



ICS & Solvency II

Olav Jones, Nashville, January 2018

Contents/Key Messages

- SII is a very good overall framework but it has certain issues that need to be fixed in the upcoming reviews
- A closer look at SII's flaws relating to its treatment of long-term business
- The ICS must avoid the same mistakes – some comments on current ICS design
- A reminder of the importance to investigate, understand and avoid the potential unintended consequences of (even well-intentioned) regulation

Solvency II has many very strong elements

- **A risk-based framework** based on an **economic valuation of assets and liabilities**
- **Three Pillars:** 1. Strong Solvency Capital, 2. Strong Risk Management, 3. Strong Disclosure Requirements
- **Group measure, but also solo**
- **Based on best estimates of all liabilities** so assumptions must be realistic and regularly updated, covers all liabilities (incl. costs and taxes) not only customer claims, no liabilities off-balance sheet or ignored
- **Based on a series of stress tests** : So it can capture the interaction between assets and liabilities, risk mitigation etc
- **Covers key risks** including all major risks relating to claims, operational costs and investments
- **Internal models allowed:** because no standard formula can work for every company, very high quality control of models
- **Two levels of capital allowing early supervisory intervention:** High “Target” level (SCR) and real legal minimum (MCR)
- **Strong and clear target level of protection:** 1 in 200 for Solvency Capital, but protection even greater in practice with other Pillars & powers of early supervisory intervention
- **Significant testing** before and **transition measures** after, to ensure insurers have the time to adapt to fundamental changes in the prudential framework³

However, SII also has some problems that need addressing - there are reviews scheduled for this

- Design/calibration flaws relating to long-term business
 - This relates to discount rate method, risk margin & calibration of capital charges for investment risks

Focus for today

- Other issues
 - Has become generally overly conservative
 - Designed to be principle-based but become more rule-based
 - How to make proportionality work in practice? Some aspects of Pillar 2 & 3 overly burdensome particularly for smaller insurers
 - A limited number of specific technical issues/calibrations which require improvements

The European Commission has already taken some welcome steps to address some concerns (e.g. infrastructure, unlisted equity, unrated debt) and other reviews were built into the legislation including one underway and due by 2018 and another due by 2020 which covers how SII deals with long-term business

SII design/calibration problems relating to long-term business

- SII has a basic, but **wrong, underlying assumption that insurers are traders:**
 - that all liabilities can be traded
 - that all assets are at risk of immediate forced selling
- **This assumption is wrong for solvency measures**
 - Insurance liabilities are not traded
 - Insurers are very rarely at risk of forced selling – and never their entire portfolio
 - Trading value is not necessarily relevant for prudential purposes
- Results in
 1. **Exaggeration of liabilities**
 2. **Exaggeration of capital requirements** for investment risk
 3. **Exaggeration of volatility** of capital

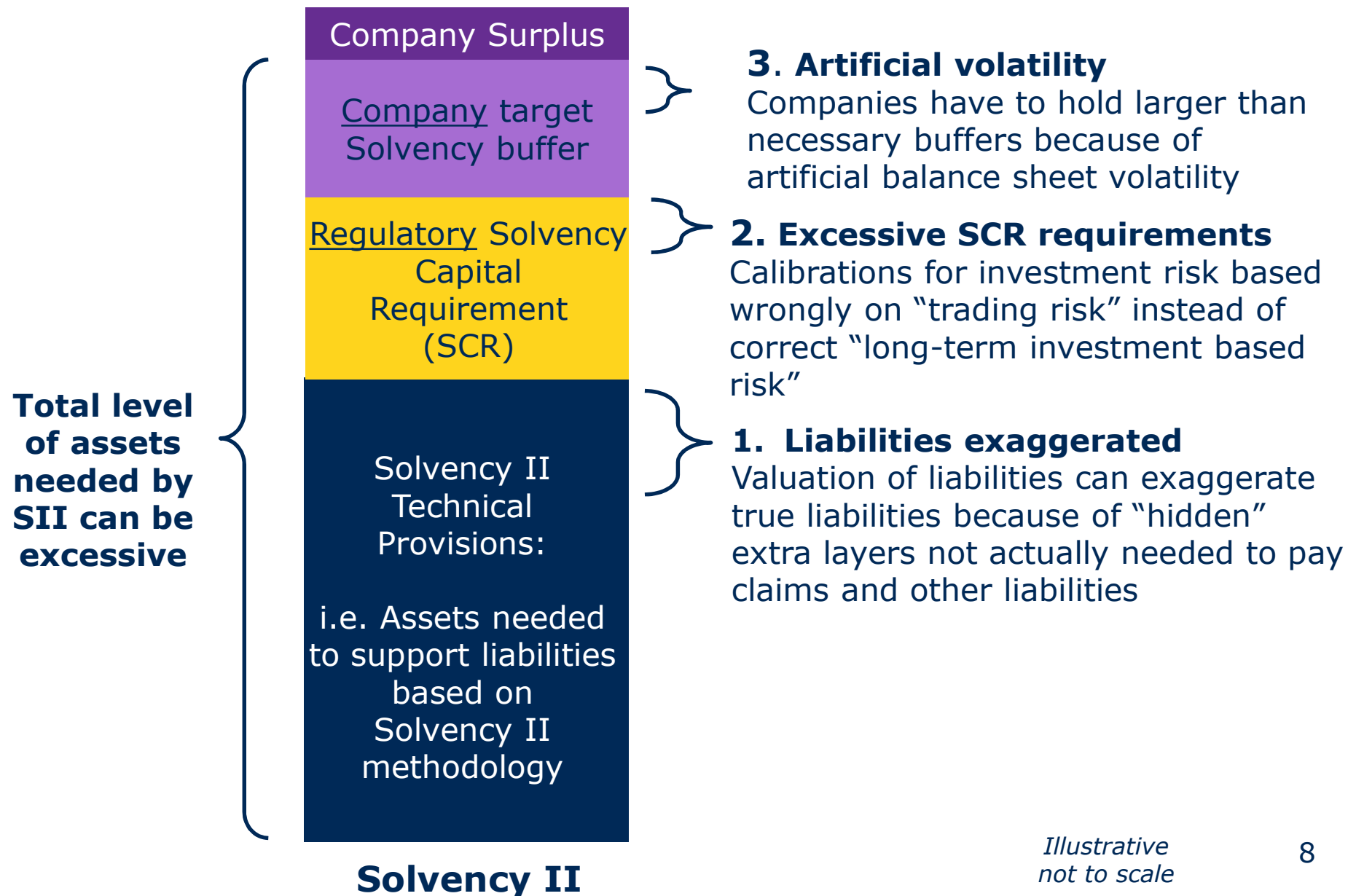
The long-term business model changes the nature of investment risk for insurers

- Insurers' business model allows insurers to **avoid forced sales of assets**
 - Predictable liability portfolios, policyholders have limited ability and/or dis-incentives to surrender early
 - Significant inflow of cash from premiums, dividends, rents, coupons, maturing bonds, etc creates significant liquidity
- This gives insurers great deal of flexibility over **IF** they sell, **WHEN** they sell, **WHICH** assets they sell
- Therefore **insurers can reduce or even eliminate exposure to price volatility** and short to medium term declines asset values
- **Exposure to forced-sales** can and does exist but it is limited – it **should be covered by the framework but must not be exaggerated**

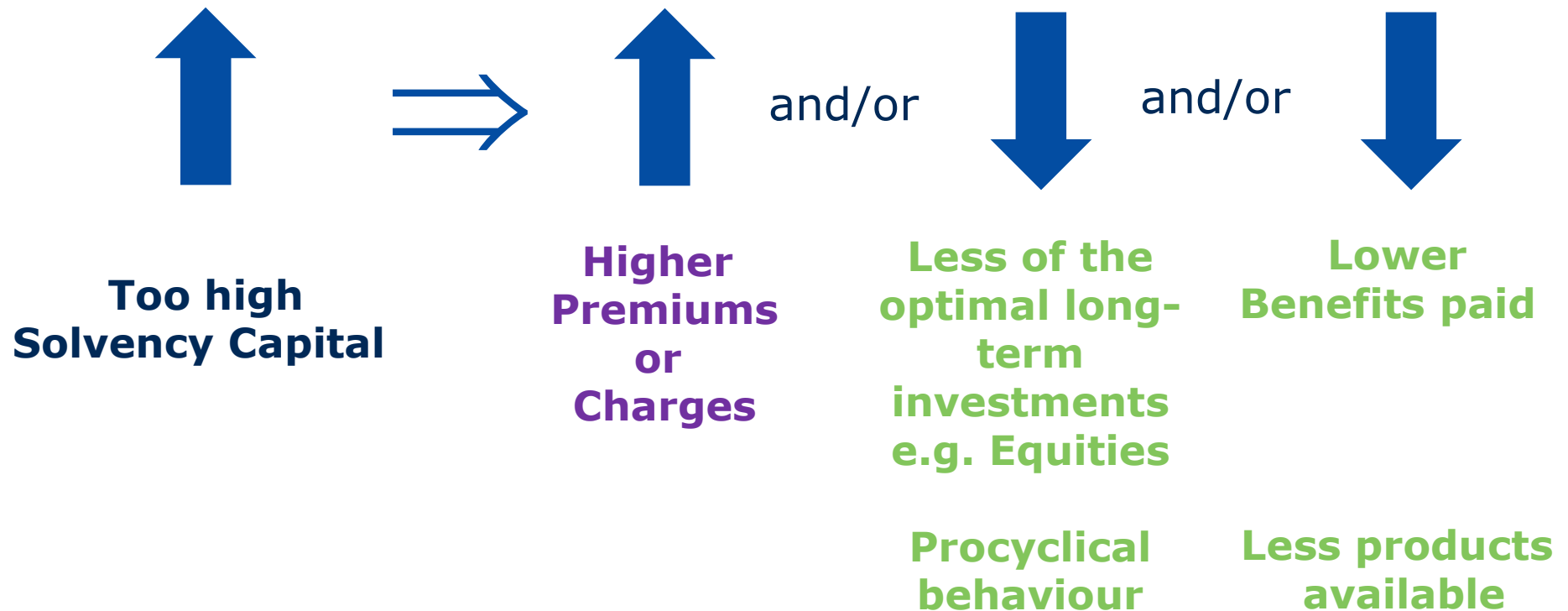
SII design/calibration flaws relating to long-term business

- Impacts all insurance business but disproportionately impacts products involving:
 - **Long-term business**
 - **Products with guarantees**
 - **Taking investment risk**
- And especially during periods of:
 - **low interest rates**
 - **spikes in market volatility, especially**
 - **spikes in credit spreads**
- Leading to unnecessary and unintended consequences, pushing insurers:
 - **Away from long-term business model**
 - **Away from risk taking, instead putting risks back to customers**
 - **Away from long-term stable investing, towards short term procyclical behaviour**

These flaws leads to 3 linked causes of excessive capital



Unnecessarily high capital can have significant impact on consumers and economy

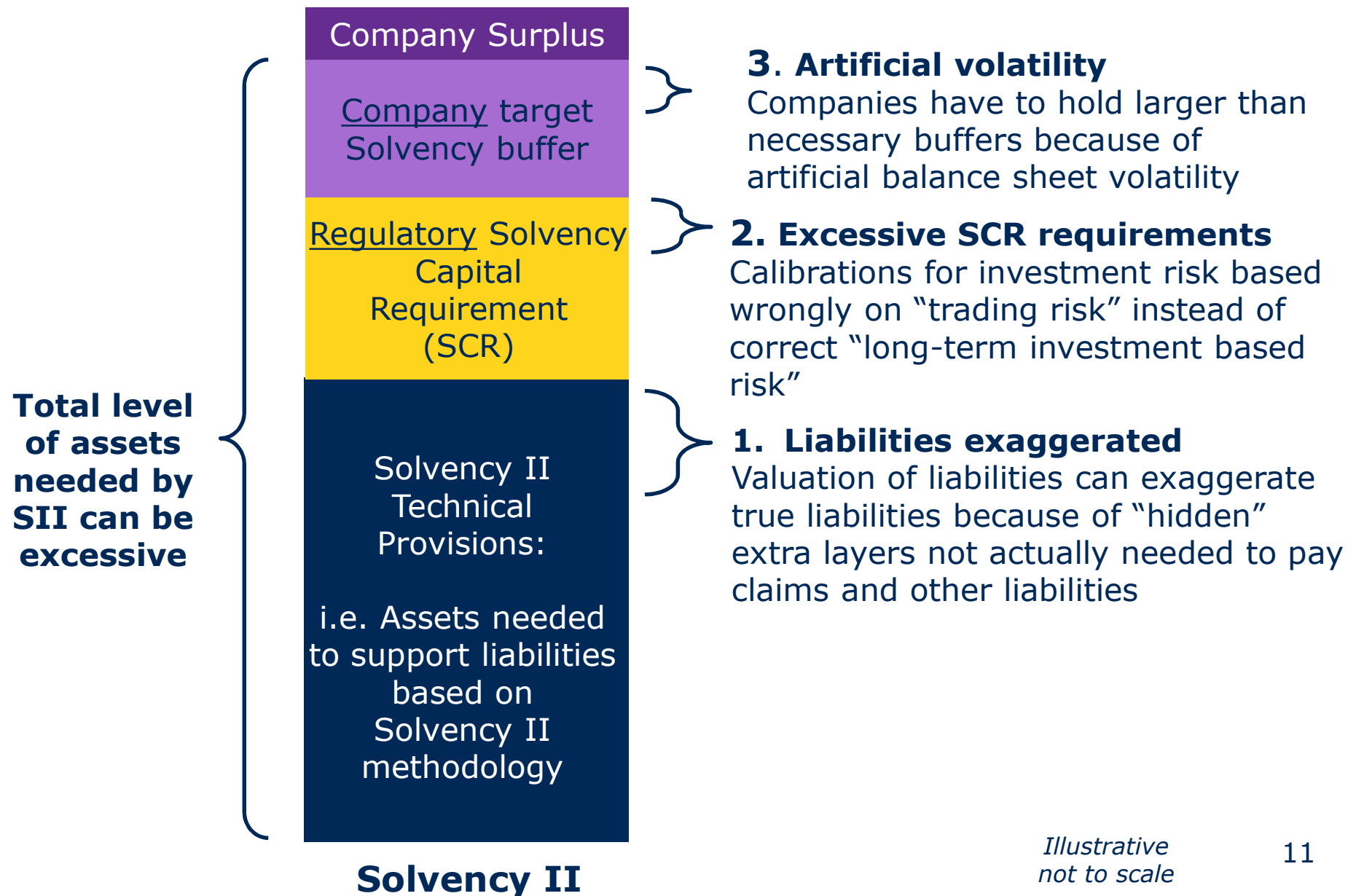


If higher capital is needed because of real risks then the impacts can be accepted, but not when due to poor regulatory design or calibration

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These flaws leads to 3 linked causes of excessive capital



1. Exaggerating liabilities

Solvency II
Technical
Provisions:

i.e. Assets needed
to support liabilities
based on
Solvency II
methodology

Solvency II



1. Liabilities exaggerated

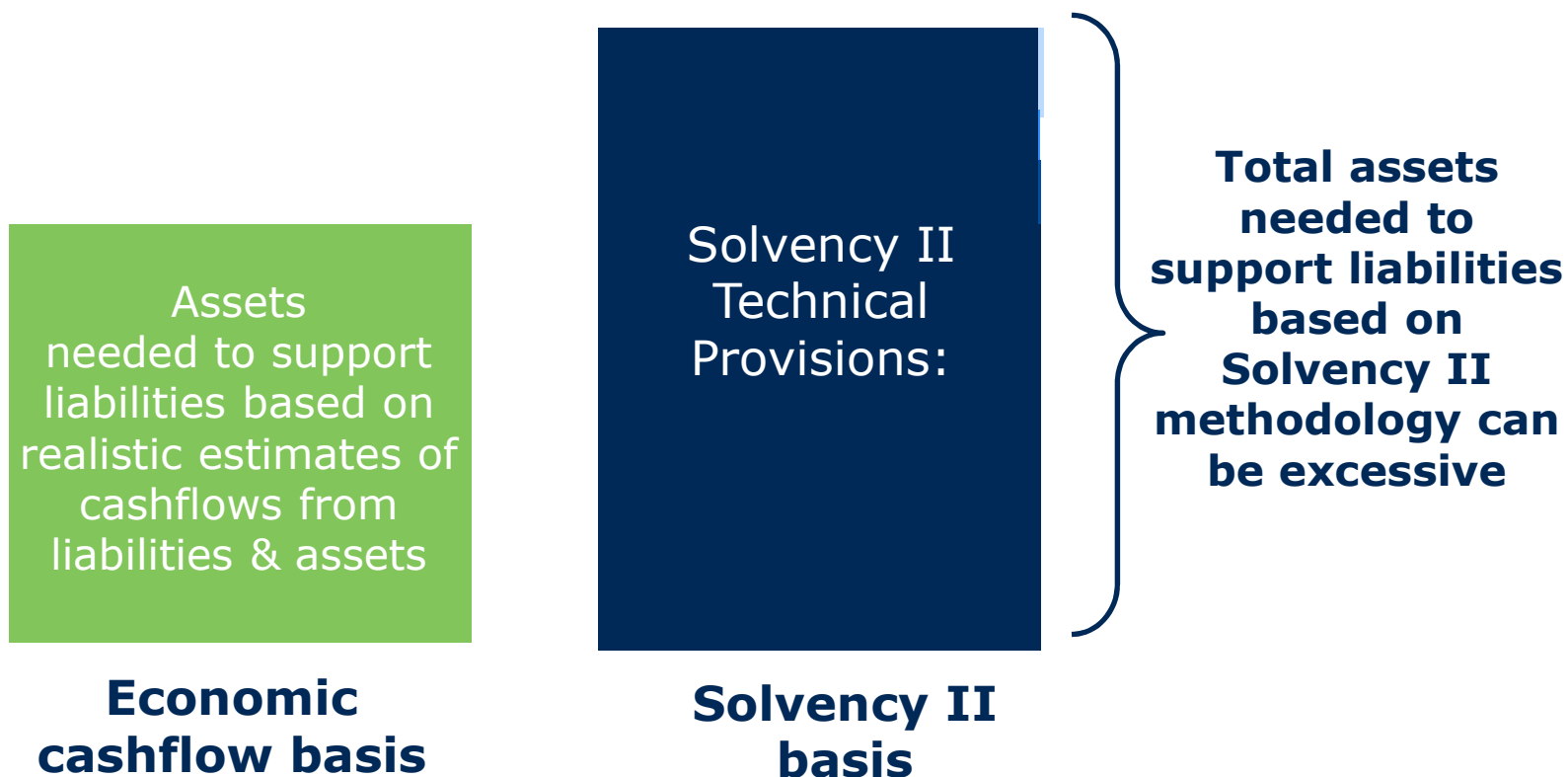
Valuation of liabilities can exaggerate true liabilities because of “hidden” extra layers not actually needed to pay claims and other liabilities

*Illustrative
not to scale*

1. Exaggerating liabilities

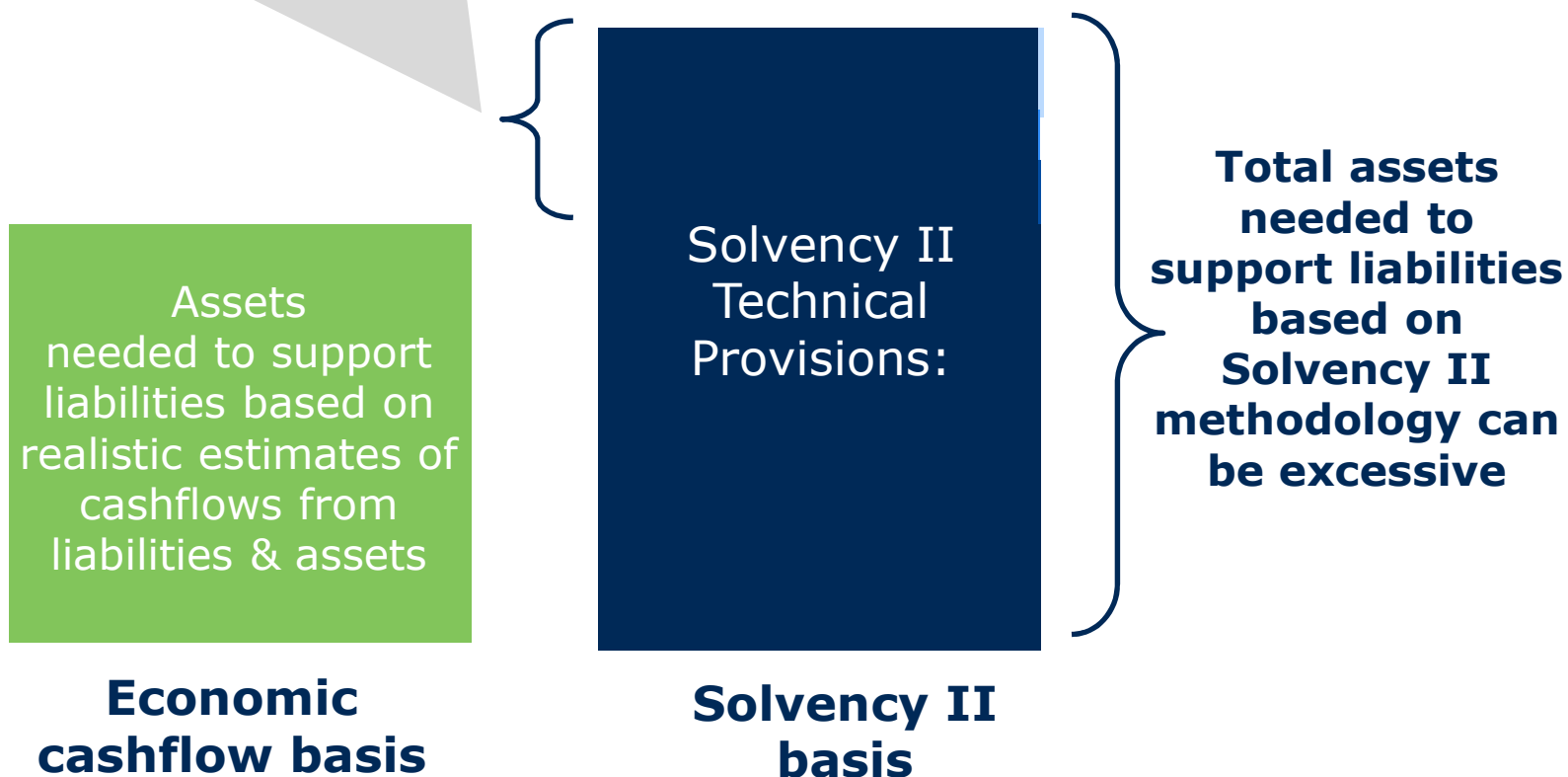


1. Exaggerating liabilities



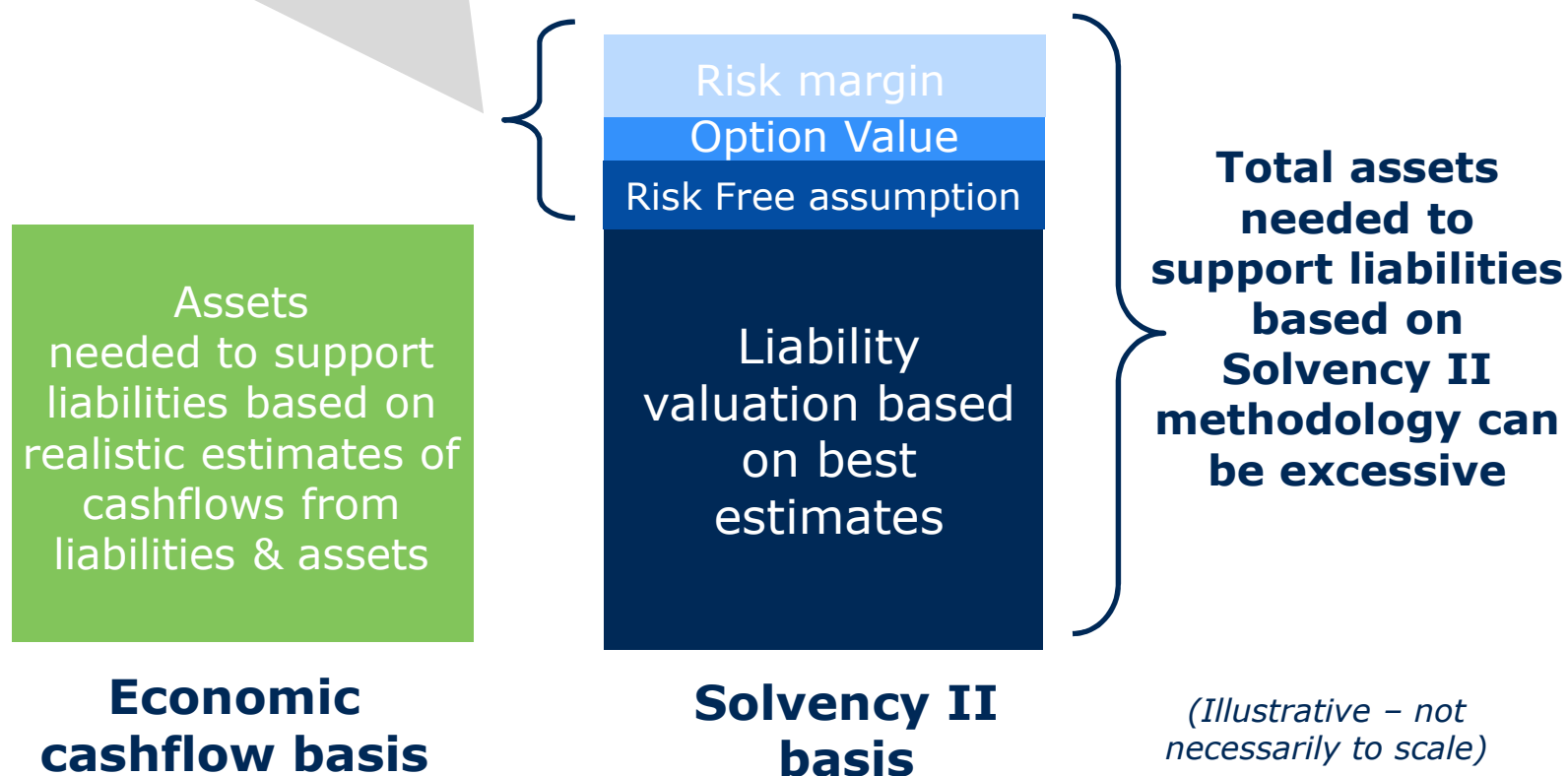
1. Exaggerating liabilities

There are 3 extra “hidden” layers within current SII technical provision calculation which can lead to significant exaggeration - not needed to pay expected claims or any other expected liabilities



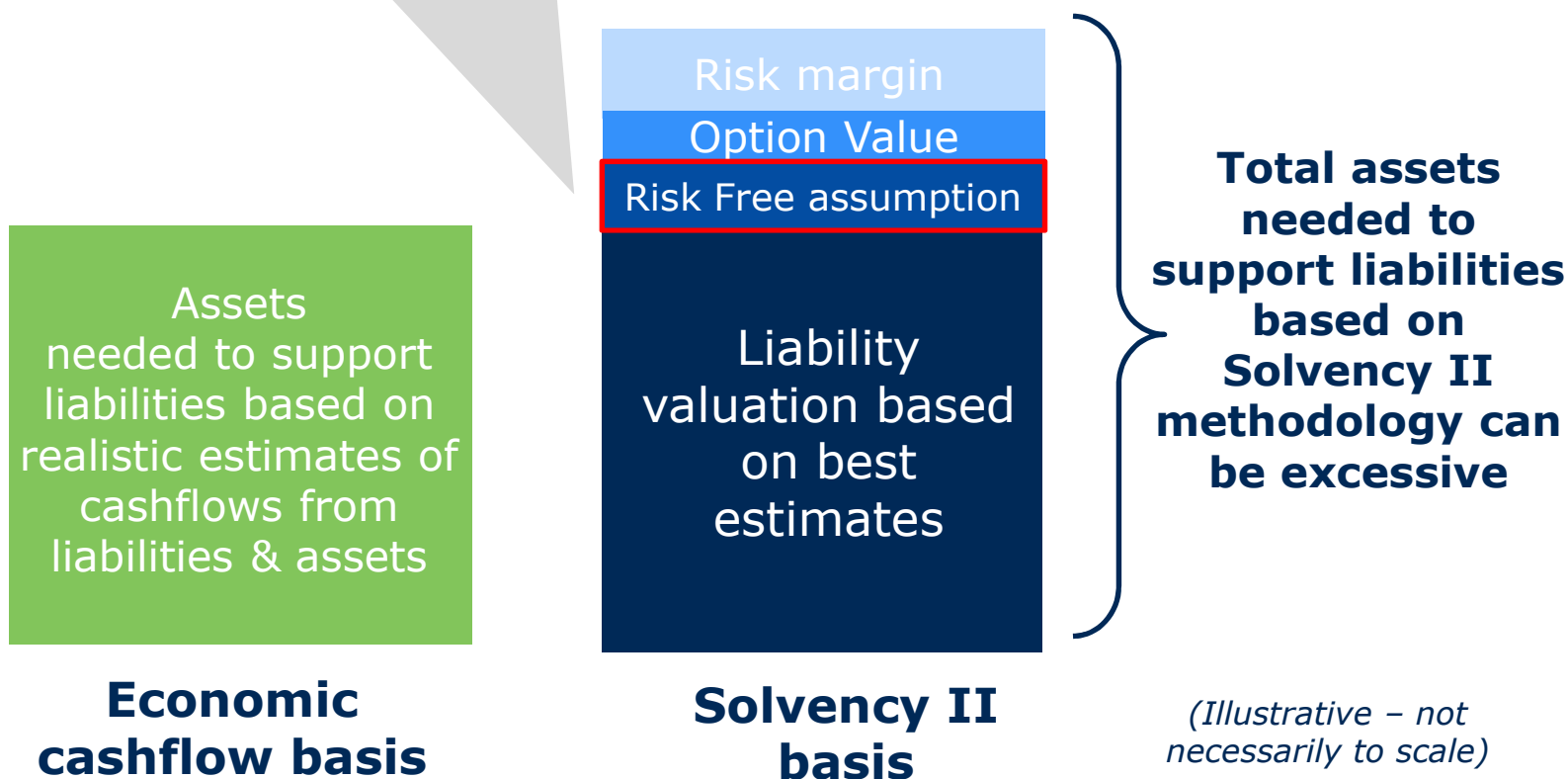
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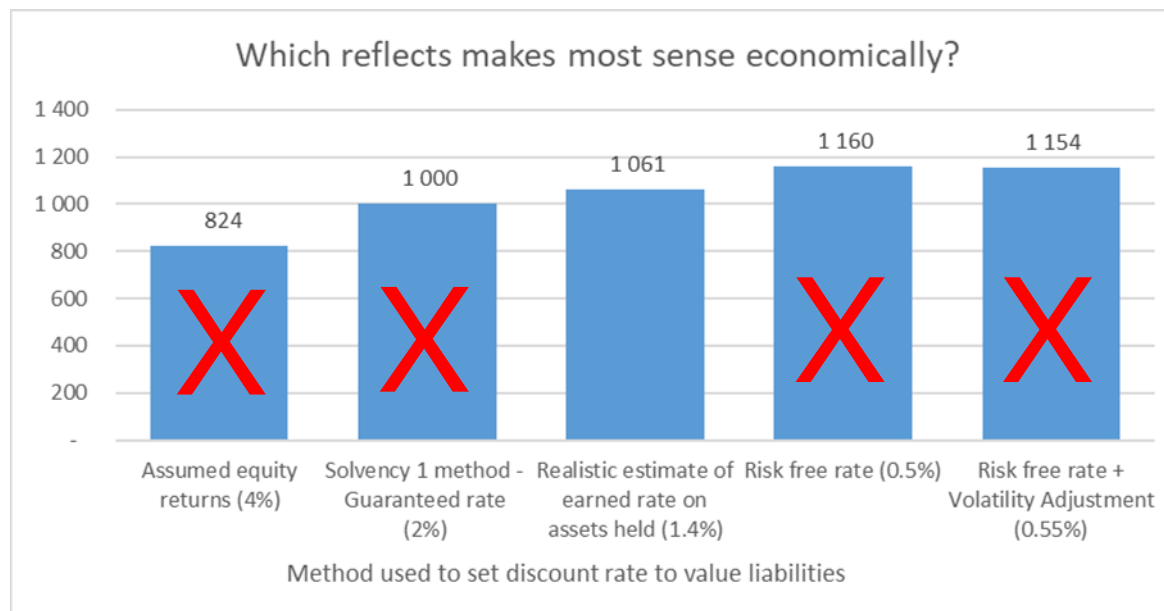
1a. Exaggerating liabilities: Risk free assumption

Using the risk-free rate to value technical provisions can significantly exaggerate the liabilities compared to a realistic economic approach



1a. Exaggerating liabilities: Risk free assumption

- Let us start with the basic question of what value of assets is need to back a future liability
- Let us assume an insurance company
 - has guaranteed a policyholder 2% on an amount of 1,000 to be paid in 10 year's time
 - backs this liability with a portfolio of investment grade bonds earning 1.5% (1% spread above risk free) **or 1.4%** after including expected losses of 0.1%



1a. Exaggerating liabilities: Risk free assumption

- The current SII method for setting discount rates can greatly exaggerate liabilities
- Using a risk free rate to discount liabilities **is the same as assuming the insurer invests only in risk free investments and will only ever earn the current risk free curve** on all future re-investment
- This is **simply wrong and extremely conservative** and leads to a **significant exaggeration of the liabilities**
- While there is risk associated with investing – **this real investment risk is covered by the capital charges**. So assuming risk free investment for valuation and yet charging capital for investment risk is **also a type of double counting of the risk**

1a. Exaggerating liabilities: Risk free assumption

Duration of liability	SII risk-free rates* (implicit expected rate of return on assets backing liabilities)	Realistic expected return on assets backing liabilities (illustrative†)	Exaggeration of liabilities due to risk-free investment assumption
1	-0,35%	0,00%	0%
10	0,74%	1,74%	10%
20	1,37%	2,37%	22%
30	1,96%	2,96%	34%
40	2,45%	3,45%	47%

- Any exaggeration of liabilities will reduce own funds unnecessarily
- Can in particular cause problems during low interest rates because it can exaggerate the extent of any real low interest rate problem companies may have and force them to take unnecessary action and/or deviate from the appropriate/optimal asset liability management

* Euro rates as at 30 November 2017

† For simplicity for this illustration we have assumed floored returns at 0% for 1 year investments and added 1% to long term risk free to arrive at a realistic expected return.

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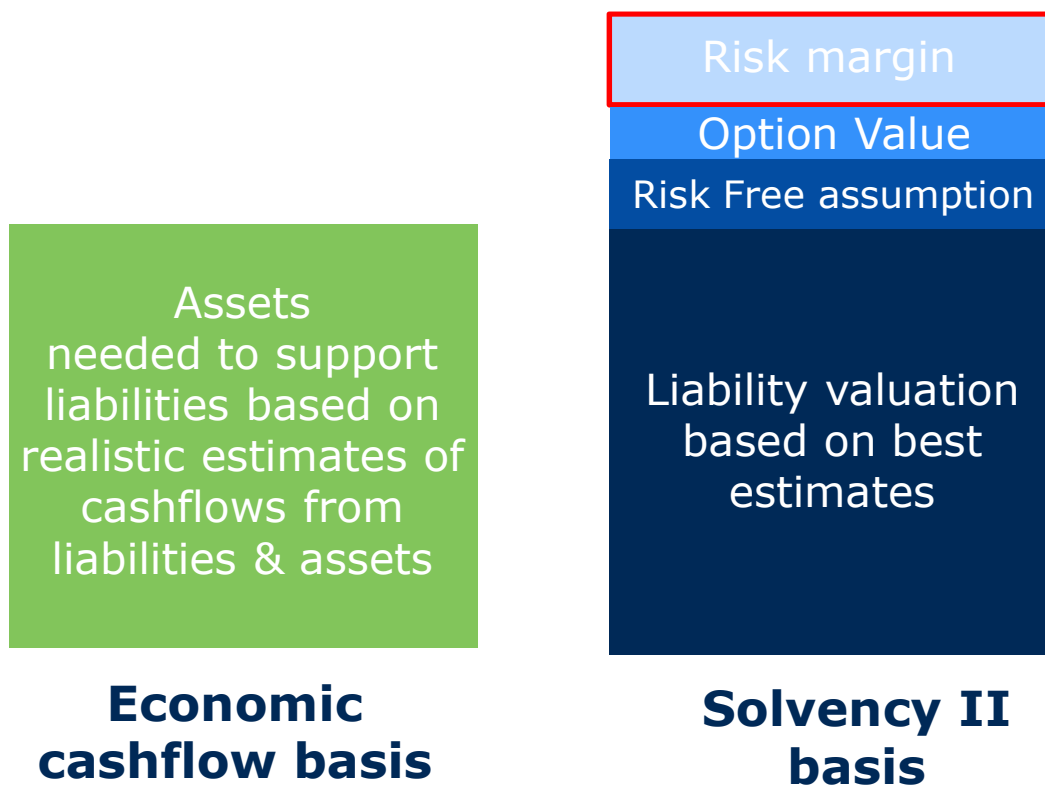
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1b. Exaggerating liabilities: Risk Margin (MOCE)

- The current Risk Margin methodology was invented for Solvency II
- RM is not needed to cover expected liabilities - Covered by best estimate
- RM is not needed to cover uncertainty of liabilities - Covered by SCR



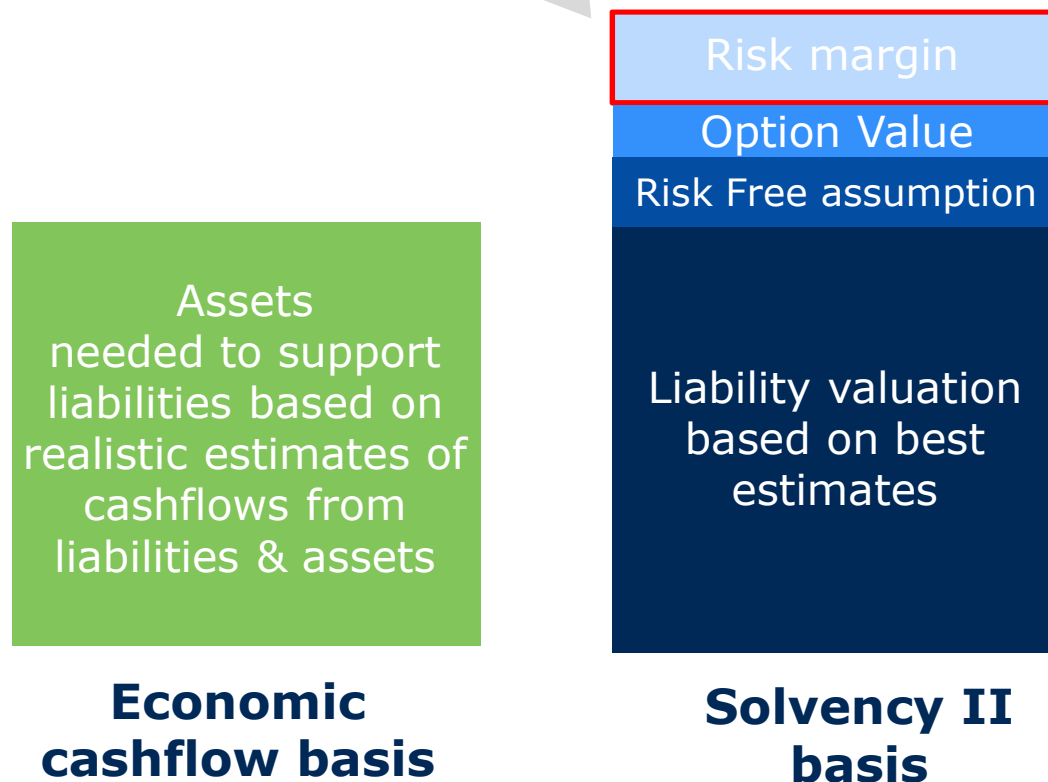
(Illustrative – not necessarily to scale)

1b. Exaggerating liabilities: Risk Margin (MOCE)

Total Risk Margin for European insurers **> €200bn!**

This is equivalent to increasing total solvency capital by 30%

For long-term products, equivalent to increasing capital by >100%



(Illustrative – not necessarily to scale)

1b. Exaggerating liabilities: Risk Margin (MOCE)

- RM started out as a theoretical concept from a market valuation point of view: Represents extra amount those trading liabilities would add to “best estimate” valuation to cover the uncertainty
- The need to include in prudential framework based on the view that, if insurer fails, RM is needed to provide additional assets so liabilities can be transferred or run-off in an orderly way
- However, this conceptual idea, with current methodology is creating problems in practice: Increasing overall capital that insurers need to allocate to products (especially long-term ones) and adds to artificial volatility
- Under the 2018 Review the industry has highlighted that the Cost of Capital (6%) used in the calculation is far too high and that the formula needs changing to avoid excessive RM for long-term products
- Under the wider 2020 Review, the industry has highlighted that the need for an RM in a prudential framework should be reconsidered given that SII has an MCR which also ensures, in the case of a failure, that there are enough excess assets to allow for an orderly transfer or wind-up

2. Exaggerating Capital: Trading vs long-term risk

- A solvency framework for insurers must be risk-based
- However, care must be taken to measure the actual risks faced by an insurer – it's what happens in practice not in theory that matters
- There is a significant difference between the investment risk faced by a trader and investment risk faced by an insurer

Trader must close their position regularly



Fully exposed to forced selling risk



Short term price movement determines risk and capital

Insurer has predictable liabilities and has enough liquidity to choose what/when/if to sell



Limited or no exposure to forced selling risk



Long-term value loss/actual defaults determines risk and capital

2. Exaggerating Capital: Trading vs long-term risk

Credit risk example

Losses during financial crisis (2007-2008)
Example for AA corporate bond portfolio

0.2% losses*



Long-term
investor losses

30% losses**



Trader
losses

- Forced sales COULD be avoided so exposure to losses was on actual defaults which were very low
- Forced sales COULD NOT be avoided so exposure to losses was on price drops caused by spread changes which were very high

* Assumes a 50% recovery rate. Actual defaults were about 0.4%

** Assumes a long-term bond portfolio

2. Exaggerating Capital: Trading vs long-term risk

Equity risk example

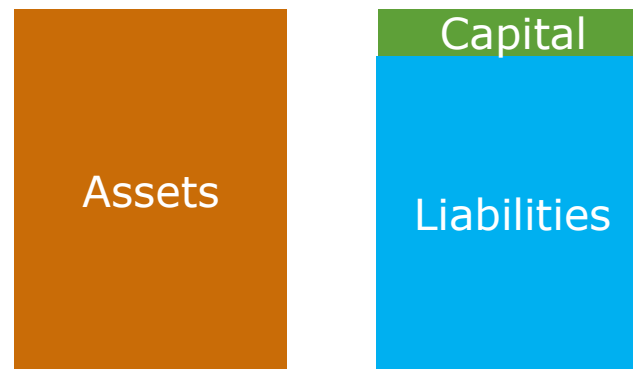
*Preliminary analysis based on 100 years of US stock market data**

	<u>1 in 200 outcome</u>	<u>Comment</u>
■ “Trader” – who can be forced to sell entire portfolio after worst case 1 year price fall	-43%	Close to current SII calibration
■ “Insurer” – who can invest for 10 years	-26%	10 years holding reduces the risk of loss – mainly due to dividends
■ “Insurer” - who can invest for 10 years and can pool/smooth returns across consecutive portfolios	+9%	Pooling risk across customers across time can have very significant impact
■ “Insurer” - who can invest for 10 years, can smooth returns across consecutive portfolios and can choose which asset to sell and when	?	Not yet analysed

* The smoothing mechanism in this example pays out the average return of 10-year investments that matured over the past 5 years. We look at how an initial investment of \$1000 in the S&P 500 index would have turned out after a one year investment, a 10-year investment and a 10-year smoothed investment. We used monthly US stock market index and dividend yields to give total return information from 1900 until 2012. We assumed no ability to surrender early.

3. Exaggerated and artificial volatility ...

- Insurers manage cashflows from assets and liabilities to ensure cashflows from assets (income, maturities & sales) covers the claims that need to be paid to policyholders
- Cashflows are difficult to use as the basis for a solvency framework
- Therefore SII measures available solvency capital (Own Funds) as:
Value of assets – Value of liabilities



- This makes sense but results in capital which is very sensitive to small differences to changes in the value of assets or value of liabilities
- Using market value of assets also makes sense but asset values are very volatile and it makes it very important to value liabilities in a way so the framework measures real, not artificial, volatility
- Artificial volatility forces companies to hold unnecessarily high capital buffers to avoid solvency problems

3. The discount rate must be set so that the framework measures real, not artificial, volatility

An example

- Let us build on our previous example
 - A known and fixed liability arising from a guarantee to policyholders of **1%** on an amount of 1,000 to be paid in 10 years time
 - 1,200 of assets invested in 10yr zero coupon investment grade bond earning 1.5% **or 1.4%** after allowing for expected losses of 0.1%
 - No early surrender option
 - Therefore **cashflow matched** with excess of assets which can be used to cover all risks
- Initial Market situation:
 - **Risk free rates** are **0.5%**
 - **Spreads** on the bonds are **0.9%** after expected losses
- Situation after Market Event
 - Risk free rates are 0.5%
 - **Spreads increase by 1% to 1.9%** after expected losses

3. The discount rate must be set so that the framework measures real, not artificial, volatility

An example ...

Cashflow view										
Years										
	1	2	3	4	5	6	7	8	9	10
<i>Initial Situation</i>										
Liabilities	0	0	0	0	0	0	0	0	0	- 1,105
Assets	0	0	0	0	0	0	0	0	0	1,379
Own Assets										274
Own Assets %										25%

1% guarantee
on 1000 results
in this future
liability

Investing 1200
at 1.4% gives
this future
income

This provides
significant (25%)
projected excess
funds which can be
used to more than
cover all risks

3. The discount rate must be set so that the framework measures real, not artificial, volatility

An example ...

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We have assumed no early surrender and a fixed liability so only things that can impact this outcome is:

Actual credit losses being different from expected losses

3. The discount rate must be set so that the framework measures real, not artificial, volatility

An example ...

These are the discount rates that would be applied by “simplistic” market consistent methodologies

Cashflow view										
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Value View				Value
Risk free rate	Spread after EL	Discount rate		
0.50%	0	0.5%	-	1,051
0.50%	0.9%	1.4%		1,200
				149
				14%

Already we can see how **discounting liabilities at risk free rate is very conservative** because it results in an apparent (but artificial) fall in the real safety margin that exists between assets and liabilities

3. The discount rate must be set so that the framework measures real, not artificial, volatility

An example ...

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The market event (1% increase in spreads) has **no impact on the insurer's cashflows**

3. The discount rate must be set so that the framework measures real, not artificial, volatility

An example ...

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0.50%	0	0.5%	- 1,051
0.50%	1.9%	2.4%	1,088
			37
			4%

A simplistic approach to valuation would apply the change in spreads to the assets but leave the liabilities valued using the risk free rate

This **gives completely incorrect outcome** – implying the insurer has lost almost all of its surplus of assets **despite no actual change**.

3. The discount rate must be set so that the framework measures real, not artificial, volatility

An example ...

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Spreads move up and down all the time and during the financial crisis moved by much more than 1% so if the valuation methods are not correct **the artificial volatility will be constant and potentially enormous**

3. The discount rate must be set so that the framework measures real, not artificial, volatility

An example ...

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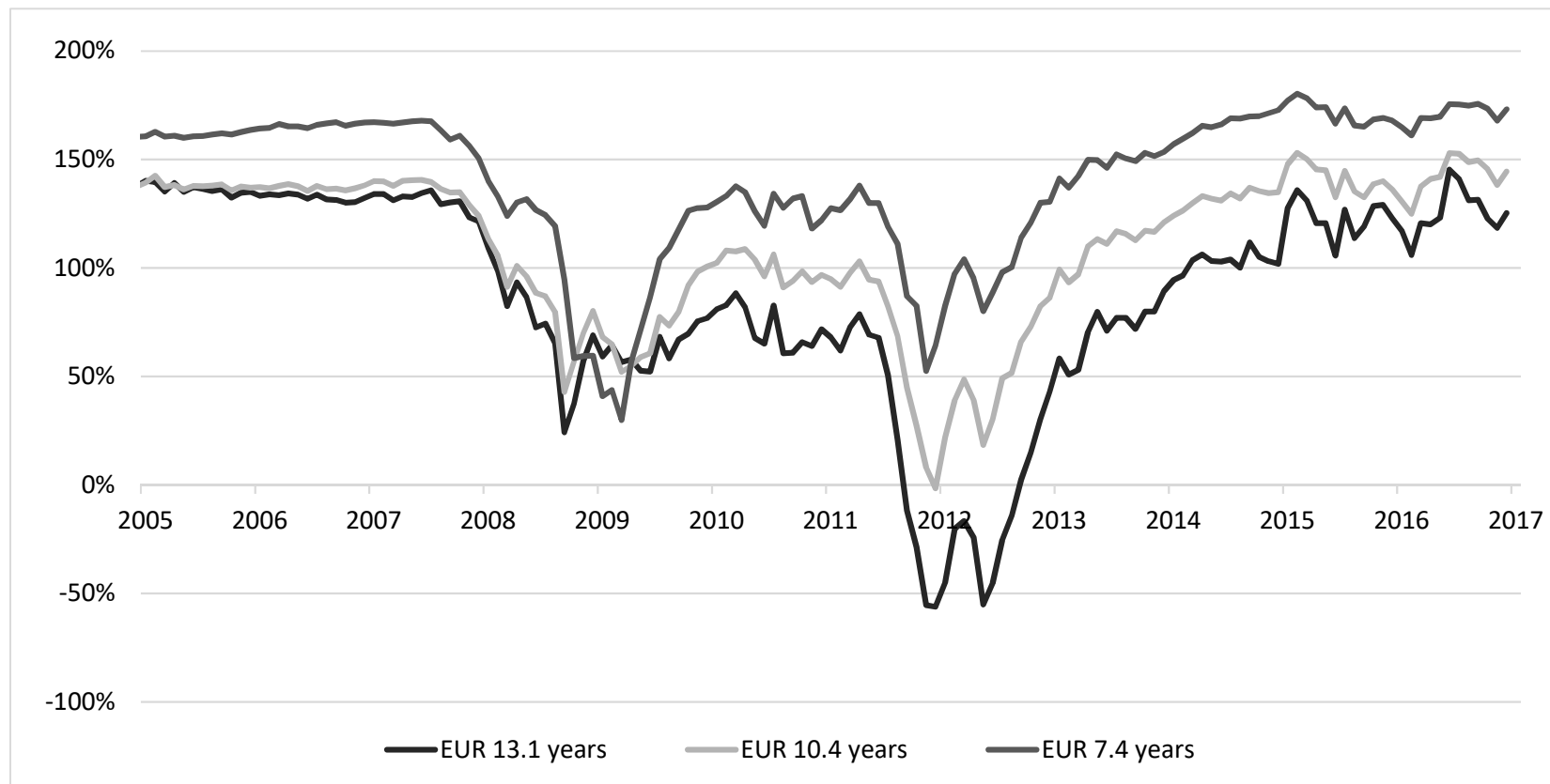
We haven't shown an example where there is a real mismatch with assets and liabilities but of course if this was the case, the projected cashflows after market event would **change in line with the real risks** and the **real volatility would not be ignored**

SII added helpful elements to reduce the problems but they are not good enough and need improving

Adjustment	What it is meant to achieve	Problems that need fixing in 2020 Review
Matching Adjustment	Recognise that in certain cases insurers can eliminate exposure to asset price volatility (but is exposed to risk of actual default)	Reduces artificial volatility but applies to only small portion of European liabilities due to too many unnecessary conditions. Also even where it does apply, it is conservative, applies only to bonds, creates restrictions and additional capital costs – so very limited overall impact on exaggeration of liabilities problem and excessive capital charges
Volatility Adjustment	Recognise that even where conditions for Matching Adjustment are not met, companies are only partially exposed to asset volatility	Leaves significant volatility – due to overly conservative calibrations, reference portfolio not reflecting closely enough companies asset movements, country adjustment for sovereign bonds does not work as needed. Does not address exaggeration of liabilities problem or excessive capital charges

SII added helpful elements to reduce the problems but they are not good enough and need improving

Back testing of SII Volatility Adjustment: Analysis of Solvency Ratio (Own Funds/SCR)



Source: Assuralia, M. Wambeke

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ICS... General Comments

- The industry's views on ICS are in development as companies' experience of Solvency II increases along with our discussions around how to address Solvency II issues and problems and their testing of various current and potential methods and calibrations for the ICS
- The feedback provided here is therefore based on current discussions and subject to further development and/or refinement
- We will update the IAIS as our views develop

ICS... General Comments

- The announcement made in Kuala Lumpur was important – it recognises the need for more time to develop the ICS and provides some clarity and certainty over the ICS development plan for the coming years
- The use of the term 'mandatory' confidential reporting has raised some questions. It is important that those companies producing the ICS data are allowed to use estimations and approximations
- It is also important that the monitoring phase is used only to help assist the global ICS development and that it does not interfere with the actual local and legal requirements
- We welcome therefore that the IAIS clarified that "the ICS will not be used as a PCR in this phase i.e. the ICS results will not be used as a basis to trigger supervisory action" but care must be taken to ensure this is adhered to in practice
- We also welcome the option to include Internal Model results, as this is key to a workable ICS framework
- Testing is needed before ICS 2.0 is finalised to ensure a clear understanding of how it would work during a crisis, its overall impact on capital and therefore on availability & cost of products and procyclicality
- Once the implementation time-table is clear, transitionals/grandfathering will need to be considered

ICS....Comments on Valuation

- We support market value for assets but this will only work if the framework is not excessively conservative and liabilities are valued on best estimate cashflows, **using a discount rate which reflects the long-term nature of the business, and the reality of asset/liability management**
- The long-term forward rate used to generate the risk-free curve (**LTFR**) **should be defined as: long-term real interest rates + expected inflation**. It must be **stable, reflecting very a long-term view**
- We support the IAIS objective of avoiding artificial balance sheet volatility but none of the concepts included in version ICS 1.0 provide the appropriate solution, although we can support some of the ideas behind the methods
- The **solution(s) adopted for ICS 2.0 needs to be improved** & tested to ensure they actually work and to understand their impact on overall capital
- The **risk of forced sales still appears to dominate inappropriately the methodological choices, criteria and calibrations**. While it should not be ignored, other ways, which better reflect its true (limited) extent and impact, need to be considered
- **Any valuation method used should recognise non-fixed income spreads** –ignoring this exaggerates liabilities and does not reflect the economic reality

ICS....Valuation...Comments on Blended approach

- Top Bucket
 - Eligibility criteria for the top bucket is unnecessary strict (eg surrender value requirement)
 - There needs to be a closer/direct link to the spreads and spread changes on companies actual assets
 - The adjustment should apply to the full risk free curve - not just liquid part
- General bucket
 - The application ratio should be 100%
 - The adjustment is focused only on addressing volatility – in practice most of the time the adjustment will be very low, so something very close to the risk free rate will be used to value the liabilities resulting in exaggeration, especially for long-term liabilities
 - The adjustment should apply to the full risk free curve- not just liquid part
 - The 50bs point threshold in the basis-risk mitigation mechanism (BRMM) is likely to impede it working in practice as intended
- The effectiveness of the general bucket approach needs to be tested to ensure it would in practice avoid artificial volatility during a crisis, in particular its calibration, use of reference portfolio and BRMM mechanism

ICS....Valuation...Comments on High Quality Assets (HQA) approach

- The HQA approach has a number of features which should have also been included in the blended approach
 - All assets contribute to the adjustment (ie not just fixed income)
 - The application ratio is 100%
 - The adjustment applies to the full risk free curve (not just the liquid parts)
- However, there remain areas where further improvements to the HQA should be made in order to ensure its effectiveness.
 - The AA-rating guardrail is unnecessarily restrictive – a BBB-rating provides sufficient protection and ensures credit is only given to the level of investment grade
 - There remains a 50 basis point threshold for the application of BRMM
 - Further analysis of the structure of the BRMM country adjustment mechanism is required to ensure it captures the appropriate protection from market volatility
- The effectiveness of the HQA approach needs to be tested to ensure it would in practice avoid artificial volatility during a crisis, in particular its use of use of a single AA reference portfolio and BRMM mechanism

ICS....Valuation...Own Assets with Guardrails

- The Own Assets with Guardrails (OAG) approach has a number of features which are desirable for a discount rate which reflects the long-term nature of the business, and the reality of asset/liability management
 - The adjustment reflects the undertakings own asset allocations and own yields
 - It takes account of all investments which an undertaking may be using to back their liabilities
 - It has an explicit assumption about the future benefit that may be derived from the reinvestment of fixed income assets
 - It has an application ratio of 100%
- However, there areas where further refinements could enhance the OAG approach
 - It is complicated compared to the other approaches tested
 - Some of the proposed guardrails could be enhanced require further refinement
- The OAG approach justifies further investigation and testing

ICS....Valuation...MOCE – similar issues and concerns as for the Risk Margin for SII

- **No need to add a MOCE to liabilities**, it should be recognized as a capital resource
 - It is a theoretical form of prudence, not meant to cover any policyholder liabilities - only be necessary if there is a need for transfer of liabilities
 - It should not be part of the technical provisions, as any risk associated to uncertainty of cash flows is already reflected in the capital requirements
- **MOCE could be seen as minimum capital requirement** for the supervisor, ie interventions should occur before the breaching of the MOCE, in order to allow funds for orderly transfer or run-off portfolio
- **This would address shortcomings** in the current approaches, ie double counting of risks and the lack of a supervisory ladder of intervention in the current ICS
- On the C-MOCE approach:
 - The fixed rate CoC approach to calculate MOCE replicates the flaws of the SII approach, in particular the size and volatility - **a 3% cost of capital** would be appropriate, taking into account the low beta value of insurance risk.
 - The **current variable CoC approach is too high** and should be below the current levels
 - **A “tapering” factor could be applied to the projected PCRs** for non-hedgeable risks, to reflect risk dependence over time and avoid excessive MOCE for long-term products

ICS....Capital

- Non-paid-up capital resources should be recognised in ICS - recognition should not be limited to mutuals
- Tier 1 capital resources need further work (e.g. in relation to which financial instruments qualify – particularly important for mutuals)
- In 2017 field testing, the deduction of encumbered assets from Tier 1 is punitive, even if recognised in Tier 2.
- With regard to amortisation criteria, the current criteria for debt instruments can lead to very abrupt changes in value as step-up dates are reached. A more refined approach would be recommended

ICS....Capital Requirements ...

- Interest rate risk
 - The design of the interest rate risk submodule is complex (and to an extent over-engineered) and results in excessive capital requirements
 - The data sets used to calibrate the model, which begin in 2010, are unsuitable. Larger data sets are required to calibrate a 1 in 200-year shock.
- Credit risk
 - We welcome that the ICS recognises that the relevant credit risk for insurers is credit default risk and not credit spread risk and basis the capital calibration on this, however more appropriate economic recognition of collateral and guarantees is needed
- Equity risk
 - The proposed capital requirements are extremely high - the ICS risks replicating the Solvency II flaw of treating insurers like traders and assuming they are exposed to forced sales of entire equity portfolios.
 - The ICS should be based on a long-term measurement of the risk instead and there should be no charge for equity volatility
 - As noted earlier the limited risk of forced selling should be dealt with in other ways than so that it is not (wrongly) assumed to apply to all investments
- We welcome the presence of a look-through approach to investment funds however...
 - In practice, this provision is often difficult to apply due to lack of information on funds' composition (eg hedge funds)
 - In this case and generally, the cost and availability of the data required for calculations must be taken into account

Contents/Key Messages

- SII is a very good overall framework but it has certain issues that need to be fixed in the upcoming reviews
- A closer look at SII's flaws relating to its treatment of long-term business
- The ICS must avoid the same mistakes – some comments on current ICS design
- A reminder of the importance to investigate, understand and avoid the potential unintended consequences of (even well-intentioned) regulation

The importance to investigate, understand and avoid the potential unintended consequences of regulation



Regulation does not, in itself, prevent all failures

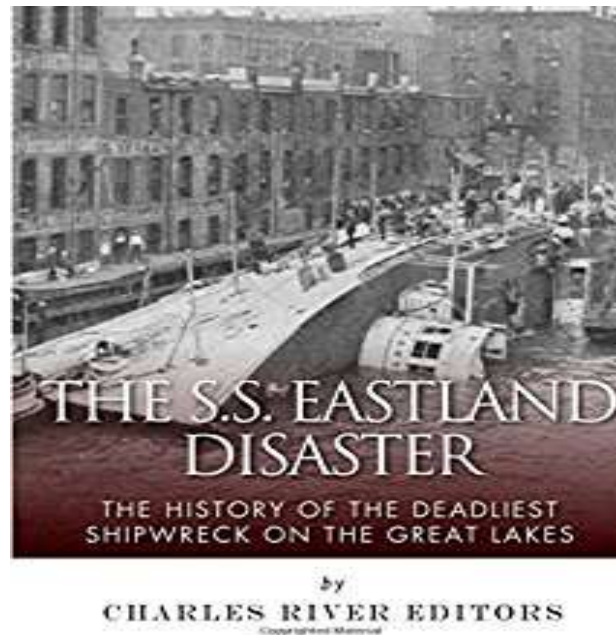
- Titanic sank in 1912.



- Over 1500 died. **Not enough lifeboats** key cause for deaths
- The ship was in compliance with regulation at the time
- Led, understandably, to "lifeboats-for-all" movement and new regulation came into force in March 1915

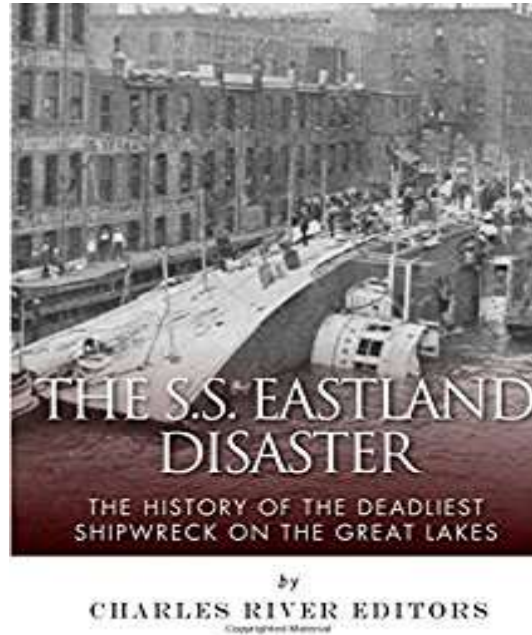
Well intentioned but, badly designed, regulation can create new problems

- Many ships had to be retrofitted with more lifeboats to comply, including SS Eastland, a US passenger ship used on the Great Lakes



- Eastland sank in 1915, a few meters from the dock. Nearly 850 died.
- **Too many lifeboats**, making ship top heavy and prone to capsizing, a key cause for the disaster and deaths

... very important to investigate, understand and avoid the potential unintended consequences



- During the development of the regulation, the shipping industry had warned that the new regulation was dangerous for certain boats – concerns were not heeded
- The new rules were not tested

Getting it done is not more important than getting it right