Comment

Making the numbers talk: Too much reliance on quantitative measures and too little on qualitative risk analysis

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A risk manager's job, in conjunction with his firm's product management team, starts with establishment of risk guidelines appropriate for a fund's mandate; it ends with day-to-day analysis of what the numbers behind those guidelines tell him. It is perhaps too simplistic to conclude that early detection of deviations from the agreed risk guidelines would ensure that mistakes can be completely avoided — or even what some may consider an investment disaster. Mistakes are as much part of the investment process as are the fruits of careful research and sound investment judgment — but for the competent risk manager, 'mistakes' will not be a surprise — they will be something which has been factored into the overall risk profile of the fund.

Disasters too, will be something for which he has allowed through periodic stress testing and which will have been determined as acceptable or not depending on the risk appetite of his ultimate client — the fund's investors.

Diversification will, of course, be his first line of defence against investment disaster — either on a stock-by-stock basis, or by asset class-to-asset class or by market-to-market — and once these have been satisfactorily established, a fund manager can assume centre-stage to pursue his strategic investment decisions and exploit his stock-picking talents. In this task, the fund manager can be helped enormously by his risk manager — something denied to his pre-1975 counterparts, prior to the launch that year of Barra, the first commercially available risk tool. Pre-1975, risk management had been an essentially academic pursuit — indeed Barra itself was spawned at Berkley, feeding from the works of Markowitz, Miller, Sharpe and other contemporary proponents of (then modern) modern portfolio theory (MPT).

However, a risk manager's time is all too frequently torn between the risk management process itself and the day-to-day monitoring of that process, leading to over-dependence on quantitative measures as the principal monitoring tool.

In this respect, the risk manager, until recently, was not supported by regulatory interpretation of risk guideline compliance. The UCITS III Directive (UCITS III refers to Directive 2001/107 and 108/EC of 21st January, 2002. These two directives amend the original UCITS directive of 1985 and became progressively active from February 2004 and February 2007) started to break this mould in the aftermath of the 2001/02 dot.com and technology, media and telecommunications (TMT) sectors meltdowns and, after a number of false starts, succeeded in forcing the open-end fund industry to adopt a more qualitative and analytical approach. The same cannot be said of the hedge-fund industry, which for the time being remains unregulated and self-disciplined on risk management (albeit a number are converting to a transparent UCITS format), nor of the pensions sector, where many pension fund regulators have avoided the issue.

In the UK, for example, the pension regulator's 'Trustees Knowledge & Understanding' (TKU) document demanded only that trustees involved in the investment decision process be able to distinguish between risk and return, implicitly leaving the more esoteric elements of risk interpretation to the fund's advisers and managers. And of course, the ultimate control of pension fund risk is the compensation scheme, so accountability is effectively passed by the government from the trustee to the scheme sponsor.

In Continental Europe, however, some pension regulators have started to take a tougher line. In The Netherlands, for example, the regulator demands that trustees adopt independent responsibility for monitoring the adequacy and operation of the scheme's risk process.

In the aftermath of the subprime crisis, and with derivative instruments now part of every manager's toolkit, such response is timely — and it can only be a matter of time before others, including the UK pension regulator, follow suit.

But while the regulators and fund managers are moving towards a broader risk management approach, the question of whether or not there is still too much reliance on the numbers — quantitative techniques alone — remains unanswered. In February 2009, Committee of European Securities Regulators (CESR) flagged its concern that too much reliance had been placed by the regulators on a single risk number — specifically value at risk (VaR). Three months later, the Financial Services Authority (FSA), via the Turner Review, raised the same question: 'There are, however, fundamental questions about the validity of VaR as a measure of risk'.[1]

Many risk experts had always claimed that VaR — the single most widely adopted measurement of risk — by itself, was meaningless. VaR provides a measure of risk exposure, of course, but in the context of a portfolio as a whole, this is as valuable as a single line of music in a symphonic score; at best it gives an outline of the 'tune' or 'melody', but it cannot distinguish between the andante, allegro and rondo elements of the composition. And in the same way as an orchestral score requires differentiation and definition of the strings, woodwind, brass and percussion — so VaR needs support from other measures of risk — relative VaR, tracking error and concentration measures among others — to give it harmony and credibility.

The UCITS legislators and the regulators have heard this message and are now telling the investment community at large — hedge funds included — to change or risk the wrath of their investors and, ultimately, the collapse of their business models.

It is also necessary for the investment community — the risk management sector in particular — to improve their communication skills. Understandably, perhaps, risk managers talk their own language — 'ex ante', 'ex post', 'co-variance' and 'heteroskedasticity' — which few outside their esoteric world understand. What is the point of telling an investor that his fund is constructed by stochastic quant modelling to produce high beta, geared risk characteristics if this appears to him no clearer than a Shakespearian sonnet written in Swahili and addressed primarily to a far-flung Inuit community?

Most importantly, the language has to be understood by the people making the investment decisions and by those whose responsibility it is to monitor those decisions to ensure they match the risk parameters appropriate to the fund's mandate. To restore — and maintain — investor trust requires transparency of a new dimension, and in much the same way that accountancy practice became trusted only by insistence of independent audit, so too does best practice in risk management demand independent verification.

UCITS III, again, shed valuable light on this notion of independence, with clause 42(1) of the Directive stating that:

> 'the Directors of a UCITS fund . . . must employ a risk management system . . . to monitor and measure at any time the risk of the positions and their contribution to the overall risk of the portfolio; and must employ a process for accurate and independent assessment of the value of OTC derivatives . . . and define the quantitative limits . . . to estimate associated risks in chosen derivatives.'[2]

Meanwhile, Commission for the Supervision for the Financial Sector (CSSF), the Luxembourg regulator, last August published its definitive interpretation of the Directive in Circular 07/308, which stated:

> '"non-sophisticated UCITS" should measure and control risk on at least a bi-monthly basis — but that for "sophisticated UCITS", such frequency should be daily. It also confirmed that the CSSF would allow a UCITS Board of Directors to delegate a portion, or all, of the risk management and control process to a third-party acknowledged to be specialised in "this type of activity".'[3]

It also confirmed that the CSSF would allow a UCITS Board of Directors to delegate a portion of all of the risk management and control process to a third party acknowledged to be specialised in 'this type of activity'. However, the CSSF made clear that a UCITS cannot delegate its risk management responsibilities to the risk unit in charge of portfolio management decisions — ie to the 'front office/desk'. It also stated that, in the pursuit of independence, a third party can be assigned the responsibility of taking over all missions incumbent on risk management provided that special attention is paid, along with stringent monitoring, to transactions with derivative instruments — given the specific risks associated with this category of instrument — in particular potential leverage effect, high volatility and complexity.

At the very least, the CSSF expects the work listed below to be part of risk management's scope of activities:

- determination and monitoring of global exposure;
- determination and monitoring of counterparty risk associated with over-the-counter (OTC) derivatives;
- determination and monitoring of concentration limits;
- determination of valuations of OTC derivatives;
- establishment of risk monitoring reports.

In differentiating between 'sophisticated' and 'non-sophisticated' UCITS, Circular 308 defines the former as UCITS which use — 'for important part' — derivative financial instruments or which make use of complex strategies; and the latter as UCITS with fewer, or less complex positions in, derivatives or using derivatives solely for hedging purposes.[4]

This last segment was slightly ambiguous — although the sense of the CSSF's intention will be clear. Circular 308 covered all other relevant elements of risk control which must be assumed by the UCITS Board of Directors, including determination of leverage, limitation on market risk, criteria governing the use of VaR, limitation of counterparty risk, concentration risk and monitoring and control of coverage rules.

In short, for funds under the Luxembourg regime, this circular clarified what would be expected of them in the future. In so doing, the CSSF brought itself into line with interpretations already adopted by many other European regulators — Irish, German and French among them.

It will take some time before the results of such enforcement can be determined in investment performance. Certainly the industry today has many more tools to help it manage the downside than in the past; the fund managers of the 1970s, for example, could not use index futures to protect their downside. The contract on the S&P 500 was not being traded on the Chicago Mercantile Exchange (CME) until 1982 exchange traded options, while there were only 16 contracts listed on the Chicago Board Options Exchange (CBOE) at its 1974 launch (most options until then being available only in OTC form). Moreover the Black-Scholes options pricing model was understood by only a handful of 1970s managers. Clearly the success of the hedge fund sector since the turn of the millennium has demonstrated that risk management has a vital part to play in achieving a fund's objectives — Long-Term Capital Management and Amaranth being two notable exceptions. But even with these high-profile collapses there were lessons to be learned, two of which stand out: first, that a fund's risk process should be transparent; secondly, that liquidity (of the underlying security) is a vital component of risk which only qualitative analysis can accurately and adequately identify.

Numbers are important — but they are only part of the story — the analysis behind them is a different magnitude of importance.

References

1 Financial Services Authority (FSA) (2009) 'The Turner Review', Chapter 1, para. 1.1 (iv), FSA, London, UK.
2 Per Arendt and Medernach translation into English as published 2nd August,

2009: CSSF Circular 07/308, II.1 Organizational principles. Article 42(i) of the 2002 Law (*Undertaking for Collective Investments in Transferable Securities — amended as of 20.12.2002*) requires that UCITS implement a risk management method that enables them to monitor and measure at any time the risk positions and their contribution to the overall risk profile.

The Commission expects that non-sophisticated UCITS, as defined hereafter, measure and control financial risks related to investments at least on a bi-monthly basis. For sophisticated UCITS, such frequency is daily.

3 *Ibid*.

4 Ibid at III 1.1 Classification of UCITS on the basis of their risk profile:
- A sophisticated UCITS is a UCITS using, for an important part, financial derivative instruments and/or making use of more complex strategies or instruments
- A non-sophisticated UCITS is a UCITS with less or less complex positions on financial derivative instruments or with financial derivative instruments used solely for hedging purposes.