EDHEC Hedge Fund Days Conference, London, 15th February 2006

Hilary Till's prepared remarks on "Investing in Hedge Funds: Adding Value through Active Style Allocation Decisions," by Lionel Martellini, Mathieu Vaissié and Volker Ziemann of EDHEC's Risk and Asset Management Research Centre, http://www.edhec-risk.com.

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Session: Asset Allocation Stream

Hilary Till received technical advice from Dr. Barry Feldman, Prism Analytics, http://www.prismanalytics.com.

Bonjours, mesdames et messieurs. Je suis enchantee d'etre ici. In their paper, Lionel and his colleagues, Mathieu Vaissie and Volker Ziemann, have accomplished an impressive feat in assembling the tools and techniques necessary to deliver their results. They have put a four-moment CAPM "under the hood" of the venerable Black-Litterman model and have shown that this model can be used to derive equilibrium returns, to revise those returns in the face of investor views about the performance of different asset classes, and to determine optimal asset allocations based on the revised returns and higher-moment risk factors. I would like to share with you some thoughts about questions arising from this work that many of you may also be pondering.

1. Q: First, is there sufficient potential benefit to go to the trouble of using a four-moment asset pricing model?

A: Yes. Considerable research indicates that the risk associated with higher moments is priced. Pricing assets with linear factor models then does not include the compensation for tail risk. The alternative investment community has long been interested in downside risk and fat tails in portfolio optimization. But our models of conventional and alternative asset performance are overwhelmingly linear. This is logically inconsistent: It implies we care about tail risk but that the market does not.

2. Q: What is the Black-Litterman model, and how important is it in practical asset allocation?

A: The essential components of the Black-Litterman model are, first, an equilibrium asset pricing model and, second, a method of revising equilibrium returns to take investor views into account.

The equilibrium asset pricing model is distinctive in that the risk characteristics of the market portfolio are determined by aggregating the risk characteristics of a set of asset classes using their capitalization weights. Once the expected market return is known, equilibrium asset class returns are determined as well.

Investor views are beliefs about expected returns or relative expected returns accompanied by a level of relative confidence in each belief and a level of overall confidence in the beliefs taken together. These views are used to revise equilibrium expected returns. The greater the confidence expressed in a view, the more power the view has to move revised returns in the direction of the view.

The single-factor Black-Litterman model has been very influential in practical asset allocation. The view framework provides a disciplined approach to the formation and documentation of investment expectations. The Black-Litterman model is based on the Sharpe CAPM. Extending it to take account of systematic skewness and kurtosis is a worthy goal.

3. Q: Are there other relevant extensions of the Black-Litterman model? How do they compare?

A: Yes, there are other extensions. Krishnan and Mains (2005) develop a linear multifactor version and Giacometti et al. (2005) develop a multifactor version based on Levy-stable distributions.

The Krishnan and Mains approach is straightforward. They develop a two-factor model where the first factor is the market and the second factor is an orthogonalized recession risk factor. They show how to generate equilibrium returns and how to then revise them according to investor views. Thus, they incorporate a downside risk factor, but in a linear framework.

The Giacometti et al. approach has the appealing ability to model assets that deviate greatly from normality. But it has the limitation that all asset classes (or assets) must have the same "thickness of tails."

4. Q: What is the key issue raised by EDHEC's work?

A: The key issue is whether an equilibrium single-factor asset pricing model should be used to predict the systematic component of alternative asset returns, even if it is nonlinear. Our knowledge of hedge fund strategies and the considerable work on alternative betas would seem to imply that a lot is given up by working solely in a single-factor framework.

I'll give some examples of previous research on the matter.

Work such as Laurent's 2002 paper with Jose-Antonio Galeano examines the nonlinearity in alternative asset returns, and work going back to at least Kraus and Litzenberger (1976) finds that nonlinear factors are important in forming conventional (equity) asset prices.

Bansal and Viswanathan (1993) first report that a higher-moment CAPM might outperform multifactor models. Harvey and Siddique (2000) find that conditional skewness helps to explain the cross-section of equity returns and that conditional skewness commands an average risk premium of 3.60% per year. They suspect that size and value factors may be proxies for skewness, writing "[c]oskewness … provides us with some insights as to why … variables such as size and book-to-market value are important in explaining the cross-sectional variation in asset returns." (p. 1293)

Dittmar (2002) finds that allowing for systematic skewness and kurtosis significantly improves the performance of single and multifactor models, including the Fama-French model. Dittmar concludes that priced higher moments "drive out the importance of the [Fama-French] factors in the linear multifactor model." (p. 369)

It seems *possible*, then, that all the traditional factors in linear multifactor models might be proxies for higher moment risk. Thus, alternative asset performance *might* effectively be represented by a four-moment CAPM.

5. Q: Which aspects of EDHEC's paper are likely to be of widest interest?

A: I believe that the extended Black-Litterman model is the most important aspect of the paper. However, the paper makes contributions that also are independent of the extended model.

The subsection on "contrasted diversification benefits" is an excellent guide to the practical use of coskewness and cokurtosis in portfolio construction. It is valuable even in situations where the Black-Litterman model and optimization are not used. Many practitioners are probably not aware that these statistics can be used to make important "rule of thumb" judgments as shown in the paper.

Also, the automated method used to construct views and develop confidence levels for views is both original and ingenious. It could be used to generate views for the standard Black Litterman model. It is perhaps deserving of further attention to determine how well it would perform utilizing better econometric models.

6. Q: What enhancements might be made to this paper?

A: There are a lot of moving parts in the process they have developed and the authors have done an excellent job of explaining the key features without overwhelming the reader. They could, however, provide a little more intuition about key steps in the process and its efficiency. I will give three examples.

(i) It might be helpful to include single-factor CAPM betas in their illustrations for reference; and to also include estimated alphas for both models. This would help the reader to appreciate the practical effects of the four-moment CAPM.

(ii) Similarly, it would be helpful to see the actual views and confidence levels generated by the conditional performance information presented in one of the illustrations. What are the conditional expected returns for hedge fund strategies generated by the view generation process, and what are the relative levels of confidence? The view generation process is, of course, only a tool to facilitate testing the model, but it is an important step.

(iii) What we would most like to know is the value gained by using this overall process as opposed to the simpler Black-Litterman model using only the Sharpe CAPM. Accordingly, it would be helpful to be able to compare the performance of EDHEC's model with the performance of the basic Black-Litterman model on the same data used in the main example.

In closing, this paper takes a big step forward in expanding the functionality of an asset allocation workhorse. The authors develop a process for taking higher moments into account in the tasks of deriving return expectations and making allocations. It does not depend on simulation, which suggests that it is more scalable than simulation-based methods. In extending the Black-Litterman model, the authors hold out the possibility of a prudent, coherent and scalable investment process for building portfolios with alternative investments that starts with the assumption of market equilibrium and controls the complexity of judgments that must be made by those forming investment expectations.

Questions for Lionel

1. In order for your model to be useful, views on asset class performance (or relative performance) must be formed and levels of confidence in these views must be expressed. It appears that you envision views being determined by carefully developed econometric models. Is this correct? Given this, what process do you envision for determining confidence levels in views? Would it be realistic for practitioners to expect to develop views and confidence levels without well-developed econometric models?

2. How are alpha expectations incorporated into your model?

3. To generate optimal view-neutral satellite portfolios, you propose an optimization procedure that minimizes value-at-risk subject to portfolio constraints. This procedure uses an estimated "effective standard deviation" based on the first four terms of the Cornish-Fisher expansion. You acknowledge that this expansion is based on the assumption that a distribution is "close to normal." Do you have confidence that typical hedge fund returns are close enough to normal in distribution that the Cornish-Fisher expansion provides a close approximation of the effective standard deviation?

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Note

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