

TRADING TALK

Market Structure Analysis & Trading Strategy

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A Brief Primer on 130/30 Strategies: Do Believe the Hype...Only If Your Manager Has Skill

While a departure from our normal fare of market structure and exchange analysis, we thought recent developments in portfolio construction, related new product development and their relationship to trading were nevertheless relevant to our readers for a few reasons. First, as with our transaction cost analysis product--RITA--that recognizes the need for tighter integration of trading into the investment management process and vice versa, we believe trading desks benefit from familiarity with trends in portfolio construction. Second, the jargon associated with some of the most talked about product offerings over the past year or so is confusing--there's LDI (liability-driven investing), portable alpha, and short-extension strategies, perhaps better known as 130/30 or 120/20 on account of some of their more popular variants. The latter is the one that we will focus on in this primer and appropriately it is probably the one with the widest array of names used for it, as yet another term found in the literature is long-short equity indexed funds (at least we were spared any acronyms!). For those who are new to all of this terminology essentially a 130/30 portfolio allows the relaxation of the typical long-only constraint to sell short 30% of the value of the long portfolio to fund an additional 30% long position with the proceeds from those shorts, resulting in a 130% long position and 30% short position, which of course then re-establishes the portfolio's full exposure to the market's return. Third, we believe we are in the early innings of mandates being given for short-extension strategies. The ever-increasing demand by plan sponsors for alpha will in turn demand the removal of rigid, long-only constraints in many cases. So traders will undoubtedly come across these strategies as they trickle down from marketing/sales, product development and portfolio managers to the trading desk. Indeed, in some cases it will require trading desks to tackle new skills, such as shorting stocks and finding the borrow (if previously long-only) and using portfolio optimization tools (if a non-quant that previously did not use them). So, let us take a little time to explain (i) who is getting involved, (ii) why they are getting involved, including the genesis behind the idea of 130/30, its benefits and the mechanics of how it works, (iii) the attendant risks, and then (iv) touch briefly on some implementation issues.

Quants and Plan Sponsors Lead Push for 130/30

Quantitative managers, which comprise a significant portion of our client list, are particularly well-equipped to manage such strategies. Their computer models can efficiently and robustly apply a broad range of analytical criteria such as valuation, momentum, analyst sentiment or earnings quality or revisions to the ranking and scoring of a whole universe of stocks. While traditionally perhaps the resulting top decile or two became investment candidates, now the lowest ranked stocks in the 9th or 10th decile also become candidates on the short side, making fuller use of the model. However, the ability to employ such strategies is not limited to just quants--witness the introduction of 130/30 products by both JP Morgan Asset Management and UBS Global Asset Management recently.¹ According to Martin Liebowitz from Morgan Stanley's equity research group by mid-2006 institutions had invested about \$27 billion in long-short equity indexed strategies.²

¹ "What's Hot in Investing: Breaking the chains, Investors giving managers more freedom as alpha search intensifies," *Pensions & Investments*, Douglas Appelland and Cecily O'Connor, July 24, 2006.

² Plan sponsors and pension funds that have taken the plunge, or at least dipped their toe in, include (assets allocated to the strategy if available follow in parentheses): Alaska Permanent Fund (\$400 million), Arizona State Retirement System (\$200 million), CalPERS, North Dakota State Investment Board (\$80 million), Oregon Investment Council (pending manager selection) and the Public Schools Retirement System of Missouri (\$500 million).

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Considering the continued stream of announcements as well as our own anecdotal evidence from client visits, where we can recall at least four clients (both quant and traditional, interestingly) in the last quarter mentioning that they either had 130/30 launches planned or were examining their merits, the list of firms managing 130/30 (and similar strategy) assets is growing longer every day.³

CalPERS, a leader in embracing these new products, has provided a template for success as it is looking for managers with experience short selling, a quantitative process for portfolio construction and risk control, an alpha engine that produces positive returns in both a long-only and long/short strategy, experienced securities traders and evidence of ability to trade in a “cost-effective manner for large institutional portfolios.”⁴ In December, CalPERS selected Analytic Investors, First Quadrant, Goldman Sachs Asset Management, Quantitative Management Associates and State Street Global Advisors to be included on its pre-approved list of U.S. long/short equity managers, but the size of each manager’s portfolio has not yet been determined. The firms will be able to invest up to 135% long and up to 35% short.⁵

While alpha-hungry plan sponsors and investors, perhaps leery of hedge funds (or simply their fee structures!) or unable under their charter to invest in or exceed a certain threshold of alternative assets, are primarily looking to asset managers to fulfill their 130/30 needs, hedge funds that have extensive experience shorting stocks are not out of the picture. In fact, they are entering the fray aggressively in some cases. With plan sponsor allocations to alternative investments, capped at 5-10% in many cases, a hedge fund manager that can be considered in the equity allocation bucket instead of being pigeonholed in alternative investments can compete for a much bigger pool of assets—and with a long-short equity index strategy likely being part of the equity allocation, in most cases that’s eligibility in a pool totaling more than 50% of total assets. D.E. Shaw and AQR Capital Management have already thrown their hat into the ring from the hedge fund world.⁶ In some sense with the long-only constraint being relaxed at many assets managers and hedge funds dipping their toe in the institutional business, we are witnessing a convergence within the equity world between traditional asset management and hedge funds.

What is It? Portfolio Construction on Steroids

So just what is a short extension strategy and why all the hype now? Simply put, a short extension strategy (hereinafter we will often use the term 130/30 but the actual composition of the portfolio could range from 110 long/10 short to 150 long/50 short; however, most mandates we are seeing range from 120/20 to 135/35) is an equity strategy that allows short selling of securities while maintaining a net 100% long exposure to the market. It is thus a portfolio that has the characteristics of a long-only mandate in the sense of beta exposure but by relaxing the long-only constraint allows more information gained from the research process to be in fact included in the portfolio. This results in an opportunity for greater alpha capture and a higher information ratio (i.e., risk-adjusted measure of performance focusing on active return relative to active risk) due to greater breadth of investment opportunities and better diversification of positions.

While the excitement around the strategy may be relatively new, the concept behind it has deep roots in academia and a long history. As mentioned, the strategy uses more effectively the information derived from the investment manager’s process with better portfolio construction techniques. One important way it does this is it increases the breadth of opportunities investment managers have to apply their skill, which Grinold discussed in 1989 in his seminal work “The Fundamental Law of Active Management.”⁷ In 2002 (and then again in 2004), Clarke et al. expanded

³ Among the firms already offering the products (along with assets under management in the strategy if published) according to published figures are: Acadian Asset Management (\$1.3 billion), Analytic Investors (\$2 billion), Aronson + Johnson + Ortiz (\$2 billion), Arrowstreet, AXA Rosenberg, Barclays Global Investors, First Quadrant, Goldman Sachs Asset Management, Invesco, Jacobs Levy, JPMorgan Asset Management, Martingale Asset Management, Mellon Capital, Numeric Investors, Quantitative Management Associates, State Street Global Advisors (\$3 billion) and UBS Global Asset Management (\$700 million).

⁴ *Financial News*, February 10, 2006, “Calpers considers relaxing rules on shorting.”

⁵ *Pensions and Investments*, December 18, 2006.

⁶ “Top hedge fund looks to expand traditional business,” Deborah Brewerstein, *The Financial Times*, August 14, 2006. “Short Shift”, Imogen Rose-Smith, *Alpha Magazine*, September 2006.

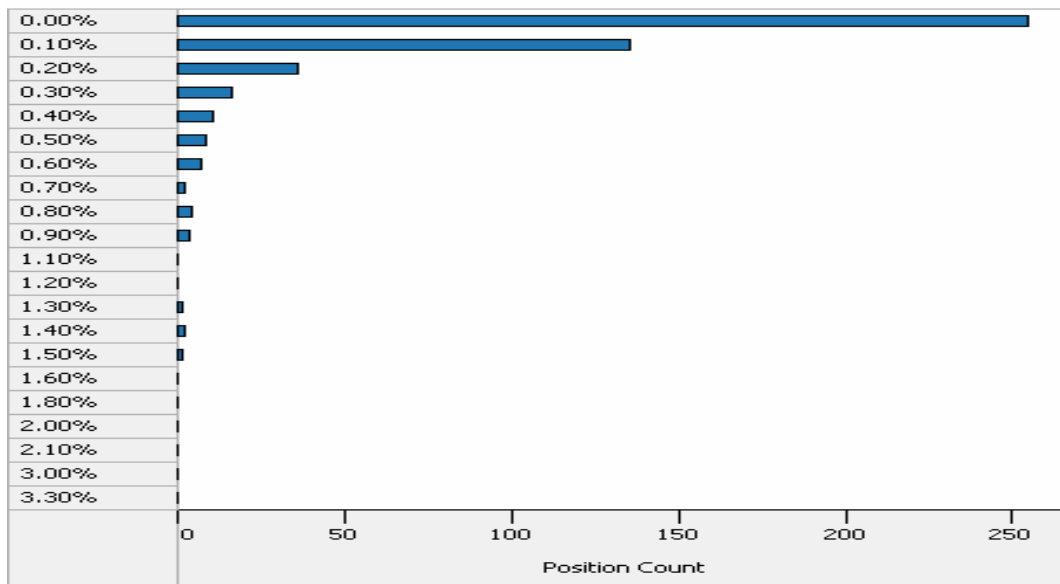
⁷ Grinold, Richard C. “The Fundamental Law of Active Management.” *The Journal of Portfolio Management*, Spring 1989 pp. 30-37. The investment manager’s ability to generate risk-adjusted returns (Information Ratio) is equal to their skill (Information Coefficient) times the square root of their breadth. The breadth is the number of independent bets the manager is able to make.



on this work to measure a manager’s skill in transferring their stock forecasts into an actively managed portfolio.⁸ Managers to add value, it was posited, must not only be good stock pickers, but also must be able to exploit their bets through the portfolio construction process, and the more constrained a manager, the less he is able to transfer skill to the portfolio. By relaxing the long-only constraint, it is argued that information ratios (excess return per unit of risk) would improve materially. Skilled managers more able to fully express their investment prowess would naturally have more potential for excess return. In fact, the authors’ contend, loosening the long-only constraint is one of the most effective ways to increase portfolio efficiency, maximize a manager’s investment insights and generate alpha.

Indeed, practitioners have run with these ideas and contend this is “portfolio-construction nirvana.”⁹ Echoing the academic work, practitioners have realized that traditional long-only mandates structured to a typical market-value weighted benchmark such as the S&P 500 limit (i) a portfolio manager’s ability to take full advantage of the information gathered during their research and investment process because of the inability to short and (ii) the size of active bets they can take relative to most stocks in their universe. Short extension is appealing not only because it allows more fully leveraging of the research process, but also because benchmarks such as the S&P 500 tend to be top-heavy, i.e., the largest stocks comprise a significant portion of the benchmark weight while stocks near the bottom have very little weight in the benchmark. When this is the case, long-only constraints lead to asymmetries within portfolios. For instance, since managers can underweight overvalued stocks (e.g., by excluding them entirely) only to the extent of their weighting in the benchmark, by following a typical active risk weight limit of 1%, a manager can only fully underweight 15 stocks in the S&P 500 as only 15 stocks have a 1% or greater weighting in that index. Similarly, with a standard calculation yielding 126 names as the effective number of holdings in the S&P 500, a long-only constraint makes the selection of the lower weighted stocks much less likely to have a material impact on the portfolio’s relative performance. As you can see from the chart below, over 250 of the smallest stocks in the S&P 500 have less than a 0.1% weight in the index, yet make up over half the names by count, so practically speaking this theoretical disadvantage quickly becomes meaningful in practice (especially when weight limits enter into the picture for risk control reasons, e.g., no position may be more than a double-weight of the index weight).

Assymmetric Weighting of S&P 500



Source: Bloomberg

⁸ Clarke, Roger, de Silva, Harinda, and Thorley, Steven. “Portfolio Constraints and the Fundamental Law of Active Management.” *Financial Analysts Journal*, September/October 2002. The fundamental law was rewritten to incorporate a scalar of the friction of constraints such as long-only associated with portfolio construction. A transfer coefficient (TC) was defined as a measure of the degree to which the information in individual security return forecasts is transferred into a managed portfolio. It measures the correlation between risk-adjusted returns and risk-weighted active exposures of securities. A portfolio with no friction would have a TC of 1, but a portfolio with constraints would have a TC significantly lower.

Clarke, Roger, Harinda de Silva, and Steven Sapra. “Toward More Information-Efficient Portfolios: Relaxing the Long-Only Constraint.” *The Journal of Portfolio Management*, Fall 2004

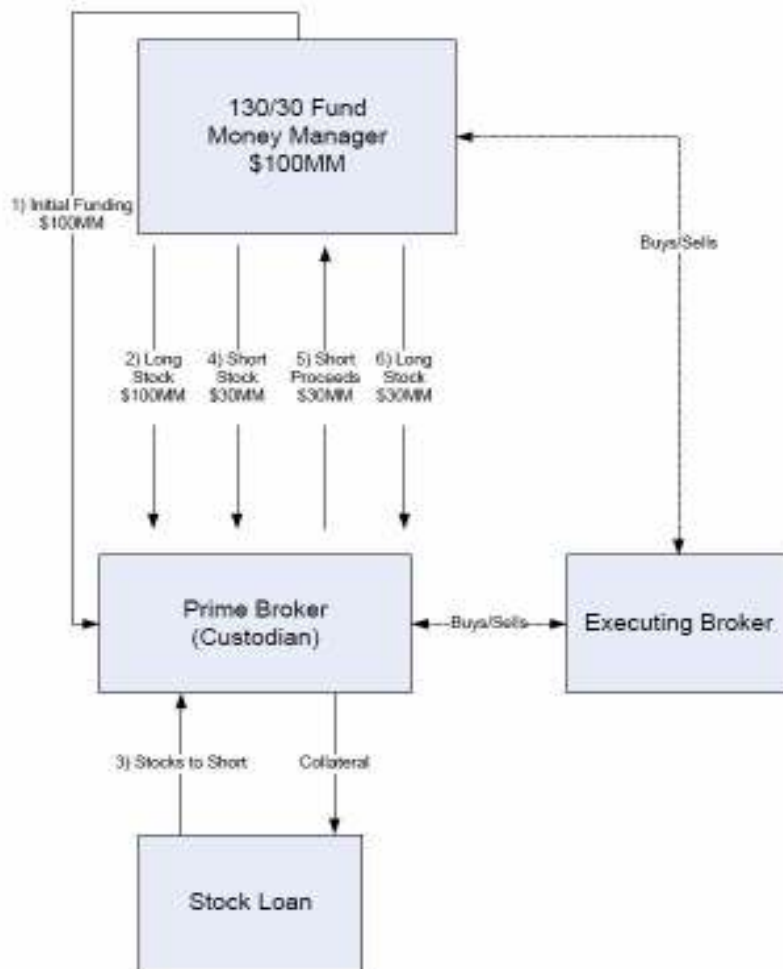
⁹ *Wall Street Journal*, October 13, 2006, “A Strategy Aiming to Pump Returns Gains Clout but May Be No Free Lunch.”



This problem is exacerbated as active risk is increased: the portfolio's risk-adjusted return begins to deteriorate as risk outpaces excess return. As managers take larger active positions in stocks expected to outperform, unintentional risk arises from not being able to express the same conviction for stocks expected to underperform.

Removing the long-only constraint allows for overweight and underweight positions to be more evenly spread among the larger and smaller cap stocks in an index. This allows for a manager to more symmetrically express their views on stocks--both positive **and** negative--unconstrained by a particular stock's capitalization, and ultimately the potential for greater alpha capture. All other constraints such as beta, sector exposure, individual stock exposure, capitalization ranges, and turnover though may remain unchanged and identical to the long-only profile. The only meaningful difference is that the stock overweights and underweights are now symmetrical and independent of benchmark weights.

In terms of the mechanics, a 130/30 portfolio relaxes the long-only constraint by selling 30% of the portfolio short, taking the proceeds of those short sales to fund an additional 30% long position beyond the already fully invested amount. Again, the portfolio would be 100% net long, fully exposed to the market's return. The graphic to the right depicts the mechanics of this process, but in words works as follows. The money manager opens a margin account at a prime broker. The prime broker facilitates the borrowing of the stocks to be shorted, clears the trades, and custodies the assets. The money manager funds the account and engages in a multi-step process to establish the portfolio's positions. First, borrowability of stocks to be shorted must be approved by the prime broker and the borrowed stocks located from the stock lender. This is typically done electronically at most prime brokerages for easily borrowed names, or in some instances a locate is required that may eliminate the short rebate or significantly change the economics of shorting that particular name. Once the short list is approved, it is traded subject to up-tick rules (if still in effect on your universe of stocks) either through an executing broker or the execution arm of the prime broker leaving the account with additional proceeds to invest. The longs are established with the initial invested capital as well as the proceeds from the short sales that were deposited at the prime broker as collateral for the additional long purchases. This is usually done in tandem or with a slight lag where the shorts lead the longs to ensure the shorted stock can be executed. While not depicted on the graphic, the short sales are subject to a negotiated lending fee (the haircut); however, this is offset by a negotiated interest rebate on the proceeds which averages several basis points per name. Additionally, borrowers are also liable to reimburse lenders for dividends paid on borrowed stocks. At the end of the process, a portfolio of 130% long and 30% short is established.



The Risks: Caveat Emptor

Investors are only better off of course if the implementing managers have an ability to accurately pick winners *and* losers. With 130/30 you still have 100% exposure to the return of the bench-



mark. However, you have exposed 160% of your assets to the market with 130% long plus 30% short. This clearly increases the investment opportunity set along with risk, making it essential for a manager to have skill if the investor is to be better off with long-short. Short positions quickly highlight that skill ... and wrong bets. If you bet wrong on a long position you will lose the relative weight times the shortfall and as the stock falls further your weight decreases; however, for a short position, the weight actually *increases* in the portfolio as the stock rises exacerbating the wrong bet. There's absolutely no reason to expect performance to improve when long-only managers employ short-selling. The benefit is in an expanded opportunity set, but this clearly is a double-edged sword as a skilled manager's opportunity is a less-skilled manager's risk.

Implementation

There are additional challenges associated with implementing these strategies that need to be considered and evaluated before a manager commits to them. They include working with prime brokers,¹⁰ securities lending/borrowing, understanding systematic risk and risk controls, and a thorough understanding of executing and monitoring short positions.

For instance, to correctly implement and manage these strategies, sophisticated optimization tools from Barra (<http://www.msccibarra.com/>), Northfield (<http://www.northinfo.com/>), or APT (<http://www.apr.com/>) to name a few are necessary. These systems enable the portfolio manager to construct and track their long/short portfolio relative to a benchmark and set relative benchmark penalties and constraints, an important tool in managing risk and exposures in a portfolio. Similarly, in the case of shorts, not only must managers become comfortable in selecting them (e.g., a stock in the last decile that might be a good short candidate in theory may not ultimately be selected by the manager because of the potential for a short squeeze because of days outstanding short volume statistics and an upcoming earnings release), but traders must know how to trade them. Today, this includes knowing bid and tick test rules of the various exchanges and ECNs, other than with respect to the top 1000 stocks that have been exempted temporarily in a pilot from these rules under Reg SHO. Soon, the trading issues surrounding shorting might actually disappear entirely because the SEC, based on the review of the empirical evidence of the pilot results, is proposing to remove the tick test and provide that no price test, including any price test of any SRO, shall apply to short sales in any security. See <http://www.sec.gov/rules/proposed/2006/34-54891.pdf>. While issuers (i.e., listed companies) may in particular object and the public has the ability to submit comments on this proposal until February 12, 2007, in all likelihood the rules will disappear (or at minimum be phased out) to the glee of most traders. That said, in the interim period, during the first half of 2007, the trading mechanics of shorting remain a consideration in terms of implementation of a 130/30 strategy.

These new strategies have the potential to provide a win-win for both the asset manager and plan sponsor. The winners will be the asset managers with evolving models, as well as those with evolving trading desks that can navigate ever-complicated market structures, regulations, and trading venues, and the plan sponsors through better risk-adjusted returns. We hope you found this primer helpful. Since we have already been asked about these strategies on a couple of occasions, we thought this Trading Talk would serve as an overview and a useful starting point to our clients looking for more information on them. And no promises, but we may follow up this survey piece with a paper we are contemplating co-writing with a leading transaction cost analysis vendor examining how relaxing long-only constraints can improve the transfer coefficient and then actually measuring transaction costs under various long/short parameters such as 110/10 through 150/50. As always, feel free to ask questions as we can delve deeper into these topics and/or assist you with any efforts you are making in this area. We are particularly well-suited to assist those looking to take advantage of this trend (or already doing so) as we have extensive practical, hands-on experience with all elements of their implementation, from program trading and pre-and post-trade analytics to shorting rules and portfolio optimization.

¹⁰ Jacobs, Bruce I. and Levy, Kenneth N. "Enhanced Active Equity Strategies." *The Journal of Portfolio Management*, Spring 2006 pp. 45-49. The authors discuss new prime broker structures that allow investors to establish a stock loan account with a broker. This is a departure from the traditional prime broker margin customer relationship and may be of interest to some clients subject to due diligence. See also, "Pension fund execs find new strategies need prime brokers," Vince Calio, *Pensions and Investments*, December 11, 2006.

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