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How actuaries can help the world to better manage risks

Some examples from a global and a European experience

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Example 1 – French « ramo 26 » pension plans



Example 1 – French « ramo 26 » pension plans (1/5)

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- Supplementary pension plans progressively developed after 1945 in France
 - ✓ Insurers were excluded from new compulsory pension plans
 - ✓ So called « ramo 26 » regimes are point-based pension plans
- regulatory framework
 - ✓ Lately set up (1964)
 - ✓ Far from usual standards : e.g. minimum coverage of liabilities = 10 % (vs 100 % for other insurance activities)
 - ✓ Possible decrease of point value
- Reserving on a cash accounting basis
 - ✓ So called « special technical provision » : variation = premiums – annuities – expenses + financial production



Example 1 – French « ramo 26 » pension plans (2/5)



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- Progressive strengthening of regulatory framework
 - ✓ Minimum liabilities coverage ratio up to 50 % in 1968
 - ✓ Full capitalization from 1994
 - ✓ Point value decrease forbidden for regimes held by insurance companies from 2004
- Reserving still based on a « special technical provision » but supplemented by a « additional special technical provision » to reach the theoretical technical provision
- Still a Solvency 1 non economical approach, not protecting policyholders rights
 - ✓ Forced conversions into usual insurance products in case of long term coverage breach
 - ✓ Significant point value decreases for some regimes insured by mutual insurances



Example 1 – French « ramo 26 » pension plans (3/5)

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- New regulatory framework from 2017
 - ✓ In line with the long-term low interest rates situation
 - ✓ Pushed by Institut des Actuares
 - ✓ Defined after extensive exchanges between French Treasury, ACPR, Institut des Actuares, major market players and all other stakeholders
- **Actuarial perspective (prospective vision, alignment with economic conditions, effective steering based on economic coverage ratio...)**
- New reserving rules
 - ✓ EIOPA interest rate curves
 - ✓ Best estimate mortality tables
- Re-opening of the possibility of a point-value decrease
- With a kind of better fortunes clause through a new technical provision :
 - ✓ reversal special technical provision (PTSR)
 - ✓ Following a point value decrease
 - ✓ To be withdrawn when a point value increase occurs
- Introduction of two economic coverage ratio
 - ✓ Including unrealized capital gains
 - ✓ « R » without PTSR, « R' » with PTSR
 - ✓ Providing a steering framework (see next slide)



Example 1 – French « ramo 26 » pension plans (4/5)

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Measure	Coverage ratio
Revalorisation cap	$R' \leq 130\%$ (if point value decrease possible)
Revalorisation ban	$R' \leq 140\%$ (if point value decrease not possible) $R' \leq 105\%$ (if point value decrease possible)
Tariff control system	$R' \leq 110\%$ (if point value decrease not possible)
additional special technical provision	$R \leq 110\%$
Possibility of a point value decrease	$R' \leq 100\%$
Convergence plan	$R \leq 95\%$ or $R \leq 100\%$ for 3 years
Conversion	$R \leq 90\%$ for 3 years
	$R \leq 90\%$ for 10 years



Example 1 – French « ramo 26 » pension plans (5/5)

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- **What are the key lessons for our profession?**

- 1. When regulations give a bad signal about the reality, actuaries have the duty to propose a better risk management adapted regulation.**
- 2. Players (regulators, supervisors, industry) welcome these proposals but have to be convinced all together to have a chance to be followed.**
- 3. Solvency 2 is not the end of the road. The 1 year tisk is not always adapted to the main risk.**



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Example 2 – Use of data, big data and IA



Example 2 – Use of data, big data and IA (1/4)

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- **Actuaries have a key role in the assessment, monitoring and management of risk in organisations.**
 - ✓ The history of actuarial science is closely linked to data collection and data mining methods from its origins.
 - ✓ As an actuary, I have held various technical positions and responsibilities in the insurance industry
 - ✓ My professional experiences have allowed me to empirically validate **3 key principles** and draw **4 key lessons**.



Example 2 – Use of data, big data and IA (2/4)

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- **What are the 3 key principles to remember about the use of data for better risk management?**

- 1. 80/20 principle:**
When dealing with data, Pareto's law often holds true.
- 2. Principle of contextualization:**
Take account of the global environment.
- 3. Principle of humility:**
In the face of uncertainties, there is no absolute truth.



Example 2 – Use of data, big data and IA (3/4)

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- **What are the 4 key lessons for our profession?**
 - 1. Data are important resources in risk management.**
 - 2. Data reveals its secrets when tested by data science.**
 - 3. The data allow us to understand the historical facts.**
 - 4. Data are often insufficient for prospective analyses.**



Example 2 – Use of data, big data and IA (4/4)

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- **What are the scenarios between now and 2030 for the use of data and AI in risk management?**

- ✓ **Scenario facing the technological challenge**

Towards a personalization of risks.

- ✓ **Scenario facing the challenge of the competitive environment**

Towards an optimized user experience.

- ✓ **Scenario facing the regulatory challenge**

At the crossroads.

"In science and especially in politics, ideas, often more stubborn than facts, resist the flood of data and evidence." Edgar Morin, French philosophy, scientist and sociologist born in 1921



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Example 3 – Which role for the profession ?



Which role for the profession ?

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- **An actuarial profession has usually 4 kind of corporate functions for the well being of the population :**

- 1. Advising key stakeholders**
- 2. Structuring the profession**
- 3. Networking**
- 4. Exploring new dimensions**



Which role for the profession ?

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- **Each of the 4 functions play a role in the risk management contribution of the profession :**
 - 1. Advising key stakeholders : prudential regulations, AAE key points**
 - 2. Structuring the profession : new core syllabus, CERA, actuvview, notes**
 - 3. Networking : learning from each other, actuarial congressi**
 - 4. Exploring new dimensions : pandemics, climate, cyber, data... IAA forums**



Which role for the profession ?

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- **What are the risk of execution for these 4 contributions ?**
 - 1. Advising key stakeholders : risk of relevance, risk of silence**
 - 2. Structuring the profession : risk of inadequacy in relation to the needs**
 - 3. Networking : risk of losing our specificity**
 - 4. Exploring new dimensions : risk of non adaptation**



Which role for the profession ?

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- **Be engaged in the work of your association !**
 - **At the Italian level**
 - **At the European AAE level**
 - **At the Global IAA level**

Everything depends on you !