

FORMULA RESEARCH™

Quantitative Treatment of the Financial Markets

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Nelson F. Freeburg, *Editor*

Notes & Comments

{ Don't Miss Part II

As sometimes happens, the material developed in this study proved to be richer and more extensive than a single report can accommodate. To do justice to the findings I had to divide the study into two parts. You will receive the second installment in a couple of weeks. There we present some of the most profitable and risk-averse timing methods we have ever featured.

{ Help for Market Professionals...

I am privileged to serve money managers of distinction in 26 countries. It's been a pleasure to come to know many of you personally, even if by the exquisitely remote medium of email.

As you know, over the past few years there has been a lot of consolidation and cost-cutting in the U.S. financial industry. Due to the retrenchment, many skilled young professionals have suddenly found themselves without jobs. Some of these bright and energetic individuals have sought out my help.

My pitch: If you are a money manager or investment advisor in a position to hire, at any given time I can put you in touch with a small roster of highly qualified market analysts and traders. Please let me know if I can help in any way. ...

THE MONITOR SERIES: LEADING MARKET PROFESSIONALS SHARE UNCOMMON INSIGHTS

Synergy and Collaboration: The Asset Management Team of Tom McClellan and Roger Kliminski, Part I

Two Analysts with Bold Vision Achieve Market-Beating Returns

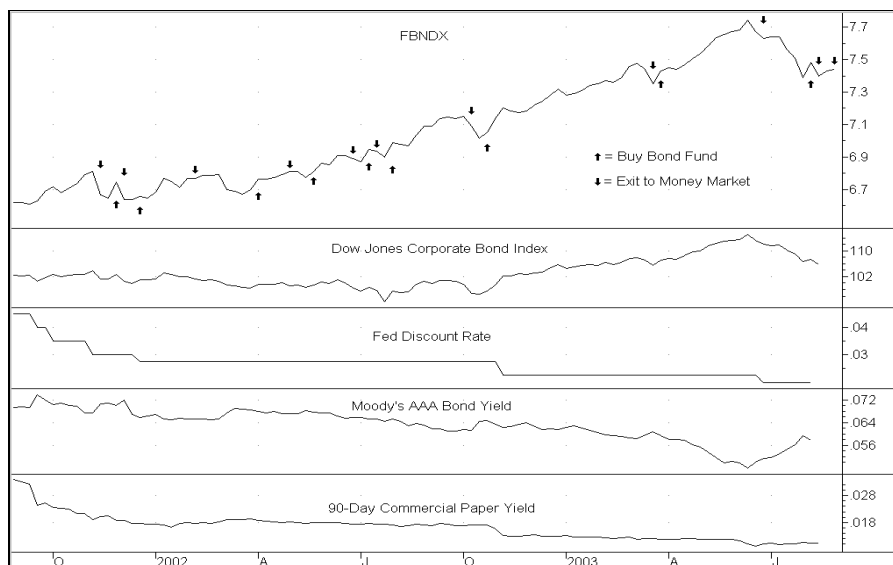
Over thirty years ago market analyst Sherman McClellan and his mathematician wife Marian introduced a revolutionary market timing tool. Today the McClellan Oscillator stands as one of the most popular and effective technical indicators of all time.

The McClellans went on to create a host of advanced technical methods. Ten years ago their son Tom joined the research effort. A West Point graduate who served as an Army helicopter pilot, Tom retired from active duty as a captain. In 1995 Tom and Sherman, after much preparation and research, founded a first-rate market advisory service. I closely follow the *McClellan Market Report* and its companion service, the *Daily Edition*. Tom presides over both publications in consultation with Sherman.

Given the family's signature contribution to the field, one aspect of the McClellan approach to technical analysis may come as a surprise. The McClellan Oscillator is by no means the centerpiece of the analytic effort. Yes, the eponymous indicator plays a featured role.

(Continued on Page Two)

Zweig Bond Timing Model--March 1993



In his 1987 book *Winning with the New IRAs*, Martin Zweig presented a simple but powerful fixed-income timing model. The model (which was developed by Ned Davis Research) combines trend-following elements with fundamental inputs.

We featured the Zweig bond model in our March 1993 issue, where we added a few refinements. All versions of the model have continued to perform well since then.

Going back to 1970, our variant returned 12.9% a year compared to 10.2% for the Dow Jones Corporate Bond index. Maximum drawdown was held to 4% compared to 21% for buy-and-hold. The chart at left shows recent signals applied to the Fidelity Investment Grade Bond fund (FBNDX).

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McClellan Financial Publications, Inc.
 P.O. Box 39779
 Lakewood, WA 98439
 The fax number is (253) 584-8194.

But Tom's commentary ranges far beyond, tapping a rich array of diverse timing methods and technical tools. It is tempting to think of Tom as a one-man Ned Davis Research--a dogged individual doing the work of an entire team of first-rate institutional analysts.

Of course, Tom continues to benefit from his father's insights. (For one thing, Sherman's hawk-eyed text editing helps make Tom's prose some of the most literate and polished in the field.) Meanwhile, several years ago Tom entered into a money management partnership with Roger Kliminski.

Roger is a gifted market analyst, an experienced portfolio manager and a longtime friend of *Formula Research*. I have seen the independent performance rankings and Global Investment Solutions, the partners' money management arm, has consistently beaten the market with low levels of risk.

We'll touch on Roger's contribution at the end of this report and in greater detail in Part II of this two-part study. In particular, we'll highlight a key feature of price behavior that counts as an authentic market discovery. Building on these findings, we'll develop two timing models that show gains of better than 25% a year. z

The McClellan
 Research Imperative:
 Quest for Innovation

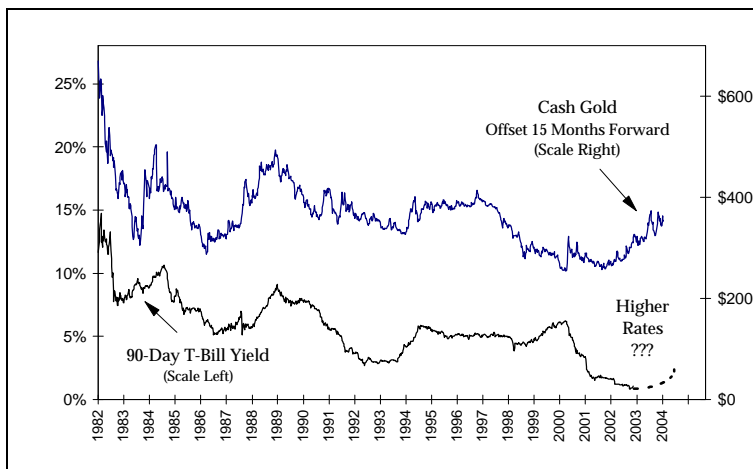
For now we focus on the McClellan side of the partnership. Tom's principal efforts are

devoted to timing interest rates, precious metals and the stock market. We'll present systematic strategies for all three sectors based on Tom (and Sherman's) original research.

Be advised that Tom himself is not a strictly mechanical trader. While he relies on rigorous historical testing, Tom blends his findings with personal insights from dozens of timing tools, most of them unorthodox.

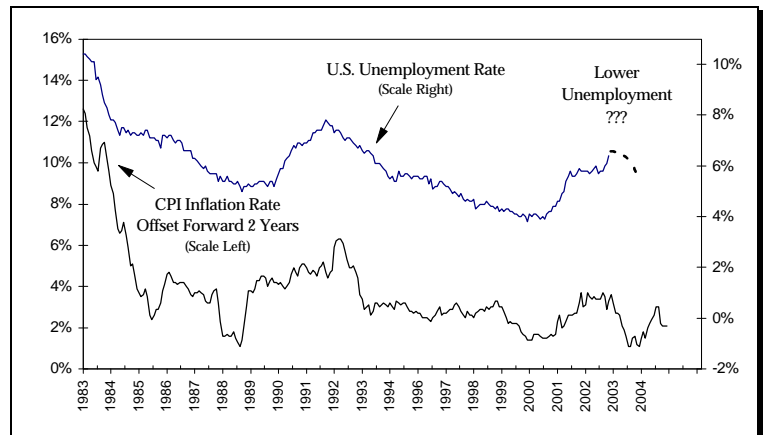
This mix of quantitative research and intuitive judgment has served Tom well as a market analyst. According to *Timer Digest*, a ratings service that tracks over 100 market advisory programs, Tom ranks No. 2 for long-term stock market forecasting over the past five years and No. 3 for intermediate timing. Tom ranks No. 1 in precious metals timing for the same period.

Tom's body of research ranges so widely we can't begin to feature every unique indicator here. If you explore his work in depth, you'll be treated to a fascinating array of innovative timing methods. Interested in precious metals? Follow Tom and plot the difference between 1-month and 12-month gold lease rates, as reported by the London Bullion Market



Association. You'll find the spread revealing.

Trade fixed income? Take a leaf from Tom's book and track Commitment of Traders data for copper futures. When commercial copper traders get heavily net long or short, bond prices tend to go in the opposite direction. I could cite many other examples of offbeat but inspired indicators.



One favored McClellan timing method is intermarket correlation. The idea is to select a market with concrete forecasting significance for a second market, which tends to follow with a predictable lag. You can then synchronize the parallel swings by realigning the time scales. Tom did not invent this method of analysis, but I can affirm he is an expert practitioner.

The chart on the previous page is an illustration. You can see that trends in gold are echoed in short-term interest rates about 15 months later. Based in part on this association Tom correctly forecast the recent surge in T-bill rates.

Of course, such intermarket alignments don't always hold up. Sometimes extraneous events can confound the projection. In other cases the market rhythm abruptly fades out, which is why Tom relies on confirmation from multiple indicators.

The chart above shows another one of Tom's interesting patterns, the tendency of inflation to lead unemployment

by about two years. The fit is not perfect but the overall symmetry is impressive. z

The Goldollar Index

Intermarket pioneers like John Murphy and Martin Pring have long pointed out that precious metals tend to move opposite the U.S. dollar. A strong dollar is generally bearish for gold and silver while a weak dollar is bullish. Trends in precious metals can sometimes depend more on currency dynamics than fundamentals unique to that sector.

A rally when gold is priced in dollars may appear as a sideways trading range or even a pullback when gold is priced in another currency. To factor out the effect of exchange rate flux, Tom multiplies the price of gold by the U.S. Dollar Index. The result is what he calls the Goldollar Index, a reflection of the trend in gold isolated from movement in the dollar. On a long-term basis, Tom has found that trends in gold are often foreshadowed months in advance by the Goldollar Index.



The Goldollar Index is useful in short-term trading as well. The chart above compares cash gold with the Goldollar Index on a daily basis.[†] You can see that divergences between the two almost always lead to a tradable move in the direction indicated by the Goldollar index.

I came up with a system for trading gold futures that exploits the leading properties of the Goldollar Index. The rules are simple. You go long when Comex gold is below its 3-day simple moving average (SMA) and the Goldollar Index is above its 3-day SMA. You go short when gold is above its 3-day SMA and the Goldollar Index is below its 3-day smoothing. Enter on the next day's open. If long, exit on a stop at the lowest low of the past 15 days. If short, exit on a stop at the highest high of the past 15 days.

Since 1975 this system grossed \$161,540 per contract trading gold futures. Drawdown was \$15,180. With Comex silver, profits soared to \$317,959 per contract with \$23,000 drawdown.

The results exclude slippage and commissions, which would dampen performance. But the sizable gains and manageable drawdown underscore the

potential of the Goldollar index in a range of applications. **z**

Forecasting Short-Term Interest Rates

As we saw earlier, gold prices tend to lead T-bill rates by about 15 months. One of Tom's companion tools for predicting short-term interest rates is keyed to the Purchasing Managers Index (PMI).[‡] Tom notes that almost all initial Fed rate hikes come after the PMI climbs above 56. A drop in the PMI below 50 usually leads to an easing move by the Fed.

I tested this pattern back to 1950. Tom would never use a simple formula like this in isolation, but the theoretical results are instructive. In our test the benchmark for short-term interest rates is the yield on 90-day commercial paper. We "go long" interest rates when the PMI rises above 56. Our expectation is that commercial paper yields will rise.

Stay bullish on yields until the PMI drops below 56, at which point our model becomes neutral. When the PMI falls below 50, we "sell short." The expectation is that commercial paper rates will decline. Remain bearish on yields until the PMI climbs back above 50, when we return to a neutral stance.

In January 1950 the yield on 3-month commercial paper was 1.31%. Today the yield is 1.19%. The net change in rates after 53 years is a decline of 12 basis points. Contrast that with the startling results from our PMI model. If you "traded" commercial paper according to the rules outlined above, you would have

[†] Woops...after I prepared the chart I realized that "Goldollar" is spelled with just one *d*.

[‡] The PMI, published monthly by the Institute for Supply Management, typically ranges between 45 and 60 (75% of the data since 1948). A reading above 50 suggests the economy is expanding while a reading below 50 suggests economic contraction.

gained a phenomenal 6,398 basis points. Forty-nine of 58 market calls were profitable long and short, a batting average of 84%.

Obviously, the PMI indicator contains useful information. The findings could be the nucleus of a promising Eurodollar trading system among other applications.

To an economist or a fundamental analyst more familiar with government statistics, the stunning performance edge might not seem so astonishing. But speaking for myself, I would never have known about this improbably accurate forecasting tool but for the depth of Tom's research.

By the way, in experimenting with the PMI I stumbled on an even simpler use of the data. Signals are given when the PMI merely crosses above and below the 50 level. On a rise above 50, look for higher commercial paper yields. On a drop below 50, look for lower rates. Applying this model would have produced 7,311 basis points since 1950 compared to 12 basis points for "buy and hold."

The two charts at right show all the signals generated by this simple method since 1964. The formula captures small and large trends, often identifying turning points in interest rates with remarkable accuracy. z

Sector Strength and
Market Returns: I



The broad stock market is more likely to advance when the NASDAQ Composite is the strongest of the major market averages. To my mind it was Gerald Appel who first pointed out this phenomenon, but many analysts have cited the tendency. In his treatment of the pattern, Tom takes the ratio of the NASDAQ to the NYSE Composite. He then compares this ratio to its 44-day exponential moving average. When the ratio is above its smoothing, the broad market as represented by the S&P 500 tends to rally. When the OTC ratio is below its smoothing, weakness looms.

† Actually, it was convenient to substitute the S&P 500 for the NYSE index in the calculations. The two are highly correlated.

I tested this relative strength observation back to 1971, as far as OTC data allow.[†] Results were convincing. When the NASDAQ index was the relative strength leader, the S&P 500 produced an annualized return of 14.6%. By contrast, when the OTC market lagged in relative strength, the annualized gain fell by more than half to 7.1%. The S&P 500 itself returned 11.1% a year on a buy-and-hold basis.

Tom cites a variation on the theme that I have not seen reported elsewhere. He notes that a similar pattern applies to the OEX index. When the S&P 100 is stronger than the S&P 500, stocks in general tend to advance. When the OEX lags in relative strength, the broad market suffers.

I tested this idea since 1976, when OEX data begin. I used the same relative strength formula cited above, this time substituting the S&P 100 for the NASDAQ. Again results were positive. When the OEX was dominant the S&P 500 returned an annualized 15.1%. When the OEX lagged in relative strength, the annualized gain dropped to 10.9%. The S&P 500 itself returned 12.5% a year since 1976.

I wondered what would happen when both the NASDAQ and the OEX give similar signals, either positive or negative. As you might expect, the contrast between bullish and bearish performance is even more striking. When both sectors are positive, the S&P returns an annualized 16.2%. When both sectors lag in relative strength, the annualized return drops to 7.3%.

The lesson is simple. When the OEX and NASDAQ are dominant, you want to

be quick to buy and slow to sell. When both sectors are weak, you want to be slow to buy and quick to sell. z

Sector Strength and Market Returns: II

It was Roger Kliminski who originally identified our next price pattern. Tom later refined the observations. The implications of these findings are among the most riveting market tendencies I know of. We'll fully explore a variety of applications here and in Part II of this study, but first some background.

Roger Kliminski has been a successful money manager for almost two decades. When I first came to know him several years ago, Roger was working with his colleague and close friend, Peter Mauthe. In 1997 an opportunity opened up and Peter left to manage the commodity trading funds of Market Wizard Tom Basso.

Soon Roger forged a new alliance with Tom. For both it was the start of a rewarding association. Their money management firm, Global Investment Solutions, benefits from a distinct synergy, reflecting the like-minded but independent perspectives of two veteran analysts. Since Roger and Tom joined forces, Global Investment Solutions has posted superb returns for its money management clients.[†]

Now let's discuss the distinctive market pattern that Roger and Tom uncovered. As most of us know, the Russell 2000 is a popular index of small-cap stocks while the Russell 1000 covers large-caps. The Frank Russell Company in

† For information on Global Investment Solutions call Roger Kliminski at (800) 440-7283 or (949) 660-7960. If you prefer to write, the address is 1300 Bristol Street North, Suite 208, Newport Beach, CA 92660. The fax number is (949) 660-7945.

turn divides each parent index into two sub-groups, Growth and Value. The upshot is an array of four sectors: Russell 1000 Growth, Russell 1000 Value, Russell 2000 Growth and Russell 2000 Value.

The relative strength of each sector has far-reaching implications for price behavior. Roger and Tom have worked out a specific technique to assess this sector strength and exploit it in trading. Since their winning track record depends in part on a proprietary calculation, we will work with an alternate specification here. Don't worry, our proxy formula offers outstanding results.

Before describing the strategy, be aware that Tom and Roger do not apply their methods mechanically. The managers can and do overrule the signals based on experience and judgment. For this reason, and because our treatment varies from the original, the present exercise may be one of those cases where real-world returns surpass simulated results, especially in the area of risk control.

Here's how to implement our version of the strategy. We start with daily closing prices of the four Russell sub-indices.[†] Now compute the percentage change in each Russell sub-group over four different time frames. In this case we calculate the percent gain or loss over the preceding 5, 15, 25, and 35 days. Next, average the results for all time frames into a single reading. The Russell sector with the highest composite score is deemed to be the relative strength leader.

Some interesting findings emerge once you identify the dominant sector in this fashion. Suppose you simply switch among the four Russell segments according to which index currently ranks highest. Since 1995 this method would have returned 22.5% compounded annually. By contrast, the S&P 500 gained just 9.2% a year over the same period. Note that all comparisons to the S&P 500 refer to total return, with dividends reinvested. The

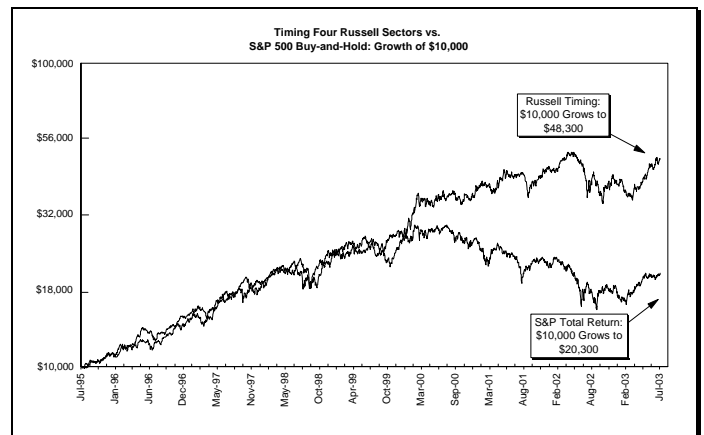


chart below shows the comparative equity curves.

Breaking down the price data into four discrete segments yields surprising new insights, information unavailable in the parent indices. Suppose you applied a similar strategy to the Russell 1000 and the Russell 2000. Switching only between these larger aggregates, the annual gain drops to just 11.8%, not much better than the S&P's return of 9.2%.

Roger and Tom's sector research has enormous potential, and we'll present other compelling findings in Part II. First we have to address three constraints forthrightly.

Item number one is the question of risk. This switching strategy offers extraordinary gains but at a cost.

[†] The Frank Russell website posts the necessary data back to 1995. Go to www.russell.com and follow the links.

You will have an option to download nominal price values, which are not adjusted for dividends, or total return values, which are. I used total return. Later I found that Roger and Tom use unadjusted prices.

The practical difference is minimal. Performance results are equally strong. Among the four market segments, only the Russell 1000 Value index would be much affected by dividends in any case.

Maximum drawdown was a steep 33%. This beats the 48% drawdown suffered by the S&P 500, but volatility is high.

One solution to risk control is to use discretion and be selective about which trades to take. This is Tom and Roger's practice. For these savvy professionals, personal judgment works well. Their managed accounts show far lower levels of risk than that cited above. For the rest of us, we'll take up more systematic solutions to risk management in the second part of our study.

A second concern pertains to issues of real-world execution. How can you trade an abstract basket of stocks like the four Russell sectors? As it happens, there are exchange traded funds (ETFs) for each of the four Russell components. The funds are part of the Barclays iShares family, traded on the Amex. The downside is that some of the Russell ETFs are thinly traded. Bid-ask spreads can be punishing. Due to these constraints, Tom and Roger have at times had to scramble to find surrogate trading instruments to implement their timing strategies.

Liquidity issues are apt to affect money managers more than individual investors. At least for larger accounts, here's a tactic that may be worth exploring. The Russell indices are weighted by market capitalization. With cap-weighted averages you can often identify a handful of stocks which have a dominant influence on performance. You could then go to the marketplace and trade the individual shares of this representative but manageable sample.

We'll work around liquidity concerns in the next installment by shifting the focus to the S&P 500, an index traded in ample depth. Frankly, no ready remedy is available for a third acknowledged weakness in our treatment. You may ask why historical testing for this study goes back only to 1995. Normally our analysis reaches back decades.

The fact is, there is very limited price history available for the four Russell sectors. I checked the best-known commercial data vendors plus numerous Internet sites. No source I could find offers a fuller archive than the Frank Russell website, where prices are posted back to 1995. If you want Russell sector data in greater historical depth, apparently the only solution is to build the price history yourself.

Perhaps the news isn't so bad after all. While our data sample is limited in scope, it spans a desirably wide range of price behavior. The observations include a historic bull market, a monumental bear market, lengthy trading ranges and assorted airpockets, blow-offs and meltdowns. In other words, our database may lack historical reach but it is reassuringly rich in contrast and texture.

Our next report will look even deeper into Russell sector performance. We will develop a family of timing models that offer a range of investment returns--from conservative to aggressive--while still containing risk. For now, we are very grateful to Tom and Roger for sharing their discerning market perspectives. ...

NOTE: Hypothetical testing such as that reported here is not as accurate and dependable a measure of profitability as actual trading results. Even if simulated historical testing were completely reliable, which is not the case, past levels of performance cannot be assumed to prevail in the future. It is not our intention to state, suggest or imply that any technique or treatment found in FORMULA RESEARCH can guarantee profitable investment results. Trading should be undertaken only by those well aware of the many risks.