COLUMN

Can you also model swimwear?

"Can you also model swimwear?" my friend asked after the Big Four consultants had confidently closed their *Solvency II implementation* pitch with, "We can model anything." Suffice to say, it was a tough crowd that day. He did not get fired, and we had something to laugh about for months — years, even.

We model based on what we see, observe and measure. Role models, fashion models, actuarial models, economic models, climate models. Increasingly abstract, like the imitations on the wall of Plato's cave.

Actuarial modelling sits at an odd intersection between mathematics, imagination and regulation. It's not art, but it is rarely pure science either. Every model is an approximation — an attempt to distil the chaos of life, death, and markets into something a regulator might sign off on, or a board might believe. These models serve serious purposes: determining how much capital an insurer must hold, how products should be priced, and where risk is concentrated. They underpin real money — billions in some cases. But they also reveal how profoundly our profession depends on the quality of our assumptions and the clarity of our communication. The mathematics may be impeccable, yet the result can still mislead if the input data or governance are weak. When a model works well, it supports decision-making without dictating it. It quantifies uncertainty, allowing management to see the range of possible outcomes.

Actuarial modelling is, increasingly, a social practice. Models are built not by isolated experts but by teams of coders, analysts, validators, and reviewers. The spreadsheet era — when one actuary might quietly tweak assumptions — has largely passed. Models are now subject to version control, independent review, and audit trails. This is healthy. Models embody choices: about which risks matter, which data to trust, which simplifications are tolerable. Making those choices transparent and debatable improves outcomes. A well-governed model is not just accurate — it's *explainable*. Stakeholders can trace its logic, challenge its inputs, and understand why it behaves as it does. That, in turn, demands something actuaries are sometimes accused of lacking: narrative skill. Being able to *tell the story* of a model — to explain to non-specialists what it's doing and why — has become just as important as the underlying mathematics. Regulators, boards, and auditors all want to know the same thing: can you make sense of this machine you've built?

Perhaps that's why the 'we can model anything' line always feels a little hubristic. Of course we can't model *everything*. We can only model what can be represented — what can be counted, calibrated, or reasonably assumed. Swimwear, in that sense, might actually be easier: it obeys physical laws. Human behaviour under stress, market contagion, regulatory reaction — those are infinitely trickier fabrics. Still, the ambition matters. Modelling is an act of faith in the intelligibility of the world. We draw lines through data and hope those lines mean something. We build models not to predict perfectly but to prepare — so that when the unexpected happens, we're at least looking in roughly the right direction.

Every model is wrong, George Box famously said, but some are useful. The actuarial challenge is to keep them useful: updated, understood, and used for the right purposes. That means knowing when to trust the output, when to question it, and when to admit that the world has moved on. Because in the end, actuarial models are not about equations or algorithms. They're about judgment — about using mathematics to frame uncertainty, not to abolish it. The good modeller knows that the moment you start believing your own shadow, you stop seeing the light outside the cave.

And that's something no one, not even a Big Four consultant, can model for you.

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