Stock Screen Rotation

Wenzel Analytics Inc

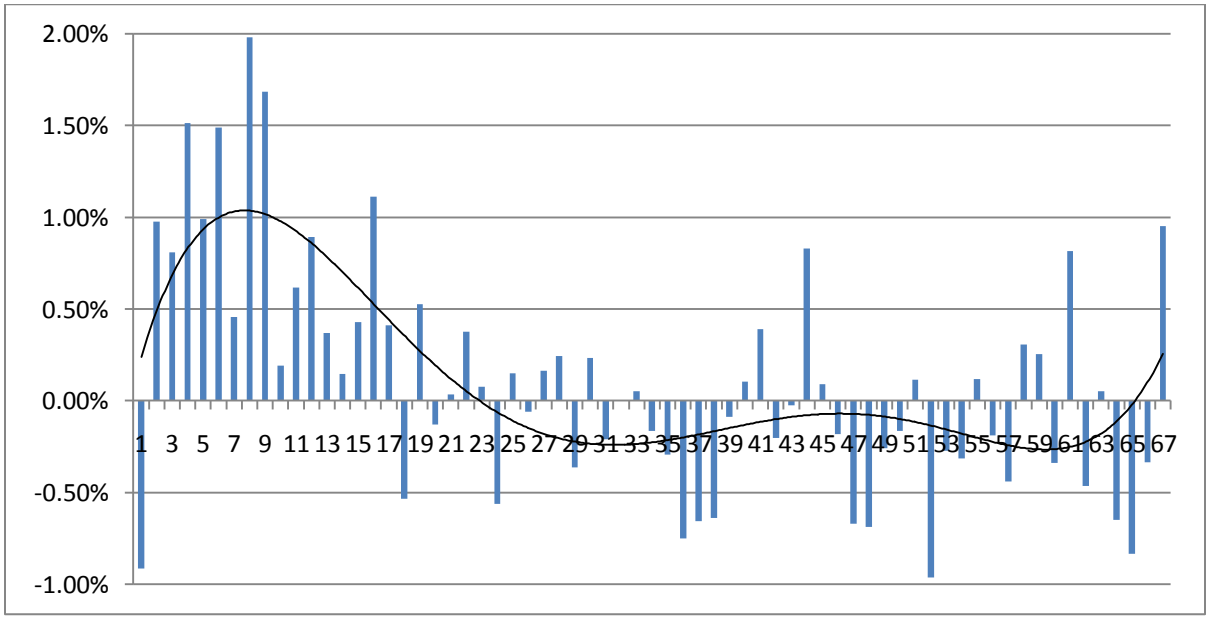
James P. O'Shaughnessy in books such as Invest Like the Best (1994) first introduced me to the concept of developing screen criteria for systematic stock selection. The AAII stock screens have added credibility and performance data. Some implicit assumptions have come with these resources. The first is that it is indeed possible to find or develop a screen which will consistently outperform. Another assumption inherited from how AAII data are presented is that screen reimplementation is run monthly. That may be an appropriate cycle, but why not have screens for buying and then holding a year rather than a month?

In doing data mining and trying to improve upon the screens available from AAII I have found it difficult to find screens that produce a consistent number of stocks each month over say 100 months, and with consistent high performance and low variation amongst the stocks selected. Partially that is a limitation of the tools I have to automatically find screen criteria over multiple time periods. Looking at the results, I find that screens produce similar results over contiguous months, both in terms of count and return, and then fade off the scene. Maybe the goal of finding screens that work consistently over longer periods of time is an inappropriate goal. Should fresh screens be consistently developed using data from the immediate past and then applied for only a short time period going forward? Is a screen that outperforms one month more likely to also outperform the next month?

Test Using AAII Screens

The easiest way to explore this possibility was to look at the monthly performance data supplied by AAII for sixty-seven different screens. The horizontal axis on the chart below is the performance rank of the screen used for the consequent month. The data are monthly from Feb 2003 through April 2009. The Y axis shows the monthly percent change for each rank above or below the overall average.

AAII Screens. Monthly Percent Change Above or Below Average Based on Performance Rank Prior Month



Lee Wenzel
(952) 944-2699
Lee@WenzelAnalytics.com

Wenzel Analytics, Inc.
Registered Investment Advisor
8666 Westwind Circle
www.WenzelAnalytics.com
Eden Prairie, MN 55344

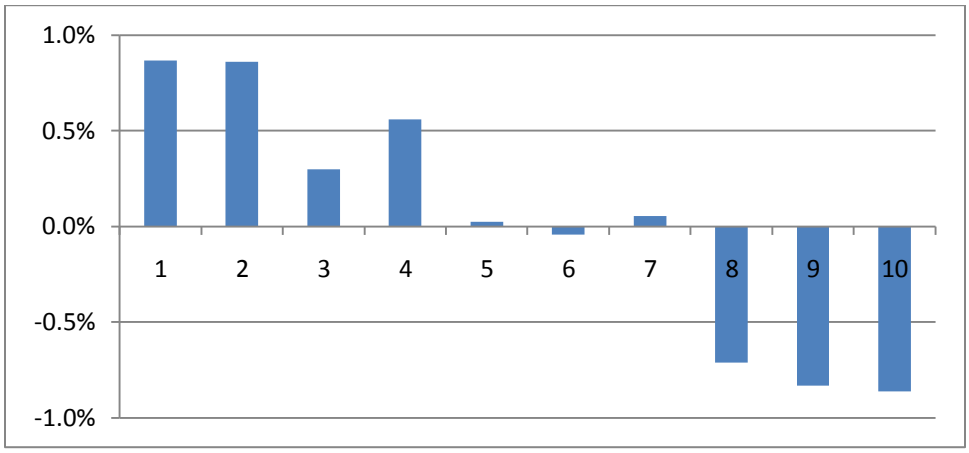
In other words, if you skipped the best performing screen the preceding month and took any of the screens ranked 2-17, you would have beaten the overall average with any of the rankings 2 through 17. That does not seem random. Ranks 2 through 9 give the best results, beating the monthly average of .9% by an average of 1.24% or roughly 15% in annual returns. The only two screens that did better than the rotation were Est Rev Up - Top 30 and Est Rev Up 5%. Both of these have high turnover and high standard deviation, although I don't know the turnover or standard deviation of the rotation being suggested. Having a range of ranks should lower the turnover in that if the next month the selected screen is still ranked two through nine, run the screen again and see if the same stocks pass the screen.

Bottom line: Go with what is working each month, but not with the highest performing screen.

Test Using Wenzel Analytics Screens

A second test covering the same time period was done using ten of the best screens I have developed over the years using data mining technologies. Again, relatively strong performance one month portends better performance the next month.

Wenzel Analytics Screens. Monthly Percent Change Above or Below Average Based on Performance Rank Prior Month



The difference from the AAII screens is that rankings one and two were both strong at .9% monthly above the average of 2.2%. The first four ranks were all positive, the next three were near the average, and the bottom 3 rankings each month produced negative returns. Again, the results are not likely to be random. The excess returns from rotating screens based on rank were less, but then the average for the ten screens was 1.4% higher each month than for the AAII screens. Excess returns of 10% a year make it worth implementation.

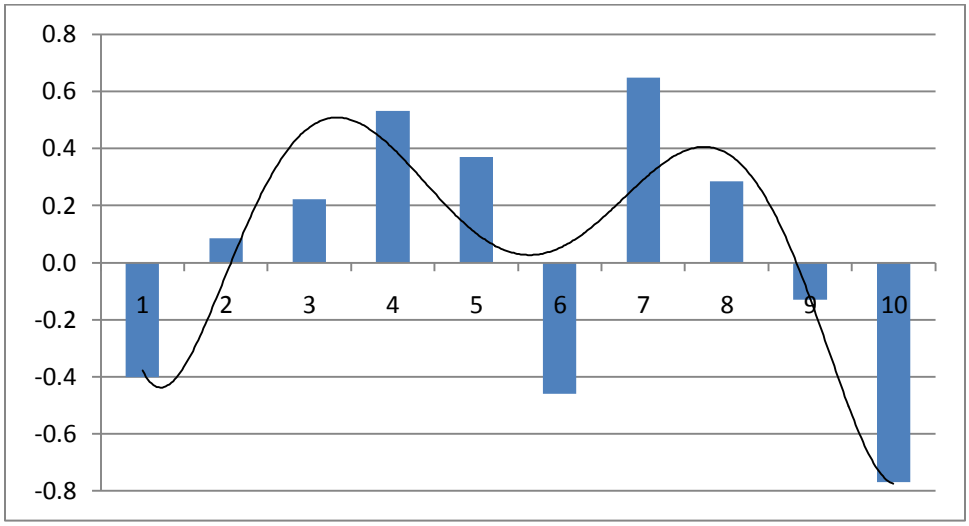
Test Using Sector Rotation

Data for the same time period from the ten sectors confirm some but not all of the above findings.

The average monthly percent change is .39. (That is the average of the average for each sector. The average of all returns is .45.) The differences from this average when using the performance rank to select the next month's screen are shown in the chart below.

As with the AAII screens, using the best performance for the next month yields less than average results. From there to the median, the results are all above average, which confirms the findings from the Wenzel Analytics screens and extends farther but with a smaller sample than for the AAII screens. The results from the rankings 6, 7 and 8 are in contrast to our other findings, while the poor performance from taking the worst performing sector confirms our other findings.

Sectors. Monthly Percent Change Above or Below Average Based on Performance Rank Prior Month



Conclusion

My perspective is that the above findings are conclusive enough to begin implementation of the screens but not necessarily the sector rotation. I would then observe closely how well performance rotation works in actual practice, and abandon the strategy if results do not conform to the backtesting. Research covering more history or for periodicity other than monthly would be of value.

The findings support a momentum assumption. The future is often a continuation of the past, and while there are many cycles in nature and in markets, it is harder to predict when a reversal will occur and how long a reversal will then continue.

The same general principal could be followed in deciding when to sell individual stocks. Sell the small percentage of stocks that are going up at a faster and faster rate (parabolic), hold those that are beating the market, and routinely sell those that are lagging the market. Another research design would be required to place specific parameters on this strategy and test it.

The next step will be to create a new screen each month based upon performance the prior month, and then implement that screen. Given the AAII and sector precedents, it might be good to not go with the highest performing screen, but to rather take one that is slightly less aggressive.