Recovery and Resolution

Spotkanie świąteczne Członków Polskiego
Stowarzyszenia Aktuariuszy 2023

Warsaw, 11 December 2023

Lutz Wilhelmy, AAE Immediate Past Chairperson

Agenda

- About AAE
- Recovery and Resolution
- Recovery Risk Measures
- Q&A

Introduction to the
ACTUARIAL ASSOCIATION OF EUROPE

advising · achieving · engaging

Actuarial Association of Europe

The Actuarial Association of Europe (AAE) was established in 1978 under the name Groupe Consultatif to represent actuarial associations in Europe. Its initial purpose has been to **provide advice and opinions to the various organisations of the European Union** – the Commission, the Council of Ministers, the European Parliament, EIOPA and their various committees – **on actuarial issues in European legislation**. Meanwhile this has been amended and comprises

- **Strategic Objective 1: Enhance relations with European institutions**
- **Strategic Objective 2: Promote Professionalism**
- **Strategic Objective 3: Promote a European community of actuaries**

The AAE currently has 38 member associations in 37 European countries, representing over 29,000 actuaries.
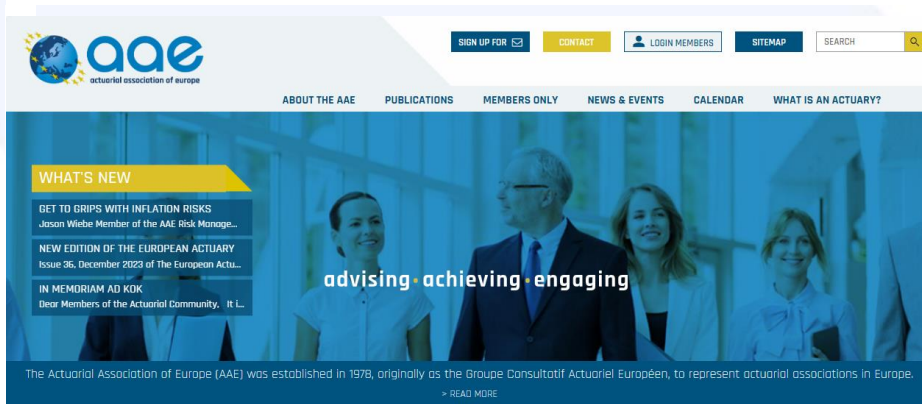
Advice and comments provided by the AAE on behalf of the European actuarial profession are totally independent of industry interests.

EU Stakeholders
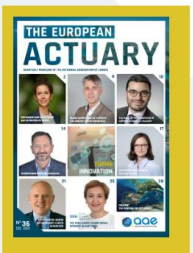
Informing

Website

Publications

Magazine

Congress

Next congress in 2024

Congress ECA 2024

European Congress of Actuaries 2024

Managing uncertainty in a changing world

Assessing risks sustainably for the well-being of society

6 / 7 June 2024 · Subcribe to mailing list · Rome / Italy

Join us in Rome!

On 6 and 7 June 2024, the Actuarial Association of Europe (AAE) and the Italian Society of Actuaries (ISOA) invite you to the next European Congress of Actuaries (ECA 2024) in Rome, Italy.

This on-site event is expected to attract over 350 experts and executives from Europe and beyond. Building on the success of the previous congresses, ECA 2024 will again provide an exciting actuarial congress program and valuable networking opportunities for the European actuarial community.

All of this will take place in Rome, a vibrant and cosmopolitan city steeped in history, art, culture, music, and entertainment - a perfect host city for this conference.

Subscribe to the mailing list to stay up-to-date.

Committee chairs

Risk Management

Insurance

Pensions

Professionalism

Education

Loudina Erasmus

Lauri Saraste

Tatiana Bitunska

Christophe Heck

Henning Wergen

AAE Board of Directors

Giampaolo Crenca
Chairperson

Lutz Wilhelmy
Immediate Past
Chairperson

Inga Helmane
Vice-Chairperson

Matthias Pillaudin
Member – Honorary
Treasurer

Frank Schiller
Member

Jette Lunding
Sandqvis
Member

Malcolm Kemp
Member

Lourdes Afonso
Member

Hartwig Sorger
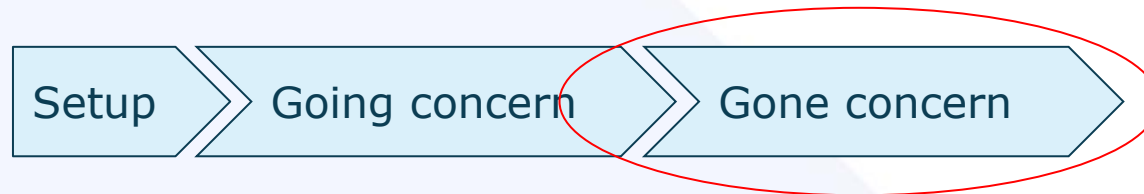Member

Why to engage in the AAE

Recovery and Resolution

Content

- Life cycle of an insurer

- Why is there in issue in resolution?

- Avoiding liquidation bankruptcy

- Recovery Plan

- Resolution

- Why is resolution so difficult?

- What to do about it?

- Conclusion

Life cycle of an insurer

Setup	Going concern	Gone concern

- What are the options for gone concern? For insurance, as for any other business, we have

- **Solvent run-off:** the insurer meets all obligations as they fall due while meeting all regulatory and statutory requirements, esp., it remains solvent
- **Liquidation bankruptcy:** if solvent run-off is not possible, a liquidation authority takes over, collects all claims, ranks them according to creditor hierarchy, liquidates all assets, and uses the proceeds to pay the claim in order.

So what?

Why is there an issue?

- Solvent run-off is fine – but liquidation bankruptcy can be a nightmare for policyholders:

- Where the final insurance claims are not known, policyholder will file the sum insured as a claim.

- This is in aggregate by far exceeding the proceeds of the assets.

- As policyholder are among the highest-ranking creditors, nobody will get any money before (almost) all the policyholders' claim are final.

- This will take many years, even in property & casualty insurance.

Why is there an issue?

- But policyholders and their third-party liability counterparts heavily depend on their insurers. Delays in payment are very harmful.

- Therefore, many regulations prevent insurers from bankruptcy by all means – not allowing companies to fail is, however, a serious market failure

- Liquidation Bankruptcy solely makes sense, when almost all policyholder have left the insurer.

- There should be a way, to facilitate this policyholder transfer so that every creditor is better off than in liquidation.

- This "way" is the topic of this talk.

- It is of utmost interest to actuaries that engage in policyholder protection – bankruptcy is where the rubber hits the road.

Avoiding liquidation bankruptcy

1. Foster that the **insurer itself** keeps in good shape:

   - Good business management

   - Good risk management, esp.,

      - ORSA

      - Recovery planning

2. Introduce an **authority-led** process, alternative to liquidation, which can also be followed by liquidation of the remainders of the insurer:

   - Resolution

Recovery plan

- Forget what you may have heard about recovery plan in banks

- Insurers need a **recovery plan** comprising particularly

    - **A toolbox of measures**. Insurers must understand the effect of the measures in various market circumstances very well. Insurers should also understand interdependencies between measures

    - **A strategy** how to dispose of equity investments, especially group companies.

- To ensure that insurers' recovery has much more time then banks', the insurer should be safeguarded from an insurance run that draws liquidity from the company too fast and/or does not improve solvency materially.

- This is either fostered or hindered by local regulation.

- Finance actuaries should play a central role in setting up and maintaining the recovery plan

Resolution

- In the following **Resolution** should mean an authority-led process, alternative to liquidation, which can also be followed by liquidation of the remainders of the insurer.

- Such a process exists in many jurisdictions.

- However, its goals and procedural details vary greatly between jurisdictions.

- The names are varying: resolution, winding-up, restructuring, rehabilitation bankruptcy, reorganisation bankruptcy, Chapter 11 (in the US code of bankruptcy), etc.

- Caution, these words are used with very different, yet specific meaning in some jurisdictions, e.g. in the US, restructuring is a company-led process that is part of recovery, or resolution is comprising liquidation.

Why is it so difficult

- Insurance value generation is, to a large extend, about diversification
- Resolution is dissecting – ending the corporate structure that allowed for diversification

- Liquidation Bankruptcy is an extremely local process – based on local statutory accounts, ensuring consistency across sectors. There is often little experience with the respective competent authorities.
- Resolution must provide for a bridge from modern, economic, risk-based supervision to the statutory gone-concern view.

- Different jurisdictions may have different goals in their cross-sectorial restructuring process. This makes harmonisation challenging.
- Europe can at best hope for a minimum harmonisation framework. This may result in different levels of protection for policyholders throughout Europe.

What to do about it: international advice (and art)

Global insurance developments

Date	Event
July 2013	FSB and International Association of Insurance Supervisors (IAIS) begin identifying Global Systemically Important Insurers (G-SIIs)
October 2014	FSB Key Attributes of Effective Resolution Regimes for Financial Institutions – first guidance on Recovery and Resolution Planning (RRP) for insurers
July 2015	Romania introduces first national RRP framework for insurers in the EU (aligned with Key Attributes)
2016	France establishes national RRP regime for insurers
June 2016	FSB and IAIS issue final guidance on insurance resolution strategies to assist authorities in meeting requirements under Key Attributes
July 2017	European Insurance and Occupational Pensions Authority (EIOPA) calls for harmonised RRP framework for EU (re)insurersEC
October 2019	European Commission (EC) consults on changes to Solvency II and reiterates need for harmonisation
January 2020	Netherlands establishes national RRP regime for insurers
March 2021	"Brave New World" speech at Association of British Insurers
September 2021	EC adopts comprehensive review of Solvency II – including a proposal for a new Insurance Recovery and Resolution Directive
January 2022	PRA to work with HM Treasury to develop targeted RRP framework for insurers
January 2024	Switzerland establishes a national, comprehensive Recovery and Resolution system fully implementing FSB's key attributes

- After the great financial crisis, international standard setters, esp. the Financial Stability Board, FSB, and the International Association of Insurance Supervisors, IAIS, have been tasked by the G20 with establishing elements for effective resolution, esp. for systemically important banks.

- Since almost nine years, special guidance for insurance has been established. It comprises objectives, scope, suitable resolution authorities, powers, safeguards, funding questions, specific crisis management groups for (sizable) international active groups, resolvability assessment, recovery planning (by undertakings), resolution planning (by authorities), and international information sharing.

- Moreover, sections on client assets, related transfer powers, and cross boarder issues are contained.

Graphics from KPMG's 2022 paper A resolution framework for insurers

What to do about it

- Consider

  - the FSB's "key attribute" paper, esp. the appendices

  - some implementations, e.g., French (2016), Dutch (2020), Swiss (2024)

- Gain consensus on the **objectives**: to reach a state, where Creditors' claims (esp., policyholders') are can be honoured timely in line with the creditor hierarchy

- Gain consensus on the **resolution authority:** e.g., but not necessarily, the supervisor

- Gain consensus on **resolution powers:** e.g., 1) determining the *entry into resolution*, 2) establishing *bridge institutions* to separate viable parts of the business, 3) restructuring liabilities, potentially altering insurance contracts - not only haircutting payments, 4) perform portfolio transfers, 5) order stays, esp. for saving contracts.

What to do about it

- Gain consensus on the **safeguards**: esp. no (single) creditor must be worse of in resolution than in liquidation bankruptcy.

- Gain consensus on the **resolvability assessment:** esp., for larger, complex groups

- Gain consensus on **resolution planning and reporting**

- Consider **cross-border issues** carefully. They may be destructive to diversification, esp. if every jurisdiction tries to safeguard maximal amounts for "their" creditors.

Conclusion

- A suitable resolution framework is of utmost use for creditors to prevent them from great harm.

- It is difficult to establish as it must bridge different views, as well as facilitate the miracle to disaggregate business without destroying diversification. Moreover, local legal tradition must be considered

- The FSB's "key attribute" paper, esp. the appendices, provide great, comprehensive guidance on the principles of suitable resolution regimes.

- France, the Netherlands, and very recently Switzerland have established Recovery and Resolution Regimes in their local laws.

- If you want to have significant impact on the well-being of policyholders and on the stability of the insurance sector, engage in discussions on resolution – it is far from being boring!

Recovery Risk Measures

A quantitative element of effective policy holder protection

Content

- Problem statement

- Issues with VaR

- Issues with Shortfall

- Issues with RBC

- Erring (and learning) on the direct path

- Solutions

- Feature inheritance

- Possible extensions

- Résumé

Problem Statement

How do current solvency rules protect insured against the risk of insolvency of covering insurers?

- Solvency rules aim to ensure that insurers hold sufficient capital to protect insured against insolvency risks.

- They are elements of (much) more comprehensive requirements in the Solvency II directive and the corresponding regulation: Besides the capital requirements, other particularly important elements are found in Chapters III (Supervisory authorities and general rules), IV (Conditions governing business), and particularly VII (Insurance and reinsurance undertakings in difficulty or in an irregular situation).

- However, these rules are mainly proactive measures to avoid or mitigate the impact of a future insolvency situation – not effective remediations in case of an insolvency situation.

- This is because insolvency law is national.

- However, the European Union is in process to establish minimum harmonisation with the Recovery and resolution directive.

Do modern solvency rules show common weaknesses?

How can these weaknesses be addressed – and what is needed for this?
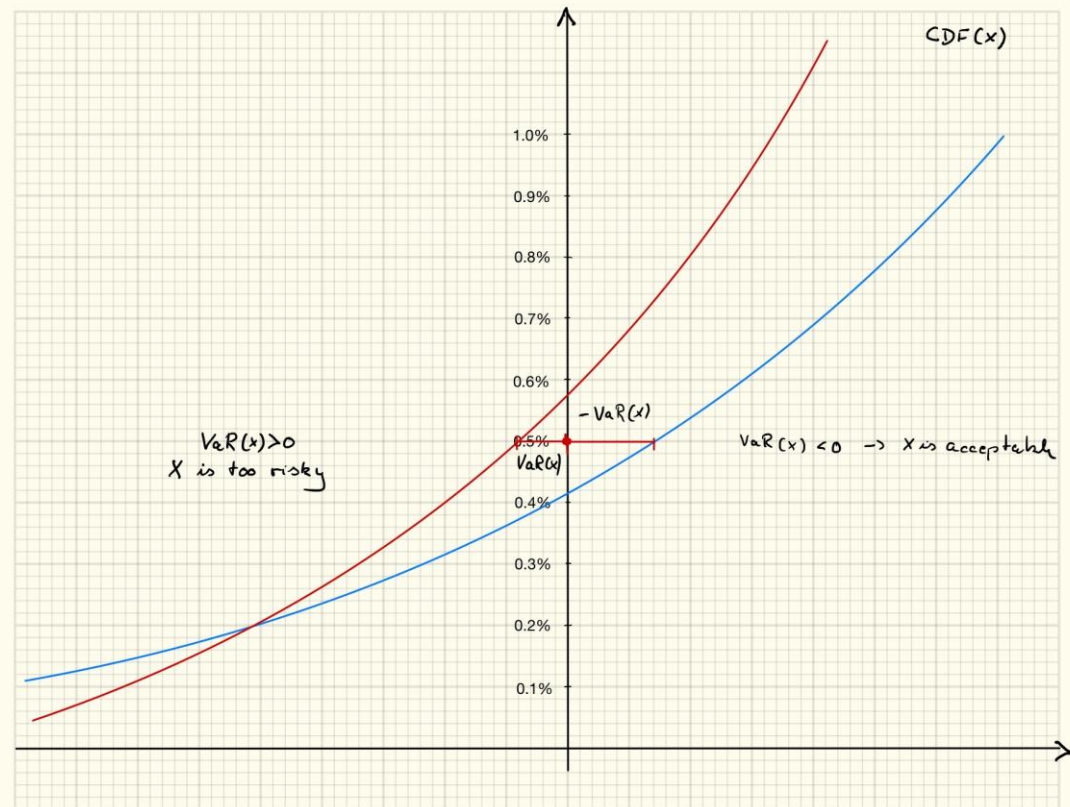
Issues with VaR

Capital requirements in terms of VaR at a particular confidence level α just limit the probability of insufficient assets to cover liabilities over consecutive one-year periods

**They are blind for the consequences for the insured**

- Let's consider a simple example:
  - No classes (seniority) of claims
  - no hybrids
  - no differences between the "insolvency balance sheet" and the "solvency balance sheet"
- Define the VaR risk measure at the level α as the monetary amount c that on may take out (must put into) an insurer to ensure that it holds sufficient assets initially so that the probability that they become insufficient a year later is limited by α:
- $VaR_\alpha(X) = \inf\{c \in R: P(X+c< 0) <= \alpha\}$
- If we denote by E = A-L the random variable of the equity (RBC) in a year's time, $VaR_\alpha(E)$ is a monetary measure of risk:
  - if it's negative, the insurer is fine; one could even take $|VaR_\alpha(E)|$ out.
  - if it's positive, the insurer needs fresh money; one needs to put $VaR_\alpha(E)$ in.
- Note that this is in fact an investors' perspective …

VaR

Issues with VaR

- With VaR, it is very easy the generate addition premium income without any capital need at the expense of devastating consequences in insolvency for insured –

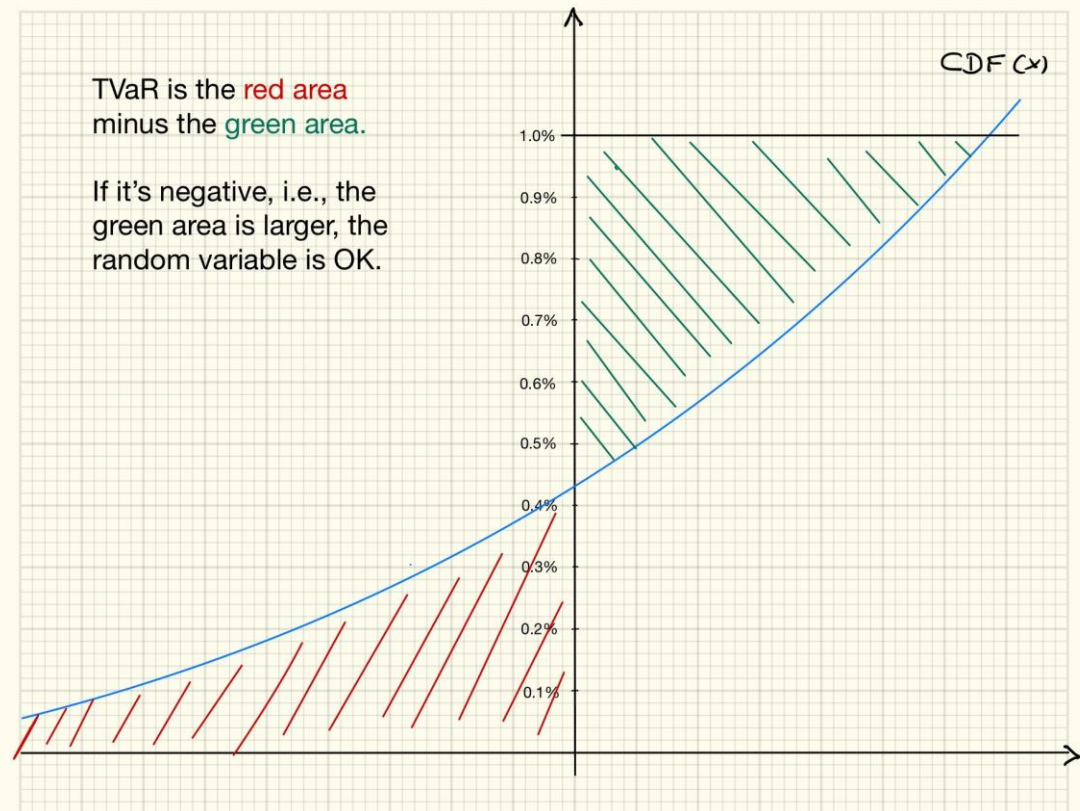- just add low probability systemic risks to the balance sheet
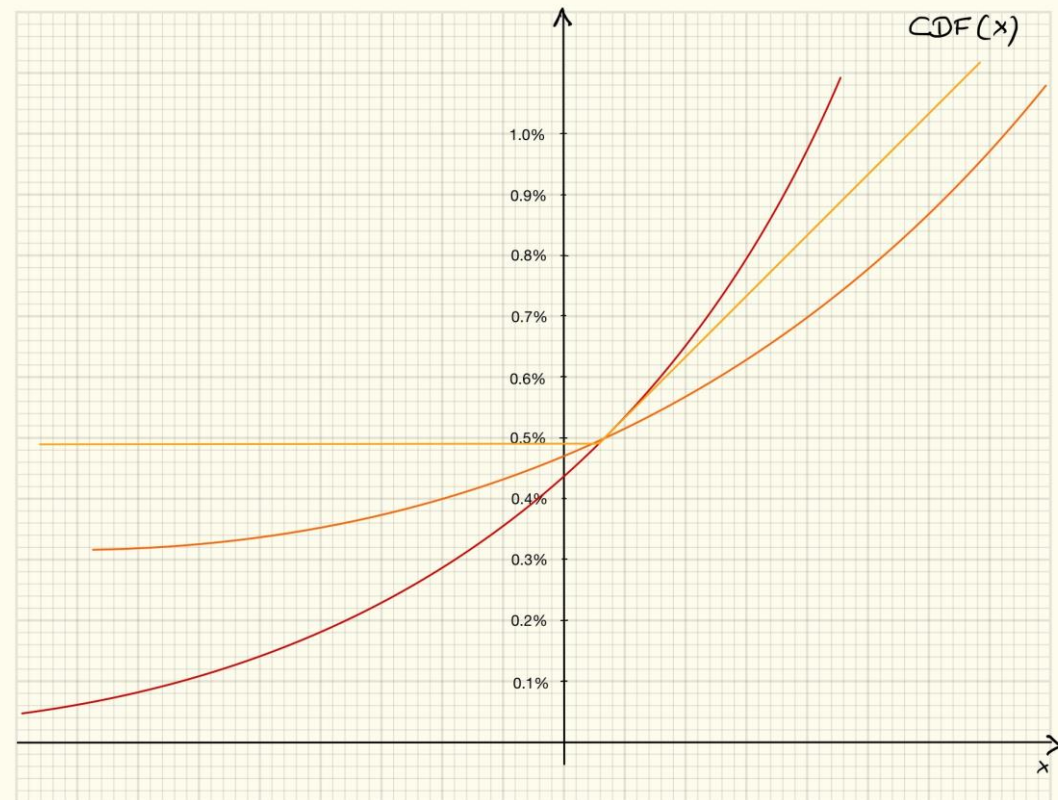
Shortfall

- Define
$$AVaR_\alpha\,(X) = \frac{1}{\alpha}\int_0^\alpha VaR_\beta(X)\,d\beta;$$

- If AVaR is negative, the insured is OK; if it's positive, it needs AVaR(E) additional money to get OK.

TVaR is the red area minus the green area.

If it's negative, i.e., the green area is larger, the random variable is OK.

# Issues with Shortfall

- With AVaR, it is a bit harder …

The issue with RBC

- Note that E= A-L is not the right quantity to control the consequences for the insured, because losing an amount c of assets has a different impact then adding c of liabilities.

- This is because we must consider A/L, as this is the recovery rate for the insured, and
$(A-c)/L < A/(L+c)$,
if $c>0$ and $L>A$

Same TVaR - different risk
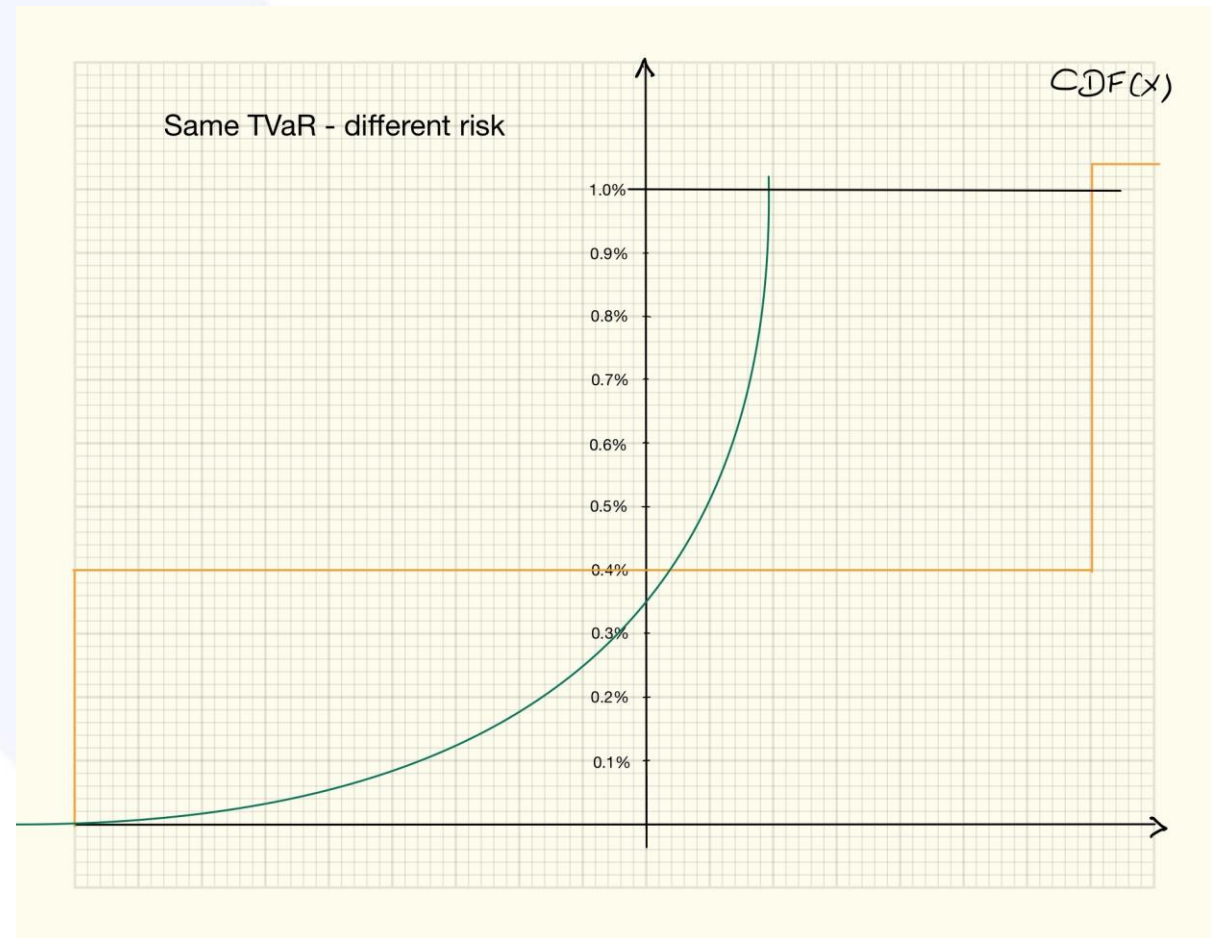
Erring (and learning) on the direct path

- For years I have tried to consider CDF (A/L) instead of CDF (A-L)

- It seem so right to prescribe maximal probabilities $\gamma(\lambda)$ for ending up in situations where a specific recovery $\lambda,\ 0 \leq \lambda \leq 1$ is not met.   And it is …

Gamma is meant as an upper bound for the CDF(A/L) on [0,1]
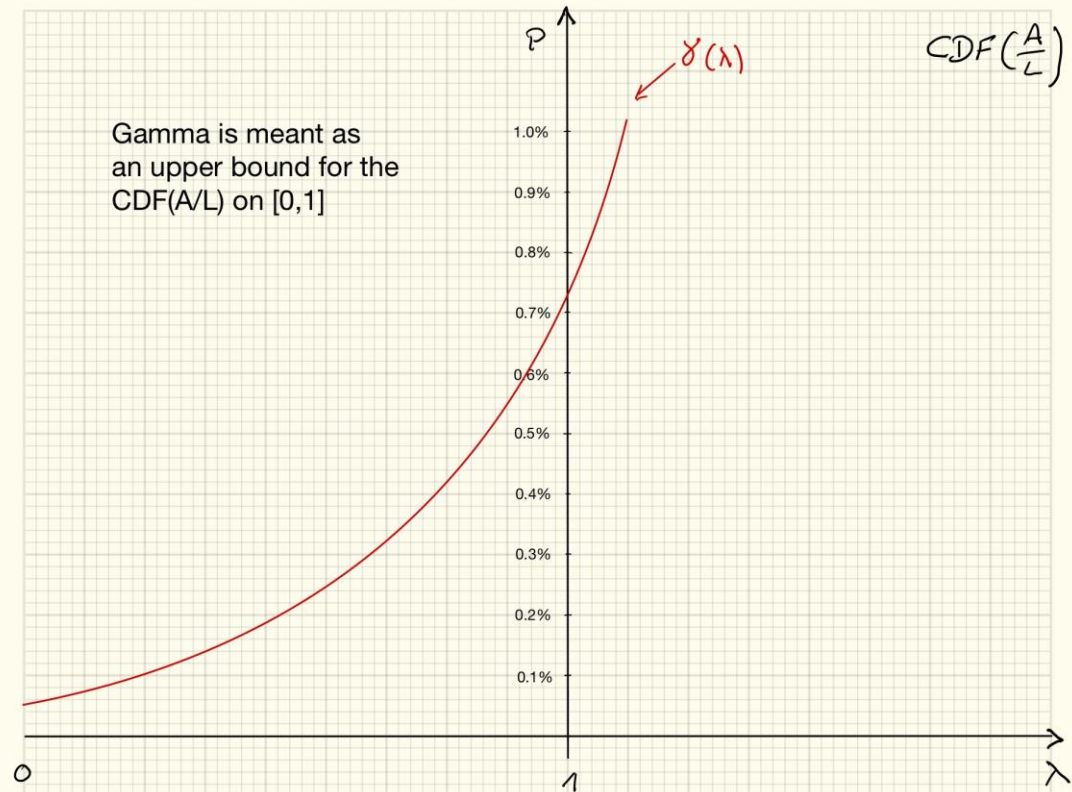
Solutions

- Let's prescribe a "tolerance curve" $\gamma: [0,1] \rightarrow (0,1)$, non-decreasing, in order to limit

$$P(A - \lambda L < 0) \leq \gamma(\lambda), \quad \forall \lambda \in [0,1]$$

- Motivated like this, define

$$RecVaR_\gamma(X, Y) = \sup_{\lambda \in [0,1]} VaR_{\gamma(\lambda)}(X + (1 - \lambda)Y).$$

- Think of X as E= A-L and Y as L. Then $E + (1 - \lambda)L = A - \lambda L$ is exactly what the insurer can cover if you only cover λL of the liabilities.

- And this can be generalised to any non-increasing family of risk measures

Definition 13. For every $\lambda \in [0, 1]$ consider a map $\rho_\lambda : \mathcal{X} \rightarrow \mathbb{R} \cup \{\infty\}$ and assume that $\rho_{\lambda_1} \geq \rho_{\lambda_2}$ whenever $\lambda_1 \leq \lambda_2$. The *recovery risk measure*

$$\mathrm{Rec}\rho : \mathcal{X} \times \mathcal{X} \rightarrow \mathbb{R} \cup \{\infty\}$$

is defined by

$$\mathrm{Rec}\rho(X, Y) := \sup_{\lambda \in [0,1]} \rho_\lambda(X + (1 - \lambda)Y). \tag{16}$$

Feature inheritance

Proposition 19. *A recovery risk measure* $\text{Rec}\rho : \mathcal{X} \times \mathcal{X} \to \mathbb{R} \cup \{\infty\}$ *has the following properties:*

(a) Cash invariance in the first component: *If ρ_λ is cash invariant for every $\lambda \in [0, 1]$, then for all $X, Y \in \mathcal{X}$ and $m \in \mathbb{R}$*

$$\text{Rec}\rho(X + m, Y) = \text{Rec}\rho(X, Y) - m.$$

(b) Monotonicity: *If ρ_λ is monotone for every $\lambda \in [0, 1]$, then for all $X_1, X_2, Y_1, Y_2 \in \mathcal{X}$ such that $X_1 \geq X_2$ and $Y_1 \geq Y_2$ $\mathbb{P}$-almost surely*

(c) Convexity: *If ρ_λ is convex for every $\lambda \in [0, 1]$, then for all $X_1, X_2, Y_1, Y_2 \in \mathcal{X}$ and $a \in [0, 1]$*

$$\text{Rec}\rho(aX_1 + (1 - a)X_2, aY_1 + (1 - a)Y_2) \leq a\,\text{Rec}\rho(X_1, Y_1) + (1 - a)\text{Rec}\rho(X_2, Y_2).$$

(d) Subadditivity: *If ρ_λ is subadditive for every $\lambda \in [0, 1]$, then for all $X_1, X_2, Y_1, Y_2 \in \mathcal{X}$*

$$\text{Rec}\rho(X_1 + X_2, Y_1 + Y_2) \leq \text{Rec}\rho(X_1, Y_1) + \text{Rec}\rho(X_2, Y_2).$$

(e) Positive homogeneity: *If ρ_λ is positively homogeneous for every $\lambda \in [0, 1]$, then for all $X, Y \in \mathcal{X}$ and $a \in [0, \infty)$*

$$\text{Rec}\rho(aX, aY) = a\,\text{Rec}\rho(X, Y).$$

(f) Star-shapedness in the first component: *If ρ_λ is monotone and positively homogeneous for every $\lambda \in [0, 1]$, then for all $X \in \mathcal{X}, Y \in \mathcal{X}_+$, and $a \in [1, \infty)$*

$$\text{Rec}\rho(aX, Y) \geq a\,\text{Rec}\rho(X, Y).$$

(g) Normalization: *If ρ_λ is monotone and $\rho_\lambda(0) = 0$ for every $\lambda \in [0, 1]$, then $\text{Rec}\rho(0, Y) = 0$ for every $Y \in \mathcal{X}_+$.*

(h) Finiteness: *If ρ_λ is monotone for every $\lambda \in [0, 1]$, then for every $X \in \mathcal{X}$ with $\rho_0(X) < \infty$ and for every $Y \in \mathcal{X}_+$ we have $\text{Rec}\rho(X, Y) < \infty$.*

Extensions

- It is possible to segregate the liabilities into classes according to their priority, i.e., $L = \sum L_n$, where liabilities L_n in class n is only (partially) paid, if all higher-ranking liabilities $L_j, j < n$ are fully met. Just consider

$$A - \sum_{j<n} L_j - \lambda_n L_n, \ n \leq N,$$

  with separate tolerance functions γ_n for each class n and a maximum over all classes.

- Moreover, it should be possible to account for tied assets, with more bookkeeping requirements.

Caveats

- It is necessary to model those event that we want to assess.

- We need the joint distribution of all random variables needed, i.e., (A,L) or (A, L1 … LN) or whatever.

- Recovery risk measures will in general NOT be continuously differentiable with regards to sub-portfolio sizes, i.e. the so called "Euler-Allocation" of required capital will jump around – even for RecTVaR. It is unclear if that can be "healed"

Résumé

- Current risk measures do not effectively control the insureds' risk of loss in insolvency of the insurer

- It is very well possible to effectively and efficiently control this risk – in the VaR world as well as in the Shortfall world

- All it needs, is an explicit decision on the probabilities with which specific recovery rates must be met

- Moreover, the insolvency rank / class of claims / liabilities can be efficiently handled

- Almost all the nice properties of the underlying risk measure are preserved

- However, not all nice allocation properties can be met. This may be an issue for a corresponding business steering framework. These challenges can be presumable be addressed pragmatically. The latter is OK – it concerns just steering.

- This shortcoming is not relevant for setting a regulatory requirement

ACTUARIAL ASSOCIATION OF EUROPE

Actuarial House

1 Place du Samedi

1000 Brussels

Belgium www.actuary.eu

Follow us on twitter: @InfoAAE