STOCK ANALYSIS WORKSHOP

Seeking Stocks With Momentum: A Look at Relative Strength Measures

By John Bajkowski

Just as a rising tide lifts all boats, a rising market tends to lift all stocks. Well, almost all stocks. Strong individual stock performance during a strong market represents only average performance, while a minor stock price decline during a major bear market represents strong relative performance. Relative strength compares the performance of a security, industry, or portfolio relative to some benchmark, usually an industry or market index.

Relative strength has grown in popularity as a stock selection tool as a number of research studies and successful investors have highlighted the benefit of seeking out stocks with high relative strength, especially when combined with other fundamental selection variables. The usefulness of relative strength is premised on the belief that relative strength persists. If a stock has displayed significant positive relative strength against the market, it would be expected to continue to display positive relative strength.

Relative strength is calculated using a range of methods. This article will examine some of the more popular sources and calculation techniques.

Calculating Relative Strength

Relative strength can be calculated over whatever time period is desired. In practice, it is usually calculated over a week-to-week, month-to-month, and year-to-year basis. The basic calculation of relative strength is accomplished simply by dividing the value of the investment you are measuring—the price of a stock, for example—by the value of an index for the market or appropriate industry:

$$\text{Relative strength} = \text{stock price} \div \text{index value}$$

When the ratio is increasing over time, the stock price is rising at a faster rate than the index or even falling at a slower rate than that of the market decline. A declining ratio indicates that the stock price is performing more weakly than that of the index value.

There are variations on the basic calculation and although mathematically different on the surface, they are intrinsically identical. For example, a simple adjustment to make analysis easier is to divide the relative value of the stock price by the relative value of the index. Some relative strength measures are calculated by subtracting one from the calculation, setting the base period at zero. Figures above the base figure reflect performance above the index, while below-market performance is portrayed by figures below the base level. Another popular adjustment to more easily handle factors such as stock splits is to divide performance of the stock by performance of the index value:

$$\text{Relative strength} = \frac{\text{Ending stock price} \div \text{Beginning stock price}}{\text{Ending index value} \div \text{Beginning index value}}$$

Table 1 gives monthly closing prices for the S&P 500 and Advest along with the relative strength for Advest. The cumulative relative strength is calculated with a base of 1.00 and a starting date of December 31, 1996. Thus, a value above 1.00 shows relative strength based on price movements since December 31, while ratios below one would highlight relative weakness since December 31. The key, however, is not the actual number, but the trend—whether the actual values are increasing or decreasing monthly. The calculations for the first two dates are as follows:

1/31/97

$$\text{Relative strength} = \frac{11.75 \div 10.75}{786.16 \div 740.74} = 1.03$$

2/28/97

$$\text{Relative strength} = \frac{13.625 \div 10.75}{790.82 \div 740.74} = 1.19$$

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Table 1.
Relative Strength: Advest Group

Month Ending	S&P 500 Closing Value ($)	Advest Closing Value ($)	Advest Relative Strength (X)
12/31/96	740.74	10.75	1.00
1/31/97	786.16	11.75	1.03
2/28/97	790.82	13.625	1.19
3/31/97	757.12	11.875	1.08
4/30/97	801.34	12.625	1.09
5/31/97	848.28	16.25	1.32
6/30/97	885.14	23.75	1.85

Dividing the ending price by the beginning stock price creates a return relative that is basically one plus the percentage change. By dividing the stock price return relative by the index value return relative, the base is set at 1.00 and this makes the relative strength number more understandable. A relative strength ratio of 1.05 could indicate performance 5% better than the index, while a ratio of 0.95 would indicate performance 5% below the market.

Value Line is a good source for fundamental investors seeking relative strength charts of medium and large-sized companies. Advest was selected from Value Line's weekly listing of best- and worst-performing stocks over the last 13 weeks. Figure 1 highlights Advest's relative strength chart. The dotted line is a plot of Advest's monthly relative strength against the Value Line composite index. With this longer-term perspective you can see that, while Advest has been a strong performer lately, it has also had periods of underperformance.

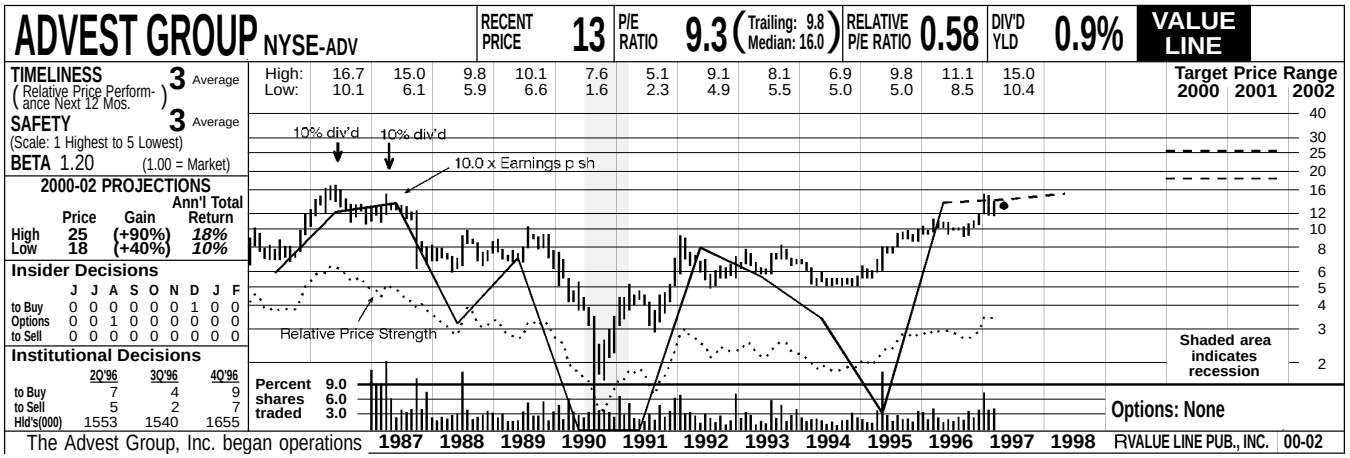
The trick to interpreting relative strength charts correctly is to keep in mind that even a stock that is rising in price may have weak relative strength if the market is rising more rapidly. This was the case for Advest in late 1992. Conversely, stocks with a declining stock price may be falling slower than a declining market and therefore show strong relative strength. Defensive securities such as utilities had strong relative strength even when declining during the bear markets of 1987 and 1990. Market movement can easily mask true stock movement or industry performance. Relative strength charts can help to factor out the market.

Relative Strength Rank

Investor's Business Daily is another good source of relative strength data. However, unlike the relative strength index, which tracks performance relative to a base index, Investor's Business Daily uses a company's price change ranking against all other firms. This percentile rank against all other firms ranges from a low of 1 to a high of 99. A company with a relative strength rank of 25% outperformed one quarter of the firms tracked by Investor's Business Daily, but was outperformed by three-quarters of the firms. The higher the percentage rank, the better the relative strength.

Investor's Business Daily reports the percentile rank, ranking the performance over the last 12 months. It also provides a weekly ranking of stock industry groups broken down into fifths, with industries in the top 20% by performance over the last six months getting a letter grade of A, while groups in the bottom 20% receive a letter grade of E. Figure 2 highlights a portion of the New York Stock Exchange listing table, which includes statistics for Advest. Advest's relative strength rank (Rel St) is 97% indicating that its 12-month performance was in the top 3% of all stocks. The group strength rank (Grp. Str.) of A indicates that Advest's industry performance is in the top 20% over the last six months compared against the 196 industries tracked by Investor' Business Daily.

Figure 1.
Value Line Chart of Advest Group



Source: Value Line Investment Survey, May 9, 1997.

Figure 2.
Price Listing from Investor's Business Daily

EPS	Rel. St	Acc. Dis.	52-wk. High	52-wk. Low	Stock	Symbol	Closing Price	Chg.	Vol% Change	Vol. 100s	Grp. Str.	Day's Price High	Day's Price Low
70	97	A	27 1/2	9	Advest Group	ADV	22 1/8	+ 1/4	-69	248	A	22 1/4	21 5/8k
63	**85**	**A**	**NH**	**9 1/8**	**Advo Inc.**	**AD**	**16 7/8**	**+ 3/8**	**-32**	**215**	**B**	**16 7/8**	**16 5/8k**
95	78	A	11 5/8	5 7/8	Advocat	AVC	11 1/4	- 1/8	-14	138	A	11 5/16	11 1/8
67	**77**	**A**	**76 5/8**	**42 1/4**	**AegonNV**	**AEG**	**76 3/8**	**+ 1 15/16**	**-10**	**3243**	**B**	**76 1/2**	**76**
53	47	A	6	3 1/8	Aeroflex	ARX	4 7/16	...	-63	204	B	4 1/2	4 3/8
92	**90**	**A**	**NH**	**27 7/8**	**AeroquipVick**	**ANV**	**49 13/16**	**+ 7/16**	**-38**	**660**	**B**	**50 1/2**	**49 1/8**

Source: Investor's Business Daily, July 14, 1997.

William O'Neil, publisher of the Investor's Business Daily and originator of the C-A-N-S-L-I-M investment approach, advocates seeking out smaller companies with strong short-term and long-term earnings growth, leadership positions, and strong relative price strength. (See "C-A-N-S-L-I-M: A Growth Approach Using Technical and Fundamental Data" by Maria Crawford Scott in the July 1996 *AAII Journal*; available on-line in the *AAII Journal* archives at www.aaii.com.) One criterion for his initial consideration dictates that a company have a relative strength rank of 70%. However, just as with the relative strength index, momentum, or acceleration, of the relative strength is important. A stock with increasing relative strength rank is more desirable than one with a steady or declining rank. In a article by Marc Reinganum titled, "Investment Characteristics of Stock Market Winners," published in the September 1989 *AAII Journal*, nine common characteristics were identified of stocks that went on to become top price performers, including a weighted one-year relative strength rank of 70% or higher coupled with an increase in the relative strength rank from the prior quarter. [Editor's Note: A screen using the criteria identified in the Reinganum article was developed in a October 1994 *AAII Journal* article titled, "Stock Market Winners: Applying the Rules in Today's Environment." AAII members can view this article at our Web site, listed above.]

Relative Strength Considerations

An investor using a trend-following indicator such as the relative strength index will typically miss the very start of the trend and give up some of the gains at the top as the stock leadership shifts before it becomes apparent. The goal with trend indicators such as relative strength is to stay with the trend until there is a clear signal that the trend has reversed. However, identifying this signal can be difficult, furthering the notion that stock analysis is an art as well as a science. The relative strength period will determine how sensitive the index is to changes in leadership. A shorter period of analysis will be more sensitive than a longer period, but will also tend to lead to more frequent trading and provide more false signals.

Relative strength can be very erratic over short-term time frames and at critical market junctures. Strong stocks that have led the market advance often experience the largest declines, as investors rotate from one sector into another sector such as defensive stocks. The catalyst may be an economic event such as a sharp shift in interest rates, inflation, or even the relative value of the dollar. Financial securities may quickly become more or less attractive to industrial export-driven securities.

Relative Strength Combinations

While relative strength is a worthwhile analytical technique on its own, its value increases when combined with other stock selection criteria. Notably, combining contrarian value measures such as low price-to-sales ratios, price-to-book-value ratios, or price-earnings ratios with a requirement of high and increasing relative price strength tends to lead to better stock price performance than when the factors are used independently.

Relative strength screens point to stocks exhibiting strong price momentum, with the premise that this strength will continue in the future. Many of these stocks may be richly priced when compared to factors such as earnings.

On the other hand, contrarian investing is based on the premise that the market is prone to overreacting to news, good and bad, thereby providing the opportunity to purchase mispriced securities at attractive prices. Patience is required when selecting stocks using purely contrarian rules such as a low price-to-book-value ratio. It often takes time for the market to come around and recognize the value in the firm. Price momentum measures such as strong and increasing relative strength seem to help highlight well-priced stocks likely to advance further.

Conclusion

An understanding of relative strength is useful not only in highlighting promising investments, but also in enabling you to judge your own performance. While a variety of relative strength measures are available to investors, all attempt to capture stocks showing stronger price movement than that shown by the overall market. Like all investment techniques, proper use requires a careful study and understanding of the factors driving the stock price movement.