WHAT MATTERS IS META-RISKS

JACK GRAY OF GMO RECKONS WE CAN ALL LEARN FROM OTHER PEOPLE'S MISTAKES WHEN IT COMES TO EMPLOYING EFFECTIVE MANAGEMENT TECHNIQUES FOR THOSE RISKS BEYOND THE SCORE OF EXPLICIT FINANCIAL RISKS.

Meta-risks are the qualitative implicit risks that pass beyond the scope of explicit financial risks. Most are born from complex interactions between the behaviour patterns of individuals and organisational structures. The archetypal meta-risk is moral hazard where the very act of hedging encourages reckless behaviour. The IMF has been accused of creating moral hazard by providing countries with a safety net that tempts authorities to accept inappropriate risks. Similarly, Greenspan's quick response to the sharp market downturn in 1998 probably contributed to the US equity bubble.

We are all exposed to the quintessentially human meta-risk of hubris. We all risk acting like "masters of the universe", believing we have correctly assessed and controlled all risks – that having tamed yesterday's risk we have tamed tomorrow's.[1] This surfaced during the Asian crisis when "the risk management of foreign investors in emerging markets failed to foresee the buildup of unsustainable financial leverage."[2] The heady confluence of hubris and moral hazard sank two famously engineered ships: Titanic and Long Term Capital Management (LTCM) (salvaged). According to one survey, most companies cited third-party non-compliance as their biggest Y2K risk, a (meta-)risky attitude that smacks of hubris, moral hazard and unadorned organisational avoidance.

Meta-risks change one's perception of risk management. A common comforting perception holds that increasing awareness of and capacity to model explicit financial risks results in a smooth and inevitably progressive evolution from high to low risk. Meta-risks lead to a less progressive view where even sophisticated investors remain exposed to high levels of risk, of which they are unaware.

QUANTATIVE TECHNIQUES. The power of quantitative techniques, such as value-at-risk, for assessing and managing risk have a three-fold source. First is their capacity to process large, complex databases more effectively than humans. Second is the discipline they impose by exorcising emotion from decision-making. Third is an underlying scientific/engineering methodology where data is 'objectively' classified and analysed, hypotheses are formulated, tested and modified, and robust hypothesis-based decisions are implemented and managed.

The perceived complexity of quant tools exposes some to the meta-risk of failing to capitalise on their potential. The US Congress rejected statistical sampling in the 2000 census as it is "less accurate", even though it lowers the risk of miscounting. In the same spirit are those who override the discipline of quant. As Nick Leeson's performance reached stellar heights, his supervisors expanded his trading limits. None had the wisdom to narrow them. Consider an investment committee that makes a global bet on commodities. The manager responsible for North America, who had previously been rolled, makes a stand: "Not in my portfolio." The committee reduces the North American bet, but retains its overall size by squeezing more into 'ego-free' regions. Does anyone assess the resulting unintended risks?

META-RISK MODELS. This notwithstanding, the quantitative approach to finance has attained the high ground through a masterly marketing campaign that resonated with our ambient scientific culture. However,[3] its success exposes the meta-risk of over-quantifying, of measuring the intrinsically unmeasurable. That is the danger inherent in the oft-heard comparison: 'it's not rocket science'. The secret is that much of rocket science is straightforward compared with finance. First, in rocketry, human and organisational factors have less influence and are more quantifiable and controllable. Second, the underlying dynamics that drive rockets are understood and stable. What few finance laws there may be are ill-understood and, through arbitrage-induced erosion, unstable.

Excessive emphasis on quant exposes us to the meta-risk of only managing that which is modeled, which may explain how LTCM's "reliance on so many quantitative models blind(ed) them to liquidity concerns".[4] That the critical liquidity risk has no agreed quantified definition in spite of an agreed intuitive definition of liquidity as the ability to trade at the 'right' price, at the 'right' volume, at the 'right' time, serves to underline its subtlety. Although volatility, beta and its variants are robust and effective proxies for risk, the subtle and idiosyncratic nature of risk can transcend these models.[5] The partially quantifiable description of risk as 'exposure to the likelihood of disappointment' encourages a dialogue on expectations and their formation by explicitly addressing behaviour.

COUNTING THE QUANT RISKS. Quants are exposed to their own peculiar brand of meta-risks, the most insidious being data mining. Techniques such as out-of-sample testing can hedge this risk, but its dangers bear repeating via an almost too perfect example.[6] Over the bullish 20 years from 1977 to 1997, correlations between US bond and equity yields were strong and positive (roughly 0.73), the ready explanation being that rising equity prices make bonds relatively attractive, so bond yields fall together with equity yields. That the data has been mined is revealed by the previous bullish 20 years from 1948 to 1968 where the respective correlations are equally strong but negative (roughly -0.78), a phenomenon explained by rising inflation driving up both bond yields and future corporate profits. From 1871 to 1997, the correlations are essentially 0.

The widely recognised but poorly managed model risk, is the meta-risk that the failure of known mis-specifications, such as the assumption of continuous capital markets, have a more damaging impact than expected. According to one study, 20% of the $24bn in derivative losses incurred by banks over the past decade can be attributed to model risk. 1997 was especially graphic. Over a 12-month period, as correlations doubled portfolios designed to be diversified under 'normal' conditions failed. Regulators who dis-allowed the risk-lowering effects of diversification in estimating capital adequacy requirements, may have been prudent. Model risk might be hedged through 'extreme value theory', a branch of statistics that models the distribution of extreme events such as stockmarket bubbles. One survey found that 25% of banks plan to add extreme value theory to their arsenal of risk management tools.

The meta-risk of complexity will increase due to the confluence of globalisation, technology, new instruments, finer market sub-divisions, increasing market micro-efficiency, competition, specialisation and regulation. The essence of complexity lies in interactions that defy reductionism. Complexity was a meta-risk of which the Metallgesellschaft board was unaware. It may have understood its risks line by line, but failed to understand the interactions between lines.

Excessive complexity in portfolios encourages a focus on individual securities, undermining the basic tenet of modern portfolio theory that the risk of a security can only be assessed in a portfolio context. The surest hedge is embedded in Einstein's wise dictum that "everything should be made as simple as possible, but no simpler". The sting in the tail, simplicity risk, arises because a degree of complexity provides a robust stability, as it does in ecosystems. Excessive simplification emphasises component parts at the expense of a holistic view, a risk highlighted in the Institute for International Finance's 2000 report on risk assessment in the banking sector.

MANAGING META-RISKS. Effectively managing meta-risks is difficult because they are remarkably resistant to eradication through learning, and perhaps even through therapy.

The most dangerous and difficult to manage meta-risk is insufficiently challenged views, the risk that we discount evidence and arguments that challenge our views, and selectively place a premium on evidence and arguments consistent with our priors. When asked whether there is a single maxim that could ruin a financial strategy, Confucius replied: "The only pleasure of being a prince is never having to suffer contradiction. If you are right and no one contradicts you, that's fine. But if you are wrong and no one contradicts you, is this not a case of [a] single maxim that could ruin a [financial strategy]?" Maxwell's outrageous theft and Enron's staggering abuses, unveil the risk of not challenging authoritarians. Orange County revealed the risk of not challenging those who believe they are experts, as did Metallgesellschaft. Experts and princes alike are over-confident, overly optimistic, commit cognitive errors and follow fashion.

Effective challenge requires the 'right' platform or framework. The common experience of remaining unconvinced by a logically water-tight argument highlights this need. The platform of those challenged is typically formal and deductive; that of the challenger's is typically intuitive and inductive. Excessive formalisation generates ideas, processes and arguments whose tightness makes them impenetrable, beyond challenge; excessive intuition generates ideas, processes and arguments whose looseness makes them impenetrable, beyond challenge. A common platform, one based on underlying, implicit assumptions and world views, facilitates meaningful and challenging debate between competing styles of intelligence. At the end of the 1980s, I believed the US was fast becoming a boring, mature economy with at best moderate growth relative to Japan. My intuitive, rational reasons: Japan's long-term thinking and financing; its stable labour relations; its dominance of engineers over lawyers; and its strong industry policy. The confluence of a Keynesian political/economic world views and a passion for engineering blinded me to reality.

Of critical importance is the evolving task of creating the 'right' culture. Compliance risk can be hedged in explicit technical ways such as exception reports and separating compliance from portfolio management. But these can be finessed unless surrounded by a culture of integrity and openness, one where people are expected to debate and challenge authority, and readily admit to mistakes, ignorance, and ethical dilemmas.

TAKE NOTE. An open dialectic of risk may be the ultimate form of risk management. Debate and challenge are crucial forms of risk management at the more judgmental end of decision-making, because here the nature of truth is dynamic, soft, implicit and divergent. The most effective technique for managing it may be a legal-like process of interrogation which requires people with diverse mental models covering a wide variety of areas of human endeavour.

Too narrow a focus on explicit quantifiable risks misses important (non-quantifiable) meta-risks that are more difficult to identify, assess and manage because they centre around people, organisations and their interactions. The Unilever case based on the manager's failure to adequately address "explicit and implicit risk parameters" is an inchoate warning about their importance.

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NOTES

[1] Jacobs, Bruce. *When Seemingly Infallible Arbitrage Strategies Fail*. Journal of Investing, Spring 1999, 9-10. [2] Garten, Jeffrey. *Lessons for the Next Financial Crisis*, Foreign Affairs, 78 (2), March/April 1999, 80. [3] Gray, Jack. *Overquantification*, Financial Analysts Journal, November/December 1997, 5-12. [4] Lewis, Michael. How the Eggheads Cracked, *New York Times Magazine*, January 24, 1999. [5] *Wall Street Journal*, May 20, 1999, C20. [6] See for instance, Bernstein, Peter. *Against the Gods: The Remarkable Story of Risk*. NY: John Wiley & Sons, 1996, and Bookstaber, Richard, *Risk Management in Complex Organisations*, Financial Analysts Journal, March/April 1999. [8] Due to Murray, Daniel and Andrew Smithers. "The Myth of Yield Ratios." Report # 133, Smithers & Co. Ltd., May 10, 1999.