moved from TB to BB.

Summary



- Now, lets take a step in the future, what will happen in 2020?



Fundamental Review Trading Books

- First high level draft in the start of 2012
- Feedback given by the industry in August 2012
 - Individual banks
 - NVB
 - EBF
- Updated and more detailed version anticipated 2013
- QIS end of 2013
- Embedding anticipated 2018-2020

NVB



Banking industry

- NVB (Dutch Association of Banks)
- Joint Association (ISDA, IIF, LIBA)
- European Banking Federation

Regulatory Institutions

- Basel
- European Parliament and European Council
- European Banking Authority
- DNB (Dutch Central Bank)



Framework: Stressed calibration

- Both for the internal models, calibration will be based on a period of stress.
- This means only Stressed VaR, no normal VaR anymore
- We support the move to stressed calibration
 - Less double counting
 - No PIT behaviour of capital

Framework: Expected Shortfall

Summary

- Basel proposes to replace VaR by Expected Shortfall (ES).

Feedback

- Keep VaR
 - Move to ES can infer a lot of IT costs
 - Backtesting much harder
 - If moving to ES, assure take 95% percentile

Insiders comment

- Regulator considers VaR as a bad word since the crisis, to our opinion no obvious reasons to move to ES.

Framework: Other important items

- Do not prescribe (Basel) correlations.
 - Basel: fixed regulatory correlations between desks.
 - However, historical correlations much better.
 - Proposal: diversification benefits will be reported. Based on benchmarking possible reduction of diversification benefits.
- Do not prescribe full revaluation.
- Do include an addition for unmodelled risk
- Do not integrate IRC with VaR.
 - Very large system investments / large modelling challenge
 - Mitigate IRC requirements, e.g. adopt BB framework



Framework: Liquidity horizon

Summary

- VaR assumes that banks could exit or hedge positions over a 10-day horizon,
- Proved to be too optimistic in many cases.
- Therefore liquidity horizon per risk driver (10d to 1yr)
- Liquidity add-on for large bank positions relative the market.
- No factor scaling VaR to capital horizon (currently factor is 3)

Feedback to EBF

- In general in agreement
- We propose a limited number of liquidity horizons.
- ES hard to measure for longer liquidity horizons



Framework: Liquidity horizon

Summary

- VaR assumes that banks could exit or hedge positions over a 10-day horizon,
- Proved to be too optimistic in many cases.
- Therefore liquidity horizon per risk driver (10d to 1yr)
- Liquidity add-on for large bank positions relative the market.
- No factor scaling VaR to capital horizon (currently factor is 3)

Feedback to EBF

- In general in agreement
- We propose a limited number of liquidity horizons.
- ES hard to measure for longer liquidity horizons



SA as fallback IMM banks

- Large differences observed between internal models and SA:
 - Introducing a floor (at a %) or surcharge of the standardised approach.
 - Back testing failure on portfolio level / desk level requires reporting based on the standardised approach (SA)
 - SA for benchmarking between banks
- Feedback:
 - Key that banks can keep a risk sensitive framework in place.
 - In case of model flaws or outliers (resulting from model performance tests), good indicator to improve framework, should not go to SA.
 - Move to SA makes it hard to determine correlations between desks.
 - Rabobank proposes to report the SA on a semi annual basis.

SA approach

- Two purposes of standardised approach
 - For smaller bank
 - Fallback for case that internal model is not adequate.
- Basel worked out two approaches,
 - Partial risk factor approach: MtM and specified risk weights
 - Fuller risk factor approach: internal sensitivities and specified shocks and correlations.

Feedback

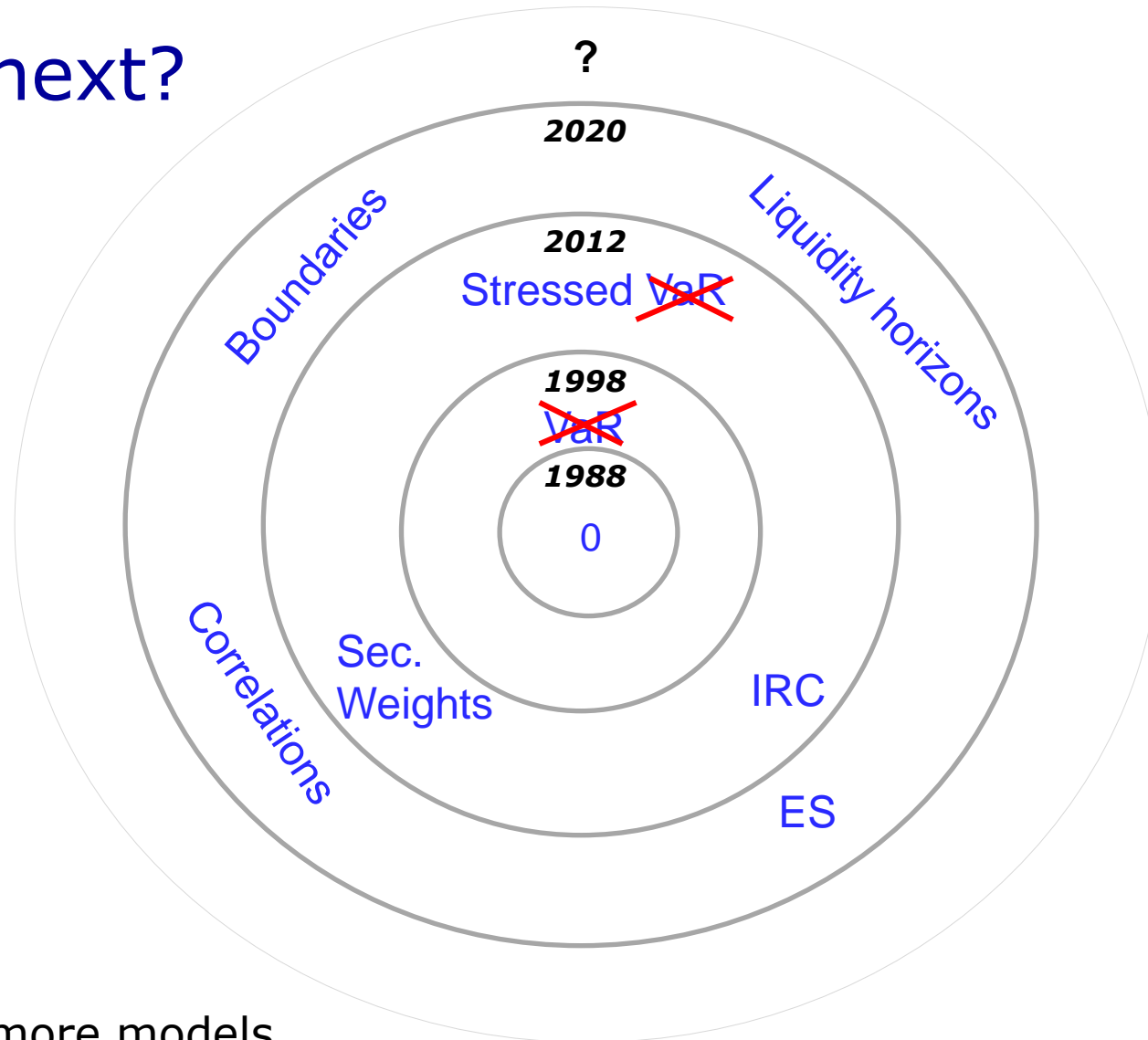
- If SA is fallback for IMM banks:
 - Relative easy to implement / certain level of risk sensitivity.
 - Preference for the Fuller risk approach
- Insider comment:
 - Difference of opinion between small banks on SA versus other banks.



Trading book boundary

- Basel wants to maintain a boundary between:
 - Trading book - products can be hedged easily
 - Banking book - hold to maturity products
- Basel is considering that:
 - Trading evidence
 - Valuation evidence
- Difference involves Available For Sale (AFS) books
- Preference Rabobank trading intent:
 - Inclusion AFS books requires a change of system architecture
 - Furthermore, the risk factors in the AFS books can be illiquid, so VaR can not be calculated.
- Insiders comment:
 - Accountants want valuation boundary, BIS seeking support industry to keep trading intent

What is next?



- More and more models
- Regulators seeking to benchmark outcomes



Questions

1. Approach fundamental review is ok
2. Expert opinion (e.g. stress testing)
3. Combination of expert opinion and models
4. Or, no change of anything
5. Other option?



Conclusions?

- Lot of capital increases, mainly one dimensional focus
- Regulator should assure that outcomes are comparable, keep current models in the mean time.
- Once that is established more forward with option 3.