LETTERS TO THE EDITOR

MORE ON LONG-SHORT STRATEGIES

Bruce I. Jacobs and Kenneth N. Levy
Jacobs Levy Equity Management

We question some of the key assumptions in Richard Michaud's article, "Are Long–Short Equity Strategies Superior?" (*FAJ*, November/December 1993). These assumptions are found also in Robert Arnott and David J. Leinweber's response ("Long–Short Strategies Reassessed") and in Michaud's reply (both in *FAJ*, September/October 1994). These assumptions preclude important benefits that a properly implemented long–short structure offers.

Michaud's analytical framework for assessing the desirability of long–short strategies makes a number of explicit and implicit simplifying assumptions. Michaud assumes explicitly that the long and short components of a long–short portfolio have identical alphas and that the residual risks of the long and short components are identical. He then implicitly assumes (see his proof on page 46 of the article) that the long and short components of the long–short portfolio have alphas and residual risks identical to the alpha and residual risk of the manager's long-only portfolio.

Michaud's argument assumes, in effect, that the long and short components of the long–short strategy do not individually improve upon the long-only portfolio in terms of excess return and residual risk. The overall long–short portfolio improves upon the risk–return trade-off of the long-only portfolio only to the extent that it reduces risk via the diversification benefits of a less-than-one correlation between the value addeds of the long and short components.

Michaud's formal analysis ignores a more subtle, but nevertheless important, benefit of a long–short portfolio—namely, the added "flexibility" it offers over long equity strategies (see our article in the AIMR 1993 publication, *The CAPM Controversy: Policy and Strategy Implications for Investment Management*, pp. 42–55). Long portfolios are by necessity index-constrained to the extent that they cannot *underweight* a security or industry beyond its weight in an index. Furthermore, those active long portfolios that are guided by risk considerations will tend to hold indexlike exposures to industries or sectors. In equating the risk–return profiles of the long and short components of the long–short strategy with that of the long-only portfolio,

Michaud in effect assumes that the long and short components of long–short constitute two identically index-constrained portfolios.

Some practitioners, in fact, do run their long–short strategies in this manner: They optimize a long portfolio to a market index, then optimize a short portfolio to the same index. Some may coordinate the results of the two optimizations, but the end result is the same—two essentially separate and index-constrained portfolios. This approach is not the optimal way to run a long–short strategy.

Integrated optimization of the long and short positions of a long–short portfolio, a far better approach, allows for relaxation of index constraints on the long and short components of the portfolio. This strategy confers upon the properly constructed long–short portfolio real benefits relative to a long-only portfolio or to index-constrained long plus short portfolios.

First, a long-only portfolio may hold a neutral (no profit, no loss) position in an industry just to control risk relative to a market benchmark. A properly constructed long–short portfolio can control risk by offsetting long and short positions; it does not have to hold neutral positions in order to control exposure to an arbitrary market index. Every holding in a long–short portfolio is either an active position (for profit) or hedging an active position (for risk reduction). Second, because integrated optimization obviates the need for neutral positions, the long–short portfolio's assets can be deployed more flexibly in underweighting holdings than is the case with separately optimized, index-constrained long and short portfolios.

The relaxation of index constraints in an integrated long–short portfolio provides added flexibility that translates into improved return and/or diminished risk vis-a-vis index-constrained long and short portfolios. Indeed, Michaud recognizes this in passing, conceding (page 45 of the article) that "a long–short strategy may be less 'index-constrained' than a long-only portfolio. . . . Consequently, a long–short portfolio may enhance the impact of forecast information."

Integrated optimization also raises some serious questions about Michaud's analytical framework. Two separately optimized, index-constrained portfolios—one long and one short—can

be benchmarked against the "constraining" index, and the resulting alphas and residual risks relative to the index can be calculated. But integrated optimization means that the long and short positions are determined jointly; selection of the long positions impacts the selection of the short positions, and vice versa. Integrated optimization does not result in one long portfolio and one short portfolio, each of which can be benchmarked against a given index. It results, rather, in one portfolio with both long and short components, neither of which a manager would hold as a discrete portfolio.

Consider an analogy: A molecule of water, we know, comprises two atoms of hydrogen and one of oxygen, yet the properties of water, its wetness for example, cannot be credited to either element in isolation; they are the product of the complex interactions between the two. So the properties of an integrated long–short strategy, its risk and return, reflect the interactions between its long and short components and cannot be credited to either component in isolation. Although one can measure the performance of the short positions and the performance of the long positions in an integrated long–short strategy, neither measure is meaningful as the outcome of a discrete strategy; only jointly do the long and short components define the strategy.

Attempts to measure the performances of the long and short components relative to some index are misdirected. With integrated optimization, there are no separately measurable long and short alphas. And because long and short alphas are not separately measurable in an integrated long–short strategy, the correlation between long and short alphas is not a meaningful concept, hence cannot provide a meaningful gauge of the desirability of the strategy.

How, then, can we assess a long–short strategy's desirability? We agree with Michaud that the answer lies in optimization. But the optimization should be an integrated long–short optimization, taking into account the potential reward and risk of the overall portfolio, as well as all the attendant costs. Long and short alphas and their correlations in this context are meaningless.

What are meaningful are the extent and quality of the manager's information and the incremental costs associated with shorting. The problem is no different from that encountered in assessing the desirability of an active long equity strategy—the solution depends upon the manager's information and the costs, including trading costs and manage- ment fees, associated with implementing the strategy.

Michaud recognizes the importance of information reliability and asserts that "long–short investing increases the portfolio's level of active risk but does not increase the level of information in the forecast" (page 79 of the letter). We argue below that the level of risk commensurate with the level of information need not be any greater in a properly optimized long–short portfolio than in a long-only portfolio. We would argue, further, that although long–short investing may not increase the level of information reliability per se, it can, via the added flexibility provided by joint optimization and relaxation of index constraint, improve upon long-only portfolios in the implementation of the information. (Michaud himself recognizes this point in footnote 6 of his article.)

Whether the level of information the manager possesses is enough to justify the risks and costs of long–short investing—or indeed, of active long investing—is an empirical question. Michaud argues (page 79 of the letter) that "Stock selection models used by sophisticated institutions may have a forecast reliability that is best suited to the active risk level of typical, well-managed, long-only institutional portfolios rather than long–short strategies." We would simply argue that the level of information some managers possess, together with the added flexibility of long–short, justifies the pursuit of active returns via long–short investing. Whereas Michaud focuses on the many investors who do not possess sufficient information, we would draw attention to the few who do.

Of course, in gauging the desirability of a long–short strategy, or any investment strategy, client and manager must consider costs. Although the overall fee should not differ substantially from that incurred in running an active long strategy with equivalent expected return, long–short strategies do incur some unique costs that the manager and client should include in any cost–benefit analysis.

One charge incurred in a long–short strategy but not in an active long strategy is the financial intermediation cost of borrowing shorts through a prime broker. This cost runs about 25 to 30 basis points, inclusive of the costs associated with securing and providing lendable stock. This cost, incurred by the long–short strategy as a haircut on the short rebate, varies with the nature of the securities sold short. Harder-to-borrow names (a minority of securities) will result in a smaller rebate

because the fees security lenders demand are higher.

An equitized strategy may incur additional costs associated with term structure risk. For example, short rebates are usually based on overnight rates, while stock index futures contracts will often be priced off LIBOR rates with a term matching that of the futures. The manager can bridge such duration mismatches in part or in full by negotiating term deals with the prime broker.

The uptick rule may inhibit the prompt sale of short positions. Such a delay can introduce incremental trading costs to a long–short strategy that are not generally incurred by a long-only strategy.

The cost of trading both the long and short components of a long–short portfolio may appear to be an additional cost unique to long–short, but if the client chooses to deploy only half its capital long and half short, trading activity and risk will approximate that of a long-only strategy. Alternatively, the client may decide to lever profit opportunity by using margin fully and investing all available capital long and short. (In practice, capital will generally not be margined to the regulatory maximum of two-for-one because a liquidity buffer is needed to meet daily marks to market on the short positions; we have found that a buffer of 5 percent to 10 percent is typical [see our letter "The Generality of Long–Short Equitized Strategies: A Correction," *FAJ*, March/April 1993].) This use of leverage will increase both trading activity and risk, with a commensurate increase in expected return.

In conclusion, we believe that some managers may have information that is too weak to justify even active long equity management. Some may have barely enough information to justify active long management but not enough to overcome the additional costs associated with shorting, despite the benefits that shorting confers. Others will have enough information to pursue not only gains from active long equity management, but also the further benefits offered by the flexibility of long–short strategies.