Breakfast Briefing 3rd July 2014

Are insurers increasingly over reliant on models?

On 3rd July FTI's Insurance Practice co-hosted a Breakfast Briefing with Amlin. The topic was 'Are insurers increasingly over-reliant on models'? Our guest speakers were Anders Sandberg, Oxford University and JB Crozet, Amlin.

The speakers focused on the ramifications that over-reliance on models can have on systemic risk. Simon Beale of Amlin introduced the speakers and explained why Amlin has become interested in the subject of systemic risk following an encounter with the late Dr. James Martin, founder of the Oxford Martin School at the University of Oxford[1]. Since meeting Dr. Martin, Amlin has been investing in research at the Oxford Martin School to ensure modelling does not cause the collapse of the insurance market, because, in Mr. Beale's words 'models are not perfect'.

JB Crozet argues that we are breeding a form of systemic risk with too many models. Whilst he does assert that models are generally an efficient way of gathering and monitoring data and predicting trends, they can create vulnerability. Mr. Crozet's definition of systemic risk is as a structural link that makes us more vulnerable collectively. He used a unique analogy of frogs crossing the road: for systemic risk, the frogs all line up together to cross the road at the same time, which can make them more susceptible to being decimated by a rogue vehicle. Of course, he points out that on some occasions, the frogs would safely pass without fear of being run over because they've carefully analysed the safest time to cross.

On the positive side, Mr. Crozet conceded that models have enabled the industry to get a clearer idea of risk, which has resulted in lowering the cost of capital, therefore making insurance more affordable.

Mr. Crozet believes that systemic risk arises from two occurrences; bad events and structural links. He used the example of the September 11th attacks on the World Trade Centres as a 'bad event', which, aside from the tragic loss of lives, resulted in massive losses across property, accident, aviation and casualty lines of business. Whilst we would like to believe in the benefits of the diversification of risk, this may not always be the case.

Structural links have also been created by growing regulation of the market. The insurer needs to pass the 'use test' for the regulator to sign off their products and services, which has generated uniformity in the models produced by the industry as a whole. Whilst this arguably has advantages, it also means that insurers put their eggs in the same basket, leaving them more liable to systemic risk.

Mr. Crozet summed up his speech by quoting Albert Einstein, 'Problems cannot be solved at the same level of awareness that created them'. To this end, Amlin are funding public research to tackle this complex issue and help educate future generations of underwriters to avoid reliance on models to mitigate systemic risk.

Dr. Anders Sandberg opened by informing us that we, the human race are 'amazingly stupid'! Fortunately for us, however, Dr. Sandberg said we are not so stupid that we haven't recognised the need for outsourced support; in many cases including the need to use models, which has helped us mitigate risk. The downside to this is that sometimes technology can confuse us even more. He used the example of maps on smartphones, which, despite being an incredible resource, can leave us all a little puzzled at times.

Dr. Sandberg agreed with Mr. Crozet's definition of systemic risk, but thought his own was slightly better! According to Dr. Sandberg, systemic risk can be simplified as 'something collapsing despite all the individual parts working perfectly'. He also pointed out that we live in a globalised world, which, on the surface of it, should mean we are not so reliant on local interconnections, but reliance on other countries, often geographically very far away, can leave us exposed to risk: if we need vital components from the other side of the world, it can take longer to build or fix things and introduces systemic risk which may not have been modelled.

According to Dr. Sandberg, one of the main issues with models is 'bad data' and how we react to it. When we look at models, we have preconceptions about what the output will be before we've seen the results, and rather than investigating what this may mean, we often try to 'correct' it to fall in line with what we expected or wanted to see. When the results are giving us what we want- profitability- we stick to the formula and are blindsided when huge errors eventually come to light. Dr.

[1] http://www.oxfordmartin.ox.ac.uk/founder/

Sandberg agreed with Mr. Crozet's notion that regulators often question anything other than the accepted 'norm' and so explaining any deviation from this norm can be prohibitive to auditing established models. Dr. Sandberg has analysed the psychological aspect of group thinking and alleges that nobody wants to be the one who raises concerns in a room full of smart people who are confident in their collective opinion, which can mean errors in models go unchallenged and undetected.

Applying his theories to the insurance industry, Dr. Sandberg says we are ahead of the curve in terms of awareness of weaknesses in models and over-reliance on them as an industry as a whole. Having used models for several decades, we are more knowledgeable about the potential pitfalls than industries which have adopted the use of models more recently. However, the insurance sector is not immune to systemic risk, from so called unconnected events and the impact of human behaviour influencing model inputs and outputs, as Mr. Crozet also discussed. Dr. Sandberg's academic department at the Oxford Martin School is currently running experiments with underwriters on live information to test models for 'hidden problems'.

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