

On the Performance of Extended Alpha (130/30) versus Long-Only

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Long-only extension, or 130/30, products have enjoyed increasing popularity over the last several years for active benchmark-relative mandates. They combine benchmark exposure with a greater level of active stock selection than a long-only mandate. The theoretical underpinning of 130/30 investing in a benchmark-relative context is well addressed and discussed in the literature. Relaxing the long-only constraint allows a manager to implement his views more efficiently. In a long-only world, the maximum underweight for a stock equals its benchmark weight. The asymmetric market-capitalization distribution in many indices means that negative views are often insufficiently expressed in a long-only setting; for example, around 50% of S&P 500 constituents have a benchmark weight of less than 10 basis points (bps). The ability to short allows the manager to better implement negative views, and thereby improve portfolio efficiency.

Sorensen, Hua, and Qian [2007] analyzed removing the “handcuffs” of long-only restrictions. Their analysis assumed a specific information coefficient (IC), portfolio turnover necessary to achieve the IC , estimated transactions, and borrowing costs. They showed that a long/short portfolio process fully maximizes the information ratio (IR), and that a 130/30 or 140/40 extension strategy is a great

improvement over a long-only strategy, *ceteris paribus*, for an active portfolio with a reasonable level of active risk.

The information ratio is the incremental risk-adjusted active return per unit of incremental active risk (i.e., alpha over tracking error). The information coefficient is the skill measure of the active process (i.e., the predictive power of the active signals in the process).¹ Grinold [1989] expressed the theoretical construct of active management, formally relating the IR to the IC , in the Fundamental Law of Active Management,

$$IR = IC \cdot \sqrt{N}$$

Grinold considered this simple expression as descriptive in nature, rather than operational. Qian and Hua [2004] considered some practical applications of the IR for realistic factors. This description is quite intuitive and argues that performance (IR) is directly proportional to skill (IC) and to breadth (N). Clarke, Silva, and Thorley [2002] extended the Grinold description to include a transfer coefficient (TC), or the *transmission cost* of implementation,

$$IR = IC \cdot \sqrt{N} \cdot TC$$

Clarke, Silva, and Thorley illustrated the magnitude of the efficiency loss caused by the long-only constraint in structuring portfolios.

Based on a series of optimized portfolios with ex ante tracking errors of 4% relative to the S&P 500, they concluded that loosening the long-only constraint increases the *TC* by more than 100%. In addition, they found that 130/30 strategies achieve 90% of the *TC* that can be obtained with a fully unconstrained 200/100 strategy.

To date, empirical evidence on 130/30 performance is limited because the track records of most 130/30 products are fairly short. Most managers have a track record shorter than 36 months, which limits the ability to claim statistical significance on either alpha and/or tracking error. Johnson, Ericson, and Srimurthy [2007] simulated an active alpha process in an attempt to demonstrate the efficacy of 130/30 portfolios. They posited a six-factor-based quantitative alpha model and used it to simulate historical performance over a 13-year period for 130/30 and long-only large-cap products with both U.S. and global universes. They found that 130/30 products, using the illustrative alpha model, substantially outperformed their respective long-only products and that 130/30 product tracking errors were also increased, but by proportionally smaller amounts than the increase in the alphas.

DATABASE AND CALCULATION METHODOLOGY

In our study, we sought to directly assess the evidence of actual portfolios. We used several sources to identify 130/30 managers, including manager databases, client lists of three major prime brokers, Bloomberg, investment conference proceedings, and professional journals, such as *Institutional Investor*, *Global Pensions*, and *IPE*.

Although it is easy to identify 130/30 strategies from manager databases, most databases do not identify the corresponding long-only products delivered by the same manager. Track records of many 130/30 products are not included in manager databases, probably due to the short track record of 130/30 products.

In order to overcome this limitation, we created a unique 130/30 database comprising 75 managers and 110 extension products. We contacted 84 managers directly. Five managers were prohibited from providing information to us, and another 4 managers, with track records shorter than 12 months, terminated their product and did not provide us with their performance. The group of 75 managers comprises 64 managers with a corresponding long-only product and 11 managers with a stand-alone extension product (not all extension products have a corresponding long-only product) or an extension product with a different benchmark compared to the long-only product. The stand-alone extension products and products with a different benchmark than their long-only counterpart are excluded from our analysis because their information ratios are not directly comparable to those of the long-only products. The subsample of 64 130/30 managers was further reduced to 53 managers, because 11 managers had a track record shorter than 12 months. The final sample of 130/30 products used in our analysis contained 73 product pairs from a total of 53 managers.

Exhibit 1 summarizes the number of managers and 130/30 products included in our study, and Exhibit 2 lists the underlying benchmarks used in our analysis. Less than one-half (47 of the 110 extension products) have non-U.S. benchmarks; the others have U.S. large-cap indices.

Although our database is not exhaustive, we believe that we have identified the majority of managers. Based on our direct inquiry of managers, we believe about 20 additional managers have a track record shorter than six months or are planning to launch 130/30 products in the near future. Thus, we estimate approximately 100 managers currently offer extension strategies.

Next, we classified the pairs of 130/30 and long-only products based on each manager's stock selection process. Exhibit 3 shows a summary of our database divided into quantitative, qualitative, and "quantamental" product pairs. Qualitative managers are often labeled fundamental managers, but because many quantitative managers use

EXHIBIT 1

Number of Managers and Products in Total Database

	Dead	Closed	Long-Only Extension	Comparable Long-Only	Analysis
Managers	4	5	75	64	53
Products	N/A	N/A	110	92	73

EXHIBIT 2

Long-Only Portfolio Benchmarks

Long-Only Extension Products		
S&P 500	Russell 1000	Other
35	28	47

fundamental ratios, we prefer to use the term qualitative instead of fundamental. And, in some instances, the boundary between quantitative and qualitative is blurred as an increasing number of qualitative managers use quantitative tools in their stock selection and portfolio construction processes. We classify a manager as quantitative when its stock selection process is quantitative and as qualitative when it uses fundamental information and a more subjective approach to analyze stocks (the traditional analyst approach). A manager is labeled “quantamental” when it uses a blend of quantitative and qualitative stock selection information.

We gathered monthly return data for both the 130/30 and long-only products (net of management fees and other expenses, such as custody costs, shorting fees, and transaction costs). The starting date for each manager’s alpha time series is the inception date of the 130/30 product. To account for management fees, we assumed a mandate of \$100 million and applied the published RFP fees provided by the managers.

PERFORMANCE ANALYSIS

Our performance analysis encompassed several aspects. First, we conducted a risk-adjusted performance analysis of 130/30 products and their corresponding long-only products by focusing on information ratios. Grouping the 130/30 and long-only product pairs as quantitative,

fundamental, and “quantamental” provided insight into how the subsamples performed relative to each other. Second, to corroborate the information ratio analysis, we performed a two tailed *t*-test to analyze whether the underlying mean monthly alphas for the product samples were significantly different. A firmer conclusion could be made from these results because the information ratios were based on data shorter than 36 months and thus lacked statistical significance. Third, we assessed whether 130/30 products were adding value through their short positions. Because most early adopters of 130/30 products came from the long-only world, it was pivotal to verify whether the extension, or shorting, contributed positively to relative performance.² Finally, we investigated whether any losses in the shorts were compensated by the longs of the 130/30 product. This line of inquiry is especially interesting in regards to managers who simply use the short proceeds to lever up the long-only wing of the portfolio.

On a product-by-product basis, we calculated annualized alphas, annualized tracking errors, and information ratios for both the 130/30 and long-only products. The time period of our analysis starts at the inception date of the 130/30 product and ends April 2008. The annualized information ratio is defined as annualized alpha per unit of annualized tracking error. Managers provided us with their beta estimates, although we did not beta adjust excess returns. We found that these estimates did not deviate substantially from 1.

Exhibit 4 compares the information ratios for both strategies. In the case of 130/30 product track records longer than three years, all four products delivered a higher information ratio than their equivalent long-only counterpart. The exhibit also shows that more than half (55%) of the product pairs (40 of 73) have a 130/30 product that is superior in terms of information ratio. Forty-four

EXHIBIT 3

Number of Product Pairs Split by Type of Process

Asset Manager Population				
Track Record	Qualitative	Quantamental	Quantitative	Total
>3 years	1	0	3	4
2–3 years	1	2	10	13
1–2 years	5	4	47	56
Total	7	6	60	73
Percentage	10%	8%	82%	100%

EXHIBIT 4

Number of 130/30 Portfolios with Better Performance than Long-Only

Performance Analysis		Total Group	
Track Record	IR Extension > IR Long-Only	IR & Alpha Extension > IR & Alpha Long-Only	Total
>3 years	4	4	4
2–3 years	5	5	13
1–2 years	31	23	56
Total	40	32	73
Percentage	55%	44%	100%

percent (32 of 73) of the product pairs have a higher information ratio and a higher alpha for the 130/30 product. These results concur with the findings of Johnson, Ericson, and Srimurthy [2007] that the increase in the information ratio comes from a pick-up in alpha that increases by more than the increase in tracking error. It could be argued that, given the difficult environment for active management, especially for quant managers in 2007 and 2008, these results are reasonable.

Quantitative managers of 130/30 products might intuitively be expected to outperform their long-only counterparts, because quant managers could be viewed as best equipped to run 130/30 strategies. Most market-neutral (or long/short) strategies that predated 130/30 products are the domain of quantitative firms. The rigor of their comprehensive alpha-ranking processes and portfolio construction processes make full market-neutral and 130/30 strategies a natural evolution of modern portfolio management. Quantitative managers produce evaluations and rankings for the entire universe—whereas qualitative managers often focus solely on their high-conviction bets—and are probably also more experienced in shorting.

Exhibit 5 shows the performance analysis results for the quantitative product pairs. It turns out that the quantitative managers, who dominate the entire group, perform similarly to the entire group—57% of the quantitative extension products show a higher information ratio compared to 55% for the entire group, as reported in Exhibit 4. This outcome is not unexpected because 82% of our total sample was quantitative products.

Exhibit 6 reveals the analysis for the qualitative product pairs. It is notable that qualitative 130/30 products seem to do better than quantitative 130/30 products in delivering higher information ratios compared to their corresponding long-only products. But given the small sample size of the qualitative managers, it is difficult to make statistically meaningful conclusions.

The results for the “quantemental” group are displayed in Exhibit 7. Only one of six extension products delivered a higher information ratio for the 130/30 product. These numbers might intuitively be expected to be better because a “quantemental” manager combines the “best of both worlds.” Unfortunately, the subsample is too small to draw any firm conclusions.

EXHIBIT 5

Number of 130/30 Products with Better Performance than Long-Only

Performance Analysis		Quantitative Group	
Track Record	IR Extension > IR Long-Only	IR & Alpha Extension > IR & Alpha Long-Only	Total
>3 years	3	3	3
2–3 years	4	4	10
1–2 years	27	20	47
Total	34	27	60
Percentage	57%	45%	100%

EXHIBIT 6

Number of 130/30 Products with Better Performance than Long-Only

Performance Analysis	Qualitative Group		
	IR Extension > IR Long-Only	IR & Alpha Extension > IR & Alpha Long-Only	Total
Track Record			
>3 years	1	1	1
2–3 years	1	1	1
1–2 years	3	2	5
Total	5	4	7
Percentage	71%	57%	100%

EXHIBIT 7

Number of 130/30 Products with Better Performance than Long-Only

Performance Analysis	Quantamental Group		
	IR Extension > IR Long-Only	IR & Alpha Extension > IR & Alpha Long-Only	Total
Track Record			
>3 years	0	0	0
2–3 years	0	0	2
1–2 years	1	1	4
Total	1	1	6
Percentage	17%	17%	100%

COMPARING MONTHLY ALPHAS

The Johnson-Ericson-Srimurthy [2007] study and our analysis both appear to indicate that the improvement in the information ratio is the result of a higher alpha in the 130/30 product, not a lower ex post tracking error. To corroborate our findings from the information ratio analysis described in the previous section, we performed a cross-sectional analysis on the underlying monthly alphas. Our test hypotheses were built on the idea that the mean monthly alpha for the 130/30 product is statistically different from the mean monthly alpha for the long-only product. We conducted these tests for the entire sample as well as for subsamples specified by track record and type of manager. Furthermore, we looked for managers that had a higher information ratio in the extension product; that is, if the underlying mean monthly alpha of a specific sample was different from the mean monthly alpha of the equivalent long-only sample at a 5% significance level.

The difference tests were performed on the same sample and subsamples that were used in the information

ratio analysis. The difference tests revealed that for the entire sample, including data from all manager types, 130/30 products did not produce a significantly different mean monthly alpha than the manager's corresponding long-only product (t -value = 0.77). The number of monthly alphas in the sample is 1,450 for both long-only and 130/30 products, and the observed mean monthly alphas are 6.6 bps and 3.6 bps, respectively. This result implies that although in 55% of all product pairs the 130/30 product has an information ratio superior to long-only, as depicted in Exhibit 4, the underlying mean monthly alpha of the 130/30 product for the entire sample is not significantly different from the mean monthly alpha of the long-only counterpart product. The same conclusion holds for the quantitative manager product subsample for which the observed t -statistic is equal to 0.34 with 1,163 observations for both the 130/30 and long-only products. The mean monthly alphas are 2.5 bps and 1.1 bps for the 130/30 and long-only products, respectively. The qualitative group produces the highest t -statistic of the three, but, with an observed value of 1.18, it is still less

than the critical value of 1.96. This is the smallest sample and comprises 160 observations for both the 130/30 and long-only products with mean monthly alphas of 33.2 bps and 14.5 bps, respectively.

Our next difference test applied to the subsamples of product pairs for which the information ratio of the 130/30 product was higher than that of the long-only product. Given that the 130/30 product's information ratio was higher, we expected a greater chance of observing a higher mean monthly alpha for the 130/30 products compared to the long-only products. This was indeed the case. The mean monthly alpha is significantly higher for the entire subsample (t -value = 2.56) and the quantitative sample (t -value = 2.12) than for the qualitative sample (t -value = 1.37) at a 5% significance level. The number of monthly alpha observations are 870, 729, and 128 for the entire, quantitative, and qualitative subsamples, respectively. For the 130/30 and long-only products, the mean monthly alphas are 16.8 bps and 3.32 bps, respectively, for the entire subsample; 12.8 bps and 1.2 bps, respectively, for the quantitative subsample; and 36.5 bps and 13.2 bps, respectively, for the qualitative subsample. Caution should be used in interpreting the t -stats for the subsample in which the information ratio is higher for the 130/30 product than for the long-only product. Our analysis confirms again, however, that the increase in the information ratio is mainly the result of higher alpha.

Among these managers, the incremental alpha (over 100 bps on an annual basis) from long-only to 130/30 is economically significant for investors.

SHORTING ANALYSIS

Based on performance attribution data delivered by managers, we analyzed whether 130/30 products can add value by shorting. We began by verifying whether the cumulative annualized alpha provided by the managers, and based on the monthly return series, was in line with the cumulative annualized alpha according to the delivered performance attribution (attribution to longs and shorts). Finally, for 130/30 products that delivered negative value-added in the shorts, we analyzed whether the corresponding managers were able to compensate for this loss in the long wing of the portfolio and still generate a higher information ratio compared to the long-only product. These results provided insight into 130/30 managers who use proceeds from the shorts to lever up their long-only ideas.

Exhibit 8 reveals that in 33% (24 of 73) of the 130/30 products with a comparable long-only product, the managers were able to add value from shorting. The majority of these products (19 of 24) came from the subsample with track records shorter than two years. We acknowledge that adding value in the shorts for products with a one- or

EXHIBIT 8

Number of 130/30 Products Adding Value from Shorts

Shorting Analysis		Total Group	
Track Record	Shorts > 0	Shorts ≤ 0	Total
>3 years	2	0	4
2–3 years	3	5	13
1–2 years	19	17	56
Total	24	22	73
Percentage	33%	30%	100%
		Performance Not Attributed to Shorts	
Track Record	Not Delivered		Total
>3 years	0	2	4
2–3 years	2	3	13
1–2 years	8	12	56
Total	10	17	73
Percentage	14%	23%	100%

two-year track record might be due to the broader market decline in 2007 and 2008, and that it gets harder to consistently add value in the shorts over the long run.

The 33% figure is calculated on the entire sample, but it can be argued that this figure should be calculated as a percentage of only the group of managers who deliver the performance attribution. In that case, the percentage would increase to 52% (24 of 46).

For 37% of the extension products in our database, standard performance decomposition into longs and shorts was not available; for 14% of the products, the information was not provided, and for 23% no standard performance decomposition was made for longs and shorts. We suspect that the managers in the 14% subsample were at least struggling to get the decomposition done.

We conducted a similar analysis for shorting to verify whether there were any material differences among quantitative, qualitative, and “quantamental” extension products. The results are reported in Exhibit 9 for the quantitative group and in Exhibit 10 for the qualitative group. For the “quantamental” group, we did not have sufficient data to conduct an analysis.

Comparing these results with the results shown in Exhibit 8, we concluded that the quantitative sample did not perform well in adding value in the shorts compared to the total group; 28% added value in the shorts versus 32% for the total sample. The 130/30 products delivered with a performance attribution into longs and shorts per-

formed badly; 19 of 36 (53%) lost value in the shorts. For 40% of the quantitative 130/30 products, the managers either were unable to attribute performance to shorting or did not report the required data.

Because qualitative managers have fewer quantitative tools, it could be expected that they might struggle with delivering a performance attribution to longs and shorts. It is interesting to note, however, that for only one of seven qualitative 130/30 products, the manager was unable to provide a decomposition of the relative performance of longs and shorts; furthermore, for five qualitative 130/30 products, the managers added value in the shorts since the inception of the 130/30 product. Four of five products came from the one- to two-year track-record subsample. Although it was difficult to draw any firm conclusions regarding the qualitative group because the group contained only seven 130/30 products, we believe that the results can be considered as not disappointing.

The final part of the shorting analysis evaluated the extent to which 130/30 managers that generated losses in the shorts still managed to compensate for this in the long wing of the 130/30 product, while achieving a higher information ratio compared to that of the long-only product.

Exhibit 11 reveals that only 5 of 17 130/30 products managed to overcome the negative contribution to performance by the shorts through the performance of the longs in the portfolio and to generate both a higher alpha

EXHIBIT 9

Number of 130/30 Products Adding Value from Shorts

Shorting Analysis		Quantitative Group	
Track Record	Shorts > 0	Shorts ≤ 0	Total
>3 years	1	0	3
2–3 years	3	3	10
1–2 years	13	16	47
Total	17	19	60
Percentage	28%	32%	100%
		Performance Not Attributed to Shorts	
Track Record	Not Delivered		Total
>3 years	0	2	3
2–3 years	2	2	10
1–2 years	8	10	47
Total	10	14	60
Percentage	17%	23%	100%

EXHIBIT 10

Number of 130/30 Products Adding Value from Shorts

Shorting Analysis		Qualitative Group	
Track Record	Shorts > 0	Shorts <= 0	Total
>3 years	1	0	1
2–3 years	0	1	1
1–2 years	4	0	5
Total	5	1	7
Percentage	72%	14%	100%

		Performance Not Attributed	
Track Record	Not Delivered	to Shorts	Total
>3 years	0	0	1
2–3 years	0	0	1
1–2 years	0	1	5
Total	0	1	7
Percentage	0%	14%	100%

EXHIBIT 11

Number of 130/30 Products Generating Higher Alphas and Information Ratios

IR & Alpha Extension > IR & Alpha Long-Only		Total Group	
Track Record	Shorts > 0	Shorts <= 0	Total
>3 years	2	0	4
2–3 years	1	2	5
1–2 years	9	3	23
Total	12	5	32
Percentage	36%	16%	100%

		Performance Not Attributed	
Track Record	Not Delivered	to Shorts	Total
>3 years	0	2	4
2–3 years	1	1	5
1–2 years	4	7	23
Total	5	10	32
Percentage	16%	32%	100%

and a higher information ratio than their long-only counterpart. We omitted 15 130/30 products for which no decomposition was available. Furthermore, the data show that 12 of the 17 130/30 products that outperformed their long-only counterpart on a risk-adjusted basis also added value in shorting. It seems that the number of 130/30 products that lost value in the shorts, but still managed to beat their long-only counterpart product, is limited. This implies that adding value in the shorts is highly

important for a 130/30 product in order to outperform its counterpart long-only product.

CONCLUSIONS AND IMPLICATIONS FOR MANAGER SELECTION

Theoretically, 130/30 products are more appealing than long-only products. In this article, we have provided practical evidence that seems to support the theoretical

prediction. But given the difficult environment for active management in 2007 and 2008, especially for quantitative managers, and the short track record of many 130/30 products, the evidence is not conclusive in the statistical sense. We found that for managers with a higher information ratio in their 130/30 product versus their long-only product, the mean monthly alpha of the 130/30 product was statistically superior at a 5% significance level than the mean monthly alpha of the long-only product, and the difference is over 100 bps a year.

An institutional investor entering into a manager-selection search might be tempted by these results to look for a 130/30 product or change their long-only mandate to a 130/30 mandate. The question is whether a manager that achieves a higher information ratio in the 130/30 product can do so in the long run and on a consistent basis. This is a matter of performance persistence. Because track records are short, it is not possible to test for performance persistence.

Our analysis shows that as a percentage of the corresponding total subsample, more qualitative than quantitative managers achieved higher information ratios for their 130/30 products compared to their long-only counterpart products. However, the sample size for qualitative managers in our database is very small. Nevertheless, we believe qualitative managers should be considered to run a 130/30 product, especially for strategy-diversification purposes.

Our performance analysis also suggests that adding value in the shorts is highly important for running a successful 130/30 strategy. Institutional investors considering a 130/30 product should ask potential managers about their experience and expertise in shorting and about their ability to attribute performance to longs and to shorts.

APPENDIX

The mean monthly alpha for the long-only products and the 130/30 products in our samples are denoted as $\bar{\alpha}_{\text{LongOnly}}$ and $\bar{\alpha}_{\text{Extension}}$, respectively. We performed the following two-tailed t -test:

$$H_0: \bar{\alpha}_{\text{Longonly}} = \bar{\alpha}_{\text{Extension}}$$

$$H_a: \bar{\alpha}_{\text{Longonly}} \neq \bar{\alpha}_{\text{Extension}}$$

The t -statistic t^* is a measure of the difference between the mean monthly alphas divided by a measure of the com-

bined variability of the monthly alphas of the 130/30 and long-only groups, as defined in the following formula:

$$t^* = \frac{\bar{D}}{SE(\bar{D})} = \frac{\bar{\alpha}_{\text{Extension}} - \bar{\alpha}_{\text{Longonly}}}{\sqrt{\frac{s_{\text{Extension}}^2}{n_{\text{Extension}}} + \frac{s_{\text{Longonly}}^2}{n_{\text{Longonly}}}}}$$

This is referred to as the standard error of difference between the 130/30 and long-only means, where s_{Longonly}^2 and $s_{\text{Extension}}^2$ are the sample variances for the long-only and 130/30 groups, respectively,

$$s^2 = \frac{\sum_{i=1}^n (\alpha_i - \bar{\alpha})^2}{n-1}$$

and n_{Longonly} and $n_{\text{Extension}}$ are the number of observations for both groups. We accept H_0 when $t^* > t_{2.5\%, df}$ or $t^* < -t_{2.5\%, df}$, and conclude that the difference of the monthly alpha means for long-only and 130/30 is significant.

ENDNOTES

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¹IC is typically measured by the cross-sectional correlation between forecasts and securities' subsequent actual returns.

²Note, however, that not all asset managers seem to agree with this. Many managers treat the long underweights the same way they treat the short positions, because, from a technical point of view, a short position is an underweight. Some managers argue that as long as their longs compensate for the performance loss in the shorts, it is not necessary to further decompose performance into longs and shorts. The problem with this view is that the longs have to compensate for three hurdles: 1) overcoming the additional costs from a higher turnover in the 130/30 strategy; 2) overcoming the shorting costs; and 3) overcoming potentially higher management and custodian fees. Based on discussions with several asset owners, we estimate a ballpark figure of 100 bps in incremental cost for a U.S. large-cap strategy.

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