Behind the Money

The Envelope of the Best-Case HFs or CTAs

By Christopher Faille, Reporter | Monday, June 27, 2005

Book Review

Greg N. ***Gregoriou,*** *Joe Zhu,* Evaluating Hedge Fund and CTA Performance: Data Envelopment Analysis Approach, *Hoboken, N.J., John C. Wiley & Sons, 2005, 167 pp., cloth, US$116.99 (cloth).*

Greg **Gregoriou** is assistant professor of finance at the School of Business and Economics, State University of New York (Plattsburgh). He's also a member of the editorial board of *Derivatives Use, Trading and Regulation*, a UK based academic journal.

His co-author here, Joe Zhu, is associate professor in the department of management at Worcester Polytechnic Institute

Hedge fund enters Priory auction
June 26, 2005, Sunday
(Sunday Times (London))

Crippled model sues pilot for record £100m
June 26, 2005, Sunday
(Sunday Times (London))

Panmure goes back to school The old British stockbroker, which has recently obtained a

and a member of the editorial advising board of Computers and Operations Research.

As the title and subtitle indicate, this book makes the case for a specific approach to the evaluation of hedge fund and commodity trading adviser performance. But what is that approach? What is "data envelopment analysis," other than something of a mouthful?

DEA is a method of performance evaluation first introduced in 1978 that focuses on efficiency in the microeconomic sense of that word.

In microeconomics, a production process is said to be "efficient" when it creates as much output as is possible consistent with a given quantity of input. In manufacturing, this could mean the production of as many automobiles as is possible consistent with a fixed amount of steel, electricity, labor hours, etc. The different inputs, and different outputs, each have to be weighted. Economists generally take the efficiency frontier to be the best result that has been demonstrated in fact—if Toyota's plants produce more car-value per input units than Ford's, Toyota has proven Ford inefficient.

In the case of the efficiency of asset management, though, instead of plants we have "decision-making units" or DMUs. The simplest way of thinking of input and output for these DMUs is to think of the former as risk and the latter as return—although that's not the end of the story. Indeed, one of the advantages of the DEA over, say, Harry Markowitz's portfolio selection model, is that the latter in effect treats risk as the *only* input, whereas DEA allows for multiple inputs.

Another distinctive feature of DEA is that it focuses not on averages, but on the (empirically demonstrated) best case. Anything less than the best case is, by definition, inefficient—like Ford's plants, in our example.

The best cases are plotted on a graph (with inputs as the x axis, outputs as the y), and the line connecting those points is called the DEA efficient frontier.

But one can peel away efficient frontiers as one can peel away the skins of an onion. For example, in a specific case hypothesized in this book, we might find that there are three DMUs operating on the first-level efficiency frontier: CTA3, CTA4, and CTA7. If we remove those three and apply the CRS model to the remaining eight DMUs, we find another three at the second-level frontier, and so forth.

A DEA model can be "input-oriented" or "output-oriented," and it can assume either a constant return to scale (CRS) or a variable return to scale (VRS).

This book comes with (and spends much of its text explaining) software called the DEAFrontier, developed by

Dr. Zhu. It's an add-in for Microsoft Excel and uses the Excel Solver.

The authors may well prove correct in their confidence that "DEA will become a widely used technique to screen and assess hedge fund manager and CTA selection." If so, then there will be a ready audience for this book and the accompanying software among fund of fund or pension fund managers who want to do their due diligence with the most up-to-date quantitative tools available.

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