Risk: The sting in the tail

Tail risk 10 years on – have we learnt anything?

I published the article on the next page in 2011, not long after the global financial crisis. 10 years on, and as we steer our way through yet another extreme "tail event", this aspect of risk management feels more crucial than ever.

2011 2021

Before and after a few extreme events

I made the case that pension trustees need to be much more concerned about extreme events or so-called "left tail risk". Financial theory tends to ignore or understate this so a different type of thinking is needed. History tells us that we will suffer an extreme event at some point and its impact will be very severe. Should pension funds have done more to protect themselves from events like Covid-19? Is it too late to do anything now? What about the next one?

It is a part of probability that improbable things will happen

Aristotle

In a nutshell

1. Much more attention needs to be directed to governing and managing the impact of extreme events
2. There are steps that asset owners can take to mitigate the impact of extreme events
3. The governance of extreme risk management is challenging because most of the time, the portfolio looks "inefficient" using normal measures

Want to know more?

If you'd like to know more about tail risk and how it can be mitigated please get in touch.

Investment Governance Services helps pension funds and other asset owners to achieve better outcomes. We do this by becoming part of your team providing additional flexible governance resources at Board or Executive level.

Tail risk checklist

Are your investments exposed to tail risks?

Is your sponsor's business exposed?

Are extreme events on the risk register?

Is there a plan for managing tail risk?

The sting in the tail

Abridged version of article first published November 2011

Too much focus on normal events

Much of the portfolio theory that has been applied to pension schemes over the last decade or so has focused on improving financial efficiency (return per unit of risk) in "business as usual" scenarios.

Schemes should also consider events whose consequences are so severe that the survival of the pension framework itself is threatened – left-tail events. Although these events are rare, they cannot be ignored. An analogy is home fire insurance: house-fires are rare, but the consequences are so severe that few householders ignore the risk – instead they insure it.

From a pension scheme perspective, the key left-tail event is significant impairment of the scheme sponsor. This is when the framework starts to unravel – the scheme may be closed or restructured or existing promises may be cut. This might be caused by market events (a major decline in asset prices) or events unique to the sponsor. Either way, left-tail risk management needs to look at how the scheme's assets will behave in the event of sponsor impairment. Does the investment strategy mitigate the impact of sponsor impairment or make it worse?

Severe events

Left-tail thinking is different. Under this approach the role of the assets is not only to earn investment returns, but also to explicitly provide collateral in bad events. If we think about the assets in pure collateral terms, it becomes clear that they need to be sufficient in volume and quality to cope with severe events. This oversimplifies the problem though because the assets must also earn investment returns by taking risk – potentially a competing objective. In addition, assets are rarely sufficient to secure benefits in full, so the portfolio needs to do more in a left-tail event than just stay still: it needs to outperform. Finally, the level of collateral needed in such a situation is not well defined – how far would the value of a scheme's assets, and therefore its funding level, have to fall before it is deemed to be unsustainable?

Threat to viability

The way to approach this form of risk management is to ask: "If the sponsor were to be affected by a left-tail event, what would be the likely state of investment markets?" Impairment of a previously strong sponsor probably means that something has gone seriously wrong in the world, so both equity and credit markets may be severely depressed. Conversely, for a weaker sponsor, the pension scheme itself may threaten the viability of the sponsor in the short term.

A quantitative framework is useful for comparing the merits of different courses of action and there are a number of statistics for this purpose including "conditional-loss" (the amount of loss in scenarios where the sponsor is impaired) and "conditional-return" (the expected return in scenarios where the sponsor survives).

Taking precautions

At one end of the spectrum there are some straightforward precautions that a scheme can take. Such as excluding assets from the same sector or industry as its sponsor.

Examples of other possible strategies are:

- Inflation hedging and interest rate hedging: protect against falling rates or inflation
- Equity put protection: this is very good value in a tail risk framework
- Cash plus call options: upside exposure with downside protection: significant reduction in downside risk while retaining upside
- Optimal allocation the return-seeking assets taking into account the riskiness of contribution promises
- Lower credit allocations: high grade credit often looks attractive under traditional portfolio theory but once the shape of the return distribution is taken into account it is less attractive.
- Liquidity management: Left-tail events tend to be associated with liquidity problems.
- Contingent/path dependent funding: access to a defined pool of assets contingent on sponsor or market events can be very valuable in left-tail events

Too painful to bear

Protecting against left-tail events is costly but this misses the point. There are some scenarios that are just too painful to bear and it is worth accepting some cost (like a household insurance premium) to mitigate the consequences. This is a tough message for many pension schemes, but there is some good news.

In the same way that some scenarios are too painful, there are some scenarios that are "too good" in the sense that they have less value to the sponsor or members. It is worth thinking about selling some of this uncertain and less valuable upside in return for a certain premium now. Indeed, this might be used to finance protection against left-tail events.

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