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Help the Experts

Summary
ORM assessments and capital estimations fail to deliver because they are marred by a flawed actuarial approach and an overreliance on expert opinion. We propose a more modest approach, eliciting expert opinions where it is unavoidable and augmenting it with statistical data wherever possible. Before we do that, we need to make ensure that the assessments are realistic and reliable. Here are three simple steps to help the experts make their estimations:

1. Limit the expert assessment to the *impact range*
2. *Prime* the experts before they assess the impact range
3. Assess likelihood of the selected impact range, *but not of the risk event*

Dear reader,
OpRisk measurements largely rely on expert judgement. Doing RCSAs, making assessments for new products and processes, setting risk appetite, performing business impact analysis for business continuity or evaluating fraud detection or anti-money laundering programmes, in all these cases OpRisk tends to eschew models and quantitative approaches in favour of expert judgement.

There are a number of reasons why this is likely to remain so. For one, the ORM domain is unbounded with virtually limitless objects of study[1]. This broad scope is compounded by the tendency in ORM to opt for rather loosely defined ordinal measurement scales. “High impact”, “medium likelihood”, “low exposure” etc are considered sufficiently sophisticated and is usually all we get in OpRisk. What is more, these outcomes are often derived using a subjective decision process which makes validation an almost impossible task.

One way to improve the measurement of OpRisk is to harness the expert opinion by minimising biases and providing a more consistent frame of reference. A start could be made by limiting the expert assessment to those aspects they actually know something about and by forcing them to think about their domain prior to assessments. Three steps suggest themselves.

Step 1: Limit the expert assessment to the *impact range*
It is common practice in ORM to score both impact and likelihood of risks to arrive at a risk rating. There is, however, an abundance of evidence which indicates that experts are typically biased in their estimations, blinkered by prior beliefs, and overconfident to the point of ignorance[2]. What makes estimating likelihood for operational risk events a pointless exercise is that individual OpRisks are a catch-all for an assortment of overlapping circumstances that are themselves neither

[1] The lack of focus is one of most pernicious problems in ORM. Since ORM lacks a defined universe of study, but rather encompasses all governance issues, bank processes, systems, products and associated events, it has adopted the language and techniques for high level assessment. This keeps ORM on a high level of abstraction which in turn discourages the development of quantitative approaches to ORM and specificity in measurements.
[2] The classic regarding the limits of expert judgment versus statistical rules of thumb can be found in: Paul E. Meehl (1954), *Clinical vs. Statistical Prediction: A Theoretical Analysis and a Review of the Evidence,* University of Minnesota Press. More recent this is argued in: Philip E. Tetlock (2005) *Expert Political Judgment: How Good Is It? How Can We Know,* Princeton University Press.

bounded nor defined. It not unlike asking a tennis player about the likelihood of sustaining a non-vital injury next year. It is an impossible question to ask the expert (the tennis player himself in this case). If absolutely required, it should be replaced by a statistical evaluation, such as the frequency of injuries among a certain class of tennis players. 'Expert opinion' has nothing to add here.

Does the same apply to impact? For some types of impact, the expert has a much better starting point. Even for ill-defined risks, there is a maximum amount of loss that is conceivable. That is the impact estimation we should aim for. Not the expected value or the likely impact, but the maximum possible extent of the risk. In the case of injury to our tennis player, the maximum conceivable loss of a non vital injury might be linked to, say loss of all earnings for 12 months due to some injury plus some contractual effects.

Step 2: *Prime* the experts before they assess the impact range

To guide the impact assessment, experts need to be helped to put the risk in perspective. It is never enough to just make a wild guess. That would result in, well, a wild guess. The minimum questions to prime the expert with are:

a) What is the highest loss you are aware of in relation to this risk for your institution?
b) What is the highest loss you are aware of in relation to this risk for the industry as a whole?
c) Are the circumstances surrounding this risk improving or deteriorating?
d) Could an occurrence of this risk go undetected for more than a month?
e) Could an occurrence of this risk go undetected for more than a year?

After answering these questions, the assessor needs to be prompted to think about the *cumulative* losses that may occur as a result of this risk over the period of one year. The reason for this is that operational risks, however defined, are proxies for some underlying weaknesses, which can manifest themselves in events multiple times. Suggesting that the 'risk' can be isolated to a singular event is misleading and unhelpful.

Finally, the expert is ready to select the impact. She needs to assess the *maximum* conceivable impact by selecting the most appropriate order of magnitude. The order of magnitude is the best we can hope for. Further refinement quickly surpasses the experts' capability and requires substantiation from extensive statistical data, which is usually lacking. The impact assessment comes down to selecting from the range of A-F as indicated below:

The <u>maximum</u> conceivable cumulative loss (in USD) that we could suffer from this risk in one year exceeds:

A)	10,000	**C)**	1,000,000	**E)**	100,000,000
B)	100,000	**D)**	10,000,000	**F)**	1,000,000,000

For our tennis player, if the answer is C), that implies a range of 1 to 10 million USD in maximum annual cumulative losses. In the absence of statistical data the expert can be asked for probabilities within the selected range (quartiles etc). This part is covered by step 3 of the assessment.

Step 3: Assess likelihood of the selected impact range, *but not of the risk event*

Although expert estimations of regarding the likelihood of individual occurrences of a specific OpRisk are pointless, we can use likelihood estimations regarding the impact range to replace the traditional Impact/Likelihood information[3]. Once the order of magnitude for the maximum conceivable annual loss has been selected, the follow up question provides us with an estimate of the *expected* loss amount.

Given that the maximum conceivable annual loss due to non-fatal injuries for player X lies between 1 million and 10 million USD, what is the probability player X will *suffer a cumulative loss over the next 12 months between:*

I) 1 Million USD − 5 Million USD = X%
II) 5 Million USD− 10 Million USD = Y%

Note that since this question relates to the loss the player may be *expected* to suffer next year, X is expected to be lower than Y and X+Y is expected to be (much) lower than 100%.

In our example. We could estimate the probability of a cumulative loss somewhere between 1 and 5 million USD next year as 8%. And a loss between 5 and 10 million USD at 1%.

What we are really doing here is deriving the annual loss distribution curve from the expert without resorting to the fantasy of independence between impact and likelihood and avoiding the need to estimate the likelihood of the risk on its own at the same time. We can jump directly to the data we require, namely the annual loss distribution.

Conclusion

The actuarial approach for OpRisk rests on a number of untenable assumptions. For a start, the independence of impact and likelihood is not a realistic assumption. But what is even worse is that this approach requires an estimate of the *likelihood* of individual OpRisks. There are fundamental problems with such likelihoods. OpRisks do not constitute a defined universe, and for all but the most trivial risks, manifest themselves in different guises every time. No two rogue traders operate exactly the same: circumstances, products, processes, controls, jurisdictions, organisational set up and IT are all different every time. Expecting anybody to come up with a useable likelihood estimate is expecting too much.

Our solution is to step away from likelihood estimations and to aim for the big one is a single move: estimate the annual loss curve directly. This is also not trivial, but it does get away from the actuarial assumptions and does not require estimating what we cannot judge (i.e. the fictional likelihood of an event).

[3] Note that this step is a poor substitute for statistical analysis, which is what ORM should ultimately aim for.