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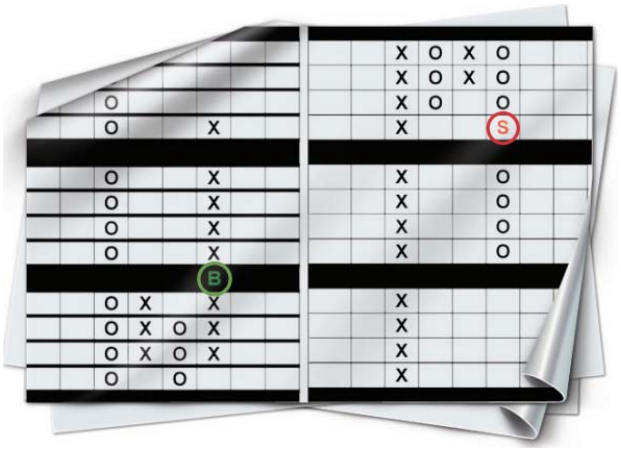
Sector Rotation With Point and Figure Matrices

Sector rotation is a very popular investment strategy with investors. These strategies do away with stock picking and seek to capitalize on broad industry trends. By purchasing sector based mutual funds or, more recently, exchange traded funds (ETF's), investors can easily get exposure to very specific areas of the equity market. These strategies can be implemented using a number of different investment factors. Some investors favor an approach based on valuation while others might look at the overall business cycle attempting to over and underweight sectors based on where they perform best during the cycle. Relative strength or momentum is another popular method used to implement sector rotation strategies.[1]

Sector rotation based on momentum seeks to overweight areas that have performed well relative to a broad market benchmark or the other sectors in the universe. A paper titled, "Do Industries Explain Momentum," written by Moskowitz and Grinblatt in 1999 demonstrated there was significant momentum at the industry group level. A basic sector momentum model will rank all of the securities in the universe by trailing price return (12 or 6 months for example) and then select the top industries based on what has the highest trailing return. Ranking based on a moving time window has become very popular, and is an easy way to objectively determine which sectors or industries have the best momentum.

Point and Figure (PnF) relative strength is another way to determine which securities have the best momentum. A PnF chart produces a series of columns across the page. A column of X's indicates the security is performing better than the benchmark so the ratio line is moving up. A column of O's indicates the security is underperforming the benchmark and the ratio line is falling. As columns move across the chart, a series of X and O columns appear in an alternating fashion. When the top of a current column of X's exceeds the top of the previous column of X's it is considered a buy signal (see Figure 1). When the current column of O's exceeds the low of the previous column of O's that is considered a sell signal. In the most basic interpretation, a

Figure 1: Point And Figure Patterns



[1] *The relative strength strategy is NOT a guarantee. There may be times where all investments and strategies are unfavorable and depreciate in value.*

point and figure relative strength chart has four states: on a buy signal and in a column of X's, on a buy signal in a column of O's, on a sell signal in a column of X's, and on a sell signal in a column of O's. The point and figure column and signal give insight into the intermediate and long-term direction of momentum. Securities with the best relative strength pattern would be those on a buy signal and in a column of X's. Securities on a sell signal and in a column of O's are securities investors want to avoid.

Calculating point and figure relative strength charts on a sector or industry universe can help determine what is stronger or weaker than the broad market on an intermediate and long term basis, but they can't determine which sector or industry has better momentum characteristics than the others. A point and figure matrix can be used to determine this. To construct a matrix, a point and figure relative strength chart is calculated for each security in the universe compared to every other security. The number of charts calculated is equal to n^2-n. If a matrix is constructed with 10 macro sectors, 90 (10^2-10) charts need to be calculated. The number of charts grows rapidly as the universe expands! Once all of the charts are constructed, a score is calculated by summing the number of buy signals and X columns for each chart. The more buy signals and X columns one security has versus everything else in the universe, the higher its score will be. For the testing shown in this paper we will focus only on the scores generated by the point and figure signals and not the columns. An example of a simple asset class matrix is shown in Figure 2.

In this paper we test two different universes of sector and industry group indexes. The proliferation of ETF's has made it possible for investors to create sector rotation strategies on broad macro sectors or more targeted industry groups. The first universe uses the 10 S&P 500 GICS Macro Sector indexes. These indexes represent large economic sectors such as: Basic Materials, Financials, Technology, and Healthcare. There is a suite of Sector SPDRS ETF's which track these indexes with the exception of Telecommunications. Since Telecomm is such a small sector, it is divided among Technology and Utilities on an ETF level, but it is a seperate index in our testing universe. We also test a universe of the approximately 130 S&P 500 GICS Sub Industry indexes. This universe contains much more targeted exposure such as: Biotechnology, Internet Services, Airlines, and Railroads. A universe of these indexes simulates a universe of much more targeted sector ETF's that are available.

Figure 2: Point And Figure Matrix Example

Rank	Ticker	Buys	X's	Total	Tech Attribute/ Score	DBC	AGG	EFA	EEM	SPY
1	SPY	4	4	8	3.34	BX	BX	BX	BX	
2	EEM	3	3	6	3.71	BX	BX	BX		SO
3	EFA	2	2	4	2.32	BX	BX		SO	SO
4	AGG	1	1	2	2.63	BX		SO	SO	SO
5	DBC	0	0	0	0.10		SO	SO	SO	SO

The second major decision in constructing a point and figure matrix is what box size to use. The box size determines the amount of price movement needed to affect the point and figure chart. A small box size means much smaller moves affect the chart, while a larger box size means it takes very large price moves to affect the chart. There is a sweet spot at the intermediate term time horizon for any momentum model. Looking at too short of a time period introduces random noise into the rankings, while large box sizes don't allow the rankings to adapt to changing conditions. For a time based calculation, intermediate term is generally considered about 3-12 months. Since point and figure removes time from the equation, it relies on box sizes to determine intermediate term price movements. Point and figure matrix models haven't been researched as heavily as their time based counterparts so we run each model with multiple box sizes to determine the optimal box size for each of the two universes.

Figure 3 summarizes the testing results on the macro sector universe. The left hand column corresponds with the number of holdings in each test. The "2 Hold" row, for example, means we took the top two macro sector indexes each month based on their signal score in a point and figure matrix. The models were examined monthly and all positions were equal weighted. The other columns in Figure 3 contain the cumulative returns for each model at various box sizes. The 3% Box column means the point and figure matrix used a 3% box size when constructing the 90 charts. The best results in this universe come from using a box size in the 3%-4% range. There is one outlier in the 2 Hold model, but the 4% box size is nearly identical in terms of cumulative return as 7% box size. The worst results come from using box sizes that are very small. As the box size shrinks, the model picks up more and more random noise. The goal of the box size is to filter out the short term fluctuations and analyze the intermediate term trend. Trying to pick up on every little price move is very detrimental to the returns of a momentum based sector rotation strategy. The process is also very robust to different box sizes. While the 3%-4% range may be optimal in this test, using other box sizes can still deliver very solid returns above the

Figure 3: 10 Macro Sector Matrix Summary Results (Dec 1995—Jun 2014)

	1% Box	2% Box	3% Box	4% Box	5% Box	6% Box	7% Box	8% Box	9% Box	10% Box
1 Hold	66.9%	476.5%	870.3%	1072.4%	609.5%	625.2%	766.5%	704.1%	549.9%	526.2%
2 Hold	116.0%	557.5%	541.4%	711.4%	639.1%	621.5%	716.3%	455.3%	430.7%	393.8%
3 Hold	248.6%	436.1%	769.3%	809.2%	528.6%	432.2%	587.1%	564.8%	479.7%	373.6%
4 Hold	293.6%	422.2%	601.7%	739.3%	480.6%	480.5%	524.1%	456.8%	405.1%	355.3%
5 Hold	311.8%	501.3%	665.1%	638.0%	593.6%	443.2%	493.0%	398.1%	442.1%	366.1%
SPX TR	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%

The performance information presented is the back-tested performance of non-investable indexes. Investors cannot invest directly in an index. Indexes have no fees. Back-tested performance is hypothetical (it does not reflect trading in actual accounts) and is provided for informational purposes to illustrate the effects of this strategy during a specific period. Back-tested performance results have certain limitations. Such results do not represent the impact of material economic and market factors might have on an investment advisor's decision making process if the advisor were actually managing client money. Back-testing performance also differs from actual performance because it is achieved through retroactive application of a model investment methodology designed with the benefit of hindsight.

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S&P 500 Total Return Index. Year by year results are included in tables 1-5 at the end of the paper.

Macro sectors are blunt tools for sector rotation. Investors can purchase targeted funds providing more granular exposure within each macro sector. We ran similar tests on the GICS Sub Industry indexes to illustrate the power of getting more granular with a sector rotation strategy. Figure 4 shows the summary results of testing rotation strategies using the 130 sub industry groups. (Please see Tables 6-10 for more detailed performance.) As with the macro sectors, we ran point and figure matrices at multiple box sizes. Each month the universe of sub industry groups is broken into quintiles based upon their scores in the point and figure matrix. Groups in the 80-100 quintile have the highest scores, and are the groups with the best momentum characteristics.

The results are what we would expect. The best returns come from owning the groups with the best relative strength. There is a very rapid decline in cumulative performance when you move from the top to the next quintile so it is imperative to keep the model focused in the highest ranked sub industry groups. Chart 1 shows the equity curves of each quintile using a 5% box size. The bottom three quintiles are tightly clustered together indicating once you move beyond the top portion of the matrix ranks there is no excess return.

Comparing the returns in Tables 3 and 4 also illustrate the value in getting more granular in the universe. Momentum is a factor that works best when there is a large dispersion in the returns of the constituents in the universe. In a universe of 10 broad economic macro sectors, the range in returns from best performer to worst performer will almost always be smaller than the range in returns of the sub industry groups. A momentum model based on a more targeted universe allows you to focus on smaller, more specific segments of each macro sector. Purchasing a broad macro sector ETF for healthcare gives you exposure to every single industry group. But it is entirely possible that drugs and biotechnology are the only groups that have superior momentum characteristics at a given time. A more granular approach allows you to purchase only the groups that have the best relative strength characteristics and exclude groups like hospitals, medical supplies, etc… that

Figure 4: Sub Industry Matrix Summary Results (Dec 1995—Jun 2014)

Rank	1% Box	2% Box	3% Box	4% Box	5% Box	6% Box	7% Box	8% Box	9% Box	10% Box
80-100	600.4%	808.7%	985.1%	1270.2%	1345.5%	1415.5%	1386.4%	1099.2%	865.0%	807.8%
60-80	461.4%	415.0%	683.7%	543.0%	571.4%	724.1%	557.4%	500.3%	444.3%	431.4%
40-60	506.5%	392.7%	297.1%	483.1%	375.2%	277.4%	303.2%	385.6%	385.8%	471.3%
20-40	407.9%	477.0%	428.0%	262.0%	240.1%	261.1%	350.3%	397.6%	598.9%	491.0%
0-20	561.0%	452.9%	275.1%	248.3%	303.2%	292.0%	279.0%	290.8%	266.2%	332.2%
SPXTR	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%	348.5%

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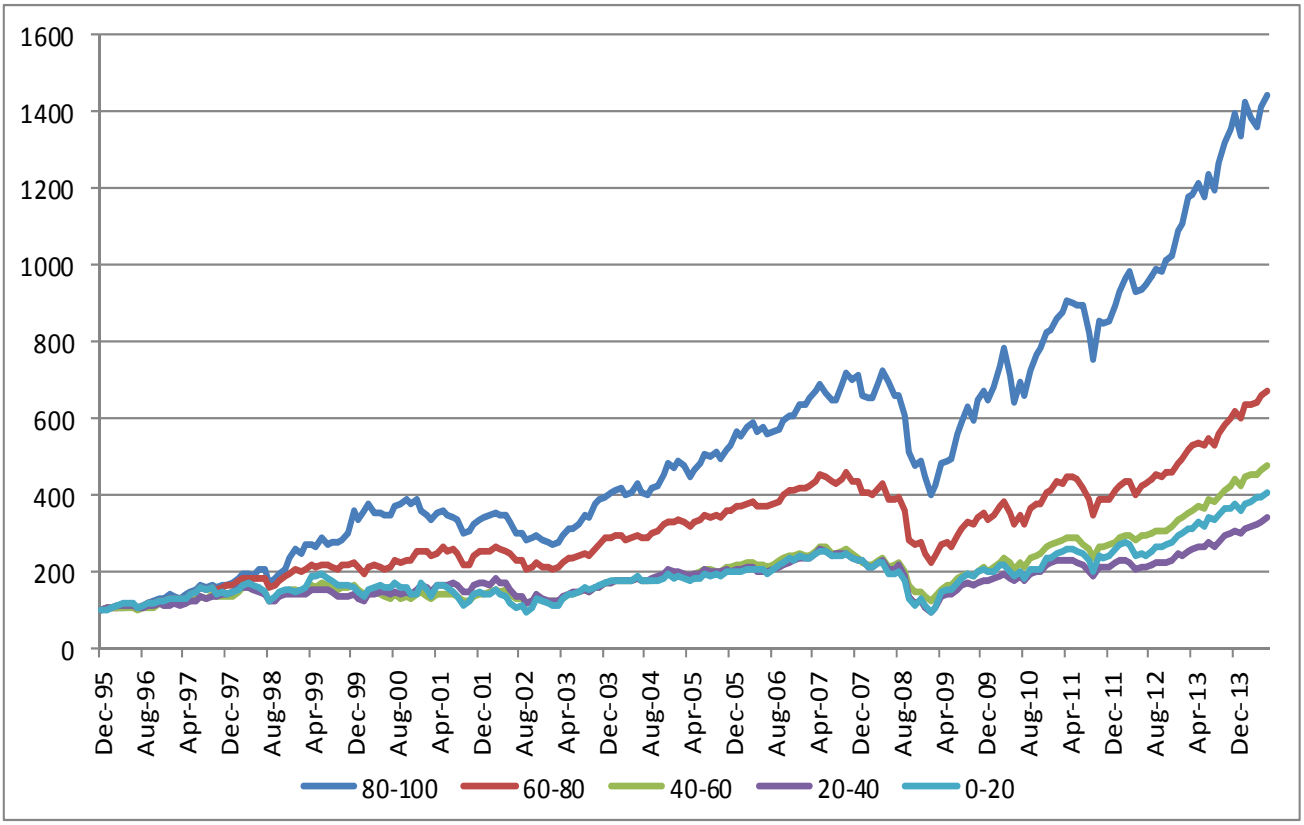
Chart 1: Performance By Quintile 5% Box (Dec 1995—Jun 2014)



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might be market performers at the time. However, this potential excess performance often comes with more volatility. A portfolio of more granular exposure is more concentrated in securities with a specific factor (in this case, momentum) , and will be more subject to the ups and downs of the momentum cycle. A portfolio of broader exposures contains a lot of securities that don't have superior momentum characteristics, which helps smooth out the volatility over time.

Both the macro sector and sub industry group models deliver the best returns when using an intermediate term momentum measurement. The best returns for the sub industry group models came using a slightly larger box size than what worked best for the macro sector models. The data for both types of models indicate that using too short of a measure is very detrimental to returns over time as is using a box size that is too large. But the sweet sport for the different universes was slightly different. In a July, 2014 paper titled, "Point and Figure Box Sizes," we looked at optimal box sizes for portfolios of individual common

stocks. We found that using a box size of about 6% -7% was optimal, which is different than both our macro sector and industry sub group tests.

The topic of differing box sizes for different universes certainly deserves more thorough investigation, but we believe the volatility of the underlying universe is the main reason for the difference in optimal box sizes. Macro sectors are much less volatile on a day to day basis than sub industry groups. Over the course of the test period, the standard deviation of daily price changes for the 10 macro sectors was 1.47% and it increased about 40% to 2.03% for the sub industry groups. The optimal box size between the two universes increased from about 4% for the macro sectors to 6% for the sub industry groups, or about 50%. Whether that sort of ratio increase holds true for other universes or is specific to these two requires additional study. But there is a relationship between the volatility of the universe and the optimal box size. As the volatility of the universe increases it is better to increase the box size. This allows more of the short term noise to be filtered out while still allowing intermediate term trends to be captured.

Investors have focused on sector rotation strategies for many years. Now, with the proliferation of ETF's, investors have inexpensive ways to get macro sector exposure as well as more targeted industry group exposure. Momentum and relative strength have been very effective tools historically in harnessing the power of sector rotation. We show that using a point and figure matrix concept is an extremely effective way to formulate momentum ranks to implement a sector rotation strategy. Getting more granular with the universe, such as moving from economic macro sectors to sub industry groups, allows you to have more targeted exposure, and has led to much higher returns over time. A more granular universe will generally be more volatile and that can affect the optimal box size that the point and figure matrix uses to filter out short term noise. But as long as the momentum model is implemented in a disciplined fashion, a point and figure matrix ranking method has been able to deliver solid results in a number of different types of sector rotation universes over time.

Table 1: 10 Macro Sector Matrix Top 1 Holding Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	11.1%	21.7%	31.9%	35.2%	20.2%	29.5%	35.7%	21.0%	35.2%	43.9%	23.0%
Dec-97	40.0%	29.5%	19.6%	23.8%	37.3%	48.2%	48.2%	27.8%	48.2%	46.1%	33.4%
Dec-98	17.7%	37.6%	19.7%	23.0%	29.7%	14.6%	14.6%	43.9%	14.6%	14.9%	28.6%
Dec-99	33.8%	21.4%	45.2%	60.6%	78.7%	51.9%	51.9%	78.7%	78.7%	78.7%	21.0%
Dec-00	-17.1%	40.8%	38.0%	33.5%	-6.2%	-15.8%	9.7%	-13.9%	-10.4%	-31.8%	-9.1%
Dec-01	-19.3%	-28.8%	-23.9%	-20.4%	-27.4%	-23.9%	-11.9%	-4.7%	-11.9%	-11.9%	-11.9%
Dec-02	-33.8%	-5.2%	-18.5%	-11.8%	-22.3%	-24.2%	-21.0%	-18.0%	-18.8%	-18.8%	-22.1%
Dec-03	29.6%	9.8%	47.2%	26.4%	31.0%	31.0%	31.0%	15.0%	15.1%	15.1%	28.7%
Dec-04	7.2%	9.0%	12.3%	2.7%	7.6%	7.6%	7.6%	12.8%	5.2%	6.9%	10.9%
Dec-05	4.5%	13.0%	12.6%	31.4%	31.4%	31.4%	31.4%	31.4%	4.8%	4.8%	4.9%
Dec-06	6.1%	17.7%	27.3%	21.4%	24.2%	24.2%	24.2%	24.2%	24.2%	24.2%	15.8%
Dec-07	9.4%	20.0%	16.3%	28.5%	34.4%	34.4%	34.4%	34.4%	34.4%	34.4%	5.5%
Dec-08	-24.1%	-36.7%	-29.9%	-37.8%	-34.1%	-34.1%	-34.9%	-34.9%	-34.9%	-34.9%	-37.0%
Dec-09	-18.6%	27.0%	16.4%	24.4%	16.0%	14.9%	12.2%	13.8%	13.8%	13.8%	26.5%
Dec-10	13.1%	18.9%	22.7%	16.9%	6.4%	14.1%	14.1%	20.5%	20.5%	20.5%	15.1%
Dec-11	-5.4%	-7.8%	6.1%	-11.9%	-5.5%	14.0%	-14.3%	-13.2%	4.7%	4.7%	2.1%
Dec-12	2.1%	1.4%	7.3%	23.9%	3.8%	10.8%	10.8%	15.0%	5.4%	4.6%	16.0%
Dec-13	39.8%	30.7%	30.7%	43.1%	36.4%	26.1%	26.1%	12.7%	12.7%	25.1%	32.4%
Jun-14	-3.2%	3.1%	0.6%	0.6%	4.0%	5.2%	5.2%	5.2%	5.2%	13.0%	7.1%
Cum	66.9%	476.5%	870.3%	1072.4%	609.5%	625.2%	766.5%	704.1%	549.9%	526.2%	348.5%

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Table 2: 10 Macro Sector Matrix Top 2 Holding Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	13.0%	21.0%	25.5%	28.0%	28.0%	28.0%	28.0%	28.0%	40.0%	40.0%	23.0%
Dec-97	41.6%	32.0%	31.0%	38.8%	35.4%	46.2%	46.2%	36.8%	38.8%	32.8%	33.4%
Dec-98	28.6%	49.5%	32.4%	39.4%	49.7%	36.7%	34.7%	41.8%	36.4%	37.4%	28.6%
Dec-99	15.6%	30.6%	25.0%	44.0%	48.0%	29.0%	29.0%	29.0%	29.0%	29.0%	21.0%
Dec-00	-8.2%	17.6%	17.3%	16.2%	6.7%	-12.9%	7.0%	-17.6%	-12.6%	-20.8%	-9.1%
Dec-01	-33.6%	-25.8%	-20.6%	-21.4%	-23.4%	-11.9%	-10.1%	-6.4%	-10.1%	-10.1%	-11.9%
Dec-02	-29.6%	-14.2%	-15.5%	-13.8%	-11.1%	-18.5%	-19.2%	-22.5%	-16.6%	-16.6%	-22.1%
Dec-03	21.4%	24.0%	27.1%	29.3%	21.1%	21.1%	23.1%	19.8%	23.1%	23.1%	28.7%
Dec-04	8.3%	19.2%	1.9%	7.0%	14.0%	21.1%	17.8%	21.1%	8.5%	4.6%	10.9%
Dec-05	12.5%	12.1%	15.9%	15.3%	7.0%	8.8%	19.2%	19.2%	6.5%	19.2%	4.9%
Dec-06	9.8%	13.2%	21.8%	20.6%	21.2%	19.5%	22.3%	22.3%	22.3%	22.3%	15.8%
Dec-07	9.6%	15.0%	17.3%	13.2%	21.1%	27.2%	10.1%	16.4%	10.0%	10.1%	5.5%
Dec-08	-30.7%	-36.6%	-34.8%	-35.6%	-34.2%	-34.4%	-30.0%	-39.0%	-34.4%	-39.0%	-37.0%
Dec-09	-1.0%	22.0%	28.4%	18.2%	20.0%	11.2%	14.5%	16.7%	14.7%	16.7%	26.5%
Dec-10	23.0%	17.9%	13.4%	15.1%	7.3%	15.8%	17.5%	21.5%	21.5%	21.5%	15.1%
Dec-11	0.9%	-1.4%	-4.1%	-4.6%	-0.6%	8.3%	1.8%	-2.6%	-2.6%	-4.7%	2.1%
Dec-12	5.1%	9.0%	7.9%	12.4%	6.5%	12.9%	9.3%	4.2%	9.9%	7.9%	16.0%
Dec-13	29.9%	31.9%	36.7%	37.9%	33.0%	35.4%	28.5%	25.5%	20.9%	25.7%	32.4%
Jun-14	2.3%	1.0%	4.1%	2.3%	2.3%	2.9%	2.9%	6.9%	4.6%	9.1%	7.1%
Cum	116.0%	557.5%	541.4%	711.4%	639.1%	621.5%	716.3%	455.3%	430.7%	393.8%	348.5%

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Table 3: 10 Macro Sector Matrix Top 3 Holding Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	16.0%	19.4%	26.0%	30.0%	25.9%	24.0%	27.4%	33.5%	33.5%	33.5%	23.0%
Dec-97	45.1%	35.1%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%	33.4%
Dec-98	33.5%	33.6%	36.1%	39.3%	49.2%	47.1%	42.9%	42.9%	42.9%	42.9%	28.6%
Dec-99	11.3%	22.8%	31.9%	29.8%	25.9%	21.5%	24.2%	25.2%	24.2%	20.7%	21.0%
Dec-00	-7.0%	22.9%	16.3%	9.2%	15.3%	-3.4%	-6.1%	-4.7%	-9.9%	-13.5%	-9.1%
Dec-01	-18.1%	-34.9%	-18.8%	-21.4%	-15.5%	-19.7%	-13.6%	-9.9%	-12.0%	-21.6%	-11.9%
Dec-02	-21.9%	-19.2%	-14.6%	-11.0%	-17.9%	-16.3%	-16.3%	-14.6%	-19.9%	-21.4%	-22.1%
Dec-03	18.7%	29.0%	24.9%	30.6%	20.2%	23.0%	24.3%	24.3%	26.2%	27.9%	28.7%
Dec-04	7.0%	17.4%	6.8%	8.2%	12.9%	16.8%	17.8%	17.8%	12.0%	7.4%	10.9%
Dec-05	3.2%	7.3%	17.8%	14.9%	11.7%	8.6%	14.3%	14.3%	13.5%	15.0%	4.9%
Dec-06	11.2%	15.7%	20.2%	17.8%	19.0%	15.1%	21.2%	21.2%	19.5%	16.4%	15.8%
Dec-07	13.8%	15.4%	17.4%	16.5%	12.9%	19.8%	11.8%	14.2%	9.7%	12.5%	5.5%
Dec-08	-25.4%	-35.0%	-31.9%	-31.9%	-37.5%	-33.9%	-33.6%	-40.4%	-38.5%	-40.4%	-37.0%
Dec-09	9.3%	23.5%	26.6%	33.2%	12.3%	8.6%	15.3%	15.3%	14.5%	19.3%	26.5%
Dec-10	17.3%	17.4%	14.5%	15.0%	8.9%	8.9%	16.0%	19.2%	19.2%	19.2%	15.1%
Dec-11	-3.8%	0.7%	-4.2%	-3.4%	0.8%	1.9%	4.0%	3.2%	3.2%	3.2%	2.1%
Dec-12	12.1%	6.8%	11.2%	11.4%	10.7%	13.4%	10.0%	8.5%	10.4%	10.4%	16.0%
Dec-13	29.5%	35.3%	38.2%	36.9%	32.2%	28.1%	31.5%	21.2%	28.2%	25.8%	32.4%
Jun-14	5.6%	5.4%	5.1%	5.1%	2.9%	5.5%	4.8%	4.8%	5.9%	8.9%	7.1%
Cum	248.6%	436.1%	769.3%	809.2%	528.6%	432.2%	587.1%	564.8%	479.7%	373.6%	348.5%

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Table 4: 10 Macro Sector Matrix Top 4 Holding Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	19.1%	20.2%	27.8%	28.7%	24.2%	23.9%	31.4%	26.6%	31.4%	25.3%	23.0%
Dec-97	33.3%	31.2%	35.4%	37.2%	38.4%	36.7%	36.5%	38.4%	37.1%	35.7%	33.4%
Dec-98	28.8%	34.0%	36.5%	37.9%	39.3%	37.6%	37.6%	39.9%	39.9%	39.1%	28.6%
Dec-99	13.5%	20.6%	18.3%	21.4%	20.8%	20.8%	20.8%	20.8%	20.8%	20.8%	21.0%
Dec-00	0.8%	16.2%	9.8%	8.4%	6.9%	-0.4%	-3.6%	-1.2%	-8.1%	-8.1%	-9.1%
Dec-01	-21.1%	-31.4%	-14.6%	-14.0%	-17.9%	-15.7%	-14.1%	-11.0%	-16.2%	-18.0%	-11.9%
Dec-02	-19.2%	-23.7%	-17.2%	-16.2%	-13.5%	-12.8%	-13.1%	-17.6%	-20.3%	-22.0%	-22.1%
Dec-03	23.8%	30.0%	23.9%	30.4%	21.2%	26.8%	21.1%	23.4%	23.9%	24.2%	28.7%
Dec-04	10.0%	16.4%	8.8%	11.6%	13.3%	16.0%	16.1%	16.1%	15.8%	10.2%	10.9%
Dec-05	1.3%	11.3%	13.9%	13.0%	11.4%	11.6%	11.3%	11.3%	8.3%	12.4%	4.9%
Dec-06	13.9%	13.4%	19.4%	20.1%	17.0%	19.6%	19.4%	19.4%	19.4%	16.1%	15.8%
Dec-07	11.2%	12.9%	20.4%	16.5%	13.4%	14.4%	12.8%	11.1%	6.9%	11.1%	5.5%
Dec-08	-26.1%	-28.8%	-33.3%	-30.9%	-34.3%	-35.6%	-36.9%	-35.8%	-32.5%	-36.6%	-37.0%
Dec-09	13.3%	21.7%	24.2%	26.7%	15.2%	14.1%	15.9%	11.4%	20.5%	17.9%	26.5%
Dec-10	14.4%	13.2%	16.7%	16.1%	5.4%	10.8%	21.4%	19.3%	15.8%	14.7%	15.1%
Dec-11	-1.9%	1.2%	-4.6%	-1.1%	4.1%	-2.8%	3.9%	4.2%	-0.6%	7.4%	2.1%
Dec-12	15.0%	8.7%	10.6%	11.0%	12.6%	17.3%	10.9%	9.8%	7.3%	8.3%	16.0%
Dec-13	30.3%	37.6%	36.6%	33.8%	32.7%	28.6%	29.3%	19.7%	24.9%	25.4%	32.4%
Jun-14	7.2%	5.1%	5.1%	5.6%	5.1%	5.1%	4.6%	5.1%	8.6%	9.4%	7.1%
Cum	293.6%	422.2%	601.7%	739.3%	480.6%	480.5%	524.1%	456.8%	405.1%	355.3%	348.5%

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Table 5: 10 Macro Sector Matrix Top 5 Holding Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	20.7%	23.3%	26.1%	27.8%	28.1%	24.0%	30.4%	25.8%	30.4%	23.2%	23.0%
Dec-97	35.1%	34.4%	34.8%	36.6%	36.6%	36.6%	36.6%	36.2%	36.6%	35.6%	33.4%
Dec-98	27.4%	30.6%	40.2%	32.5%	34.8%	31.8%	32.8%	33.3%	33.3%	33.1%	28.6%
Dec-99	12.8%	18.5%	15.6%	16.6%	20.0%	20.0%	18.9%	16.5%	18.9%	18.9%	21.0%
Dec-00	-2.3%	15.5%	16.7%	9.4%	8.4%	1.3%	-3.7%	-5.0%	-6.6%	-6.6%	-9.1%
Dec-01	-19.9%	-26.2%	-13.8%	-10.6%	-14.8%	-18.5%	-16.6%	-14.2%	-11.5%	-14.0%	-11.9%
Dec-02	-18.0%	-18.7%	-15.6%	-16.8%	-14.0%	-13.8%	-14.9%	-17.7%	-20.4%	-20.5%	-22.1%
Dec-03	26.0%	30.0%	26.0%	28.8%	24.8%	28.9%	24.3%	23.3%	22.8%	28.6%	28.7%
Dec-04	12.0%	16.4%	11.6%	10.1%	13.7%	15.3%	16.0%	16.8%	14.3%	15.1%	10.9%
Dec-05	0.8%	8.4%	12.5%	12.3%	10.6%	7.1%	7.6%	7.6%	7.6%	9.1%	4.9%
Dec-06	16.1%	15.3%	21.6%	18.7%	19.8%	17.3%	19.3%	19.3%	19.3%	16.7%	15.8%
Dec-07	11.7%	15.3%	16.2%	14.4%	15.8%	14.0%	11.1%	6.9%	6.6%	5.8%	5.5%
Dec-08	-31.1%	-29.2%	-33.7%	-33.1%	-32.3%	-32.3%	-34.5%	-33.6%	-32.1%	-34.1%	-37.0%
Dec-09	14.2%	21.7%	25.5%	27.6%	16.2%	13.5%	19.7%	18.9%	22.3%	17.7%	26.5%
Dec-10	15.6%	12.4%	17.1%	15.1%	11.4%	8.5%	17.0%	16.5%	18.0%	13.9%	15.1%
Dec-11	0.1%	5.1%	-3.9%	-0.2%	-0.3%	-0.4%	7.2%	7.4%	5.8%	6.6%	2.1%
Dec-12	15.4%	9.4%	12.0%	12.7%	17.0%	16.2%	10.5%	10.3%	9.9%	9.7%	16.0%
Dec-13	32.1%	33.4%	32.5%	32.5%	31.9%	31.1%	30.5%	22.4%	24.9%	23.3%	32.4%
Jun-14	6.9%	4.7%	5.3%	6.0%	5.1%	5.9%	5.8%	5.9%	6.9%	8.7%	7.1%
Cum	311.8%	501.3%	665.1%	638.0%	593.6%	443.2%	493.0%	398.1%	442.1%	366.1%	348.5%

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Table 6: Sub Industry Matrix Ranks 80-100 Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	25.8%	22.0%	19.0%	26.3%	27.6%	28.6%	31.1%	29.3%	28.9%	28.8%	23.0%
Dec-97	28.0%	30.9%	27.9%	31.6%	29.9%	33.0%	26.6%	22.6%	21.5%	23.0%	33.4%
Dec-98	20.8%	38.1%	32.8%	44.8%	41.9%	45.7%	37.9%	38.5%	39.3%	44.4%	28.6%
Dec-99	41.1%	49.0%	56.4%	47.3%	52.3%	56.4%	58.3%	65.6%	57.8%	49.1%	21.0%
Dec-00	-3.9%	5.5%	16.9%	15.8%	8.1%	-1.2%	2.8%	-3.0%	-11.6%	-10.1%	-9.1%
Dec-01	-11.6%	-21.4%	-24.0%	-19.3%	-14.1%	-8.1%	-9.5%	-9.7%	-11.7%	-10.9%	-11.9%
Dec-02	-21.8%	-21.7%	-23.7%	-19.5%	-14.4%	-12.4%	-10.9%	-14.5%	-13.0%	-13.4%	-22.1%
Dec-03	40.3%	42.0%	44.1%	40.2%	38.6%	38.0%	45.7%	42.5%	44.4%	44.2%	28.7%
Dec-04	19.0%	15.7%	18.7%	20.6%	21.9%	23.9%	26.1%	28.1%	27.7%	27.1%	10.9%
Dec-05	2.7%	5.6%	9.0%	14.0%	10.2%	13.3%	14.2%	11.9%	16.6%	15.3%	4.9%
Dec-06	15.5%	8.7%	14.2%	12.5%	14.5%	14.4%	15.3%	15.3%	13.9%	14.3%	15.8%
Dec-07	21.2%	15.4%	10.9%	14.4%	17.6%	18.8%	22.3%	23.6%	22.6%	21.6%	5.5%
Dec-08	-37.2%	-29.7%	-28.0%	-30.3%	-31.5%	-31.9%	-37.0%	-39.1%	-40.5%	-42.2%	-37.0%
Dec-09	32.1%	34.5%	47.0%	40.6%	36.7%	37.7%	35.7%	25.5%	17.3%	18.3%	26.5%
Dec-10	12.1%	15.7%	18.6%	21.2%	23.1%	17.6%	18.8%	20.0%	20.7%	20.4%	15.1%
Dec-11	3.6%	7.0%	4.9%	4.6%	3.6%	2.6%	0.3%	3.5%	2.8%	2.5%	2.1%
Dec-12	13.4%	13.8%	15.1%	18.9%	20.4%	17.2%	19.2%	17.3%	16.3%	16.6%	16.0%
Dec-13	36.4%	37.8%	39.3%	35.6%	35.8%	30.7%	31.1%	31.3%	31.4%	28.8%	32.4%
Jun-14	7.7%	6.5%	1.7%	3.3%	3.8%	7.1%	5.1%	3.6%	3.6%	3.1%	7.1%
Cum	600.4%	808.7%	985.1%	1270.2%	1345.5%	1415.5%	1386.4%	1099.2%	865.0%	807.8%	348.5%

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Table 7: Sub Industry Matrix Ranks 60-80 Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	14.6%	17.4%	16.9%	16.9%	22.2%	20.1%	20.2%	24.0%	22.1%	18.7%	23.0%
Dec-97	28.2%	27.0%	34.6%	25.2%	31.8%	26.8%	26.0%	29.9%	30.3%	25.3%	33.4%
Dec-98	19.2%	9.2%	24.3%	19.8%	21.3%	14.6%	15.9%	10.0%	12.8%	12.5%	28.6%
Dec-99	14.1%	10.2%	10.9%	17.4%	14.1%	16.4%	10.5%	1.9%	2.9%	12.4%	21.0%
Dec-00	0.5%	6.6%	2.6%	18.3%	12.7%	22.5%	15.4%	14.0%	10.9%	5.4%	-9.1%
Dec-01	-8.0%	-1.5%	-4.0%	-4.4%	-0.4%	1.3%	4.3%	1.2%	-0.3%	0.7%	-11.9%
Dec-02	-15.4%	-17.3%	-8.1%	-16.8%	-15.0%	-12.1%	-14.3%	-10.4%	-17.6%	-18.4%	-22.1%
Dec-03	29.5%	33.1%	36.9%	33.7%	34.1%	30.5%	24.8%	26.7%	25.5%	27.0%	28.7%
Dec-04	19.2%	21.0%	17.1%	18.1%	16.0%	17.9%	12.3%	13.1%	15.8%	17.8%	10.9%
Dec-05	14.9%	6.8%	6.8%	3.4%	7.7%	6.3%	6.2%	8.9%	6.0%	9.0%	4.9%
Dec-06	19.9%	9.7%	8.9%	16.5%	15.2%	12.1%	13.9%	17.1%	16.0%	15.9%	15.8%
Dec-07	5.0%	7.5%	11.3%	4.4%	6.4%	6.7%	4.3%	3.2%	2.4%	2.6%	5.5%
Dec-08	-42.3%	-37.4%	-29.9%	-34.4%	-37.0%	-38.3%	-34.6%	-37.1%	-37.8%	-37.8%	-37.0%
Dec-09	37.5%	28.6%	30.8%	27.1%	28.7%	31.6%	27.0%	30.8%	36.1%	26.2%	26.5%
Dec-10	19.9%	18.3%	17.5%	18.0%	14.9%	25.3%	29.0%	25.8%	25.8%	27.1%	15.1%
Dec-11	2.4%	2.6%	3.1%	-1.1%	-4.3%	3.4%	1.7%	-2.1%	-2.9%	-5.7%	2.1%
Dec-12	13.7%	11.7%	13.1%	16.5%	17.9%	22.3%	19.6%	18.4%	19.0%	20.2%	16.0%
Dec-13	37.2%	42.5%	38.4%	38.2%	33.8%	38.6%	35.4%	32.6%	33.0%	36.9%	32.4%
Jun-14	5.8%	4.8%	10.8%	6.6%	9.2%	6.6%	5.3%	7.2%	7.9%	8.7%	7.1%
Cum	461.4%	415.0%	683.7%	543.0%	571.4%	724.1%	557.4%	500.3%	444.3%	431.4%	348.5%

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Table 8: Sub Industry Matrix Ranks 40-60 Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	20.7%	15.0%	23.5%	14.3%	11.9%	15.4%	14.8%	13.0%	9.4%	15.9%	23.0%
Dec-97	32.7%	28.2%	20.7%	28.9%	21.3%	25.8%	27.6%	27.0%	27.3%	33.2%	33.4%
Dec-98	16.3%	8.9%	16.1%	16.4%	11.0%	8.4%	8.6%	13.0%	17.5%	15.2%	28.6%
Dec-99	17.0%	0.3%	-6.0%	2.8%	9.6%	2.1%	-0.5%	0.7%	5.7%	5.6%	21.0%
Dec-00	13.6%	3.1%	-6.4%	-17.8%	-13.7%	-2.0%	2.6%	5.2%	8.7%	10.6%	-9.1%
Dec-01	-0.6%	4.1%	5.2%	5.4%	-3.3%	-5.3%	3.9%	7.4%	1.3%	-0.3%	-11.9%
Dec-02	-15.9%	-7.6%	-11.6%	-4.1%	-10.1%	-14.0%	-11.4%	-15.4%	-11.1%	-9.6%	-22.1%
Dec-03	29.0%	34.7%	24.2%	37.5%	36.7%	33.1%	29.8%	28.7%	30.7%	23.5%	28.7%
Dec-04	8.5%	18.0%	19.9%	18.1%	17.3%	17.1%	20.6%	19.2%	17.4%	17.1%	10.9%
Dec-05	0.3%	7.9%	7.4%	9.4%	7.6%	5.9%	4.8%	7.8%	3.0%	3.6%	4.9%
Dec-06	9.6%	15.4%	12.1%	11.9%	13.3%	16.3%	13.6%	9.2%	8.9%	12.6%	15.8%
Dec-07	3.0%	2.6%	-0.7%	3.0%	-3.0%	-6.6%	-5.7%	-6.4%	-3.6%	-4.0%	5.5%
Dec-08	-34.0%	-39.5%	-43.5%	-40.9%	-37.6%	-39.1%	-37.8%	-35.6%	-36.2%	-35.8%	-37.0%
Dec-09	43.6%	36.1%	33.6%	43.9%	42.9%	43.0%	34.4%	35.5%	34.5%	41.0%	26.5%
Dec-10	17.1%	16.6%	23.9%	23.2%	26.2%	22.4%	13.6%	21.6%	14.6%	15.9%	15.1%
Dec-11	0.2%	-6.3%	-5.0%	-1.2%	1.4%	-8.2%	-6.0%	-3.3%	0.2%	5.6%	2.1%
Dec-12	13.5%	11.0%	16.6%	18.6%	18.4%	15.9%	20.1%	19.4%	18.4%	17.0%	16.0%
Dec-13	37.6%	38.6%	38.6%	38.9%	38.7%	34.8%	32.6%	36.2%	35.6%	35.2%	32.4%
Jun-14	6.4%	9.9%	9.7%	13.8%	8.2%	7.3%	8.0%	10.4%	9.3%	7.3%	7.1%
Cum	506.5%	392.7%	297.1%	483.1%	375.2%	277.4%	303.2%	385.6%	385.8%	471.3%	348.5%

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Table 9: Sub Industry Matrix Ranks 20-40 Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	10.4%	24.6%	15.4%	18.0%	10.9%	11.7%	9.5%	9.2%	11.5%	8.1%	23.0%
Dec-97	18.6%	18.7%	19.1%	25.5%	28.9%	22.3%	28.4%	30.9%	29.7%	26.5%	33.4%
Dec-98	5.4%	8.9%	-3.3%	-8.3%	-2.5%	5.2%	15.3%	15.3%	11.4%	11.5%	28.6%
Dec-99	1.4%	2.9%	7.2%	7.2%	-1.2%	-4.0%	5.2%	6.1%	6.5%	5.3%	21.0%
Dec-00	0.2%	-7.9%	0.8%	0.4%	8.9%	-3.4%	-2.1%	1.5%	7.8%	8.2%	-9.1%
Dec-01	18.2%	17.6%	17.6%	13.7%	12.7%	11.2%	0.2%	8.1%	17.7%	11.2%	-11.9%
Dec-02	-10.5%	-8.7%	-8.4%	-20.2%	-23.5%	-16.9%	-22.2%	-15.5%	-16.1%	-16.5%	-22.1%
Dec-03	38.1%	22.7%	34.3%	27.7%	31.1%	35.4%	41.4%	40.9%	39.7%	44.7%	28.7%
Dec-04	14.2%	12.5%	12.5%	15.9%	20.3%	17.5%	17.4%	17.9%	14.3%	10.4%	10.9%
Dec-05	3.8%	1.6%	4.1%	0.3%	-0.9%	2.6%	2.8%	-0.9%	3.8%	3.7%	4.9%
Dec-06	12.9%	16.4%	18.1%	12.7%	13.2%	12.6%	10.9%	12.6%	18.4%	16.4%	15.8%
Dec-07	-3.7%	-2.1%	-1.2%	-1.9%	-1.0%	1.8%	-0.6%	0.0%	-2.3%	1.0%	5.5%
Dec-08	-34.6%	-37.7%	-40.7%	-40.3%	-46.7%	-43.5%	-44.2%	-44.1%	-38.3%	-38.8%	-37.0%
Dec-09	39.8%	53.7%	50.3%	48.9%	47.1%	33.3%	49.1%	51.6%	49.6%	52.7%	26.5%
Dec-10	23.8%	22.6%	20.0%	20.0%	21.4%	16.8%	19.4%	15.0%	19.7%	16.5%	15.1%
Dec-11	-3.8%	5.2%	2.6%	-2.1%	-3.2%	1.9%	-0.2%	-2.1%	-0.6%	-2.1%	2.1%
Dec-12	19.8%	26.9%	19.6%	13.8%	9.6%	16.4%	17.0%	18.3%	21.0%	17.8%	16.0%
Dec-13	35.2%	33.5%	31.8%	31.2%	34.4%	35.3%	41.7%	37.5%	37.3%	34.9%	32.4%
Jun-14	9.0%	5.5%	7.4%	6.6%	10.8%	10.9%	11.8%	6.6%	9.2%	10.9%	7.1%
Cum	407.9%	477.0%	428.0%	262.0%	240.1%	261.1%	350.3%	397.6%	598.9%	491.0%	348.5%

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Table 10: Sub Industry Matrix Ranks 0-20 Results

Date	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	SPXTR
Dec-95											
Dec-96	24.0%	15.9%	17.5%	19.4%	23.1%	19.2%	21.8%	22.1%	23.8%	24.7%	23.0%
Dec-97	23.5%	24.6%	26.0%	17.3%	15.9%	22.2%	20.8%	19.3%	21.2%	21.0%	33.4%
Dec-98	16.4%	15.3%	10.2%	8.6%	8.2%	5.9%	-0.6%	-0.1%	-0.4%	-1.6%	28.6%
Dec-99	7.9%	15.8%	14.6%	4.0%	3.1%	7.6%	3.2%	4.3%	3.6%	1.8%	21.0%
Dec-00	-5.9%	-2.2%	-8.8%	-10.3%	-13.7%	-13.9%	-13.0%	-12.4%	-11.1%	-8.3%	-9.1%
Dec-01	5.0%	6.5%	8.4%	7.5%	5.9%	1.2%	1.6%	-7.6%	-7.2%	0.1%	-11.9%
Dec-02	-12.8%	-22.7%	-25.8%	-18.4%	-16.9%	-24.4%	-21.2%	-24.4%	-23.6%	-23.2%	-22.1%
Dec-03	46.6%	51.1%	41.1%	40.7%	41.7%	45.1%	42.0%	44.7%	45.7%	46.7%	28.7%
Dec-04	27.1%	22.4%	17.8%	14.8%	11.4%	11.9%	8.7%	6.3%	9.0%	11.9%	10.9%
Dec-05	7.8%	7.6%	1.5%	2.9%	2.9%	1.2%	1.1%	1.7%	0.1%	-1.2%	4.9%
Dec-06	14.9%	21.7%	19.0%	20.4%	17.6%	17.7%	20.3%	20.8%	18.2%	16.1%	15.8%
Dec-07	-6.0%	-5.7%	-3.8%	-3.4%	-0.6%	-1.0%	-0.6%	0.5%	0.3%	-0.5%	5.5%
Dec-08	-48.7%	-53.0%	-53.6%	-51.5%	-45.3%	-46.1%	-45.1%	-42.3%	-45.0%	-43.3%	-37.0%
Dec-09	67.4%	72.6%	64.1%	55.5%	63.4%	77.4%	78.2%	83.3%	87.7%	87.8%	26.5%
Dec-10	25.6%	25.5%	18.8%	15.9%	13.0%	14.8%	16.4%	15.9%	15.6%	16.6%	15.1%
Dec-11	-3.1%	-8.9%	-6.1%	0.0%	2.4%	1.6%	4.9%	5.3%	1.2%	1.2%	2.1%
Dec-12	22.8%	19.6%	16.5%	14.4%	16.9%	10.8%	6.8%	9.0%	6.8%	10.1%	16.0%
Dec-13	29.9%	25.0%	29.9%	32.9%	35.8%	39.9%	38.4%	40.4%	40.8%	42.6%	32.4%
Jun-14	10.5%	12.4%	9.9%	9.0%	7.0%	8.4%	9.5%	12.3%	9.7%	9.8%	7.1%
Cum	561.0%	452.9%	275.1%	248.3%	303.2%	292.0%	279.0%	290.8%	266.2%	332.2%	348.5%

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