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How (not) to think about risk

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Risk, and how to manage it, are the centrepieces of investing. However, the conventional academic approach to it is flawed – and so too is our everyday thinking about it.

Typically, academic economists have tried to measure attitudes to risk by a single number, called the coefficient of relative risk aversion. This derives from a simple idea – that each additional pound gives us less satisfaction (utility) so we therefore reject some bets which have a positive expected pay-off because the amount we would win would please us less than a loss of similar magnitude would displease us.

This, however, quickly runs into problems. One is that it doesn't explain why millions of us buy insurance and at the same time buy risky assets, gamble or play dangerous sports. Another was pointed out by Matthew Rabin and Richard Thaler in 2001. They show that this approach implies that if we reject gambles with small potential wins then we should also reject ones with bigger possible wins, because we discount extra wealth so much – which doesn't make sense.

Such flaws have led Michael Woodford at Columbia University to urge economists to think about risk attitudes in a different way. They depend, he says, upon how we interpret monetary gains and losses. So, for example, in thinking about our house we consider the small but nasty chance of burglary or fire which leads us to buy insurance. In thinking about equities, however, we consider losses as a temporary and less psychologically intrusive problem. We code the two issues differently, and so buy insurance and take risk at the same time.

This seems like common sense. But it has its own problems. In considering equity risk, it's reasonable to ask 'how much can I afford to lose?' If shares have risen a lot recently, we might figure: 'losing £20,000 will only take me down to what I had a few months ago. I can cope with that.' When prices are low, though, we think: 'I couldn't bear another £20,000 loss.' Such responses lead us to buy equities near the top of the market and sell near the bottom. This might be one reason why there is momentum in prices. This is not sensible.

Risk is not just about losses, however. We can also be too cautious, and so put ourselves at risk of missing out on profits. It's entirely reasonable to fear this. But again, it can lead us astray. Fear of missing out is likely to be strongest when prices are rising a lot and when there's lots of buzz around an asset. This can suck us into bubbles just before they burst – as anybody who bought tech stocks in 1999 or Bitcoin late last year will remember.

There's another problem. Attitudes to risk are of course attitudes to the future. But we are terrible at predicting our future tastes. We project our current preferences into the future and fail to see that they'll change. Economists call this the projection bias. It explains why people pay too much for convertible cars or houses with swimming pools in the summer; they fail to anticipate that these will be useless in the winter. It also blights our financial planning, as Christoph Merkle at Kuehne Logistics University in Hamburg has shown. He surveyed British investors just before and just after the 2008 crash. And he found that they were much less unhappy after they'd suffered losses than they thought they would be – which suggests that we are too scared of losses*.

Our attitudes to risk, therefore, might not be coherent or helpful. Even if they were, though, we'd have another problem – that the future is unknowable. We can't be sure even of the future probability of returns, because we've no assurance that the future will resemble the past. And if we've no reliable knowledge of likely pay-offs then precise preferences might be positively dangerous. As the late George Shackle wrote in his neglected classic *Epistemics and Economics*, "for the traveller in the dark, a bridge with a missing span is worse than merely useless." Banks who held lots of credit derivatives in 2008 had well-defined risk preferences – ideas of how much return they wanted and of how much risk they could bear. But these proved to be positively dangerous when their beliefs about the riskiness of those assets proved to be wrong.

My conclusion here is pessimistic. Both the arid spurious precision of conventional economics and the instinctive everyday conception of risk are mistaken. As Maynard Keynes is reputed to have said, "everyone understands precisely what is meant by the notion of probability—except those who have spent their lives studying the matter."

There is, however, a middle way here, which we can call constrained intuition. All we should aspire to is a portfolio we are comfortable with – one that minimises worry. if you're worried about losing a lot you're holding too many equities, and if you're worried about not making enough you are holding too few. But we should check our intuition of what's comfortable against possible mistakes. Am I

making too precise an assumption about future returns and likely losses? Is my willingness to bear risk unduly coloured by the fact that shares have risen recently, or by what others are doing? Might I be mispredicting how I would feel about losing money or by missing out on likely returns? Perhaps we can do no better than this.

**At least some kinds of loss. In 2008-09 people could comfort themselves with the thought that everybody else was in the same boat, and that the losses were not their fault. For other types of loss – such as those arising from our idiosyncratic choices – such comforts are not available.*