

# AIMA Strategy Paper 130/30 Strategy

## What is 130/30?

130/30 strategies are a class of equity portfolio where a manager's long only skill is extended and augmented with a modest amount of short-selling in an effort to produce an enhanced return. Starting with a \$100 investment, the manager is mandated to take \$30 in short positions and invest the proceeds generated from those positions back into the long portfolio. Thus the extension manager maintains a 100 percent market exposure and a beta near 1.0, while seeking enhanced levels of alpha. This alpha is generally accompanied by increased tracking error, but this does not have to be the case. 130/30 strategies are also called "equity plus", "core plus" or "index plus", "enhanced equity", "equity flex", as well as "active extension", "alpha extension" or "short extension".

## Why is the 130/30 approach attractive?

The desire for 130/30 strategies has grown largely out of the necessity for institutional investors to enhance portfolio returns in the face of declining long term return expectations for equities and bonds. In some cases this requirement is expressed as: "maximizing alpha within the available equity risk budget." A number of key characteristics make 130/30 strategies attractive to institutions.

The most oft-cited of these is the promise of enhanced alpha. In the traditional long-only equity space, a variety of constraints limit the ability of good managers to fully express their views in the construction of their portfolios. One of the most punitive of these is the "long-only constraint".<sup>1</sup> By relaxing the long-only constraint, a manager has the ability to increase his risk-adjusted return.<sup>2</sup>

By virtue of their construction and market exposure, 130/30 strategies fit easily into an institution's equity allocation. Unlike investments in alternatives or hedge funds, significant capital can be allocated to 130/30 strategies without modification to the asset/liability and/or risk budget framework. Also, 130/30 strategies are typically more transparent than hedge fund investments, more easily benchmarked by consultants and more acceptable to trustees and investment committee members.

Lastly, 130/30 strategies benefit from an established regulatory framework and from a friendly custodial environment. Market regulators allow leverage of up to two times in Europe, the US and Canada allowing for extensions to reach up to 150/50. Prime brokers now also offer turnkey solutions to institutional accounts where short holdings "finance" the long extension and the word "leverage" is never used.



Alternative Investment  
Management Association

Canada

<sup>1</sup> Clarke, de Silva, and Thorley. 2002.

<sup>2</sup> Jacobs and Levy, 2006; Grinold and Kahn, 2000.

## Why 130/30? Why not 142/42, or 111/11?

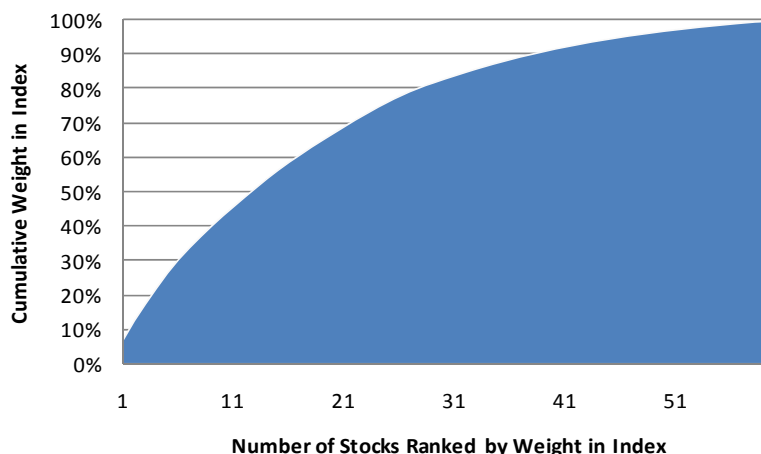
While most active extension strategies contain approximately 30% short exposure and 130% long exposure; this level of extension is just one of many possibilities. The optimal level of extension can be defined using the Fundamental Law of Active Management which states that the information ratio,  $IR$ , of a manager is a function of his information coefficient,  $IC$ , applied over  $N$  independent security selections.<sup>3</sup>

$$IR = IC\sqrt{N} \quad [1]$$

The information coefficient is the correlation between forecasted and actual stock returns and takes on values between 0 and 1. The information ratio is also the ratio of the expected return of active management divided by its active risk. However, in practice, even with definable  $IC$  and known  $N$ , equity portfolio managers rarely realize an information ratio predicted by equation [1].

One of the fundamental assumptions in the derivation of the Law of Active Management is that manager insight can be optimally expressed in the construction of a portfolio and that there are no constraints limiting the manager from expressing his views.

For example, consider a portfolio managed relative to the TSX60. Collectively, the 20 smallest stocks in the index account for 33% of the names, but less than 10% of the weight in the index (see Figure 1).



**Figure 1: Cumulative weight of stocks in the S&P TSX 60 Index.**  
The top 10 stocks account for approximately 40% of the weight in the Index. The smallest 20 stocks account for less than 10%. [Data at May 9, 2008]

A long-only investment manager with a negative view on a smaller stock can underweight the security by 1% or less. Even if a manager is largely right about his negative view, and the shares drop by half, the maximum contribution to the portfolio is 50 basis points. On the other hand, with a positive view on the company, a manager is free to overweight the shares by 1% or more. He is constrained only by tracking error targets and single stock exposure limits. A doubling of the share price could add 5% or more to the portfolio return. The asymmetry between these rewards penalizes managers who are equally skilled at picking winners and losers. It is this type of manager for which a 130/30 investment style is most ideal.

In the face of such constraints, Roger Clarke, Harindra de Silva and Stephen Thorley suggest that the Fundamental Law of Active Management should read

$$IR_c = TC IR \quad [2]$$

where  $IR_c$  represents the information ratio of the constrained portfolio, and  $TC$  represents the “transfer coefficient”, which is used to measure the effectiveness of translating the manager’s insight into the portfolio. For example, they show that for an active risk budget of 2%, a hypothetical fund with a long-only constraint exhibited a transfer coefficient of only 0.73. This dropped the theoretical  $IR$  from 1.47 to 1.09. They conclude that the opportunity cost resulting from these and other constraints can be overcome by permitting a measured amount of short-selling.

<sup>3</sup> Grinold and Kahn, Active Portfolio Management, 2<sup>nd</sup> edition, 2000.

But how much short-selling is enough and how much is too much? As the long-only constraint is relaxed and leverage is employed, the transfer coefficient rises dramatically. However, this increase in the transfer co-efficient begins to decelerate as the fund reaches the 125/25 to 150/50 range.<sup>4</sup> This has been largely confirmed theoretically and through simulation.<sup>5</sup> A brief derivation is included in the Appendix 1.

As a result, there is a ‘sweet spot’ for the active extension approach somewhere between 25% and 50%.<sup>6</sup> The exact ratio depends on a variety of factors including investment objective (e.g. tracking error budget), market conditions, index construction, stock-picking skill, risk management skill and experience in short-selling. Since many managers are new to short extension strategies, 130/30 seems to be a comfortable starting point for most institutional investors.

### What is necessary to implement a successful 130/30 strategy?

If a successful 130/30 strategy is defined by realization of a higher information ratio, there are two keys to its successful implementation: the alpha of the long and short extensions and the correlation between the long and short positions.

The interplay of alpha and correlation is demonstrated in Table 1. In Case 1, the manager begins with 2% active long positions, 0% active short positions, alpha of 1.5%, tracking error of 3.0 % and an information ratio of 0.5. In Case 2 the manager is allowed to extend his active long weights to a maximum of 4%, but continues to use a pure index on the short side. In this case the

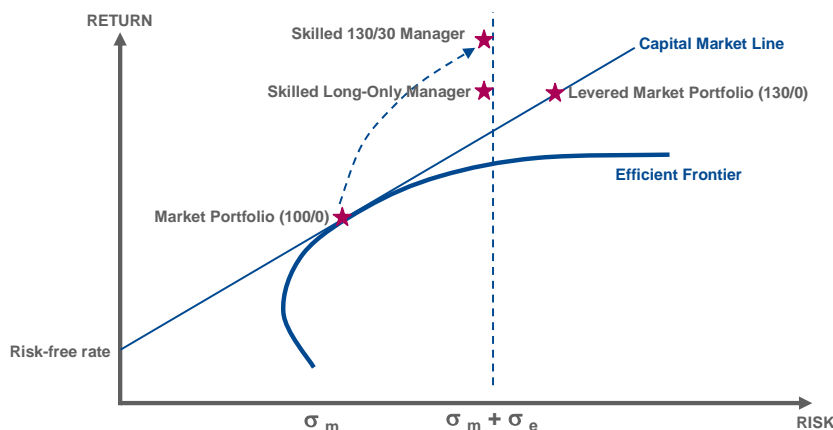
alpha increases to 2.3%, but the tracking error scales proportionately to 4.6%. Because of this proportionate change, the IR remains constant at 0.5.

	Active Weight	Correlation	Alpha	Tracking Error	IR
Case 1	2% L / 0% S	–	1.5%	3.0%	0.5
Case 2	4% L / 0% S	–	2.3%	4.6%	0.5
Case 3	4% L / 2% S	+0.05	3.3%	6.0%	0.55
Case 4	4% L / 2% S	-0.05	3.3%	4.1%	0.8

**Table 1: Impact of Long/Short active weight size; the correlation of Long/Short extension; and alpha on tracking error and information ratio.**

Case 3 presents a situation where the manager dispenses with the index fund on the short side and instead adds alpha to a maximum of 2% active weight; however he makes no effort to manage the cross correlations between his long and short extensions. In this case the alpha scales up to 3.3%, but the tracking error balloons to 6%, generating an IR of 0.55, very close to the original portfolio.

Finally, in Case 4 the manager offsets some of the risk in his long positions through a pair-wise correlation of -0.05 with his short positions. The manager achieves the same alpha as Case 3, but the offset reduces the tracking error to 4.1 pct and increases the IR to 0.8. With further optimization (“trimming”) of the portfolio, the manager may realize the holy grail of additional alpha with little additional risk<sup>7</sup>. This is the “Skilled 130/30 Manager” shown in Figure 2 below.



**Figure 2: CAPM View of Benefits of 130/30 Portfolios.** A Leveraged Market Portfolio (LMP) will generate performance along the Capital Market Line (CML). A skilled long-only manager outperforms the market portfolio with less risk than the LMP. A skilled 130/30 manager outperforms both by “extending” weights in favourable stocks and by offsetting any unnecessary risks with short positions. This can only be achieved with a negative pair-wise correlation between the 130/30 portfolio’s long and short active weights.  $\sigma_m$  represents market risk and  $\sigma_e$  represents the tracking error constraint.

<sup>4</sup> Liodakis and Strudwick, 2007.

<sup>5</sup> Johnson, Ericson, and Srimurthy, 2007.

<sup>6</sup> Liodakis, 2007.

<sup>7</sup> Leibowitz, 2008.

Figure 2 shows the positioning of 130/30 portfolio in a mean-variance context. A good 130/30 extension allows a skilled manager to increase alpha without adding significantly to the volatility or tracking error of the original core portfolio. In Figure 2, this is demonstrated by moving appreciably above the capital market line. For this reason, 130/30 structures are said to be more “efficient”, which is an attractive quality of any investment, especially for institutional portfolios.

For this reason, sound technology is very important for the successful implementation of a 130/30 strategy. Many long-only equity funds do not have the systems to manage short positions and/or the derivatives used to gain short exposure. For quantitative approaches, technology can be used to manage factor exposures or use optimization during long/short portfolio construction. All of these issues are important to maintaining benchmark neutrality and to staying within bounds of active risk limits. Without superior systems, a manager would find it a considerable challenge to deliver all of the benefits available in a 130/30 structure.

### What are the risks associated with the 130/30 strategy?

Though there is a great deal of promise in the 130/30 approach, implementation is not without risk. The two key risks are both operational, the result of the use of short-selling and leverage.

Short-selling availability is an issue with which managers must contend. The higher costs associated with variable short rebates, collateral requirements, and turnover can nullify even the most robust alphas. Though smaller managers may not have short-capacity issues like their larger counterparts, they remain exposed to the risk of rising borrowing fees.

Short-selling also has the “punitive” characteristic that as a position goes against the manager (i.e., stock price rises), the position gets *larger*, and the manager must adjust the short position to keep the portfolio balanced. The risk of being “short-squeezed” or “called” for the borrowed equity (when the lender demands their stock is returned) are also tangible risks. Both of these risks can lead to an increase in turnover; and in the case of being squeezed, turnover at the most inappropriate time.

Costs other than through higher borrowing costs associated with short-selling also tend to be higher with beta-neutral portfolios. Directional bets can be expensive if the market moves against the position, and even more costly with regards to a short position as margin calls limit the manager’s

flexibility to trade. Managing the active extension to be benchmark-neutral often requires higher turnover. In turn, higher turnover implies higher transaction costs. This added friction in the investment process reduces the alpha that might be achieved.

All of these effects introduce significant portfolio monitoring and execution demands. Managing the long positions in conjunction with the short positions can require technology, experience, and a tightly integrated investment process to ensure that portfolio risks are balanced.

### Different Approaches to Implementing a 130/30 Portfolio

There are a number of ways in which the 130/30 portfolio can be constructed. The most often cited approach is one where a long-only manager uses the proceeds from underweighting or short-selling unattractive stocks to overweight attractive stocks. The long and short positions in the short-enabled overlay are then managed to maintain a target beta. These portfolios tend to have lower tracking error and their fee structures are generally closer to those of traditional long-only portfolios.

Another approach is the *fully* long-short approach. This approach removes the benchmark constraint from long positions, allowing a more flexible deployment of capital towards a manager’s best ideas in a broader universe. These portfolios are typically designed to generate higher alpha at the expense of higher tracking error. However; because the higher tracking errors are unique to each manager, fully long-short extensions tend to be very useful in the overall portfolio context. According to Martin Leibowitz, “tracking error risks should be reliably uncorrelated with the dominant beta source of the total fund risk.”<sup>8</sup> A fully long-short approach will be more reliant on the manager’s skill and require better operational systems. It will also typically generate higher turnover costs since targeting the benchmark on the whole portfolio requires more dynamic optimization.

### Does it really work?

130/30 strategies are relatively new, with the vast majority having track records of three years or less. As seen in Table 2, the median 130/30 strategy has out-performed its benchmark in five of the past six years averaging 2.4% of added value to the S&P 500 Total Return Index. The year

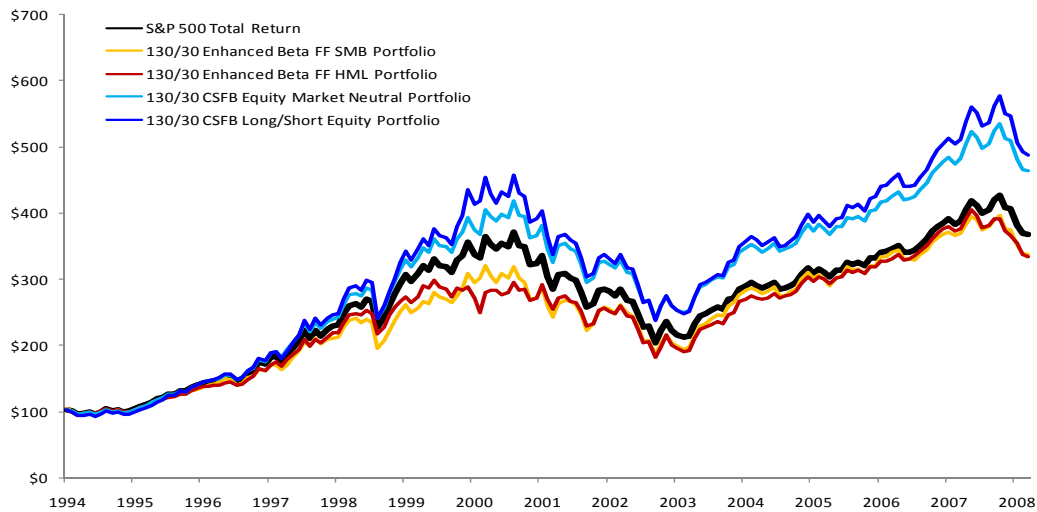
<sup>8</sup> Leibowitz, 2008.

2008 was quite robust for 130/30 managers, alleviating concern about the relative performance of extension mandates in severe down markets. 2009 saw the loss of 16 mandates reporting and the first year of underperformance.

Year	Number of Funds in 130/30 Universe	Median Performance of 130/30 Universe	Total Return of S&P500	Outperformance
2004	11	18.5%	10.9%	7.6%
2005	16	9.3%	4.9%	4.4%
2006	25	18.1%	15.8%	2.3%
2007	55	7.1%	5.5%	1.6%
2008	80	-36.3%	-37.0%	0.7%
2009	64	24.2%	26.5%	-2.3%
Average	42	6.8%	4.4%	2.4%

**Table 2:** Historical Performance of 130/30 Funds vs S&P 500<sup>9</sup>

The chart below shows simulations of four 130/30 overlays to the S&P 500 returns starting in 1994. Table 3 shows the potential performance of the S&P500 when enhanced by a 130/30 structure using 2 alpha strategies (CSFB market neutral and long/short) and 2 beta strategies (Fama/French small-large and value-growth).



**Figure 3: Growth of \$100 in simulated 130/30 strategies.** Four simulated 130/30 overlays are compared to the S&P 500 Total Return Index for the period of January 1, 1994 to March 31, 2008. Returns were leveraged on top of the S&P 500 using the monthly 90 day T-Bill returns as a basis for the cost of financing.

Source: Hillsdale Investment Management

The market neutral and long/short equity 130/30 overlays outperformed the S&P 500 annually by 1.7% and 2.3% respectively. This is similar to the more recent returns of the

130/30 accounts shown in Table 2. Also, both beta overlays under-performed the S&P 500, confirming the CAPM view that simply leveraging up various market risks cannot meaningfully enhance performance.

	S&P 500 Total Return	130/30 FF SMB Overlay	130/30 FF HML Overlay	130/30 CSFB LS Overlay	130/30 CSFB MN Overlay
Annual Return	10.2%	9.7%	9.5%	12.5%	11.9%
Annual Volatility	14.0%	14.6%	13.9%	16.0%	14.3%
Maximum Drawdown	-44.7%	-41.6%	-39.0%	-47.7%	-43.0%
Months to Recover	49	40	27	43	42
Annual Tracking Error		3.5%	4.2%	2.9%	0.8%
Information Ratio		-0.14	-0.16	0.78	2.08

**Table 3:** Performance statistics of simulated 130/30 funds. Alpha-oriented 130/30 overlays outperformed both the index and the beta oriented overlays for the period January 1, 1994 to March 31, 2008. Both beta-oriented overlays underperformed the index.

<sup>9</sup> Source: eVestment Alliance, March 31, 2009.

## Fees

According to the eVestment Alliance database, published fees for 130/30 funds are generally higher than those charged for traditional long-only management. The fee premium for large cap 130/30 funds ranges from 10 to 25 bps, depending on the size of the mandate. A higher premium may be charged for niche oriented strategies such as small cap 130/30.

Additional performance fees may also be charged. These performance fees can vary widely and are dependent on mandate characteristics such as tracking error and quality of management. While there is still no consensus, it is unlikely that “hedge fund fees” will ever be charged for 130/30 products. (A hedge fund can charge 2% for management and 20% for performance over a benchmark, though these numbers vary depending on the investment mandate.)

## Conclusion

In summary, the 130/30 approach allows long-only equity fund managers to employ capital more efficiently. With a short-enabled overlay, managers can fully utilize their negative views and build a more robust portfolio with the expectation of higher returns. However, doing so without short alpha, without enhanced risk management capabilities and without attention to the relationship of the long and short positions is unlikely to yield the benefit of a higher information ratio.

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## APPENDIX 1: Deriving the “30” in “130/30”

### Basic Definitions and Assumptions

To begin with, consider the portfolio ( $P$ ) composed of a benchmark ( $B$ ) and an actively managed overlay ( $A$ ), levered by an amount  $x$ . For a 130/30 portfolio,  $x$  would equal 30%. The portfolio can be written as,

$$P = B + xA \quad [1]$$

To keep things simple, assume that the actively managed portfolio  $A$  generates a return in excess of all transaction and borrowing costs. Furthermore, assume that returns of  $A$  and  $B$  are normally distributed with annual returns of  $\mu_A$ , and  $\mu_B$ , and with annual volatilities of  $\sigma_A$ , and  $\sigma_B$ , respectively.  $A$  and  $B$  are assumed to have a correlation of  $\rho_{AB}$ , such that if  $A$  is managed in a benchmark-neutral fashion,  $\rho_{AB}$  would be negligibly small. Finally, assume that the tracking error constraint is given by

$$\sigma_P \leq \sigma_B + \sigma_e \quad [2]$$

where  $\sigma_e$  defines the tracking error, and  $\sigma_P$  represents the volatility of the portfolio. Different mandates target different tracking error constraints; however, they mostly appear in the range of 2% to 6%.

### Determining the Size of the Extension

In the absence of a tracking error the optimal leverage can be calculated by maximizing the information ratio of the portfolio  $P$ . Some straightforward algebra yields the following expression for optimal leverage

$$x_* = \frac{\mu_A \left( \frac{IR_A}{IR_B} \right)^2}{\mu_B \left( \frac{IR_B}{IR_A} \right)} \left( \frac{1 - \rho_{AB} \left( \frac{IR_B}{IR_A} \right)}{1 - \rho_{AB} \left( \frac{IR_A}{IR_B} \right)} \right) \quad [3]$$

For example, suppose that the manager being considered actively manages a beta-neutral overlay with an expected excess return of 10% and an information ratio of 0.25. If the benchmark has an expected return and volatility of 10% and 20%, respectively, then the maximum leverage employable is approximately 50%. However; a small correlation of 20% between the overlay and benchmark, which amounts to a beta of 0.4, reduces the optimal leverage to approximately 17%.

In addition, maximizing the information ratio of the portfolio tends to violate tracking error constraints if the alpha of the overlay is volatile. In this case, the maximum leverage employable can be found by solving equation [2] for  $x$ . This yields:

$$x_* \leq \frac{IR_A}{\mu_A} \left( -\rho_{AB} \sigma_B + \sqrt{\rho_{AB}^2 \sigma_B^2 + 2\sigma_B \sigma_e + \sigma_e^2} \right) \quad [4]$$

In the above example, if the tracking error constraint is 2%, then the maximum leverage employable would be approximately 23%. In the case of the 20% correlation, this maximum leverage would drop to approximately 19%. With the added overlay, the information ratio of the portfolio marginally improves from 0.50 to 0.56, and expected return increases from 10%, with no leverage, to 12.3%. Of course, this increased improvement in returns comes at the cost of more risk, since volatility increases from 20% to 22%.

Though this algebra is simplistic and does not capture all the complexities involved in constructing a 130/30 portfolio, it does yield approximations for the scale of the enhancement to be within the 10% to 50% range. All things being equal, a higher information ratio leads to larger benefits from short extension enhancements, though tracking error constraints may cap the result.



## APPENDIX 2: 130/30 Managers at June 30, 2009

Firm	Product	Vehicle	Reporting
Acadian Asset Management, LLC	US Beta 1 (130/30)	SA	Gross
AG Asset Management, LLC	Large Cap Growth 130/30	SA	Gross
AG Asset Management, LLC	Multi Cap Growth 130/30	SA	Gross
Allegiant Asset Management Company	Structured Small Cap 130/30	SA	Gross
Alpha Equity Management LLC	Alpha Equity Market Plus Fund (200/...	RA	Gross
Alpha Equity Management LLC	RidgeWorth Real Estate 130/30 Fund	MF:I	Net
Alpha Equity Management LLC	RidgeWorth US Equity 130/30 Fund	MF:I	Net
American Century Investments	Large Cap Core 130/30	SA	Gross
Analytic Investors, LLC	Aggressive Core Plus (S&P 500 Bench...	SA	Gross
Analytic Investors, LLC	Core Equity Plus (130/30) (Russell ...	SA	Gross
Analytic Investors, LLC	Core Equity Plus SP 500 (130/30)	SA	Gross
Aronson+Johnson+Ortiz, LP	AJO Large Cap - Absolute Value 130/...	SA	Gross
Aronson+Johnson+Ortiz, LP	AJO Large Cap 1000 130/30	SA	Gross
Aronson+Johnson+Ortiz, LP	AJO Matched Cap 130/30	SA	Gross
Aronson+Johnson+Ortiz, LP	AJO Top Cap - Absolute Value 130/30	SA	Gross
AXA Rosenberg Investment Management	U.S. 130 30 Limited Shorting	SA	Gross
Barclays Global Investors, N.A.	Alpha Advantage 500	CFNE	Gross
Batterymarch Financial Management	US Large Cap 130/30 Equity	SA	Gross
BlackRock	Alpha Extension 130/30	SA	Gross
Brandywine Global Investment Management	Diversified Large Cap Extended Equity	SA	Gross
BRC Investment Management LLC	BRC 130/30 Concentrated Equity	RA	Gross
Chicago Equity Partners	Large Cap 130/30	SA	Gross
Cramer Rosenthal McGlynn, LLC	CRM 130/30 Value	SA	Gross
Credit Suisse Group	Short Extension	SA	Gross
D. E. Shaw Investment Management	D. E. Shaw All Cap Core Alpha Ext	SA	Gross
D. E. Shaw Investment Management	D. E. Shaw Broad Market Core Alpha Ext	SA	Gross
D. E. Shaw Investment Management	D. E. Shaw Broad Market Core Alpha Ext	SA	Gross
D. E. Shaw Investment Management	D. E. Shaw Large Cap Core Alpha Ext	SA	Gross
Dalton, Greiner, Hartman, Mahe...	DGHM 130/30	RA	Net
Deutsche Asset Management, DWS	DWS Quantitative Large Cap Growth Equity	SA	Gross
Deutsche Asset Management, DWS	DWS Quantitative Large Cap Value Equity	SA	Gross
DIAM	Quantitative Short Extension (130/3...	RA	Gross
DIAM	Quantitative Short Extension (130/3...	RA	Gross
DuPont Capital Management Corporation	Active Extension (130/30)	SA	Gross
DuPont Capital Management Corporation	US Equity 130/30	SA	Gross
Fiduciary Asset Management, LLC	Large Cap 130/30 Equity	SA	Gross
Franklin Portfolio Associates	130-30 Russell 1000	SA	Gross
Franklin Portfolio Associates	130-30 Russell 1000 Value	SA	Gross
Franklin Portfolio Associates	130-30 S&P 500	SA	Gross
Freeman Investment Management	130 30	SA	Gross
Geode Capital Management, LLC	Geode Flexible Alpha	SA	Gross

Firm	Product	Vehicle	Reporting
Glenmede Investment Management	Large Cap 130/30	SA	Gross
Glenmede Investment Management	Total Market 130/30	SA	Gross
Goldman Sachs Asset Management	Structured US Equity Flex (130/30)	MF:I	Net
Hagin Capital, LLC	Hagin Investors LLC 130/30	SA	Gross
Hartford Investment Management	US Large Cap Equity 130/30	SA	Gross
Hillsdale Investment Management	Hillsdale Large Cap 130/30	SA	Gross
Independence Investments LLC	Long/Short 130/30	SA	Gross
ING Investment Management	ING 130/30 Fundamental Equity Strat...	SA	Gross
INTECH Investment Management LLC	INTECH Broad Large Cap Core 130/30	SA	Gross
Invesco Institutional (N.A.), ...	US Directional Long Short Equity [1...	SA	Gross
J.P. Morgan Asset Management	Intrepid Dynamic Plus	SA	Gross
J.P. Morgan Asset Management	Large Cap 130/30	SA	Gross
J.P. Morgan Asset Management	Large Cap Value 130/30	SA	Gross
Madison Square Investors LLC	Large-Cap Growth 130/30	SA	Gross
Madison Square Investors LLC	U.S. Large-Cap Core 130/30	SA	Gross
Martingale Asset Management, LLC	130/30 LargeCap Core	SA	Gross
Martingale Asset Management, LLC	130/30 LargeCap Core 500	SA	Gross
Martingale Asset Management, LLC	130/30 LargeCap Growth	SA	Gross
Martingale Asset Management, LLC	130/30 LargeCap Value	SA	Gross
Martingale Asset Management, LLC	Low Volatility 130/30 LargeCap Core	SA	Gross
Mellon Capital Management Corporation	U.S. 130/30 Enhanced Equity Strategy	SA	Gross
MFS Investment Management	MFS Blended Research 130/30 - US Co...	SA	Gross
Missouri Valley Partners	Small Cap 130/30	SA	Gross
Nicholas-Applegate Capital Management	US Systematic Large Cap Growth 130/...	SA	Gross
Nicholas-Applegate Capital Management	US Systematic Small-Mid 130/30	SA	Gross
Northern Trust Global Investment	Northern Trust Quant 130/30 Core Equity	SA	Gross
Numeric Investors LLC	Numeric Amplified Core (130/30)	SA	Gross
OakBrook Investments, LLC	Structured Large Core Plus (130/30)	RA	Gross
Oppenheimer Capital LLC	130/30 Small Mid Cap Growth	RA	Gross
Pyramis Global Advisors	Large Cap Core 130/30	SA	Gross
Quantitative Management Association	Long/Short Quantitative Core Equity	SA	Gross
Research Affiliates, LLC	RAFI® Enhanced 130/30	CFNE	Gross
Robeco Investment Management	Robeco Boston Partners 130/30 Large...	SA	Gross
Robeco Investment Management	Robeco WPG 130/30 Large Cap Core	SA	Gross
Salus Capital Management, Inc.	Salus 130/30 Long-Short Strategy	SA	Net
Shenandoah Asset Management, LLC	Shenandoah 130/30 Alpha Extension	SA	Gross
SSI Investment Management Inc.	130/30 Extended Alpha	SA	Gross
State Street Global Advisors	Active U.S. Large Cap Core Edge Strategy	SA	Gross
State Street Global Advisors	Index Plus Edge Strategy (130/30)	SA	Gross
Symphony Asset Management	130/30 Alpha-Extension Fund L.P.	RA	Net
Ten Asset Management, Inc.	130/30	SA	Gross
The Boston Company Asset Management	US Large Cap Core 130/30 Equity	SA	Gross
Thompson, Siegel & Walmsley LLC	TS&W Large Cap 130/30	SA	Gross
Turner Investment Partners, Inc.	Core Growth 130/30 Equity	SA	Gross

Firm	Product	Vehicle	Reporting
Turner Investment Partners, Inc.	Growth 130/30 Equity	SA	Gross
Turner Investment Partners, Inc.	Large Cap Growth 130/30 Equity	SA	Gross
Turner Investment Partners, Inc.	Quantitative 130/30 Equity	SA	Gross
UBS Global Asset Management	US Equity 130/30	SA	Gross
UBS Global Asset Management	US Value Equity 130-30	SA	Gross
Wellington Management Company	Extended US Quantitative Equity (13...	SA	Gross