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The benefits and (possibly unintended) consequences of Solvency II

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Agenda

1. Background
2. Second order effects and some unintended consequences
3. Closer look at SCR
4. Conclusion

Background

1. Background
   - What is Solvency II?
   - Why and the case for South Africa?
2. Second order effects and some unintended consequences
3. Closer look at SCR
4. Conclusion

Solvency II – what is it?

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- Fundamental and wide ranging review to establish a system that better reflects the risks that an insurer runs.
- Principles based.
- Main aim is policyholder protection.
  - Companies also stand to benefit
- Solvency II has tentacles that have a global reach
  - Covers over 30 EU countries and affects over 4000 insurers both life and non life
  - Includes subsidiaries of international groups whose headquarters are in the EU
  - Other countries not directly affected by Solvency II are looking at it e.g. South Africa and Mexico

Solvency II: What is it?

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SOLVENCY II IS BASED ON THREE PILLARS

PILLAR ONE

Balance Sheet Evaluation

SCR

MCR

Quantitative Pillar

PILLAR TWO

ORSA

System of Governance

Qualitative Pillar

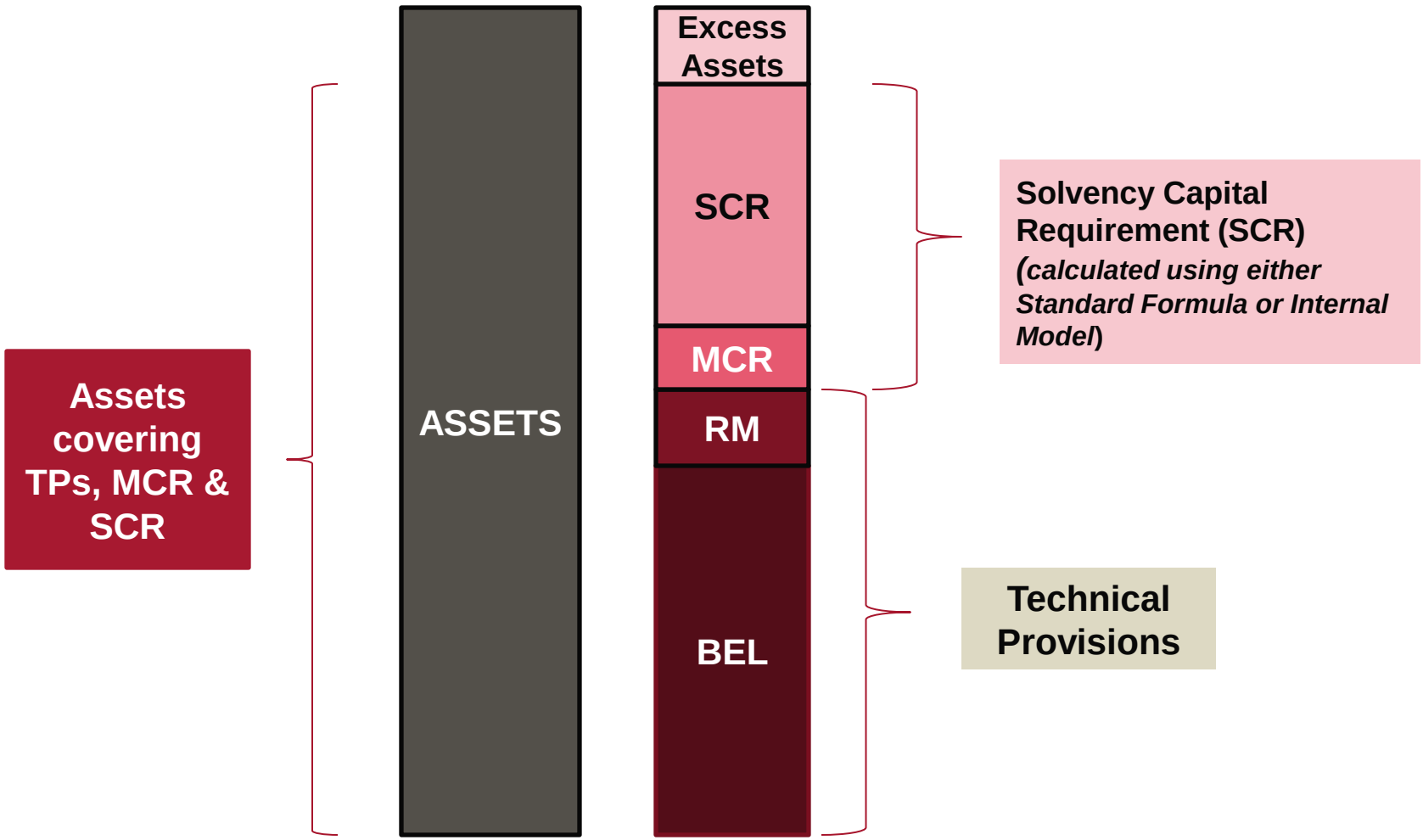
PILLAR THREE

FCR

Report to Supervisors

Disclosure

Solvency II – Market Value Balance Sheet



Solvency II: The case for South Africa?

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Why Solvency II?		
Addresses weaknesses of Solvency I		
• Capital imposed not commensurate with risk profile	√	X
• Undefined level of prudence in technical provisions	√	?
• Benefits of pooling and diversifying	√	X
• Assets are not adequately recognized in required capital	√	X
• Interaction of technical provisions and the solvency margin can create irrational effects	√	X
• Risk mitigation tools (matching, hedging) - proper asset/liability management is not adequately rewarded.	√	X
• Risk mitigation tools (matching, hedging) - Profit sharing systems to absorb risk	√	X

Solvency II: The case for South Africa

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Why Solvency II?		
Set solvency standards to match risk and encourage proper risk control	√	?
Harmonise standards across the EU to avoid need for Member States to set higher standards	√	X
Strengthening policyholder protection through capital requirements which can provide early warning of deterioration in solvency levels and therefore timely intervention by the supervisor	√	?
Encouraging improvements in the quality of risk management.	√	√
Aligning economic and regulatory capital, including appropriate recognition of diversification benefits within firms and between groups' subsidiaries; and	√	√
Bring assets and liabilities onto a "fair value" basis.	√	?

So what are the intended consequences of a Solvency II type regime for insurers?

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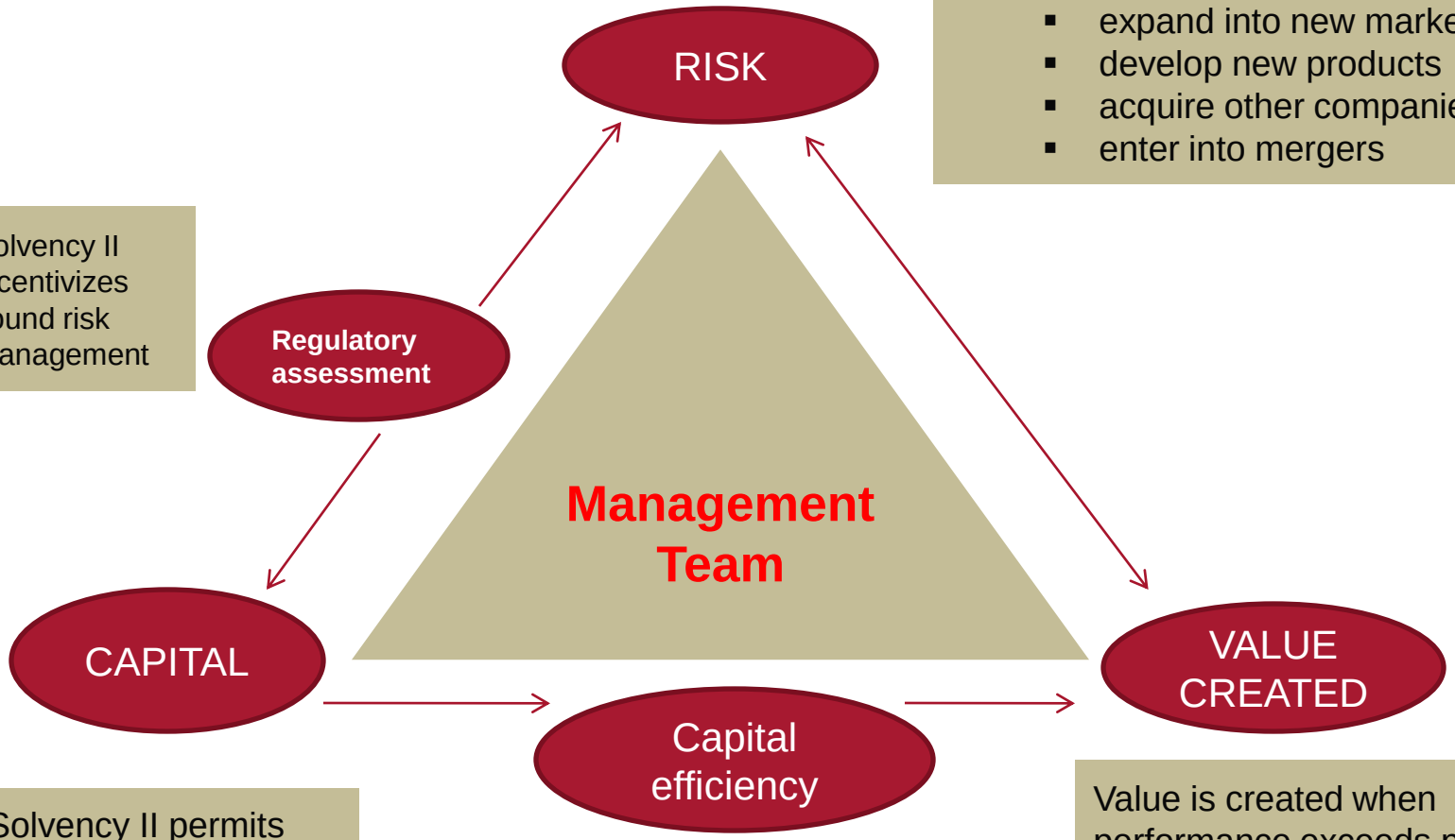
pressure to grow earnings
- expand into new markets
- develop new products
- acquire other companies
- enter into mergers

Solvency II incentivizes sound risk management



Solvency II permits
- Risk mitigation
- Diversification
- Internal model

Value is created when performance exceeds price of risk and frictional costs associated with risk capital

Second order effects and unintended consequences

1. Background
2. Second order effects and some unintended consequences
   - Theory vs Practice
   - Strategic Implications
   - “Actuarial Arrogance”
3. Closer look at SCR
4. Conclusion

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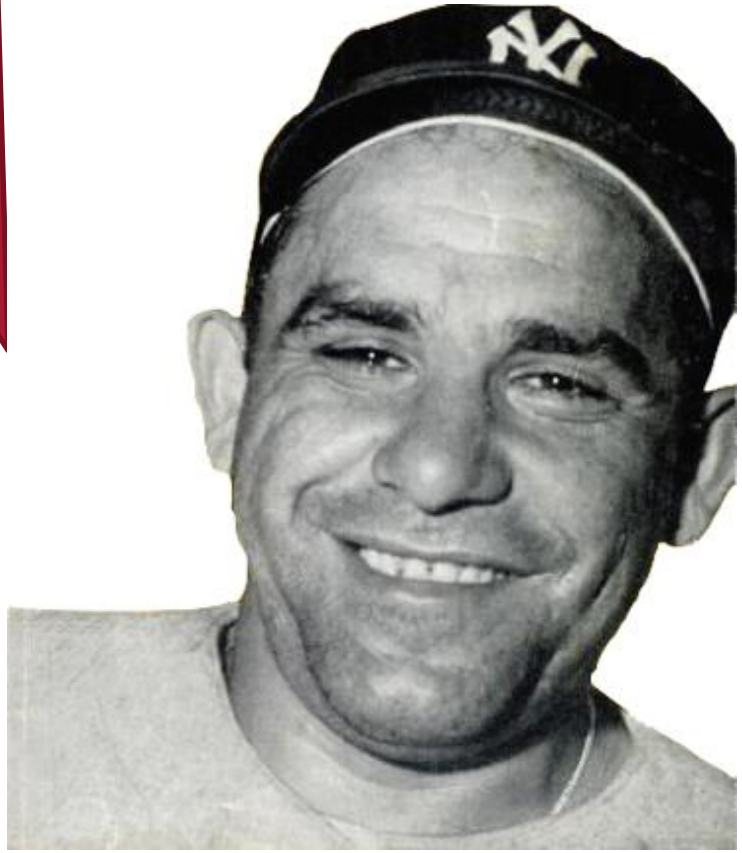
"In principle there is no difference between theory and practice. In practice there is."



YOGI BERRA

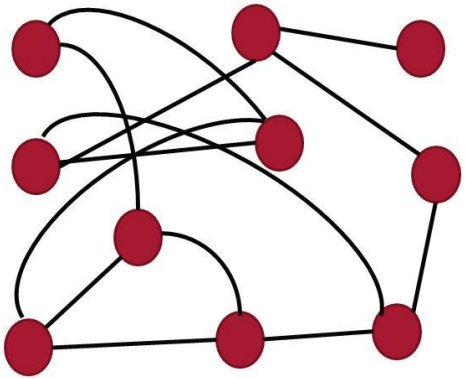
Let's start with the theory

1. Regulatory Capture

2. Groupthink

3. Interactions, systematic risk and complexity theory

   - Mandelbrot, the butterfly effect and the limitations of weather forecasting
   - Familiar example from economics: the multiplier effect
   - Nothing happens in isolation :
     - feedback effects and
     - unintended consequences
   - Consider the UK economy today
     - Credit crunch has led to a recession, large government deficits, quantitative easing, and a dramatically changed yield curve which affects investment assumptions



4. Diversification

   - can past correlation be used to describe future correlation?

From theory we move onto practice: European Politics

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- Lessons learnt from the Euro zone: can a one size fits all strategy fit all countries?
  - Consider the variations in the national bond yield curves and default probabilities
  - Consider the differences in existing regulatory frameworks
    - For some this is a relatively small change, for some it is huge.
- Political delays – what timetable should CFOs and CROs work towards?
  - Can the Germans implement Solvency II it in its current form?
  - Various political fudges may be required to get political signoff. Do these negate the benefits of the initiative? Which of the proposals for exceptions, e.g. "grandfathering" and Solvency II "only for the future" do you prepare for?
  - What if the regulators don't have the skills and resources to approve the models?
  - What if various regulators have a different level of rigour in approving internal models?

Will Solvency II be calibrated mathematically or politically?

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My hon. Friend is entirely right to raise the case of the Prudential, because it is an example of *ill-thought-out EU legislation* endangering a great British business, which should have its headquarters here in the UK. I recognize the importance of this matter. We are working extremely hard at the European level and with the Prudential to deal with it.

(7 Mar 2012 : Column 848)

More practice… Solvency II operates in a regulatory context

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- The regulatory context includes accounting standards, asset valuation methods and taxation rules
- Solvency II rules and regulations interact with other existing regulatory frameworks
  - e.g. accounting rules covering asset valuations covering marking to market.
- What is the objective of the investment decisions when things conflict:
  - to match the liability profile or
  - to optimize short term solvency at every regulatory checkpoint?
- US GAAP vs IFRS: another difference that can lead to arbitrage opportunity?

Will some international Solvency II regulatory arbitrage opportunities exist?

There are always more practical problems than those in principle...

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- Interventions have limitations
  - Some tail event scenarios wipe everyone out
- Mindset:
  - Companies, analysts and shareholders have the mindset that capital must be used efficiently.
  - Holding a larger cushion to increase policyholder protection is in conflict.
  - How many more failures will it take before return **of** capital is valued more than return **on** capital?
- What yield curve should a Greek actuary use to model Euro denominated assets and liabilities?
- If you don't model a scenario, will it never happen?
  - How are you modelling unknown unknowns?

Would policy holders have been better off if the money spent on Solvency II was put into a fund to protect against adverse events?

Were all strategic responses intended?

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- Solvency II has an impact on business plans, business lines and other areas
  - Will companies look to enter into new business lines and geographical areas for diversification?
- What if it leads to changes in reinsurance strategies that are driven by models, not risk reduction principles?
- Types of equivalence and country based arbitrage
  - Will companies relocate? e.g. Prudential
  - Will companies sell business lines? e.g. US Annuity books are being traded
  - Will companies seek the corporate structure that minimizes capital?

Will Solvency II have an impact on competition?

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- Is Solvency II a barrier to new entrants?
- Is having an internal model a competitive advantage?
  - If an internal model produces lower capital requirements, is that a competitive advantage that will force players to develop internal models as a requirement to play?
- Will composite multi-nationals be the winners at the expense of smaller mutuals?
  - Will Solvency II lead to increased market concentration?

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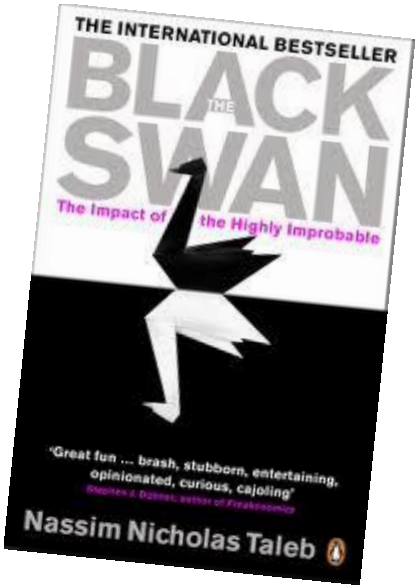
I have a fair coin. I have tossed it 99 times, and each time it came up heads. I am going to toss it once more. What is the probability it is heads?

0%

50%

100%



"We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten."

How are you modelling a multi-year downward spiral, second order effects and unknown unknowns?

Closer Look at SCR

1. Background
2. Second order effects and some unintended consequences
3. Closer look at SCR
   - **Surrender Value Gap**
   - Suitability of SCR
   - Suggestion
4. Conclusion

Surrender Value Gap

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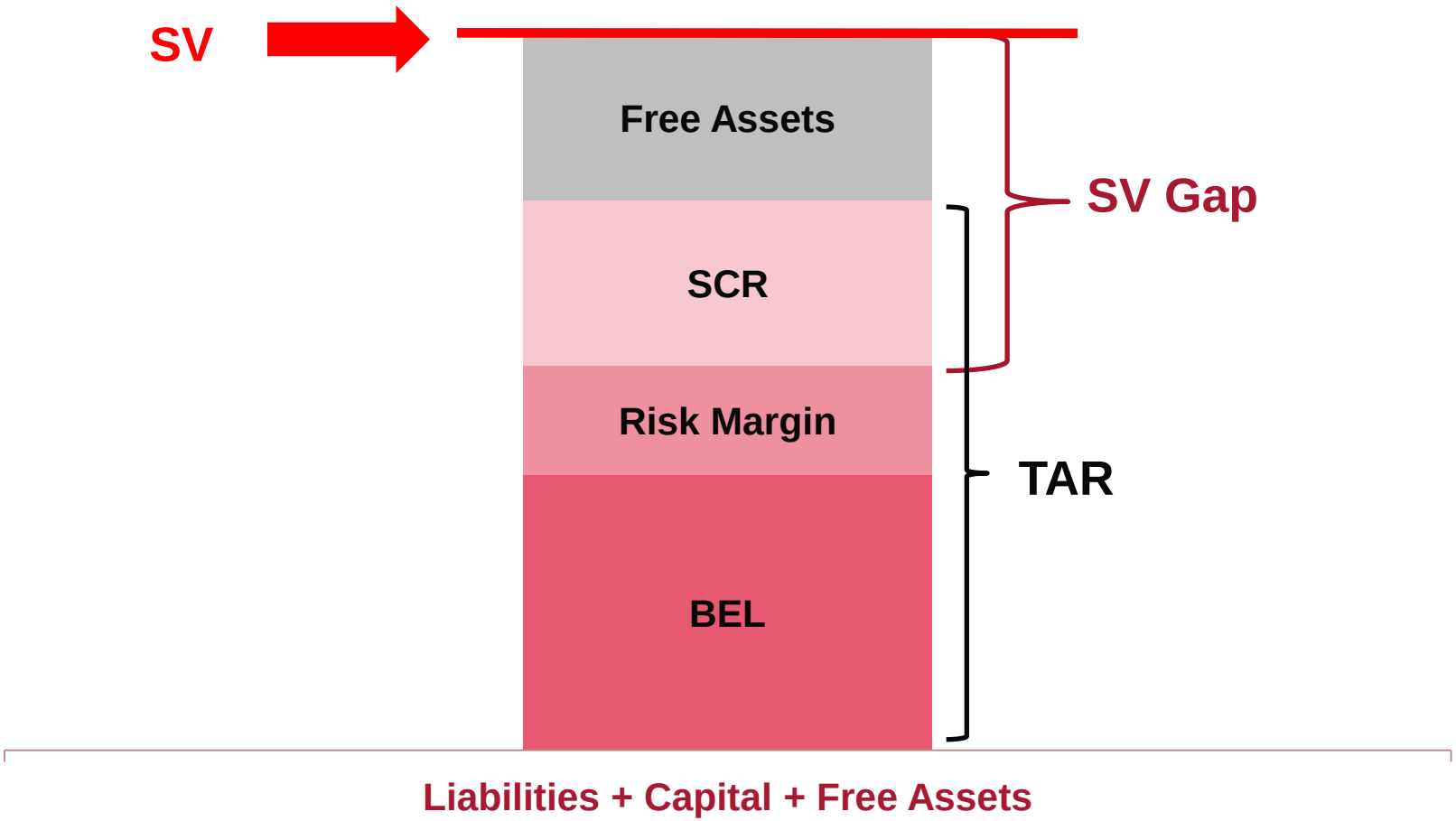
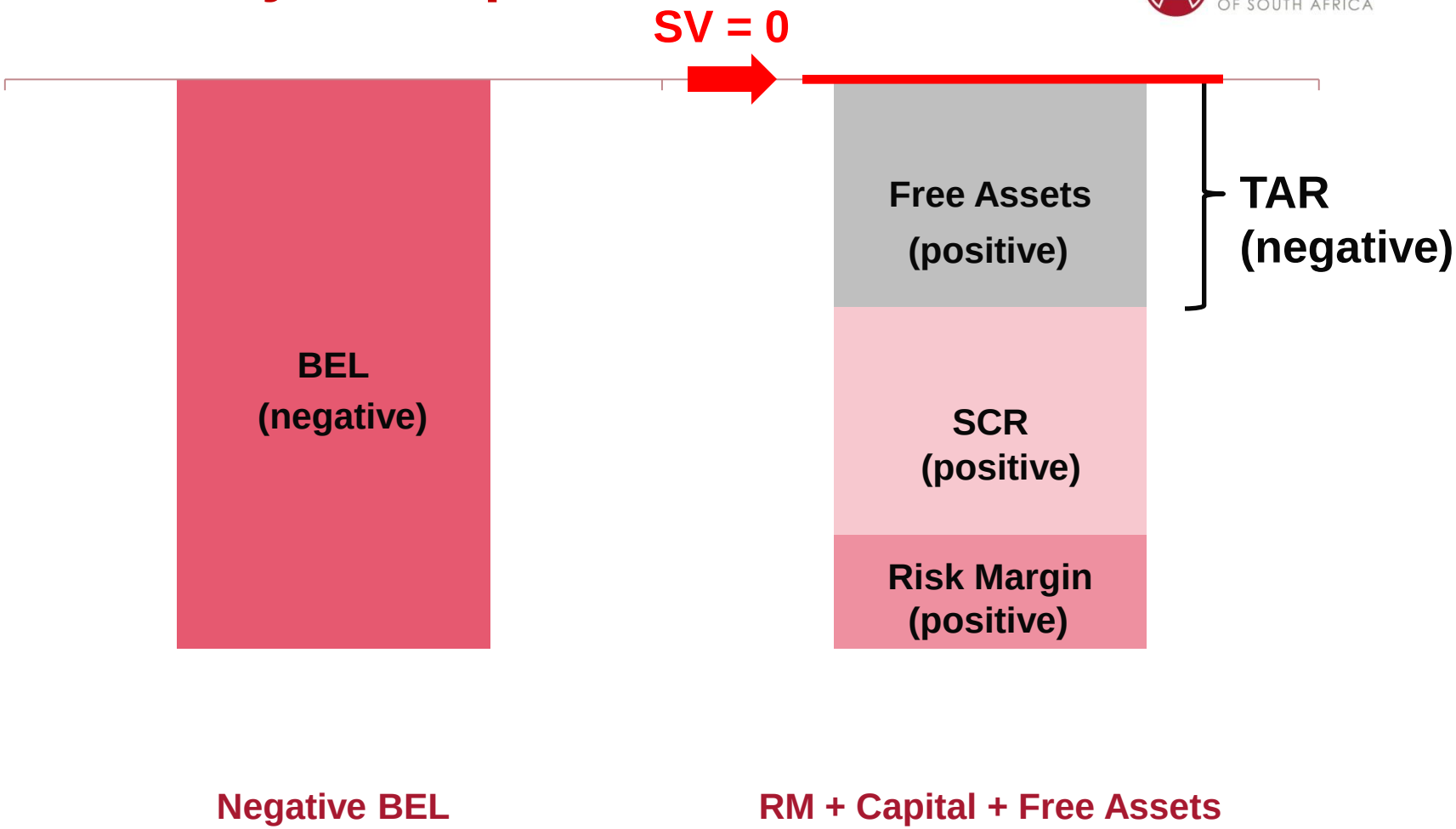
- Present value of future profits (PVFP) is offset against PV future (benefits - premiums) to arrive at economic value of a contract.
- This gives rise to a phenomenon called the "Surrender Value Gap": **SV Gap = SV – (BEL + RM)**
- It is very likely that the SCR, as currently envisaged by Solvency II, is not sufficient to bridge the Surrender Value Gap.
- Total Asset Requirement: **TAR = BEL + RM + SCR < SV**

SV Gap Example – Savings Policy[1]



[1]With no guarantees; example not in proportion

Risk Policy Example[1]



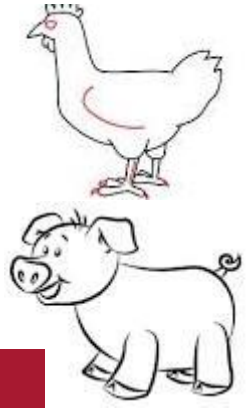
[1]Example not in proportion

Implications if SCR < SV Gap

- The whole TAR will be funded by the PH
- No additional capital is set aside by SH to support underwriting of risk.
- In fact, **free assets will increase as more business written**
  - (i.e. more risk taken on)
  - (ignoring effects of initial expenses)
- According to the FSB, the primary purpose of the SAM regime is the **protection of policyholders** and beneficiaries.
- But if SCR < SV Gap: **Solvency II TAR < FSV TAR ≤ SV**

Implications: Cross Subsidy of Risk

- If SCR < SV Gap, Risk products may have positive free assets but negative total asset requirement (driven by negative BEL)
  - (Theoretically) all free assets may be paid as dividends (no multiple of SCR required, intervention only at MCR level)
  - No requirement to ring-fence policies (unless existing obligation)
- **What is at risk if something goes wrong?**
  - **Risk: future cover (but can stop premiums) = Chicken**
  - **Savings: real assets are at risk = Pig**



The chicken is involved, but the pig is committed (asymmetric distribution of risk)

Closer Look at SCR

1. Background
2. Second order effects and some unintended consequences
3. Closer look at SCR
   - Surrender Value Gap
   - **Suitability of SCR**
   - Suggestion
4. Conclusion

Can we trust the SCR?

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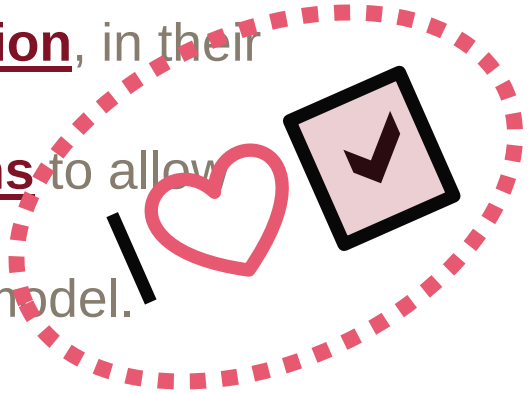
- Can we accurately model 1/200 risks?
- Do we know what we mean by 1/200?
  - Systematic vs. Specific risk
  - Conditionality: Driving by looking at the dotted line?
- Are we even modelling random variables?
  - Operational risk? Future state changes in mortality?

Actuaries really prefer unknown factors to behave like random variables …
… but that doesn't make everything random.

Actuaries' Paradise?

"Some firms have developed models which either include **elements of prudence**, **erring on the side of caution**, in their approach or which include **simplifying assumptions** to allow the quicker running and easier maintenance of the model. However, both of these features **undermine the accuracy and relevance of the model** for use in supporting business decision making." (our emphasis)



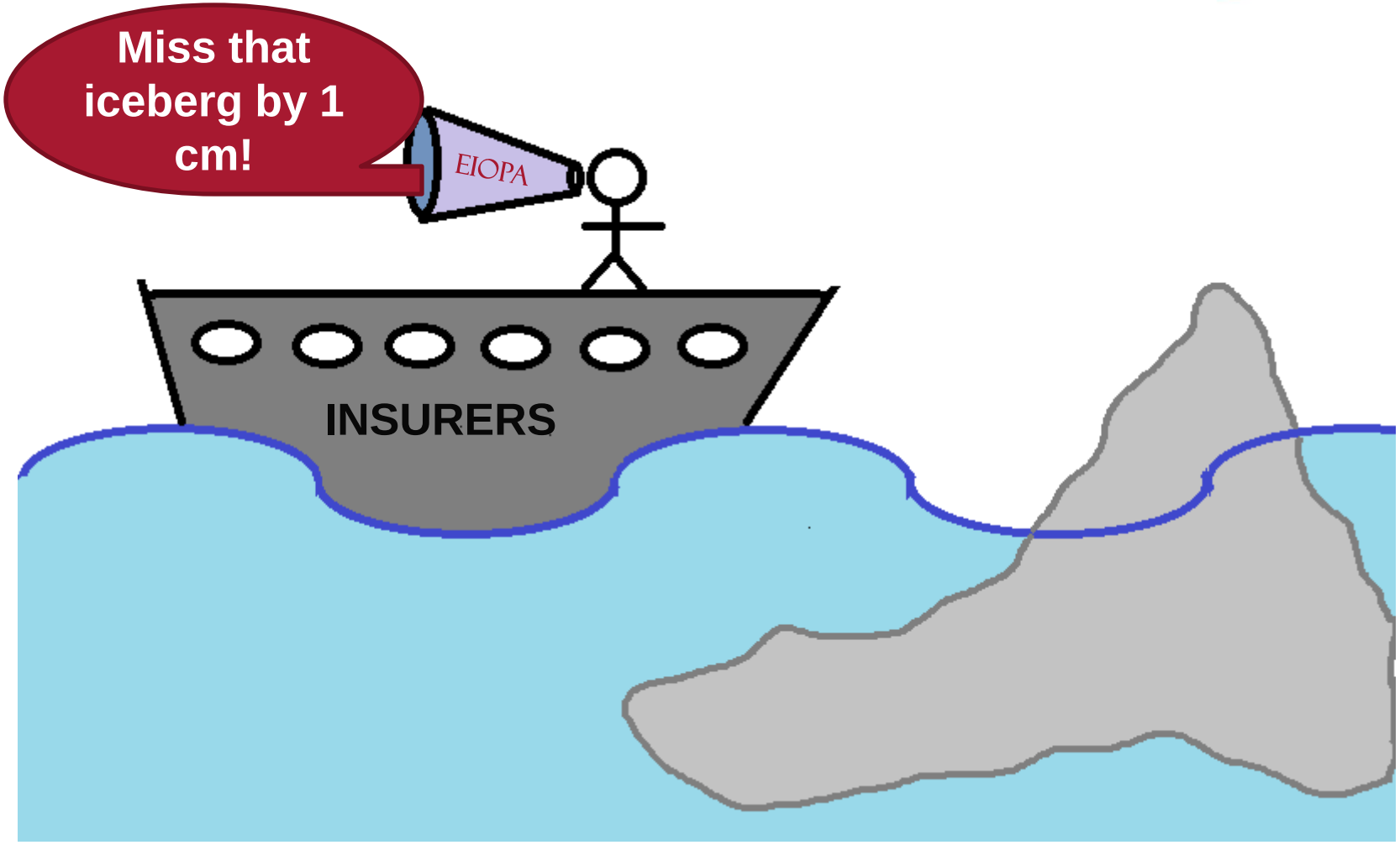
http://www.fsa.gov.uk/static/pubs/international/sol-ii-letter-imap-firms.pdf

It's hard to get their stamp of approval

SCR – Dual Purpose

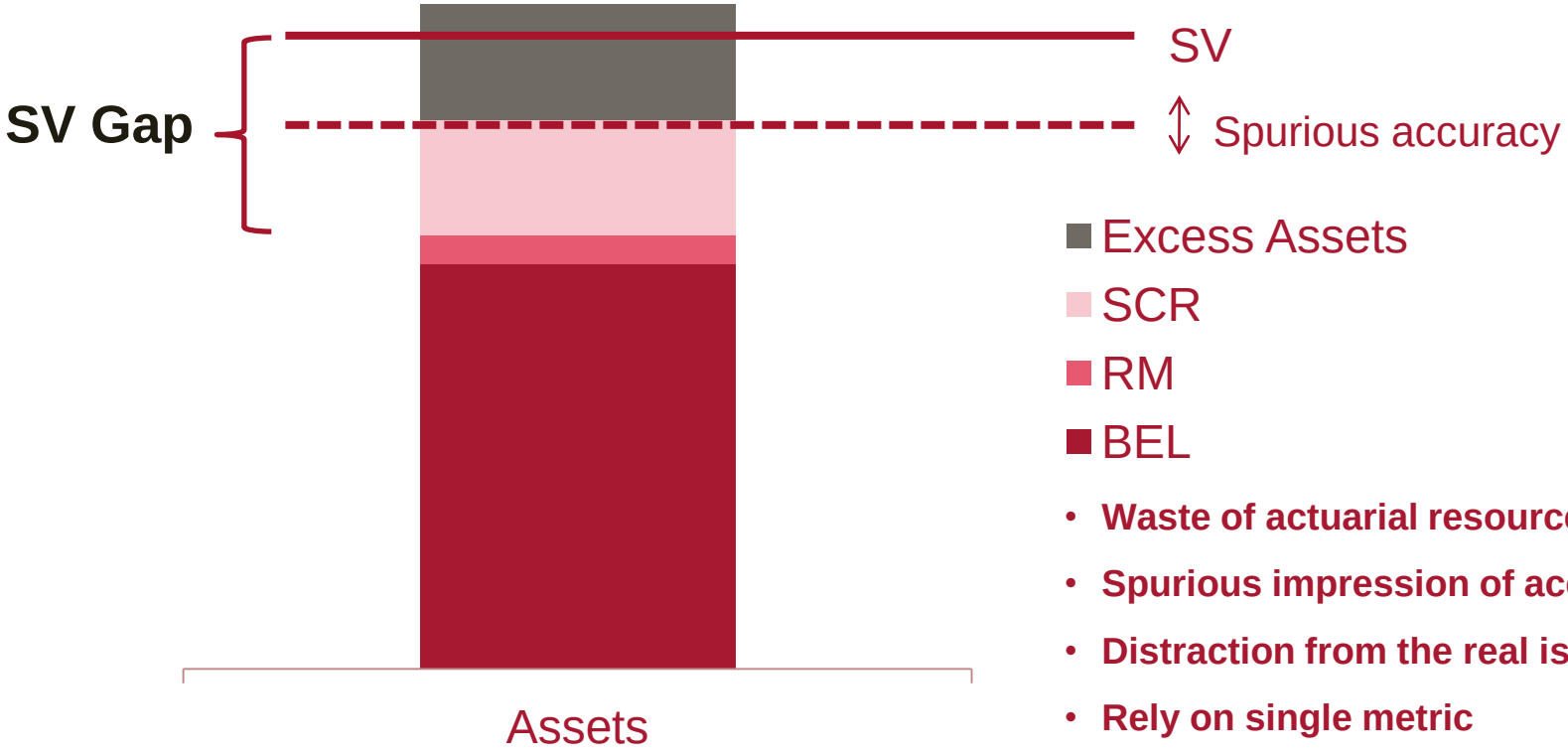
- SCR is an excellent risk management tool.
- Studying its components is useful for understanding risk profile.
- SCR is good for assessing risk, but can it be trusted as an absolute number?
  - Can we really calibrate to 1/200?
- **SCR is a good compass but it's not a GPS.**

How much do you trust your GPS…?



SV Gap vs. SCR calibration

Since frequently SV > BEL + RM + SCR, there is an easier and more reliable method to calculate the total asset requirement.



- **Waste of actuarial resources**
- **Spurious impression of accuracy**
- **Distraction from the real issues**
- **Rely on single metric**

Suggestion

- This suggestion contains nothing new
  - Current practice in South Africa
  - Pillar II requires us to consider deficiencies of Pillar I
- Hold the greater of:
  - ongoing requirements (BEL + RM + SCR)
  - termination requirements (SV)
- Retain the SCR as a useful risk management tool
- But plug the surrender value gap as a pragmatic cap on risk

Conclusion

1. Background
2. Second order effects and some unintended consequences
3. Economic Balance Sheet revisited
4. Conclusion
   - Questions from the floor

Conclusion

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- The aims of Solvency II are laudable
  - But some adjustments are needed
  - to overcome some unintended side effects.
  - In particular maintain sensible features of current system,
  - and not rely overly on the speculative calibration of models.
- SAM can take the best from both worlds.

Models don't protect policyholders….
…. People protect policyholders!

Any questions or comments?

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SCR < SV Gap: How Is this possible?

- **Not only possible, but very likely:**
  - The gap opens up because of PVFP
- Very simplified argument:
  - SCR is the diversified result of shocks to the PVFP
  - Each shock relates to a “slice” of PVFP:
    - E.g. shock to mortality profits, or expense profits
    - There is overlap, but imagine for now each slice is separate
  - **SCR < SV Gap < PVFP because:**
    - Often PVFP still > 0 ***after*** the shock, for a given slice.
    - The diversification effect outweighs the overlap effect

SV Gap – Large Potential

- Generally FSV < SV (else no TCAR)
- Moving from FSV to BEL
  - Remove compulsory margins
  - Also remove discretionary margins.
- So BEL **<<** FSV < SV: Opens up a large gap.

But what about….

Short contract boundaries?	It is ducking the issue of an economic balance sheet
Mass lapse risk modelled in SCR?	It's like calculating the cost of becoming half pregnant.
Very profitable contracts, so why not increase free assets when selling new business?	Savers contribute real assets and shareholders contribute future profits (not yet earned). Yet shareholders can extract real assets immediately, putting savers at risk.
What about premiums on risk products? Why zero assets backing SV on risk products?	Premiums either fund expenses, benefit outgo, increases in assets backing reserves, or free assets. If reserves are negative then premiums become additional free assets.