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Managing Risk Exposures using the Risk Budgeting Approach:

* “The ongoing economic crisis has profoundly changed the industry of asset management by putting risk management at the heart of most investment processes. This new risk-based investment style does not rely on return forecasts and is therefore assumed to be more robust.”
* “risk budgeting approach”: “minimum variance, ERC or risk parity strategies.”
* “Mean-variance optimization, however, generally leads to portfolios concentrated in terms of weights. Slight differences in inputs can lead to dramatic changes in allocations and create portfolios heavily invested on very few assets. There is also confusion between optimizing the volatility and optimizing the risk diversification that could be naively described by the general “don’t put all your eggs in one basket” concept.”
* “Like the ERC portfolio, the risk budgeting approach is an heuristic asset allocation method.”
* “a dynamic strategy based on MVO portfolios will generate a higher turnover than a dynamic strategy based on RB portfolios.”
* This paper: “present four main applications of the risk budgeting approach. They concern risk parity funds, strategic asset allocation, equity indexes and sovereign bonds benchmarks.”

AFTER VAR: THE THEORY, ESTIMATION,

AND INSURANCE APPLICATIONS OF QUANTILE-BASED

RISK MEASURES:

* “the VaR is seriously flawed.”
* “(1) There are many QBRMs that have respectable properties and are demon-strably superior to the VaR, but the choice of “best” risk measure(s) is a subjective one that can also depend on the context. (2)”
* “that it should be relatively straightforward for institutions to upgrade from VaR to more sophisticated risk measures.”
* “A good case in point here is the slowness with which axiomatic theories of financial risk measurement—of which the theory of coherent risk measures is the most notable example—have been accepted across the FRM community, despite highly persuasive arguments that coherent measures are superior to the VaR.”
* ” The VaR provides a common measure of risk across different positions and risk factors. It can be applied to any type of portfolio, and enables us to compare the risks across different (e.g., fixed-income and equity) portfolios. Traditional methods are more limited: duration measures apply only to fixed-income positions, Greek measures apply only to derivatives positions, portfolio-theory measures apply only to equity and similar (e.g., commodity) positions, and so forth.”
* “VaR enables us to aggregatethe risks of positions taking account of the ways in which risk factors correlate with each other, whereas most traditional risk measures do not allow for the “sensible” aggregation of component risks.”
* “ VaR is holistic in that it takes full account of all driving risk factors, whereas many traditional measures only look at risk factors one at a time (e.g., Greek measures) or resort to simplifications that collapse multiple risk factors into one (e.g., duration-convexity and CAPM (Capital Asset Pricing Model) measures).”
* “VaR is also holistic in that it focuses assessment on a complete portfolio, and not just on individual positions in it.”
* “ VaR is probabilistic, and gives a risk manager useful information on the probabilities associated with specified loss amounts. Many traditional measures (e.g., duration, Greeks, etc.) only give answers to “what if?” questions and do not give an indication of loss likelihoods.”
* “VaR is expressed in the simplest and most easily understood unit of measure, namely, “lost money.” Many other measures are expressed in less transparent units (e.g., average period to cashflow, etc.).”
* “VaR also suffers from some serious limitations.”
* “One limitation is that the VaR only tells us the most we can lose in good states where a tail event does not occur; it tells us nothing about what we can lose in “bad” states where a tail event does occur (i.e., where we make a loss in excess of the VaR). VaR’s failure to consider tail losses can then create some perverse outcomes. For instance, if a prospective investment has a high expected return but also involves the possibility of a very high loss, a VaR-based decision calculus might suggest that the investor should go ahead with the investment if the higher loss does not affect the VaR, regardless of the sizes of the higher expected return and possible higher losses. This undermines “sensible” risk-return analysis, and can leave the investor exposed to very high losses.”
* “The VaR can also create moral hazard problems when traders or asset managers work to VaR-defined risk targets or remuneration packages. Traders who face a VaR- defined risk target might have an incentive to sell out-of-the-money options that lead to higher income in most states of the world and the occasional large hit when the firm is unlucky. If the options are suitably chosen, the bad outcomes will have probabilities low enough to ensure that there is no effect on the VaR, and the trader will benefit from the higher income (and hence higher bonuses) earned in “normal” times when the options expire out of the money. The fact that VaR does not take account of what happens in “bad” states can distort incentives and encourage traders to “game” a VaR target (and/or a VaR-defined remuneration package) to promote their own interests at the expense of the institutions that employ them.6”
* “the ES also satisfies the other properties of coherence, and is therefore Coherent”
* “13 Risk-aversion theory requires us to specify a user risk-aversion function, and this can provide considerable insights (as shown in the following text) but can also be controversial. Among the potential problems it might encounter are: (1) the notion of a risk-aversion function can be hard to motivate when the user is a firm, or an employee working for a firm, rather than, say, an individual investor working on their own behalf; (2) one might argue with the type of risk-aversion function chosen; and (3) one might have difficulty specifying the value that the risk aversion parameter should take.”
* “Their work sug-gests that actuaries might need to pay more attention to the context of a prob-lem, and not just focus on the theoretical properties of risk measures considered a priori.20”
* “However, in some respects, we are spoilt for choice and it is generally not easy to identify which particular one might be best.”
* “circumstances, the only solid advice we can offer at the moment is: in general, avoid the VaR as a risk measure, and try to pick a risk measure that has good theoretical properties and seems to fit in well with the context at hand.”
* “Stochastic methods are therefore the methods of choice for the vast majority of “complex” risk problems, and we shall have more to say on them in the next two sections.29”