

'RISK' AND 'LIFE' – FOUR-LETTER WORDS



WORDS SUCH AS RISK, LIKELIHOOD AND PROBABILITY ARE USED ALL THE TIME WITHOUT MUCH CONCERN AS TO THE PRECISION OF WHAT IS BEING CONVEYED, SAYS **ARTHUR BURGESS**.

Life is a sexually transmitted disease that is always fatal. I don't know who first uttered this cliché or in what context, but it serves to underline a point about life assurance. If you're gonna go sometime (and you are), then it is not a question of 'if' but 'when', and it is against that background that decision-making and valuation take on a different perspective. The key to appreciating life is balancing a probability now against a future that may not happen.

Risk is a fundamental of existence – a balancing of one thing against another, neither of which may be known.

WHAT WE KNOW. Donald Rumsfeld is an oft-used butt of comedians because of his sometimes tortured use of language. However, deep behind one of the more famous quotes is a second key thought: "There are things we know that we know. There are known unknowns. That is to say there are things that we now know we don't know. But there are also unknown unknowns. There are things we don't know we don't know."

Uncertainties exist of which we are aware but are unable to quantify, and we are tempted, rather than admitting that we do not know, to put hypothetical probabilities to these areas of knowledge (or more accurately areas of non-knowledge). An article in an American management journal in the late 1960s referred to this as 'sonking' – the Scientification Of Non-Knowledge. By way of comment on risk the *International Herald Tribune* ran a piece 'New computer tools apply numbers to risks' in the first week of February 2003. It mentioned the 1986 Challenger disaster, the 1995 hurricane in Florida and the 1989 earthquake in San Francisco. Techniques of probabilistic risk assessment and of Monte Carlo Simulation were identified as concepts developed some 40 years ago, but, according to the newspaper, were only recently used as the necessary computing power became available. As with all newspaper articles on a subject with which one is familiar, much was misleading but this concluded incontrovertibly: "Probabilistic models are only as useful as the assumptions put into them".

"Beyond here lie dragons", It said on the edges of ancient maps. We seem now to think that the maps have no edges. But they still have. As Rumsfeld says, there are other things over the horizon – things of which we are totally unaware. At the meeting of the Editorial Committee preparing for this issue of *The Treasurer*, I intimated that there was a need for a piece about risk from a broader, more philosophical perspective than the purely financial.



THE MAN WHO SUGGESTED AN ARTICLE (WITH APOLOGIES TO HM BATEMAN)

I had expressed my irritation at a recent television programme that had dealt with fatal car crashes. It had followed three fatal journeys using phrases such as "and here the driver slowed down, thereby missing his final chance for avoiding the collision. Had he kept going at 60mph he would not have got to the accident spot at precisely the same time as the van. If 'x' had not happened, then 'y' would not have happened." Such gross misrepresentation of reality probably caused me to speak with some asperity.

Though I was careful, knowing the risk of being asked to write the piece, statistical evidence from previous meetings showed that it was likely that 'he who dares' gets the job – so here I am.

PRECISION. Words such as risk, likelihood, probability and statistic are used all the time without much concern as to the precision of what is being conveyed, but we need to be careful about such things. Meanings matter. Many years ago, when the world was young, I recall an interview with the inimitable Quentin Crisp. The interviewer asked: "You have moved to New York, is that not very dangerous?" Crisp's reply was: "No, it is not more dangerous, just more deadly. You are more likely to have a broken bottle pushed in your face in a London pub than experience violence in New York, but the consequences of the more general availability of guns in America are more likely to be fatal."

This illustrates a third important aspect of perception of risk and evaluation of consequences. Maybe some people rate disfigurement with a broken bottle as being less desirable than a more remote chance of sudden death by shooting.

UNDERSTANDING. Another instance of misunderstanding of stochastic matters and its results was brought to public view in January this year in the case of Sally Clark, who was sentenced to life in prison for killing her two baby sons, after she had maintained they had died of cot death syndrome. Having already served three years of her sentence, the Court of Appeal ruled her convictions unsafe as medical evidence, which could have cleared her, had been kept secret during her trial.

Judges labelled statistics used in the trial to compare the chance of two babies in the same family suffering from cot death at one in 73 million as "grossly misleading".

The probability of having one cot death in a family is one in 4,000; *ipso facto* the probability of having two must be one in 16 million. Well, no, actually, the probability squares only if the events are totally independent. If the deaths are in the same family, with the same genetics, the same environmental conditions, independent they are not; so *ipso jolly non facto*. A whole courtroom was lacking in awareness of contingent probability! This wanton ignorance of elementary probability theory in an (so-called) expert witness could have been exposed by any schoolchild. Yet it took three years of Clark's life (to say nothing of the lives of her remaining child and her husband) for the legal system to sort it out. The mills of God grind slow, but the British justice system can teach them a thing or two about lethargy. I claim no knowledge of the intricacies of this case but Clark's alleged guilt was not demonstrated by that fallacious statistical evidence.

CONSEQUENCES. Yet never a day passes without those words concerning lack of certainty featuring in a news item. In the week or so before the afore-mentioned meeting there was, apart from the miscarriage of justice, the Central line Tube derailment, the Columbia shuttle disaster and of course the 'snowstorm' which brought parts of the South East to a standstill. We can imagine the discussion before these events went something like this:

- "I think it will be safe for just a few more stations and then we'll take it out of service at Holborn; if we stop it where it is, there will be delays over the whole system."
- "There may be a marginal increase in risk from these tile cracks, but it is negligible and consider the costs and difficulties if we miss this launch spot." and;
- "The forecast freeze overnight will be best dealt with by sending the gritters out as late as possible; otherwise the salt will be wasted."

In each case *post hoc* it is obvious the consequences were awful. It was probably clear even *ante hoc* that the consequences of this particular outcome would be awful, but it was assessed as being very unlikely to occur. There were many other potential outcomes to contemplate, some bad and some maybe less so, but with a much higher probability of arising, so a decision could rationally have been made to expend the effort there instead.

Many local authority decision-makers seem to believe in a world where matters are absolute and closed. "It is difficult", they say, "for blind people to find out where there are road crossings. So, let us put little knobby bits on the flagstones so they will be aware of the



THE MAN WHO ADMITTED NOT KNOWING KNOWS LEARN (APOLOGIES HARD)

positions". Elsewhere, someone thinks: "It is difficult for people using wheelchairs to get up and down kerbstones, so let us make slopes instead". So what happens? Yes, knobby slopey bits appear like a disease all over the footpaths. But hey, what about slightly unsteady folk? How many of these trip up or slip on these new obstacles? How many blind pedestrians or unconstrained invalid vehicles balance another person's broken hip or wrist?

And central government is not immune either. An investment in more jobs today, funded from a raid by HM Treasury on pension funds (the effects of which will only show up later) is not an unmitigated absolute good – it is merely robbing Peter to pay Paul. Unsurprisingly, Paul is pleased. Clearly, when Peter complains, his protest appears self-serving. How can he be so selfish as to want to deny those young people the jobs that have been created by the munificence of the Chancellor? But then uncertainty rears – an unforeseen downturn in the equity markets brings the future nearer quicker, and who is to blame? Naughty companies and the mismanaged funds, of course.

COMPLEXITIES. It is all too easy to be wise after the event. If you stand at the base of a tree and look up you can see branches coming off the trunk and then sub-branches and so on to the tiniest twigs and buds. As a caterpillar sits on the topmost twig looking down, it is plain for it to see how the path to the bottom can be planned, but if you don't know where the caterpillar is, it is a major task to find it. The commentators writing after events seem to have the perspective of smart-ass caterpillars. If the proponents of schemes were to be more open in the first place – to treat the public more like adults and less like gullible infants – we would grow more familiar with the complexities of decision-making.

But we need to remember also that there are some things that are not amenable to financial analysis. I once thought with one of the management gurus that if you could not put a number to the subject you were discussing then your knowledge was of a poor and partial nature. As I have gotten older I begin to think that if you can reduce things to monetary criteria then either the question was trivial or you probably haven't understood it.

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