POINT AND FIGURE RELATIVE STRENGTH SIGNALS

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Relative Strength, also known as Momentum, has been proven to be one of the premier investment factors in use today. Numerous studies by both academics and investment professionals have demonstrated that winning securities continue to outperform. This phenomenon has been found in equity markets all over the globe as well as commodity markets and in asset allocation strategies. Momentum works well within and across markets.

Relative Strength strategies focus on purchasing securities that have already demonstrated the ability to outperform a broad market benchmark or the other securities in the investment universe. As a result, a momentum strategy requires investors to purchase securities that have already appreciated quite a bit in price.

There are many different ways to calculate and quantify momentum. This is similar to a value strategy.

There are many different metrics that can be used to determine a security's value. Some of the most popular metrics for calculating relative strength use a simple time-based look back window. For example, the trailing twelve month return for each security is calculated and then all of the securities are ordered from best to worst. A momentum strategy would focus on the securities at the top of the ranks.

In this paper we focus on point and figure relative strength charts. Point and figure is simply a charting method that removes time from the x axis. It also has the added benefit of giving clear and objective signals. The first step in creating a point and figure relative strength chart is to create a ratio line of the security's price versus a market benchmark (or another security). Each day this calculation is performed and the ratio tells you whether the security is performing better than the benchmark or not. The ratio line can fall even if the security and benchmark are rising; the numerator has to rise faster than the benchmark for it to rise. Conversely, the ratio line can rise if the security is going down less than the benchmark in a bear market. Plotting the ratio line on a point and figure chart provides a logical way to filter out the short term noise and provide objective interpretations of the trend in relative strength.

A point and figure 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.

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 point and figure relative 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 (see Figure 1).

Figure 1: Point and Figure Patterns

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.

How well do these point and figure relative strength states work for stock selection over time? To test that we constructed a universe of U.S. stocks going back to 1989. Each year we selected the top 1000 names by market capitalization as the eligible securities. The universe included currently active stocks and stocks that had been delisted because of buyouts, bankruptcies, or any number of other reasons. Each year securities that fell out of the top 1000 in the market capitalization ranking were eliminated from the eligible universe and new securities were added. We believe this universe is very liquid and does not suffer from a liquidity bias that appears in thinly traded stocks.

Every stock in the universe was then classified by its point and figure relative strength pattern. To calculate the relative strength charts we used the same box size and reversal for each security: 6.5% boxes with a three box minimum reversal. The benchmark for every security in the eligible universe was the S&P 500.

Each month every stock was assigned to one of four baskets based on its point and figure chart pattern. The equal weighted return of each basket was calculated each month to determine the performance of each one of the four baskets. The baskets were reconstituted and equal weighted at the end of each month.

We were then able to create four indexes that tracked the performance of each basket of stocks in a given point and figure chart pattern over time. The values of each index are shown in Figure 2. As mentioned previously, securities on a buy signal and in a column of X's have the best intermediate and long term relative strength characteristics so that is the basket of securities we would expect to perform the best over time. That is certainly the case over time. Maintaining a portfolio of stocks on relative strength point and figure buy signals and in columns of X's dramatically outperformed the other three point and figure relative strength states.

Table 1 breaks down the performance of each point and figure relative strength state by year. The S&P 500 Total Return Index is included for comparison. The S&P 500 Index is market capitalization weighted and our indexes were equally weighted monthly. As a result, we have also included a monthly equal weighted return of the eligible universe to more closely resemble our weighting methodology.

Figure 2: Cumulative Returns by Point and Figure Relative Strength Group
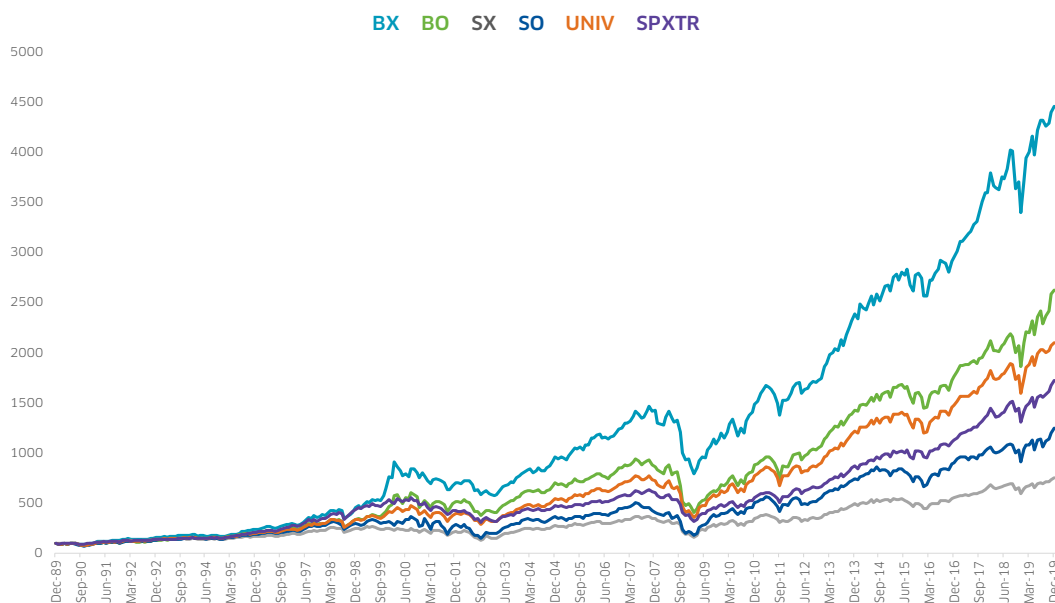
Source: Dorsey Wright

All Performance numbers are based on the back-tested performance of non-investable indexes. Investors cannot invest directly in an index. Indexes have no fees. Please see the final page for important disclosures regarding backested performance. Examples presented herein are for illustrative purposes only and do not represent past or present recom- mendations. Past performance not indicative of future results. Potential for profits accompanied by possibility of loss.

Examining the returns in Table 1, you can see how important it is to remain invested in the stocks with the best intermediate and long-term relative strength characteristics. The Buy in X basket performs much better than the S&P and the equal weighted index of the eligible universe. That basket was slightly more volatile than the broad market, but it still managed to generate the best Sharpe ratio of all the baskets.

Table 1: Annual Returns by Point and Figure Relative Strength Group

Date	BX	BO	SX	SO	Univ	SPXTR
12/31/1990	-4.63%	-10.02%	-12.24%	-16.05%	-12.38%	-3.10%
12/31/1991	49.68%	28.06%	36.89%	31.18%	38.63%	30.47%
12/31/1992	10.65%	12.36%	12.00%	20.41%	13.88%	7.62%
12/31/1993	14.32%	18.19%	6.66%	11.82%	12.82%	10.08%
12/30/1994	-4.99%	0.36%	-1.50%	-3.19%	-2.72%	1.32%
12/29/1995	38.92%	32.17%	21.28%	30.65%	32.06%	37.58%
12/31/1996	19.81%	17.89%	11.33%	17.96%	17.31%	22.96%
12/31/1997	34.08%	21.52%	20.85%	24.83%	26.60%	33.36%
12/31/1998	18.20%	15.00%	7.58%	7.55%	11.68%	28.58%
12/31/1999	68.41%	40.41%	1.66%	5.24%	25.63%	21.04%
12/29/2000	5.66%	6.51%	-10.79%	-12.07%	-2.49%	-9.10%
12/31/2001	-12.70%	3.78%	-2.53%	5.31%	-2.30%	-11.89%
12/31/2002	-15.09%	-18.38%	-28.97%	-30.92%	-17.81%	-22.10%
12/31/2003	33.29%	40.62%	51.68%	62.85%	40.74%	28.68%
12/31/2004	20.49%	18.16%	17.33%	13.67%	18.59%	10.88%
12/30/2005	13.11%	5.46%	5.64%	1.66%	9.20%	4.91%
12/29/2006	15.66%	14.98%	9.89%	18.01%	16.03%	15.79%
12/31/2007	13.79%	0.72%	7.08%	-7.85%	4.05%	5.49%
12/31/2008	-34.00%	-42.62%	-43.52%	-46.44%	-40.14%	-37.00%
12/31/2009	27.60%	39.20%	52.45%	82.43%	44.15%	26.46%
12/31/2010	23.71%	27.87%	16.33%	25.57%	24.45%	15.06%
12/30/2011	3.12%	-1.43%	-7.18%	-4.82%	-0.15%	2.11%
12/31/2012	13.87%	23.88%	12.00%	15.42%	16.54%	16.00%
12/31/2013	36.70%	33.19%	37.28%	35.38%	35.79%	32.39%
12/31/2014	12.31%	13.22%	8.05%	9.19%	10.95%	13.69%
12/31/2015	2.51%	-3.43%	-9.71%	-11.19%	-4.31%	1.38%
12/30/2016	7.40%	12.82%	15.42%	25.19%	14.14%	11.96%
12/29/2017	22.17%	16.02%	17.26%	14.70%	18.26%	21.83%
12/31/2018	-5.75%	-8.67%	-9.26%	-12.07%	-8.58%	-4.38%
12/31/2019	31.29%	41.09%	26.90%	36.63%	31.29%	31.49%
Cum	4360.72%	2533.07%	649.11%	1149.15%	2000.61%	1627.31%
Annual	13.48%	11.51%	6.94%	8.77%	10.67%	9.95%
St Dev	20.49%	19.07%	20.73%	25.58%	18.90%	17.48%
Sharpe (Rf=0)	0.69	0.61	0.33	0.34	0.58	0.54

Stocks on relative strength sell signals underperformed the market by a wide margin. Whether they were in a column of X's or O's, they performed worse with more volatility than either of the two benchmarks. Stocks in the Buy in a column of O's basket performed slightly better than the capitalization weighted S&P 500. However, this appears to be the result of our monthly equal weighting methodology as the equal weighted universe performs better over time. No matter how you look at the data, over long periods of time the stocks on point and figure relative strength buy signals and in a column of X's are really where you need to focus.

Table 1 also demonstrates the problems momentum has near the end of bear markets. The reversal off of a major bear market bottom has historically been a difficult time for relative strength strategies on a relative basis. The bottoms made in early 2003 and 2009 show this scenario. At these times, the laggard securities often rise much faster than the stocks that held up the best during the latter part of the decline. This is one time when it is materially better to own stocks with poor relative strength rankings. But over long periods of time the best results come from focusing on stocks with the best rankings.

The performance of the stocks with the best point and figure relative strength characteristics has also been quite consistent versus the S&P 500 and our equal weighted benchmark. On a rolling 3 year basis, the Buy in X's basket outperformed the S&P 500 Total Return index in 71% of the months, and it outperformed the equal weighted universe in 78% of the months. These numbers are right in line with what we have seen in other studies on the consistency of momentum returns.

Momentum is an investment factor that has worked very well for over a century. The momentum factor has been through bull markets, bear markets, and sideways markets and still continues to deliver outperformance versus broad market benchmarks. Plotting a ratio of a security versus a benchmark on a point and figure chart is one way to objectively classify securities in to groups based on their intermediate and long-term relative strength characteristics. When using point and figure relative strength classifications, it is important to focus on securities with only the best rankings. The only group of securities that outperformed the benchmarks in this test was the basket that held all of the stocks on a point and figure Buy signal and in a column of X's. All of the other baskets underperformed over time.

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