

# The Sabrient Insider Sentiment Index

Joshua Anderson, Ph.D.<sup>1</sup>

October 20, 2006

## Abstract

The Sabrient Insider Sentiment Index is designed to help markets incorporate significant insider information into stock valuation. Companies are selected for inclusion in the 100-stock portfolio by using a factor analysis in a process that extracts information from available insider information and confirms it to avoid behavioral pitfalls of the insiders. The resultant portfolio has had a risk profile similar to the market (estimated beta near one) with an expected 10.3% differential return per year (estimated alpha of 0.82% per month vs. the Russell 3000 Index). Sector and industry concentrations are controlled to avoid certain idiosyncratic risks, and turnover is limited to 25% per quarter.

## I. Introduction

For perhaps a hundred years or more, insider trading has had an air of mystique and panache mixed with a tinge of the childhood excitement of *getting away with something*, so to speak. It is an open question whether insider trading, defined as trading to take advantage of specific, non-public information, is a bad thing from a social planner's perspective. In some countries insider trading of all sorts is legal, and justification for this comes from the supposed benefit of rational pricing the insider pressure helps bring about. In other countries, such as the United States, insider trading on specific non-public knowledge is clearly an offense. Trading on less-specific knowledge is not generally frowned upon, however.

People working within a company structure—especially officers, and perhaps even more importantly the CFO, President and CEO—will always have knowledge that is not generally public, and unless trading in an employer's stock is totally prohibited, this knowledge will often be used in determining whether or not to make trades, and when to do so. So, by looking at the transactions performed by insiders, one may garner some information about a company's prospects. However, people are also apt to overestimate the value of their special knowledge or to be overly optimistic about their own firm's

chances for and magnitude of success. In a way, there is a risk to insiders in not investing, since if their firm does well and they opted not to buy, then they will feel less well-off than their colleagues who did buy more. It is plausible that insiders might be willing to accept a higher risk for the same level of expected reward in their own stock.

These things make insider trading knowledge, generally gleaned from SEC Form 4 filings, tricky to interpret. How much information is in these filings and how can it be best extracted? These are some of the questions any analyst working on an insider trading model must face.

At Sabrient, we chose a mix of four factors to help create highly sensitive and highly specific interpretation of Form 4 data that helps extract information while remaining parsimonious and understandable. What we set out to create was an index of 100 stocks, equally weighted, that we felt had a higher probability of performing well in the medium term (about a year or so) based on transactions of insiders alone. In working on the problem, one of the first steps was to increase specificity of the information in purchases by considering most important the transactions that were open-market purchases. These purchases required officers to take their own money and purchase stock on the open market. Many other Form 4 filings involve purchases as part of compensation, and these have less information as

---

<sup>1</sup> The author is employed by Sabrient Systems, LLC.

they are more related to idiosyncrasies of day-to-day life and liquidity needs than to speculation on performance. To deal with the relatively risk-loving nature of insiders' investments in their own firms, we decided to also include Wall Street analysts' own opinions as a check. If both the corporate insiders and the Wall Street analysts indicate positive results for a particular firm, then the company's stock is considered for inclusion in our index. Since Wall Street analysts often have intimate contact with the companies they cover, we thought it appropriate to also deem them "insiders."

## II. Factors

Quantitative factors derived from raw data feeds are used in a fixed algorithm to select stocks for inclusion in the Sabrient Insider Sentiment Index. The four factors used are:

### *Number of Purchasers:*

The number of insiders that have purchased company stock with cash is considered very important. If several insiders purchase shares this way over a several month time period, the event is deemed significant enough for evaluation. Each insider is making—we suppose—an informed decision to purchase, and we rely upon insider's collective intelligence to find interesting candidates for the index.

### *Percent Increase in Holdings:*

In addition to the number of insiders that purchase over a given time frame, the percentage gain in shares is considered significant. If someone purchases just a tiny amount compared with their current holdings, then this is not a strong vote. On the other hand, if someone doubles or triples their holdings, then this is considered significant.

### *Number of Positive Analyst Revisions:*

A factor based on the number of Wall Street analysts who revise expectations positively, especially earnings estimates, is used to avoid the problems with purchase information discussed

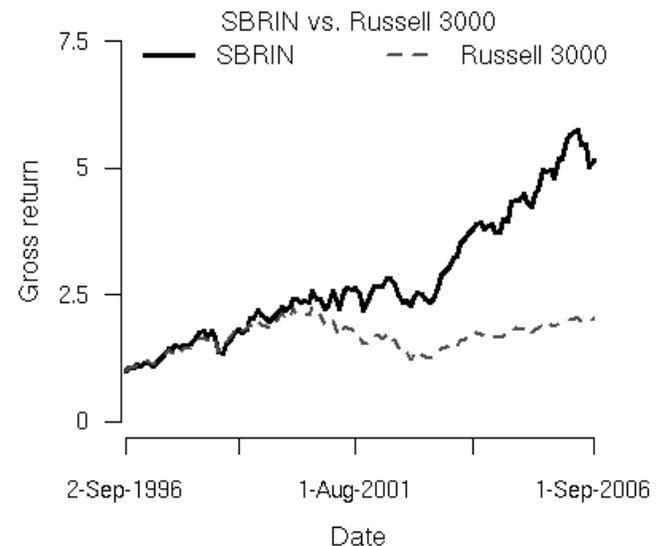
earlier. If both corporate insiders and Wall Street analysts agree that the stock is due for better results, then this is considered significant.

### *Percent increase in Analyst Expectations:*

As with the insider purchases, the amount that expectations are revised by analysts is important. If analysts increase expectations a large amount, then this may be of large importance and is dealt with accordingly.

## III. Returns

The backtest results of the insider sentiment scoring algorithm, based on the factors discussed above, are impressive. The gross return series (value of \$1 invested) for the Sabrient Insider Sentiment and the Russell 3000 indexes are plotted below for the past 10 years.



**Figure 1:** Return series for the Sabrient Insider Sentiment Index (SBRIN) and the Russell 3000 Index from September 2, 1996 to September 1 2006.

Over the past 10 years (September 2, 1996 through September 1, 2006), the Russell 3000 index (a good approximation of our selection candidates) has experienced a yearly average return of 7.33% while experiencing an annualized volatility of 15.61%<sup>2</sup>. During the same period,

2 Volatility annualizations based on assumed-independent monthly return figures.

the 100-stock Sabrient Insider Sentiment Index had an average return of 17.85% with an annualized volatility of 18.38%. The ratios of return to volatility were 0.47 for the Russell 3000 vs. 0.97 for the Sabrient Insider Index. Dividends and other disbursements of held stocks were included in these figures.

#### IV. Risk considerations

The correlation of the monthly returns on the Russell 3000 and Sabrient Insider Sentiment indexes is 0.85. The Sabrient Insider Sentiment Index has an estimated beta<sup>3</sup> of 1.0061—quite close to unit beta. This means that the risk of this portfolio from a single factor model point of view is similar to that of the equity market overall (as proxied by the Russell 3000 in this case). The estimated monthly alpha is 0.0082, which annualizes to about 10.3%. These numbers suggest that the observed differential returns are achieved not by taking on more systematic risk, but rather through taking advantage of information not priced into the securities at the time of their inclusion in the index.

In order for the risk statistics of the index discussed above to be good estimators of the supposed true parameters (alpha and beta), it is necessary that the portfolio composition across some factors not included in the selection process not change too much. Most important of these factors is diversification across industry and sector. Therefore, the index is controlled to prevent overweighting in any particular sector or industry, as classified by the S&P GICS groupings. The Sabrient Insider Sentiment Index is limited to a maximum of 20 stocks in any one GICS sector and 10 stocks in any one GICS industry.

#### V. Turnover

The Sabrient Insider Sentiment Index is limited to 25% turnover per quarter. The selection model was designed to look for stocks that will have better-than-market performance over the medium term, meaning that once a stock is selected it needs to be held in the portfolio for at least 3-12 months before the optimistic speculation of the insiders is confirmed and the stock becomes more highly valued. However, some companies experience events that make them no longer attractive for inclusion in the portfolio. Each quarter, up to 25 companies are allowed to be replaced, and usually this number is reached. This provides a good balance between responding to new information and allowing stock insiders' expectations to be realized.

#### VI. Synopsis

The Sabrient Insider Sentiment Index was created to help markets incorporate significant insider information into stock valuation. This is done by using a factor-based analysis in order to create a portfolio that best extracts and confirms available insider information. The resultant 100 stock portfolio has historically had a risk profile similar to the market while providing a 10% average differential return per year vs. the benchmark (Russell 3000 Index). Sector and industry concentrations are controlled to avoid some idiosyncratic risk, and turnover is limited to 25% per quarter.

---

<sup>3</sup> Alpha and beta were estimated in a single factor model. The risk free rate was assumed to be 3% annually. Let  $R_i$  be the excess returns on the index, and  $R_m$  be the excess returns on the Russell 3000 Index. Alpha and beta were computed as the OLS estimates of the parameters in this model across ten years of monthly observations:

$$R_i = \alpha + \beta R_m + \epsilon$$