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CLIMATE

AAE ACTUARIAL ASSOCIATION OF EUROPE

BY **JENNIFER BAKER**

GROWING IMPACT OF NATURAL CATASTROPHES

How do you see the trend with natural catastrophes in the world? Is global warming impacting this trend strongly?

'Yes, climate change is of course a major topic for all insurers and reinsurers, and for society as a whole. We have seen a clear overall increase in frequency and severity. That's to be expected, because a temperature increase of just 1°C causes a 7 percent increase in water vapor. But climate change doesn't just impact one peril; it has effects through a combination of several perils. Atmospheric changes are closely correlated with changes in sea temperature and sea composition in different regions. There is an impact on the probability of occurrence of hurricanes, extratropical cyclones and typhoons, as well as the trends and trajectories of hurricanes. The same goes for many other perils, incorrectly called 'secondary' perils, such as severe convective storms, drought and wildfires. And this is all evolving very fast, so past statistics alone cannot replicate what is already happening or what is going to happen in the future.'

What are the challenges for modelling? E.g. for floods in France vs Germany? What is the role of actuaries in these models?

'Well, climate change is increasingly taken into consideration by Nat Cat model vendors. Global warming of approximately 1.1°C since the pre-industrial era has already triggered radical changes in the behaviour of climate hazards. To anticipate other future changes, we draw on scientific research and various models from all over the world, including the main vendor models that can help us adapt the probability of occurrence in the events catalogue. That first step is now a must, with pressure also coming from regulators and rating agencies.

Modelling natural catastrophes is challenging due to several key factors. Firstly, we are faced with limited data, especially in France and Germany. For example, flood data may be inconsistent if it is not sufficiently granular at the address level. In addition, historical records often lack precision in terms of location, intensity, or loss quantification. >

> ***We are faced with limited data, especially in France and Germany***

Second, there are physical differences in complexities: France frequently experiences flash floods due to steep topography and Mediterranean storms, while Germany's 2021 Ahr Valley floods (Bernd) illustrated how riverine flood systems can overwhelm large basins over prolonged periods.

We have observed that it is very important to have several models rather than relying on just one. So at Arundo Re, we take a multi-model approach and leverage an open model platform. We recently signed up to Oasis, for example, and also use larger vendor models such as those from Moody's and Verisk. But it's very important for us to have our own internal knowledge rather than relying on only two vendor models with no capability or expertise in-house. So we have also hired people with PhDs in different types of risk, including meteorology and climatology, and that's very important.

The way I see the future of modelling is probably that, instead of having one region with one peril-modelled approach, we'll have a more comprehensive atmospheric model impacting several correlated perils in different large regions.'

I believe you also have a presence in Asia: what are the challenges there and how does it differ from Europe?

'Yes, Asia accounts for more than 60 percent of disaster-related fatalities worldwide. A key challenge in Asia, compared to Europe, is the widespread under-insurance of exposures including Nat Cat, and we still have work to do to limit this insurance gap. There are also vulnerabilities in infrastructure with a lack of adequate resilience measures to withstand natural hazards, particularly in urban and industrial centers.

In terms of weather, there are differences with Europe of course – typhoons, for example. And here again, we are observing changes in patterns as well as increased severity and frequency, with new paths. In Asia, there is a large number of earthquakes, which is a different peril, but it's important to mention because it is a reality.

In Asia we are also seeing potentially very rapid changes in insured values from one year to the next. Some markets have experienced an economic boom, which puts much more insured value into the portfolio than is reported. And so that's a very important risk component when it comes to Nat Cat modelling in Asia.'

Do you act in the domain of risk prevention? And if yes, how do you incentivise insurance companies?

'That's a tricky question. Incentivising risk prevention in global reinsurance markets is very difficult. This is something that tends to be done through public/private partnerships, because you have to measure and take into account how the State is organised in the event of a catastrophe. So reinsurers can consider what prevention measures can be taken at State-level in order to get an overall framework of how prevention is handled within a country, and how the country is organised if a crisis occurs. And so we leverage these factors, and we allocate pluses and minuses according to how well countries are organised, relatively speaking. The 2011 floods in Thailand, for example, showed how situations can be made worse by poor coordination.' >

> ***In Asia we are also seeing potentially very rapid changes in insured values from one year to the next***

Do you believe Solvency II is adapted to reinsurance, and more precisely to Nat Cat coverages? How do you see the future and trends of the global reinsurance market?

'Solvency II is now well understood. Insurance companies have been provided with very clear standard scenarios to help them cope with Solvency II, with an impact on the type of reinsurance and insurance that they buy. We believe in taking a realistic disaster scenario approach.

At Arundo Re, we currently use a standard formula for reinsurance, but we may implement an internal model in the future to take a number of different factors into account, including Nat Cat exposure, which should deliver a more appropriate capital requirement.

In terms of future trends in the global reinsurance market, we are seeing more and more countries adopt local regulations similar to Solvency II. So it is having an effect globally. It has an impact on the way these countries buy our insurance. And it often creates demand for additional layers. This risk approach regulated framework is appropriate. There is also the additional impact of IFRS 17, and at the moment we do not fully recognise how this may impact the markets or indeed the insurance market in terms of the buying process. There will probably be a further need to buy more reinsurance to decrease results volatility.

After more than a decade of losses for reinsurers, in 2023 the reinsurance market saw a reset with regard to pricing and terms. Market dynamics are currently softening. The risk universe is expanding, with needs in cyber or political risks, such as SRCC. However, it is currently very difficult to make projections, given the ongoing trade wars, conflict and geopolitical uncertainty.'

What are your recommendations for actuaries?

'I think actuaries will play a key role and enjoy a great deal of new opportunities in the future. AI is already having a significant impact. In essence, machine learning is gaining traction, along with programs that use large volumes of data, new data from social media and IoT, and highly complex studies modelled in a very simple way. I think AI is a must for actuaries now – actuaries of all generations. I, myself, have been studying Python lessons for one year in order to have a better understanding of the possibilities of such technology, and I'm really impressed.

At Arundo Re, we also use large language models (LLM) to speed up our operations and improve our use of knowledge management. When you ask simple questions with LLM you're also leveraging retrieval-augmented generation (RAG) and fine tuning information with your own data internally. So it's very useful, and I think it's really important for actuaries to have that perspective.

In terms of climate change, actuaries have a role to play, especially when they add in their abilities, the physical part of knowledge that is necessary to understand climate change. They must not only act as statistical and financial experts, but also as physical experts. And I think it's worth encouraging teams to work together, without set boundaries between risk modelers and actuaries.' >

> ***The risk universe is expanding, with needs in cyber or political risks, such as SRCC***

A last question: could you tell us more about Arundo Re? Why the change of name, what are the lines of business you cover?

'Arundo Re is the name of our new brand. Our previous name was CCR Re. CCR Re was created in 2016 as a spin-off of the international open-market reinsurance business at CCR, the French state-owned reinsurance company. CCR mainly dealt with natural catastrophes and terrorism in France, both with the State guarantee. The rebranding to Arundo Re was a natural next step after we were privatised in 2023.

The name Arundo means reed in Latin. In French culture, the reed symbolises resilience, humility and agility. In short, when faced with heavy storms and winds, the reed is flexible and bends with the wind without breaking, demonstrating its solidity and resilience. This felt like the perfect image to represent our brand and our values: humanity, solidity, clarity and vitality.

In order to remain a key player, we need to be agile, open to innovation and drivers of change. We are a tier 2 reinsurer and underwrite policies in life, P&C and specialty lines in more than 100 countries.' <

LAURENT MONTADOR, Deputy CEO of Arundo Re, spoke to The European Actuary about the growing impact of natural catastrophes (Nat Cat).

NAVIGATING EUROPE'S AI ACT

BY **BOGDAN TAUTAN**

INTRODUCTION AND SCOPE

Europe's regulatory landscape is evolving rapidly, particularly regarding the implementation of AI systems. Actuarial professionals continuously balance and promote best practices in complex risk assessments, data collection and usage, and disclosure. The European Union's AI Act, formally Regulation (EU) 2024/1689, is the world's first comprehensive regulatory framework for artificial intelligence. As a pioneering effort, its primary goal is to ensure the responsible use of AI, applying directly and uniformly across all industries and EU member states. The Act supports innovation and promotes the adoption of human-centric, trustworthy AI while safeguarding health, safety, fundamental rights, the rule of law, and environmental sustainability. >

> *The Act presents opportunities for actuaries to expand their role as trusted advisors in AI governance*

As global regulatory frameworks for artificial intelligence remain fragmented and inconsistent, organisations operating across multiple jurisdictions face significant challenges. In the United States, regulation follows a decentralised, innovation-oriented model, largely based on voluntary, sector-specific guidelines. China, by contrast, emphasises a state-driven approach, prioritising national security and centralized control over AI technologies. The European Union, meanwhile, has adopted one of the most comprehensive regulatory stances to date, focusing on consumer protection, human oversight, and accountability as the pillars of its AI strategy. This article provides a brief overview of the recently published AAE Discussion Paper - Navigating Europe's AI Act: Insights for Actuaries and the Insurance Sector.

RELEVANCE TO ACTUARIES

The AI Act holds significant relevance for actuaries, leveraging their core expertise in risk management and data analysis. A direct impact is already evident with the inclusion of life and health insurance models under the high-risk classification. The Act could also expand this classification to other areas, such as general insurance pricing, fraud detection, underwriting, claims management, and predictive analytics.

Undoubtedly, many requirements for high-risk AI systems under the Act—such as those related to data governance, quality management, risk assessment, technical documentation, and transparency in decision-making—will significantly overlap with principles and processes already familiar to actuaries. Actuaries are uniquely positioned to evaluate and manage such systems due to their expertise in probabilistic modelling and risk analysis.

In addition, actuaries can contribute meaningfully to AI governance by prioritising long-term risk assessment, ethical considerations and applying their strong code of professional conduct and actuarial standards of practice.

Finally, the Act presents opportunities for actuaries to **expand their role as trusted advisors in AI** governance. They can support the implementation of explainable AI (XAI) to make AI decisions more understandable. Their expertise can help design frameworks for monitoring AI performance and identifying biases—particularly where fairness and accountability are critical. This enables actuaries to contribute to organisational strategy, bridge technical requirements with ethical considerations, and take a leading role in AI governance.

KEY ASPECTS OF THE ACT

An AI system is described as a machine-based system designed to operate with varying levels of autonomy and potentially exhibit adaptiveness after deployment. In an actuarial context, guidance from the European Commission aims to clarify which models fall within the Act's definition. Traditional statistical models, such as linear and logistic regression, may not meet this definition, particularly due to their lack of autonomy, adaptiveness, and self-learning capabilities. As a result, many actuarial models may fall outside the Act's scope. However, actuaries should assess whether their models incorporate adaptive algorithms or automated learning processes, as these features could bring >

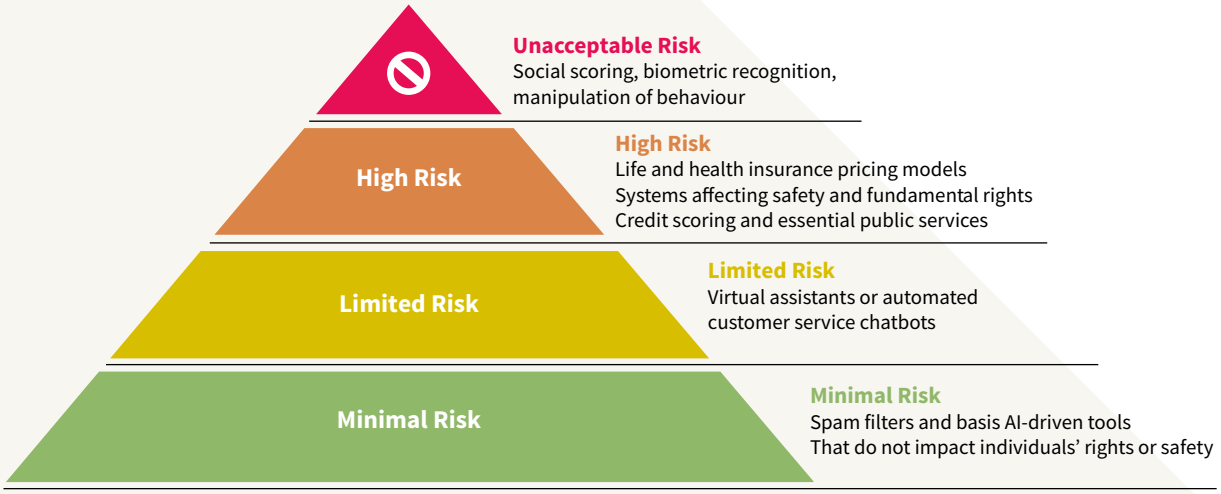

FIGURE 1: RISK-BASED CATEGORISATION OF AI SYSTEMS UNDER THE AI ACT

them within the scope of AI regulation. Regardless of regulatory classification, actuaries can adopt a prudent, forward-thinking risk management approach, aligning practices and disclosure with the Act's newly defined risk-based categories. In particular, systems are classified into four risk categories:

Unacceptable Risk – systems that are harmful and prohibited under the AI Act, such as social scoring, biometric recognition, exploiting psychological vulnerabilities and manipulating human behaviour.

High-risk: critical to health and fundamental rights. Examples include applications in life and health insurance pricing and credit scoring.

Limited-risk: systems subject to specific transparency obligations, such as virtual assistants and automated customer chatbots.

Minimal-risk: systems presenting negligible to no risk, such as spam filters or systems that do not affect individual rights.

General-purpose AI systems are treated separately and monitored based on their applications, potentially falling into one of the four risk categories upon careful assessment.

In addition to the risk categories, the Act assigns corresponding obligations to various AI operators—such as **providers, distributors, importers**, and **deployers**. As a directly applicable regulation, its EU-wide framework is supported by the establishment of the **AI Office** within the European Commission's DG Connect. Working alongside the AI Board (comprising member states), the AI Office will also include an Advisory Forum and a Scientific Panel. The Act also aims to align with existing regulations, including those areas where actuarial work has long been active.

INTERCONNECTING REGULATIONS

Areas of concern here include data protection—particularly under the General Data Protection Regulation (**GDPR**)—risk management under **Solvency II**, and the Digital Operational Resilience Act (**DORA**). Specifically, in relation to GDPR, there are shared principles aimed at safeguarding personal data. Any AI system that falls under the Act and uses personal data must adhere to the data protection principles outlined by GDPR.

In the case of high-risk classified models, stricter rules apply in addition to those defined by GDPR. Providers of high-risk models are also required to establish an accountability framework. It is important to note that some of these requirements >

> ***Providers of high-risk models are also required to establish an accountability framework***

are partially addressed under Solvency II. Alignment with Solvency II is particularly evident in areas related to **identifying**, **mitigating**, and **monitoring** risks.

Actuaries can manage AI-related risks by integrating Solvency II practices into the lifecycle of AI systems, thereby facilitating compliance with both frameworks. This approach ultimately ensures greater robustness, transparency, and ethical integrity.

Although there is significant overlap among regulations, their starting points and objectives differ. Supervisory institutions within the insurance sector, such as EIOPA, are expected to provide further guidance to harmonise the AI Act and resolve any overlaps with existing sector-specific regulations. In the broader context of the Act, understanding these interconnections is crucial. For high-risk systems in sectors such as insurance, compliance involves not only adhering to new AI rules but also integrating them into existing frameworks. This requires a cohesive governance strategy and cross-disciplinary collaboration.

CONCLUSION

As the AI Act begins to reshape the regulatory landscape, actuaries have a clear opportunity to strengthen their role in supporting ethical, risk-aware AI deployment. Their skillset aligns naturally with the governance needs and strong standards of practice that would benefit the field of AI. Engaging early with this evolving framework will ensure actuaries remain central to trustworthy innovation in the insurance and financial sectors. <

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IS YOUR FIRM'S APPROACH TO CLIMATE SCENARIO ANALYSIS IN LINE WITH THE PROPOSED UK REGULATIONS?

An overview to the new 'CP10/25 – Enhancing banks' and insurers' approaches to managing climate-related risks'

BY **NICK SPENCER**

On the 30th April, the UK's Prudential Regulation Authority (PRA) launched 'CP10/25'[1], its consultation paper on managing climate-related risks which will update the supervisory statement (SS3/19). The new draft supervisory statement (SS) now runs to 40 pages, replacing a far more modest eleven pages in SS3/19 reflecting the evolving landscape since 2019. As an extensive consolidation of supervisory thinking, it provides everyone with a potential climate risk management benchmark for their current practices and efforts. Actuaries will be particularly interested in the expectations it sets for climate scenario analysis.

CP10/25 is a consultation paper which the PRA issues to gather industry feedback before finalising rules or guidance. For the UK regime, rules are mandatory setting out the requirements. Supervisory statements (eg SS3/19) are not mandatory but set out the regulatory expectations of firms and frameworks to help judge if those expectations have been met. (see prarulebook)

Accordingly, the consultation paper's stated aim is to 'set out clear, straightforward and concise expectations about climate-related risk identification, management and governance outcomes that the PRA would like to see from firms'. It also wants to 'provide space for firms to take action and develop innovative solutions that are most suited to their business'. The paper comments that the proposals are often 'simply applying existing regulatory approaches to managing risks (for example, in relation to effective governance), but with greater clarity on how they apply to climate-related risks specifically' (see CP10/25) and it also make several references to proportionality. In his launch speech, David Bailey stated *'the proposed expectations consolidate and clarify the feedback that the PRA has provided publicly on climate risk since SS3/19 was published. They will align our approach with the relevant international standards for insurers and banks in a way which is consistent with the PRA's objectives.'* >

The draft statement contains seven chapters covering governance, risk management, climate scenario analysis (CSA), data, disclosures, banking-specific issues and insurance-specific issues.

DIVING INTO CLIMATE SCENARIO ANALYSIS

Each chapter has interesting elements, but of particular interest to UK and European (all!) actuaries will be the selection, application and communications of climate scenario analysis.

David Bailey stated 'climate related risk management practices cannot rely on historic data in the same way as for traditional risks… This reinforces the importance of scenario analysis as a key tool for all firms, and… we therefore place greater emphasis on the rigorous use of scenario analysis.'

There are some notable parallels between the expectations outlined in the paper and the 2024 Institute and Faculty of Actuaries (IFoA) **Climate Scenarios risk alert** especially on understanding and communicating the limitations of climate scenario analysis. The paper also seems to take on the findings of the IFoA's Climate and Sustainability Scenarios Committee, which expressed concern that organisations and their executive boards might fall short of the understanding and competencies required for good climate risk governance.(**see blog**)

The chapter on climate scenario analysis (CSA) divides into four sub-headings:

- **The role of CSA:** the PRA observes 'many firms lack adequate understanding of the climate-related risks they face, with little evidence that they appropriately account for those risks in their decision-making and risk management.' In response, it proposes firms 'appropriately document how their CSA fulfils their objectives and informs their decision-making'. Firms 'should be aware of the limitations and uncertainties associated with the CSA models… and account for those when using the results'. Echoing the IFoA risk alert, the PRA comments 'current CSA models… do not capture the full range and scale of climate-related risks' thus their proposals seek 'to ensure firms interpret and use the results in full knowledge that they may be exposed to greater risks' than these models quantify.

- **Selecting scenarios and use cases:** this states that firms should 'select, match and tailor scenarios as relevant for their objectives and specific use cases' including 'relevant jurisdictional climate targets'. The paper highlights a wide range of use cases from business strategy and risk appetites to valuations, liquidity and solvency. It explicitly mentions own risk and solvency assessment (ORSA) with an expectation to document and demonstrate how CSA informs decision-making and 'support embedding… [the output into] firms' approaches to internal capital adequacy, own resources and solvency'.

- **Scenario analysis and calibration:** 'The PRA has observed that some firms lack adequate understanding of the scenarios they use'. It notes 'inadequate application of CSA results leads in some cases to poorly supported conclusions that climate-related risks are immaterial for the firm'.

- **Scenario governance, controls and review:** Based on their engagements, the PRA states 'some [firms] continue to rely on scenarios provided by external suppliers without appropriate adaptations and updates'. It proposes firms 'regularly review and update their scenarios in line with modelling and scientific advancements and the changing nature of risks to the firm'. Further, 'the board and management body would be expected to have an adequate understanding of the CSA, including of the limitations of the models >

and toolkits used and the main sources of uncertainty, to inform their interpretation and use of the results. Where appropriate, firms would be expected to conduct sensitivity analysis of their model choice and calibration.' There is also an explicit proposal for reverse stress testing 'to consider what type of climate scenario would result in the firm no longer being able to carry out its business activities'.

Within the CSA section of the drafted supervisory statement (see CP10/25's appendix) there are some more explicit details of these expectations:

- It explicitly references 'non-linearities and potential tipping points' as part of CSA limitations to be accounted for in the use of the results.

- It highlights the distinction in scenario use-cases between plausible 'central case' calibrations and 'severe but plausible tail risks' providing the table of examples below: (see also appendix)

The central role of scenarios is reflected by their 75 mentions in the consultation paper and 90 times in the statement. There are cross-references in almost all the other chapters:

- **Governance:** the 'PRA has observed that climate-related risk analysis provided to boards is often unclear and is generally insufficiently specific or targeted'. The paper proposes explicit expectations of Boards including reviewing the strategy impact from a range of climate scenarios and agreeing climate-specific risk appetite. Firms should also be able to demonstrate how 'any climate goals that it has either adopted itself or is required to meet in the jurisdictions (including the UK) [are integrated] within the firm's overall business strategy'. Suitable Board training should also be provided.

- **Risk identification and assessment:** scenarios aren't explicitly mentioned in this section, but risk identification goes to the heart of risk management with the PRA noting 'variance in the quality and depth' of climate risk identification with 'further work required by all firms.' The statement has extensive guidance on client, counterparty, investee, policyholder and operational risks with further comments on measurement, monitoring and reporting.

- **Data:** highlights reliance on externally supplied data and sets out expectations on oversight and governance. >

CSA USE CASE	SCENARIO TIME HORIZON	FREQUENCY	CALIBRATION
Business strategy	Medium to long-term, to capture impacts on the firm's business from longer term developments that may require action now	At least annually review whether the most recent long-term CSA still meets its objective, and consider updating in the case of a sudden change in external circumstances	Plausible 'central case' while recognising some climate-related impacts will materialise in all scenarios
Risk management	Typically short-term, but longer-term if relevant for firm's exposures	In line with the firm's risk management strategy	Should capture severe but plausible tail risks
Capital setting	In line with the firm's ICAAP* /ORSA		Should capture severe but plausible tail risks
Valuation	In line with relevant accounting standards		Reflecting a range of selected scenarios and in line with relevant accounting standards

* *The Internal Capital Adequacy Assessment Process*

- **Disclosures:** highlights the expectation of moving to International Sustainability Standards Board (ISSB) and the alignment of scenario analysis with 'the ISSB principle of disclosing information that enables users to understand the resilience of a firm's strategy and business model'

- **Insurance-specific issues:** 'the PRA has observed that insurers' ORSAs do not always assess the potential impact of climate change with sufficient depth or granularity'. In response, it proposes 'ORSAs should include climate scenarios when climate-related risks are material…[and] detail the investment and underwriting changes they would make in response to climate-related risks and what metrics and indicators they would monitor to inform those decisions and their timing'. Similarly, the PRA note that insurers' SCRs and regulatory balance sheet do not consistently reflect the impact of all climate-related risks.

CONCLUSION

Whilst the climate scenario analysis is a substantive element of the draft statement, there are other extensions to the original SS3/19 throughout the statement, particularly on governance and risk management. What is more, this is currently a consultation, and therefore we may also see further explanation and clarification ahead of formal adoption. For example, the statement is currently silent on biodiversity and nature-related risks. Nature-related risks have strong inter-connections and similar quantum of impact to climate risk and are currently being reviewed by the UK's Climate Financial Risk Forum. So we may see more guidance on those in due course.

Notwithstanding these potential future updates, for actuaries and climate risk professionals everywhere, this already provides an interesting consolidation of supervisory expectations on managing climate risk and thus a potential benchmark for current practices and efforts for everyone. <

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NATURAL CATASTROPHE INSURANCE DECREE AND CLOSING THE INSURANCE GAP

BY **ALDO BALESTRERI** AND **NICOLA BISCAGLIA**

In response to the increase in extreme climatic events such as convective storms, floods, and wildfires, the Italian Ministry of Economy and Finance issued a Natural Catastrophes Decree in 2025 to force enterprises to subscribe insurance coverages against these events, with implementation timelines based on their size:

- Large Enterprises: with 97% already insured against natural catastrophes, mandatory insurance commenced on April 1, 2025.
- Medium Enterprises: currently, 72% are insured, with mandatory coverage starting in October 2025.
- Small and Micro Enterprises: only 19% and 4% are insured, respectively. Mandatory insurance will begin in January 2026.

Only 5% of enterprises are currently insured against these risks, the economic quantification of the new insurance obligation for Nat Cat risks, is estimated at approximately 4 trillion: of these, 2.5 trillion are already present in the insurance companies' portfolios, while 1.5 trillion will come from new risks (source: ANIA).

CORRELATION BETWEEN EXTREME EVENTS, CLIMATE, AND HEALTH

In the last few years, extreme events have multifaceted impacts on both territories and populations, ranging from property destruction to evacuations and fatalities. The interplay between climate variability and extreme events exacerbates these effects. Rising temperatures and wind speeds increase wildfire and heat-related risks, while temperature shifts affect precipitation patterns, intensifying flood risks (including flash, riverine, and coastal floods). The IPCC (The Intergovernmental Panel on Climate Change, that is the United Nations body for assessing the science related to climate change) estimates that 90% of total catastrophes are climate-related, with future extreme event frequencies possibly increasing by up to 30% for certain risks, such as wildfires. Human activities further amplify the likelihood of these occurrences.

INSURANCE IMPACTS

Climate change significantly alters the frequency and severity of insurance claims. Increased extreme weather events lead to greater property >

damage and higher claim frequencies. Shifts in precipitation patterns can cause droughts or intense rains, damaging crops, infrastructure, and homes, thus increasing compensation demands. Rising sea levels threaten coastal areas, increasing claims related to property and infrastructure. Additionally, climate change affects public health, with heat-related illnesses and vector-borne diseases leading to more health insurance claims. Agricultural risks rise as climate change impacts crop yields, increasing claims for agricultural losses. Economic instability due to climate change can affect business financial stability, raising insolvency risks and boosting commercial insurance claims.

NAT CAT DECREE

According with the Decree, the Italian insure-financial group SACE will support insurers by covering 50% of damages up to 5 billion euros, with a 15% deductible borne by the insured. All business-related buildings must be insured. Insurers are required to update their Risk Appetite Framework (RAF) to establish new tolerance limits for catastrophic risks in line with solvency requirements. These limits should reflect the company's risk-taking capacity and consider SACE's coverage. Companies must integrate natural disaster risks into their Own Risk and Solvency Assessment (ORSA) process, evaluating the impact of new regulations on their risk profile and capital needs. Developing and integrating NAT-CAT risk models is essential, requiring ongoing monitoring and updates based on data collection. Exceeding RAF limits necessitates ceasing new risk-taking and notifying IVASS and the public. Internal policies must be revised: the Underwriting Policy should incorporate new CAT-NAT risk criteria and risk transfer methods to SACE, while the Reinsurance Policy should align with new regulations, including risk transfer agreements to SACE. Companies must ensure compliance and transparency, publishing insurance offering details online and at physical sales points. >

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PRICING APPROACH

For actuaries this is an interesting area of development. One of the key challenges is related to the pricing of this covers. Catastrophic claims often follow a Polya distribution, characterized by the assumption that event occurrence increases future replication likelihood. Observing a flood in a region raises future risk, with significant impacts on people and economies. The Polya distribution is akin to the well-known Poisson distribution, crucial in insurance for measuring claim probabilities, such as motor claim frequency. However, while the Poisson distribution assumes claim frequency depends solely on interval width, the Polya distribution considers both interval width and past event occurrences. Thus, while the Poisson distribution exhibits memory lessness, the Polya distribution does not.

RISK MITIGATION

The growing probability of adverse events necessitates timely insurance coverage to mitigate risks effectively. Leveraging the increasing availability of climate and geolocated data—such as building locations, heights, number of floors, zones, and proximity to rivers—enhances risk assessment. The advancement of sophisticated statistical models aids the development of internal models for optimal risk evaluation. An important key factor is also the inclusion of climate change models to encompass the evolution of climate factors into these evaluations. Developing internal models for flood, fire, landslide, earthquake, and hail event risks is vital for comprehensive risk management strategies. This is an interesting opportunity for actuaries in the short and medium term and the research and experiences in this area are increasing rapidly. <

POISSON DISTRIBUTION:

$$P(X = x) = \frac{e^{-\lambda}\lambda^{x}}{x!}$$

where:

- λ is the average number of events per unit of time or space
- x is the number of events (a non-negative integer)
- e is the base of the natural logarithm (approximately 2.718)

POLYA DISTRIBUTION (OR BINOMIAL NEGATIVE):

$$P\,(X = x) = \binom{x + r - 1}{x} p^{r}(1 - p)^{x}$$

where:

- r is the number of failures (or successes) desired
- p is the probability of success in a single trial
- x is the number of successes (or failures) occurring before achieving r failures (or successes)

MEMORY LESSNESS

The concept of memory lessness refers to a property of probability distributions where the probability of future events is independent of the past. The continuous exponential distribution and the discrete geometric distribution are examples of distributions with this property.

Formally, for an exponential random variable

X:$P(X > s + t \mid X > s) = P\,(X > t)$

YOUNG ACTUARIES WORLD CUP 2026: WHERE TOMORROW'S LEADERS TAKE THE STAGE

1st Young Actuaries World Cup

BY **HENNING WERGEN** AND **MARTIN OYMANNS**

The Young Actuaries World Cup (YAWC) has started and invites the brightest minds in the actuarial profession from around the globe to step forward and shape the future. Following the resounding success of its inaugural edition, this international competition opens its doors once more—not just as a stage for technical excellence, but as a platform for creativity, innovation, and vision.

While it carries the excitement of a global contest, the YAWC is more than a competition. It's a community experience that connects emerging actuarial professionals, offering them the chance to share their ideas with the world, reflect on the evolving role of actuaries, and explore how their skills can contribute to building a better tomorrow.

TRADITION, DIVERSITY AND INNOVATION

The YAWC again aligns with the International Congress of Actuaries (ICA) theme. Participants are called upon creating submissions around the overarching topic of *Tradition, Diversity and Innovation* — a theme that invites wide interpretation.

This theme sits at the heart of today's actuarial landscape. Actuaries are grounded in tradition, but they increasingly face complex global challenges that demand innovative thinking. At the same time, the profession is embracing diversity in its broadest sense—of background, of experience, of ideas—which fuels fresh approaches and collaborative problem-solving. >

Submissions may explore a wide range of topics, including:

- How actuaries can contribute to a better society
- New product: future specific usage, new features etc.
- Climate Change and Sustainability issues: how actuaries might contribute to knowledge in this area
- Innovative ways of tackling some big issues
- New product: future specific usage, new features etc.
- New areas in which actuarial skills are being used
- Application of data analytics, artificial intelligence, and machine learning
- An Employers Dilemma: Data Scientists or Actuaries
- The actuaries role in Cybersecurity
- Diversity enhances problem-solving and innovation
- Views on the ethical considerations related to data and technology

Whether your idea is presented through storytelling, graphics, humour, animation, or even music—creativity is encouraged. The YAWC values substance, but also the ability to communicate insights in engaging and memorable ways.

A GLOBAL STAGE FOR EMERGING TALENT

The inaugural YAWC culminated in 2023 at the International Congress of Actuaries in Sydney, Australia. The final event was a highlight of the congress. IAA President Micheline Dionne proudly presented the trophy to **Thomas Herbin**, representing the *Institut des Actuaires (France)*, who was selected as the first YAWC winner.

Thomas was joined on stage by the three other finalists—**Cissy Zhang, Penelope Drastik,** and **José Miguel Flores-Contró**—who were all invited to attend the ICA 2023 in person. Their collective contributions reflected the creativity and commitment that emerging actuaries are bringing to the profession.

Their ideas, framed around the 2023 theme '*Bridge to Tomorrow*', ranged from practical policy suggestions to thought-provoking insights about the changing world. The diversity of their approaches—both in substance and style—captured the spirit of the YAWC. Find more here: Young Actuaries World Cup 2023.

WHY PARTICIPATE?

Taking part in the Young Actuaries World Cup isn't just about winning. It's about joining a global dialogue, developing your voice, and connecting with others who are passionate about using actuarial skills for positive change.

This is your opportunity to:

- **Showcase your ideas** on an international platform
- **Gain exposure** to senior professionals and global networks
- **Travel and attend** the ICA 2026 (if selected as one of the four finalist)
- **Build your confidence,** presentation skills, and creativity
- **Contribute to shaping the future** of the actuarial profession >

Whether you're working full-time, studying, or just beginning your career, your unique perspective matters. If you've ever looked at the world and thought, 'Actuaries could make a difference here': this is your moment to speak up.

WHAT YOU NEED TO KNOW

The competition officially launched on 1 April 2025, and detailed submission requirements, deadlines, and judging criteria are listed on Young Actuaries World Cup – International Actuarial Association. **Deadline for submission is 31 July 2025**. Submissions typically involve a short video presentation, allowing participants to express their idea clearly and creatively.

Finalists will be selected by a panel of judges representing the International Actuarial Association (IAA) and its partners. The four finalists will then be invited to present their ideas on stage at the **ICA 2026**, which will be hosted in Tokyo, Japan, from 8 – 13 November 2026.

BE MORE THAN THE ODDS

In the actuarial world, we often calculate the odds. The Young Actuaries World Cup invites you to **become** the odds. Be the one who leads. Be the one who questions, imagines, builds, and redefines what it means to be an actuary.

If you're ready to think differently, act boldly, and contribute meaningfully to the future of your profession, then it's time to step forward.

The IAA Young Actuaries World Cup is supported by the Young Actuaries Initiative and actuview.

Are you ready to rise to the challenge? Submit your idea on Young Actuaries World Cup – International Actuarial Association. <

HENNING WERGEN is Managing Director DAV and European ambassador YAWC.

MARTIN OYMANNS is Managing Director actuview.

CONSUMER PROTECTION

BY **VALÉRY JOST**

For several years now, European authorities have been working hard to protect policyholders, particularly in the area of savings. This trend is growing stronger as it builds on previous achievements such as the Insurance Distribution Directive (IDD) and the PRIIPs regulation (Packaged Retail Investment and Insurance-based Products).

At the crossroads of information, advice and product, **the issue of consumer protection has more recently focused on the notion of value for money**, to ensure that the service rendered is consistent with the fees charged.

This question is most obvious in savings, when the fees of certain funds, combined with those of the insurance contract, can absorb a large part of the expected financial performance.

The AAE therefore fully supports this approach, which should rely on a benchmark of very simple indicators, limited to detecting outliers, leaving it to the competent national authority and the manufacturer to judge the merits. >

VALÉRY JOST is Board member of the French Institute of actuaries - Member of the AAE Insurance Committee, Chair of the AAE Consumer Protection Working Group.

Despite these positive premises, the AAE has had occasion to express its scepticism[1] about the approach adopted by EIOPA[2]: top-down approach, indicators defined at European level while the market is fragmented into national markets, multiplicity of indicators which exceed the simplicity of the initial ambition, and which are also sometimes complex to calculate, considerable burden in *fine* and generalized to all players, risk of misuse of the system by the publicity which will be made of it.

This example of value for money is important because it outlines more generally the underlying trends behind major legislative initiatives for savers, such as the Retail Investment Strategy (RIS) and the Savings and Investment Union (SIU).

EVER CLOSER EUROPEAN INTEGRATION

Although the European Parliament has given some common-sense signals in favour of a pragmatic approach that recognizes the diversity of the savings market and the limits of '*one size fits all*'[3], the postulate of a European insurance market continues to inspire strictly top-down approaches. EIOPA clearly states its belief in a European market for insurance savings products, to be regulated at European level in terms of both information and product quality control. It is even calling for EIOPA to go beyond its current role as supervisor of supervisors, to become direct supervisor of certain insurance activities.[4]

Putting pressure on insurers and policyholders to target savings towards EU priorities

Starting with the prudential field, this European integration has covered policyholder information and advice, then extended to product evaluation, and is set to expand still further, by interfering in the definition of the offer.

The Letta, Noyer and Draghi reports, and more recently the Commission's report on SIU, encourage European regulators to seek a better allocation of investment flows. This is likely to result in even closer regulatory intervention, mobilizing nudge, self-enrolment and even product specification through regulation, ideally backed up, in the minds of European authorities, by tax incentives (which to date, however, remain the responsibility of member states).

ILLUSIVE SIMPLIFICATION JEOPARDIZES THE SECTOR'S COMPETITIVENESS

The simplification imperative imposed on European authorities in response to the changes taking place across the Atlantic has not affected consumer texts concerning insurance, such as RIS or FIDA (Financial Data Access). >

[1] AAE position VfM for unit linked market - 15 January 2024.

[2] Methodology on Value for Money Benchmarks EIOPA-BoS-24-332 - 27 August 2024.

[3] Report on the proposal for a regulation of the European Parliament and the Council amending Regulation (EU) No 1286/2014 as regards the modernisation of the key information document - Rapporteur: Stéphanie Yon-Courtin A9-0160/2024 25.3.2024.

[4] Viewpoint: Unlocking the potential of Europe's savers by Petra Hielkema, Chair of EIOPA 27 March 2025.

On the contrary, we are witnessing a worrying redundancy. Because protecting savers is a concern widely shared by member states, a corpus generally exists at national level, a priori adapted to the specificities of the market, to which is added a European corpus whose added value is therefore not obvious and is not necessarily perceived by the consumer (very weak echo of PRIIPs).

Moreover, European authorities themselves recognize that their own regulatory output is becoming redundant as texts pile up, if not in competition with one another.[5]

HIGHLY PRESCRIPTIVE AND DIRECTIVE REGULATION

Not only the content of information, but also its formulation and presentation are regulated. It is not only the principles of fairness and good information that are laid down, but also a narrow definition of advice, going as far as providing interview guides.[6]

Last but not least, European law is taking over product law, with the temptation to replace professionals in product design.

CERTAIN COSTS FOR UNCERTAIN BENEFITS

More generally, regulations (such as SFDR, CSRD, CS3D, FIDA, IDD, PRIIPs, RIS, etc.) clearly underestimate the cost of information and data processing, creating productivity traps through the multiplication of regulatory obligations, reporting, recording and control systems, and the refinement and prescription of processes, which largely neutralize the financial gains expected by both policyholders and insurers from the implementation of the digital revolution.

A STRONG LACK OF TRUST

These trends point to an implicit mistrust of insurance professionals. This distrust encourages people to get rid of the human interface, both in terms of product design and advice, which explains the temptation to standardize products, the hypertrophy of written information, the illusion of replacing advice - suspected of incompetence and conflicting interests - with indicators, and goes so far as to attribute the Union's weak economic growth to the failure of financial intermediation, presumed to be unable to correctly direct the flow of savings.[7]

The actuary's deontology and his quantified practice make it easier to objectify the issues at stake, and he undoubtedly has a role to play in re-establishing mutual trust and avoiding this dead-end, where the initiative of companies and the freedom of their customers risk withering away. But this would also require a revival of that other founding principle of European law, subsidiarity, which is sorely lacking today.[8] <

[5] EIOPA – ESMA common letter to Commission 13. November 2024 - ESMA24-450544452-2484.

[6] Guidance on the integration of sustainability preferences in the suitability assessment under the Insurance Distribution Directive (IDD) EIOPA-BOS-22-391 20 July 2022.

[7] Savings and Investments Union A Strategy to Foster Citizens' Wealth and Economic Competitiveness in the EU - COM(2025) 124 final - Brussels, 19.3.2025.

[8] Article 5(3) of the Treaty on European Union (TEU) and Protocol (No. 2) on the application of the principles of subsidiarity and proportionality.

OPEN FINANCE: WHEN DATA FLOWS FREELY, WHO WINS AND WHO LOSES?

BY **NICOLAS MARESCAUX**

As Europe prepares for open finance and open insurance, actuaries need to ensure that greater precision does not come at the cost of fairness. With a reminder that financial regulation has a shared purpose beyond market efficiency, this article makes the case for ethical oversight, impact assessments, and new forms of societal insurance.

After raging for five days in September 1666, the Great Fire of London left 13,200 houses in ruins and 100,000 Londoners homeless – four fifths of the city was destroyed. In the wake of this catastrophe, Nicholas Barbon turned ashes into opportunity by setting up the first-ever fire insurance company, planting the seed for modern insurance – and offering a profound lesson about information inequality.

Barbon's 'fire watchers' would rush to blazes, where their first task was to check the building for a metal fire mark. This confirmed it belonged to a paying customer, and should therefore be saved – everyone else watched their homes burn. The true innovation was not financial protection, but selective access to safety. The fire marks visibly divided those who were protected and the abandoned – not due to fire itself, but based on who controlled the response to it.

Now we are witnessing a similar revolution in terms of how financial information flows, who controls it, and who benefits. The stakes are different, but perhaps just as high.

BUILDING THE FOUNDATIONS OF OPEN FINANCE

In June 2023 the European Commission published its proposal for a framework for financial data access (FiDA). This represents a significant expansion of the EU's data-sharing vision; while the 2015 Payment Services Directive (PSD2) opened up banking data, FiDA seeks to create a comprehensive European financial data space which encompasses insurance, investment, and pension information. The initiative forms part of a broader package of modernizing regulatory measures which includes PSD3 and the Payment Services Regulation, illustrating the EU's commitment to a data-driven financial ecosystem.

The regulatory journey has been gathering momentum, with the Council reaching agreement on FiDA in December 2024. Although three-way negotiations between the Commission, Council, and Parliament officially began in April 2025, under the Polish EU Council Presidency, these negotiations are currently on pause until May/ June 2025; this is so that stakeholders can work >

through significant differences on key issues including implementation costs, exemptions for SMEs and large corporates, and a precise definition of 'simplification' as used in the proposal.

BEYOND BANKING: A NEW DATA PARADIGM

The core purpose of FiDA is to establish rules for accessing, sharing, and using customer data across financial services. It introduces 'permission dashboards' which would give consumers granular control over their financial data, and creates standardised 'Financial Data Sharing Schemes' which would be mandatory for both data holders and users to join.

Unlike PSD2, which has a narrow focus on payment accounts, FiDA applies to a broad range of financial products and services including loans, savings, investments, insurance (excluding health insurance), and even crypto-assets. The regulation would give consumers the ability to authorise third parties to access their data held by financial institutions – a change which has the potential to transform product comparison, financial planning, and risk assessment.

Implementation will take place on a staggered timeline: 24 months for consumer credit and car insurance; 36 months for mortgages and investments; and 48 months for all other data types, with the first phase likely to start in late 2027.

THE ACTUARY'S DILEMMA

For actuaries, FiDA offers opportunity as well as challenges. The French Institute of Actuaries has articulated the tension clearly: while it supports the objective of achieving a more competitive and sustainable European economy through ethical and rigorous data use, it raises concerns about potential unintended consequences. (**see ' Projet FiDA et impact sur le secteur de l'assurance'**)

Consider climate risk insurance. At present certain market segments – flood insurance, clay soil subsidence coverage, and increasingly hail damage – are moving more and more towards being technically uninsurable. These markets function by means of systems which balance individual responsibility (in the form of price signals) with national solidarity against exceptional risks.
It is worth noting that FiDA explicitly excludes health insurance in order to prevent harmful demutualisation, which could disadvantage high-risk individuals – yet similar concerns also apply to property insurance in relation to climate risks. Currently in many European countries, including France, cross-subsidization mechanisms facilitate near-universal coverage (>90%) for certain risks.

These delicate balances could well be disrupted by the unrestricted data sharing envisioned in FiDA, meaning that without appropriate guardrails it may create a two-tier system where, on the one hand, low-risk populations receive increasingly favourable terms; while on the other, vulnerable groups are subject to unsustainable price increases or even a complete lack of coverage. Such developments would undermine European principles of inclusion and equity, while also jeopardising the social and economic stability of risk pooling mechanisms.

THE PARADOX OF PRECISION

The history of insurance charts a journey of balancing precision with solidarity: precision supports fairness within the pool, but solidarity ensures that this fairness does not come at the cost of exclusion.

The first mortality tables, created by John Graunt in 1662, enabled more accurate life insurance pricing, but also created the foundation for collective risk-sharing that made coverage accessible to many. FiDA constitutes a similar inflection point. Extended data access would enable insurers to price risks with unprecedented accuracy – and while total elimination of uncertainty is not a realistic prospect, serious market disruption can occur well before that point. The underpinnings of mutualisation start to crumble when information asymmetry becomes too pronounced – in other >

words, when some stakeholders possess vastly superior data while others remain bound by universal service obligations.

The French Institute of Actuaries is categorical about the need for impact studies before FiDA is fully implemented. These should analyse effects across the entire value chain, evaluate impacts on risk pooling mechanisms, and incorporate actuarial expertise into risk assessment and provisioning.

A NEW ROLE FOR ACTUARIES

We should understand FiDA as more than a regulatory challenge: it is an invitation for actuaries to evolve. Far from being consigned to back-office calculations, actuaries need to become strategic advisors at the intersection of data science, ethics, and social responsibility.

The Commission should not only monitor the effects of demutualisation but also propose real solutions. If private carriers cannot or will not cover certain risks, should we respond by creating new forms of societal insurance, or potentially leave people exposed? In insurance as in life, someone is always bearing the risk – by choice or otherwise. Suspending FiDA is not about resisting progress, but rather taking a prudent pause to count unintended costs before they become unpayable debts.

The profession that used to quietly calculate mortality tables now needs to step forward and contribute to shaping how society balances technological innovation with fundamental principles of solidarity. Doing so requires technical expertise but also moral imagination: a willingness to look beyond algorithms to understand their human consequences.

As we navigate this new landscape we must remember that financial regulations are not merely technical frameworks, but expressions of our values. It is not simply a question of whether FiDA will create markets which are more efficient, but whether it can also make them more just.

In 17th century London, metal fire marks visibly delineated between the protected and the abandoned. Now that the invisible architecture of open finance is being erected across Europe, as actuaries we must ensure that we are not claiming progress while excluding the most vulnerable – inadvertently reinventing fire marks in a more subtle data-driven form. <

NICOLAS MARESCAUX is Vice-Chairman of the Institut des Actuaires' ERM Commission.

COLUMN

ENGAGING WITH STAKEHOLDERS

The AAE has three strategic objectives:1) Enhance Relations with European Institutions, 2) Promote Professionalism and 3) Promote a European Community of Actuaries. A key element of Strategic Objective 1 is to maintain excellent relationships with key European institutions, so that the AAE can effectively provide them with high quality professional advice to improve the soundness of decisions from an actuarial perspective.

One important way of doing this is to provide high quality and insightful responses to consultation papers issued by European institutions such as EIOPA and the European Commission. The AAE has been very active recently in responding to consultations linked to e.g. the Solvency II Review, the AI Act and sustainability and climate protection gap issues. Details of consultation responses submitted by the AAE are available at https://actuary.eu/papers/aae-responses-to-stakeholder-consultations/. Right now, there are several open consultations of interest to the AAE relating to the Insurance Recovery and Reinsurance Directive.

On behalf of the AAE Board, please can we thank all readers of the European Actuary who contribute to these responses. European Institutions typically take more notice of responses coming from European-wide bodies than those coming from bodies only operating in a single member state. Amongst our core stakeholders, responses coming from the AAE seem to be particularly valued, because of our recognised independence and professional standing. We all understand that responding to consultations is time-consuming, but doing so helps cement good relationships with our stakeholders. Responding to consultations also gives us the opportunity to promote sound actuarial thinking in regulation that will sooner or later impact our daily actuarial lives. Please can we also thank AAE staff, Siegbert Baldauf, Stephanos Hadjistyllis, Monique Schuilenburg and Annette Aragones, for coordinating the creation, posting and sharing of our consultation responses.

Our aim in the coming months is to highlight more specifically some of these consultation responses in the European Actuary, so that readers have a clearer idea of the direction of travel of e.g. key regulatory initiatives that may impact them going forwards and of some of the subtleties involved.

Please can we also encourage readers to volunteer to help with these consultation responses if they are able and the topic is of interest. More minds thinking about a problem generally lead to a better outcome!

Malcolm Kemp
AAE Board Representative on the European Actuary editorial board

Inga Helmane
AAE Chair

COLOPHON

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The deadline is 1 August 2025.

EUROPEAN AGENDA
Please check
https://actuary.eu/events/
for the most actual forthcoming events.