Funding the Future

Uncertainty, risk and misplaced assumptions on data and...

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There has been discussion on pension fund management here over the last day or two.

My suggestions when making my comments were threefold:

* Risk is not the same as uncertainty.

* Uncertainty describes situations where outcomes are inherently unknowable, and these exist in defined benefit pension schemes, even in run-off.

* The realities of law, trust relationships and fiduciary duty have to be taken into account.

To put it another way:

* Risk refers to situations where outcomes can be assigned probabilities based on known distributions.

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Uncertainty exists in scenarios where outcomes are not quantifiable due to a lack of reliable data or unprecedented events.

I really do not think this should be so hard to understand, but it appears that it is, even though this is very basic stuff, and the intellectual foundation of a lot of what Keynes did to upset neoclassical economics.

My contention is that there is uncertainty in the management of even closed, defined benefit pension funds. Again, why this is so hard to comprehend is very hard to work out.

What really scares me is how many of the claims being made by those seeking to criticise me are so profoundly reminiscent of the misplaced beliefs commonplace in the City of London before the global financial crisis of 2008 erupted.

As was clear after the event, almost all the assumptions that markets made before that crash were inappropriate. The errors made were summarised in March 2009 in a report prepared by Adair Turner (Lord Turner), who was then working with the Financial Services Authority.

I have cited section 1.4 of his report to highlight this issue when teaching in the past, because I think it is such a good summary of what went wrong.

On Saturday night, when writing this, I used Chat GPT to summarise the key points, as follows:

A summary of Adair Turner's key discussion on the difference between risk and uncertainty in The Turner Review, particularly from section ***1.4(iii): Misplaced reliance on sophisticated maths***:

Turner's Key Points on Risk vs. Uncertainty

Distinction Between Risk and Uncertainty

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Turner highlights a foundational critique of financial risk modelling: it treats the future as though it were governed by ***probabilistically predictable patterns*** derived from the past.

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He argues that this approach is methodologically flawed when applied to financial markets, which are influenced by ***social and economic behaviour***, not physical laws.

Risk refers to situations where the probability distribution of outcomes is known and can be mathematically modeled (e.g. dice rolls, insurance tables).

Uncertainty (or "Knightian uncertainty") refers to situations where the distribution of possible outcomes is ***inherently unknowable*** or non-repeatable — especially relevant in finance where market behaviors are influenced by human psychology, feedback loops, and system-wide interactions.

Flaws in Financial Models

Turner critiques models such as Value at Risk (VaR) for assuming:

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Past patterns can reliably forecast future events.

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Events are independent and ***normally distributed***.

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Risks are largely idiosyncratic (firm-specific) rather than ***systemic***.

In reality:

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Distributions in markets may have fat tails — i.e. extreme events are more likely than predicted.

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Risks are often systemic, with one institution's behaviour affecting others.

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This mischaracterisation meant that models underestimated real-world risks just before the crisis struck.

Knightian Uncertainty and Policy Implications

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Turner refers to Frank Knight's 1921 distinction between risk and uncertainty to suggest that not all financial risk can be reduced to numbers.

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He asserts that the 2007–08 financial crisis exposed this fallacy: regulators and institutions faced not risk, but uncertainty.

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Because of this, no model or regulation can fully eliminate financial crises.

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There is a need for:

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A macro-prudential regulatory approach (not just firm-level risk models).

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A backstop mechanism (e.g., government intervention or “risk socialisation”) for times when uncertainty overwhelms the system.

Supporting Sources Turner Mentions:

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Frank Knight – Risk, Uncertainty, and Profit (1921)

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Adair Turner’s own speech – Uncertainty and Risk: Reflections on a Turbulent Year (Cass Business School, 2008)

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Benoit Mandelbrot – The Misbehaviour of Markets

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Nassim Taleb – The Black Swan

✅ Conclusion:

Turner’s core argument is that the financial crisis revealed the limits of treating uncertainty as risk. Future financial oversight must recognise this and ***rely less on mathematical models*** and more on ***judgment, resilience planning, and systemic safeguards***.

In summary, it was the lack of understanding between risk and uncertainty that helped create the 2008 financial crisis, and the same issue is being seen now.

This is so important, ***I also offer the original section here*** ***(and you have to work hard now to find this report on the web). You only need to read this if you are going for a first:***

1.4 Fundamental theoretical issues

The analysis of the causes of the financial crisis implies the need for major changes in our approach to capital, liquidity, accounting, and institutional coverage, which are addressed in Chapter 2. But the crisis also raises important questions about the intellectual assumptions on which previous regulatory approaches have largely been built.

At the core of these assumptions has been the theory of efficient and rational markets. Five propositions with implications for regulatory approach have followed:

(i) Market prices are good indicators of rationally evaluated economic value.

(ii) The development of securitised credit, since based on the creation of new and more liquid markets, has improved both allocative efficiency and financial stability.

(iii) The risk characteristics of financial markets can be inferred from mathematical analysis, delivering robust quantitative measures of trading risk.

(iv) Market discipline can be used as an effective tool in constraining harmful risk taking.

(v) Financial innovation can be assumed to be beneficial since market competition would winnow out any innovations which did not deliver value added.

Each of these assumptions is now subject to extensive challenge on both theoretical and empirical grounds, with potential implications for the appropriate design of regulation and for the role of regulatory authorities.

1.4 (i) Efficient markets can be irrational

The predominant assumption behind financial market regulation – in the US, the UK and increasingly across the world – has been that financial markets are capable of being both efficient and rational and that a key goal of financial market regulation is to remove the impediments which might produce inefficient and illiquid markets. A large body of theoretical and empirical work has been devoted to proving that share prices in well regulated liquid markets, follow 'random walks', and that it is therefore impossible to make money on the basis of the knowledge of past patterns of price movement, with prices instead changing as new information becomes available and is assessed by a wide range of independently acting market participants.[8] And the assumption has been that these independently acting market participants are in general rational in their assessments and that the overall level of prices as a result has a strong tendency towards a rational equilibrium.

These assumptions have always been subject to some challenge. Many market participants accept on the basis of pragmatic observation that significant temporary bubbles in market prices are possible. And scepticism about the rationality of markets and the benefits of liquidity has a long intellectual lineage. Keynes's General Theory contains a famous attack on the idea that equity prices are driven by the rational assessment of the available information.[9] Hyman Minsky argued in 1986 that financial markets and systems are inherently susceptible to speculative booms which, if long lasting, will inevitably end in crisis.[10] Charles Kindelberger's *Manias, panics and markets* illustrated how the tendency towards occasional speculative excess spanned different markets, countries and centuries.[11]

But the predominant tendency of financial markets theory of the last 20 to 30 years has been to assert that:

(i) efficient and liquid financial markets deliver major allocative efficiency benefits by making possible a full range of contracts, thus enabling providers and users of funds more effectively to meet their preferences for risk, return and liquidity;

(ii) markets are sufficiently rational as to justify a strong presumption in favor of market deregulation; and

(iii) that even if markets are theoretically capable of irrational behaviour, policymakers will never be able to judge when and how far they are irrational with sufficient confidence to justify market intervention.

In the face of the worst financial crisis for a century, however, the assumptions of efficient market theory have been subject to increasingly effective criticism, drawing on both theoretical and empirical arguments. These criticisms include that:

- **Market efficiency does not imply market rationality**. There is nothing in empirical tests of market efficiency narrowly defined (i.e. tests of the non-existence of chartist patterns) which illustrates market rationality. The fact that prices move as random walks and cannot be predicted from prior movements in no way denies the possibility of self-reinforcing herd effects and of prices overshooting rational equilibrium levels.[12]
- **Individual rationality does not ensure collective rationality**. There are good theoretical and mathematically modellable reasons for believing that, even if individuals are rationally self interested, their actions can, if determined in conditions of imperfect information and/or

determined by particular relationships between end investors and their asset manager agents, result in market price movements characterised by self-reinforcing momentum.[13, 14]

- **Individual behaviour is not entirely rational.** There are moreover insights from behavioural economics, cognitive psychology and neuroscience, which reveal that people often do not make decisions in the rational front of brain way assumed in neoclassical economics, but make decisions which are rooted in the instinctive part of the brain, and which at the collective level