Financial services place too much faith in flawed risk models

Life is full of things that work in theory but not in practice. Sadly, the way financial services assess risk is one such example. And ultimately, our one-dimensional approach to risk could well sow the seeds of the next crisis.

Too much reliance is placed on neat quantitative solutions even though they are flawed. Investment is both an art and a science and risk should be calculated through qualitative and quantitative methods. Our one-dimensional approach to risk could well sow the seeds of the next crisis.

Market risk is commonly evaluated through models like the simple Capital Asset Pricing Model or complex derivatives of the Black Scholes option pricing model. They have their uses. Fund managers discussing levels of risk with clients or looking to launch funds need concrete measures on which to base conversations. But these uses are pretty limited.

A problem is the use of short-term volatility as a proxy for risk. This measures the day-to-day movement of asset prices and is easy to quantify.

But it does not accurately reflect permanent loss of capital — the investors' risk of losing their money forever. It also neglects other risks such as credit, liquidity and bankruptcy, which are not readily measurable.

During the financial crisis, institutions such as Lehman Brothers collapsed because the models they used miscalculated some risks and ignored others, which were hard to quantify.

Models are only as good as their inputs. Technology companies use the phrase 'garbage in, garbage out' to describe the data you will get out of a program if what you put in is suspect.

The concept is not sufficiently well-understood in finance. For instance, past performance data are often at the heart of models, despite numerous flaws. Potential investors are told 'past performance is no guarantee of future performance' — it really is not.

Think of the Chinese equity owners, who saw their capital more than double in value over the course of this year, only to plunge 30 per cent in less than a week.

Even without these failures, models should not be the sole instrument used to calculate risk. Economist John Maynard Keynes explained that there are two components to risk: probability and uncertainty.

Probability explains risk in closed situations, with a finite number of outcomes and limited repercussions, such as tossing a coin. It is also the output from risk models. But financial markets are more complex than probability alone implies; uncertainty also needs to be considered.

The probability of Greece exiting the Eurozone, for instance, could be roughly estimated by looking at markets and bookies' odds. But the many uncertainties surrounding a Grexit cannot be estimated by even the most sophisticated risk models.

A qualitative approach to analysing risk allows consideration of these uncertainties. Statistically insignificant events with the potential to cause massive disruption are given appropriate attention. Flaws in data and risks that cannot readily be quantified may cause models to produce 'garbage', but in a holistic approach these flaws will not prove so fatal.

Qualitative data may not produce concrete statistics, but they do allow us to look past the fallibility of models. The sophisticated

models used by credit rating agencies judged many complicated asset-backed securities as relatively benign before the financial crisis. The models were wrong. Maybe if the credit rating agencies had taken a wider look at these products (or just asked themselves if they understood them) they might have come to very different conclusions.

Models based on flawed data, which do not consider uncertainty are clearly insufficient. A more holistic approach is needed.

Unfortunately such a view is not shared by many risk analysts. Their only philosophy is the leap of faith that is required to account for the assumptions inherent in models.

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