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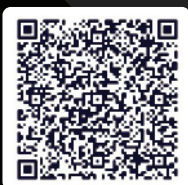
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■ Cover: SergeyBitos/TOPIC SENTENCES/Shutterstock



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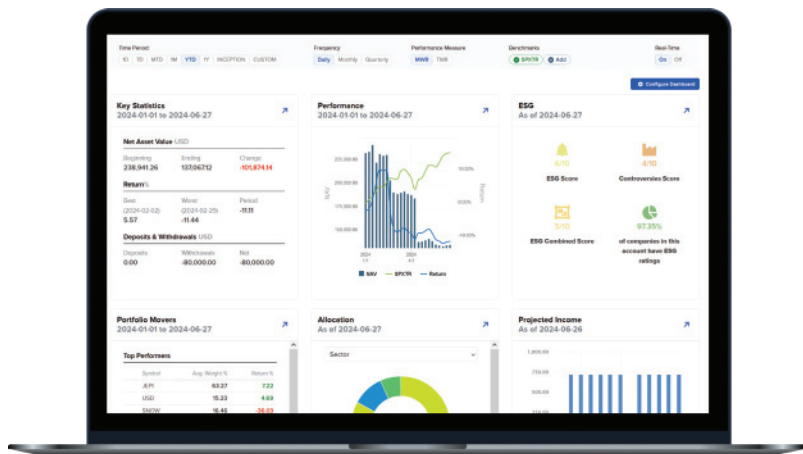


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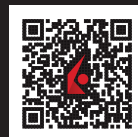


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Explore Your Options

GOT A QUESTION ABOUT OPTIONS?

Jay Kaeppel has over three decades of experience in the options markets. He was a head trader for a CTA firm, an options trading software developer, and was a portfolio manager for an investment management firm. He is presently Senior Research Analyst for Sentimentrader.com. He is the author of several books, including *The Four Biggest Mistakes In Option Trading*; *The Option Trader's Guide To Probability, Volatility, And Timing*; and *Seasonal Stock Market Trends*. Send your questions or topic suggestions to Jay Kaeppel at jay@sentimentrader.com. Selected questions will appear in a future issue of S&C.



Jay Kaeppel

THE MOST IMPORTANT FACTORS IN OPTION TRADES

I am trying to get a handle on the most important factors that will affect my option trades. Any feedback on what to focus on?

There are a handful of primary factors that option traders should focus on. We can categorize these factors as *probability, volatility, time to expiration, skew, and timing*. Let us take a closer look at each factor.

PROBABILITY

With option trades, it is often possible to estimate the probability that a trade will generate a profit. For most option trades it is possible to calculate a breakeven price. Based on the volatility of the underlying security, a mathematical estimate can be made of how likely the underlying price is to be at or beyond the breakeven price by the time of option expiration.

For buying calls and puts, the more in-the-money the strike price, the higher the probability of profit and vice versa. For selling calls and puts, the further out-of-the-money the strike price, the higher the probability of profit.

We can categorize these factors as probability, volatility, time to expiration, skew, and timing.

Figure 1 displays a list of potential bull put credit spreads. Note the results in the “Prob of profit (%)” column, which allows a trader to compare probabilities.

The probability of profit can be beneficial in comparing one potential trade to another. However, the trade with the highest probability of profit is not necessarily the best trade to take because there are also other factors to consider—most notably, the potential return relative to the maximum risk.

Another approach is to consider the “delta” value for a given option or

position. Delta for a single option can range from 100 to –100. The absolute value of delta provides an estimate that a given option will expire in-the-money. A call bought with a delta of 80 has roughly an 80% probability of expiring in the money (but at a higher cost). A call bought with a delta of 50 has only a 50/50 chance of expiring in the money (but at a lower cost). Delta can be used to compare the probability of profit in one trade versus another potential trade.

Everything else being equal, a trader would favor the trade with the highest probability of profit. However,

Put Credit Spreads														
Click the option prices to get the Risk Graph														
Rank	Stock Charts pic1 - Stock & IV pic2 - Peaks & Com pic3 - Moving Average	Close	Strike	Expire	Price Put	Quote Slippage (%)	IV (%)	IV % of Range	Days to Expire	ROI= Credit/ Max Risk (%)	Prob of Profit (%)	Δ/ Days To Expire	Prob of Profit / Days To Expire	1 - Prob of Profit * ROI
1	AMAT pic1 pic2 pic3 News	254.69	Sell 1 247.5 Put Buy 1 245 Put	2024 Jul 19	2.65 2.09	3.30	25.7 36.5	32.5	9:36	30.89	89.67	3.08	9.96	27.70
2	AMAT pic1 pic2 pic3 News	254.69	Sell 1 250 Put Buy 1 247.5 Put	2024 Jul 19	3.50 2.73	2.50	25.7 36.3	32.5	9:36	44.51	81.11	4.01	9.01	36.10
3	ADI pic1 pic2 pic3 News	237.84	Sell 1 232.5 Put Buy 1 230 Put	2024 Jul 26	2.60 2.05	6.25	25.2 26.4	21.2	16:42	28.21	74.73	1.32	4.67	21.08
4	LEN pic1 pic2 pic3 News	145.96	Sell 1 144 Put Buy 1 143 Put	2024 Jul 19	1.25 1.55	7.89	29.4 31.3	18.3	9:64	25.00	73.59	2.04	8.18	18.40
5	AVGO pic1 pic2 pic3 News	1760.61	Sell 1 1720 Put Buy 1 1710 Put	2024 Jul 19	22.10 24.50	4.24	41.4 42.3	35.4	9:50	35.14	71.44	2.79	7.94	25.10
6	DE pic1 pic2 pic3 News	349.11	Sell 1 340 Put Buy 1 335 Put	2024 Aug 02	3.80 2.82	5.50	22.5 24.2	17.7	23:36	22.85	71.41	0.71	3.10	16.32
7	DE pic1 pic2 pic3 News	349.11	Sell 1 340 Put Buy 1 330 Put	2024 Aug 09	4.40 2.53	6.67	21.7 24.2	14.5	30:36	22.70	70.58	0.53	2.35	16.02
8	AMAT pic1 pic2 pic3 News	254.69	Sell 1 247.5 Put Buy 1 245 Put	2024 Jul 26	3.85 3.20	3.75	33.6 34.4	25.7	16:36	35.14	70.40	1.55	4.40	24.74
9	CSCO pic1 pic2 pic3 News	45.90	Sell 1 45 Put Buy 1 44 Put	2024 Aug 09	0.46 0.22	7.00	16.5 18.4	11.0	30:35	23.46	69.73	0.55	2.32	16.36
10	ADI pic1 pic2 pic3 News	237.84	Sell 1 230 Put Buy 1 225 Put	2024 Aug 02	2.60 1.65	5.45	25.0 26.6	20.7	23:42	23.46	60.05	0.70	3.00	16.20

FIGURE 1: PROBABILITY OF PROFIT. Calculating the probability of profit can be helpful for comparing one potential option trade to another, although this isn't the only factor that should be considered. Here, the “prob of profit (%)” column allows a trader to compare probabilities of profit for a list of potential bull put credit spreads.

Explore Your Options

“everything else” is rarely equal, so profit probability is just one factor to consider.

VOLATILITY

Volatility has multiple meanings in the world of options. The first type of volatility is “statistical” volatility, which measures the fluctuations in the underlying security price. For some strategies where you want a lot of price movement (for example, straddles) and would migrate to stocks with highly volatile price movements. For others where you do not want a lot of price movement (for example, credit spreads and condors), a trader would typically prefer stocks with low statistical volatility that are more likely to trade within a given range.

The second type of volatility is “implied” volatility and is based on option prices. High implied volatility indicates more time premium built into the price of a given underlying security’s options, and low implied volatility means less time premium built in. The higher the implied volatility (for a given stock relative to its historical IV range), the more “expensive” the options, and the lower the implied volatility, the “cheaper” the options.

When buying premium (for example, buying calls or puts, buying long vertical spreads, or calendar spreads), a trader will typically prefer higher statistical volatility but lower implied volatility (that is, buying cheap options on a stock that is capable of significant price movement).

Conversely, when selling premium (for example, selling credit spreads or condors), a trader will typically prefer lower statistical volatility but higher implied volatility (that is, to take in as much premium as possible on a stock that will hopefully remain within a given price range).



FIGURE 2: IMPLIED VOLATILITY. When buying premium, a trader will typically prefer higher statistical volatility but lower implied volatility. Here you see an example bar chart of Amazon (AMZN) stock with implied volatility for the stock’s >90-day options (black line). The higher the black line, the more time premium is built into the options and vice versa.

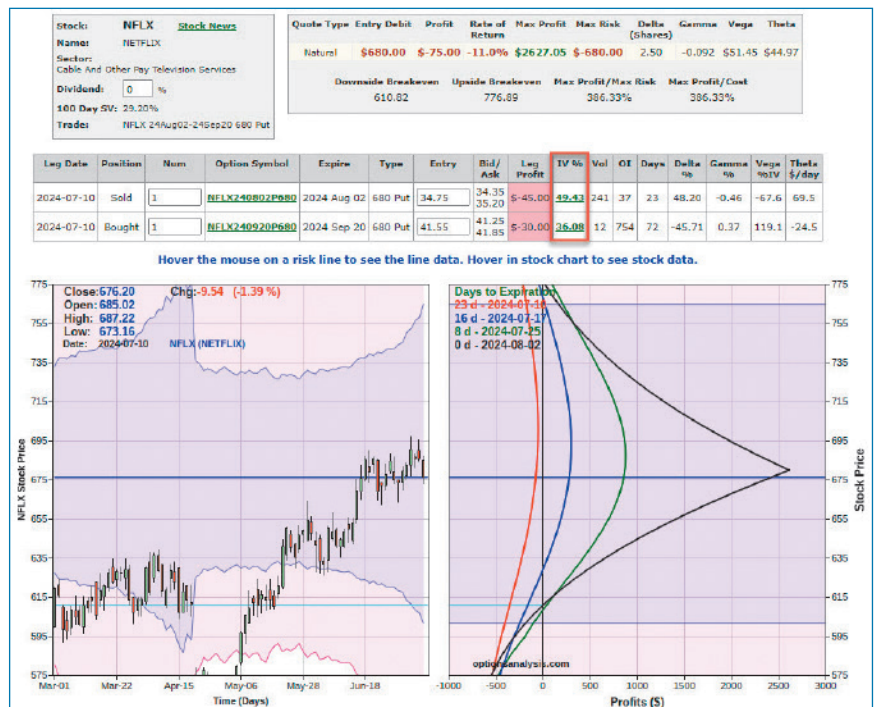


FIGURE 3: VOLATILITY SKEW. Here you see an example option calendar spread for Netflix (NFLX). The implied volatility (IV) for the option bought is 36.08% and the IV for the option sold is significantly higher at 49.43%. Ideally, a trader entering a spread trade prefers to buy an option with a lower IV and sell an option with a higher IV, as seen here.

Figure 2 displays a bar chart for Amazon (AMZN) with the implied volatility for >90-day options on AMZN (black line). The higher the black line, the more time premium

Volatility skew refers to the difference in the implied volatility of two different options.

Continued on page 47



A New Way To Pinpoint Trend

Precision Trend Analysis

Step away from conventional approaches and try this new approach for detecting and confirming trend. Here's how.



In this article I will show you how to detect the exact timing of the onset of a new trend, how to get confirmation of that trend, how to sense when the trend pauses or takes a short-term reversion, and how to detect the end of the trend with confirmation. I will do this using a completely new approach with no connection to conventional techniques.

MARKET WAVEFORMS

To use this new approach, you must fully embrace the concept that any complex waveform can be synthesized using a combination of cycles that have different periods, amplitudes, and phase relationships. Each of these cycles can ebb and flow in a semi-random fashion to comprise a more or less continuous pink spectrum. (*A pink spectrum* means that the amplitudes of its cyclic components are directly proportional to their wavelengths.) Further, the market is nonstationary, meaning that the waveforms resulting from the combination of cycles never have a repeating pattern. The market, itself, establishes the data synthesis. Our job is to analyze rather than to synthesize the complex market waveform. In order to do this, we must first pick our trading style.

If we prefer a reversion-to-mean, or swing trading, approach for trading, we narrow our analysis filter bandwidth to extract the cycle information from the data spectrum that best fits our desired timing. Interestingly, we can also use cycle principles in the application of digital signal processing (DSP) filters for trend analysis. All we have to do is to picture a trend as a segment of a cycle. In the crudest sense, a complete cycle is comprised of a trend up and a

trend down.

Engineers like to describe filters by their frequency characteristic whereas we traders prefer to think in terms of wavelength because the frequencies we deal with are so low. Both viewpoints are correct because frequency is just the reciprocal of wavelength.

Conventional trend analysis starts with a lowpass filter, such as a moving average, to smooth the data. This action passes the low-frequency components and removes the high-frequency components in the data. Lowpass filters also pass the really, really long cycle periods in the data. As a result, this type of analysis has an unavoidable lag in the filtered output. This lag prohibits the availability of timely trading signals.

Highpass filters have very little lag because they do not have the burden of supporting the really long cycles in the data. I derived second-order highpass filter by simply exchanging the zeros in the transfer response at Nyquist in a SuperSmoother filter for zeros in the response at zero frequency. (See my article “The Ultimate Smoother” in the April 2024 issue.)

The EasyLanguage code for the SuperSmoother and highpass functions are given in the sidebars, “SuperSmoother Function, In EasyLanguage” and “Highpass Filter Function, In EasyLanguage.”

Suppose we want to look at trends that are up to six months long in the emini S&P futures. This means we want to retain data whose cycle periods are one year or shorter. For our trend analysis, we only care about what is happening now and in the relatively recent history. We don't care about the crash of 1929 or even the market of 2008–2009. To get our trading signals, we only care about what is happening now. So all we have to do is to apply a highpass filter whose critical period is 250 bars (roughly one year) to the data. This eliminates the really long cycle periods in the data. A virtual lowpass filter results, with the filtered data having a nominal zero mean, as shown

by John F. Ehlers



FIGURE 1: LOWPASS FILTER. The virtual lowpass filter contains components whose wavelengths are shorter than one year.



FIGURE 2: TREND INDICATOR. The trend indicator shows trends above and below the balance point.

in Figure 1. The result also means that the virtual lowpass filter also contains the undesired higher frequency (shorter wavelength) components in the data.

At first it seems strange that a virtual lowpass response is created by a highpass filter. The reason for the lowpass response is that the price data contains about seven octaves of cyclic components. (The octaves are: **1.** 2–4; **2.** 4–8;

3. 8–16; **4.** 16–32; **5.** 32–64; **6.** 64–128; **7.** 128–256.)

Since the data spectrum is pink, the longer wavelength component amplitudes are much larger than the amplitudes of the shorter wavelength components.

We could reduce the high-frequency content in the indicator of Figure 1 by applying a lowpass filter. That would introduce lag into the indicator. Since we are on



FIGURE 3: RATE OF CHANGE INDICATOR. Zero crossings of the ROC exactly pinpoint the onset of a new trend.

a mission to minimize lag in the indicator, we can use a highpass filter to create an interim result that has only frequency components shorter than a 40-bar cycle, and then subtract that result from the original virtual lowpass filter. This removes the undesired high-frequency content by cancellation. Doing this, we get the result shown in Figure 2.

TREND INDICATOR

The trend indicator has its peaks and valleys synchronous with the peaks and valleys in the price data. Interpretation of the indicator is straightforward. The zero line is the balance point. Be long when the indicator is positive and be short when the indicator is negative. Better trade timing can be obtained using a hysteresis band about the balance point. For example, enter a long position when the indicator has increased to 50% of its most recent valley and exit a long position or go short when the indicator has decreased to 50% of its most recent peak.

Even better timing signals can be computed. Peaks and valleys of the indicator are almost exactly aligned with the major peaks and valleys in the price chart. The rate of change (ROC) is zero at peaks and valleys. Therefore, a valley occurs when the ROC crosses over zero and a peak occurs when the ROC crosses under zero. The zero crossings of the ROC exactly pinpoint the onset of a new trend, either up or down. The trend indicator and its ROC are shown in Figure 3.

The EasyLanguage code for the trend indicator and its

ROC is given in the sidebar, “Trend Indicator And ROC, In EasyLanguage.” Since the ROC is basically a derivative of a trigonometry function, the constant multiplier of the one-bar difference is an amplitude compensation for the derivative. If you know calculus, you know what that means. If you don’t know calculus, it doesn’t matter.

The ROC is basically a derivative of the trend indicator. This means that the noise level is 6 dB higher at the high-frequency end of the spectrum. The disadvantage is that the chop will cause bogus entry signals when the market is just moving sideways or in a continuous trend. The high-frequency chop can be reduced through the use

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HIGHPASS FILTER FUNCTION, IN EASYLANGUAGE

```
{
  Highpass Function
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}

Inputs:
  Price(numericseries),
  Period(numericsimple);

Vars:
  a1(0),
  b1(0),
  c1(0),
  c2(0),
  c3(0);

a1 = expvalue(-1.414*3.14159 / Period);
b1 = 2*a1*Cosine(1.414*180 / Period);
c2 = b1;
c3 = -a1*a1;
c1 = (1 + c2 - c3) / 4;

If CurrentBar >= 4 Then $HighPass = c1*(Price - 2*Price[1] + Price[2]) +
c2*$HighPass[1] + c3*$HighPass[2];
If Currentbar < 4 Then $HighPass = 0;
```

SUPERSMOOTHER FUNCTION, IN EASYLANGUAGE

```
{
  SuperSmoother Function
  (C) 2004-2024 John F. Ehlers
}

Inputs:
  Price(numericseries),
  Period(numericsimple);

Vars:
  a1(0),
  b1(0),
  c1(0),
  c2(0),
  c3(0);

a1 = expvalue(-1.414*3.14159 / Period);
b1 = 2*a1*Cosine(1.414*180 / Period);
c2 = b1;
c3 = -a1*a1;
c1 = 1 - c2 - c3;

If CurrentBar >= 4 Then $SuperSmoother = c1*(Price + Price[1]) / 2 +
c2*$SuperSmoother[1] + c3*$SuperSmoother[2];
If Currentbar < 4 Then $SuperSmoother = Price;
```

TREND INDICATOR AND ROC, IN EASYLANGUAGE

```
{
  Trend Analysis Indicator
  (c) 2024 John F. Ehlers
}

Inputs:
  Length1(250),
  Length2(40);

Vars:
  HP1(0),
  HP2(0),
  Trend(0),
  ROC(0);

HP1 = $Highpass(Close, Length1);
HP2 = $Highpass(Close, Length2);

Trend = HP1 - HP2;

ROC = (Length2 / 6.28)*(Trend - Trend[1]);

Plot1(Trend, "", red, 4, 4);
Plot2(ROC, "", blue, 4, 4);
Plot3(0, "", black, 2, 2);
```

2. Highpass filters have nearly zero lag because they do not carry the burden of having to support very long cycle periods.
3. A virtual lowpass filter is created by highpass filtering of the price data that has a pink spectrum.
4. Virtual lowpass filters have almost no lag.
5. Undesired high-frequency content in virtual filters is removed by cancellation. The high-frequency content is isolated by a highpass filter and the result is subtracted from the virtual filter. This creates the trend indicator.
6. Interpretation of the trend indicator is straightforward: Hold a long position when the indicator is above the zero balance point and hold a short position when the indicator is below the zero balance point.
7. Trade timing can be established using hysteresis channels. For example, reverse position when the trade indicator recedes 50% from its most recent peak or valley.

of the UltimateSmoother at only a modest cost of lag.

The concept of filtering by cancellation is extensible. For example, if there is an undesirable lump in the data due to a two-month cycle period, all you need to do is to bandpass filter the trend indicator with a filter tuned to the two-month period and then subtract that bandpass-filtered result from the original trend indicator.

CONCLUSIONS

1. Lowpass filters have an unavoidable lag. This lag prevents the generation of timely trading signals.

Continued on page 19

Each of these cycles can ebb and flow in a semi-random fashion to comprise a more or less continuous pink spectrum.



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Action And Reaction

The Volume Momentum Indicator

Volume plays an important role in momentum analysis. Here's an indicator you can plot to easily incorporate volume information in your analysis.

by Buff Pelz Dormeier, CMT

LAWS OF SUPPLY AND DEMAND

The financial markets adhere to the same laws of supply and demand as traditional economics, where the assumption is that the price of something will increase if it has high demand and low supply, and conversely, price will decrease if there is low demand and high supply. The auction market mechanism alters the dynamics of this operation. In the stock market, supply remains primarily finite. While companies can increase their supply of shares with the help of investment bankers, the directive of every publicly traded company is to boost shareholder wealth, either through dividends or stock price appreciation including share buybacks. The board of directors will only offer shares (supply) if they deem it necessary to increase the price of the stock or, in response to a crisis, to stabilize it.

Consequently, both supply and demand operate under an opportunity cost model, where wealth seeks the best opportunity for growth or, at worst, the best place to preserve capital. Existing shareholders (or short sellers) provide supply in the form of sellers who believe that cash

In

the realm of physics, momentum is defined as the “quantity of motion of a moving body, measured as a product of its mass and velocity.” Yet, in the realm of securities analysis, the vast majority of momentum analysis neglects this definition’s first word, “quantity,” or, in market analysis terms, “volume.” Instead, momentum analysis

tends to focus solely on the “moving body” component—namely, price velocity. Mindful of this oversight, the study of the volume factor momentum that I will present here will duly consider and incorporate the volume factor in developing a comprehensive understanding of volume’s role in momentum analysis.

or another opportunity presents greater value than the stock at its current price. Conversely, investors provide demand (buyers) who perceive the stock as the best opportunity for at least a portion of their wealth.

Remember though, that for every buyer there is a matching seller. Thus, a rise in volume accompanied by falling stock prices suggests that demand is waning, whereas an increase in volume accompanied by rising stock prices assumes demand is overwhelming the finite supply.

In physics, Isaac Newton's third law of motion has to do with action and a subsequent reaction, with mutual actions being equal. The basic concept is that whenever one object exerts a force on a second object, the second object exerts an equal and opposite force on the first. In the context of the financial markets, this is akin to saying that demand pushes, and supply pushes back.

Richard Wyckoff's law of *effort versus results* is based on this same principle. It asserts that effort must be proportional to results. In securities analysis, the effort (force) is the volume that achieves the result of price change (acceleration). In other words, the size of the executed bids and offers demonstrates investors' commitment. What happens when the movement in price exceeds the movement in volume, or vice versa? To discern this relationship, we can observe the price change (acceleration) relative to the volume change (force). Consider this example: A stock breaks out 10% from its previous close on a volume 200% higher than normal. The next day, the stock advances another 5% on 300% higher volume. Finally, on the third day, the stock moves up 2% on 400% higher volume. The high volume on the price breakout is a bullish indication. However, over time, volume (force) expands while the price change (acceleration) wanes.

In Wyckoff's terms, more effort is producing smaller results. In Newton's terms, when more force (volume) produces less acceleration (price change), then the mass (price) is overly expanded (too high). This situation can be an early warning signal that although the stock is still running strong, it might be susceptible to its own crash and burn. Thus, in a bull market, both price momentum and volume momentum should be present.

According to Newton's third law of motion, an applied force creates an equal and opposite force. Much like in the material world, the laws of physics apply to economics and are revealed through the *volume momentum factor*. Force equals mass times acceleration. Force (volume) is the amount of energy required to move an object (price). The strength of that cause should be proportional to the effect. As manifested through trading volume, the

asymmetry or imbalance between supply and demand is the external force causing price movements. Thus, price is the object being moved, while volume is the external force, be it buyers' demand or sellers' supply. Demand presses while supply (sellers) presses back. By examining Newton's third law, "Every action has an equal and opposite reaction," and applying it to the context of financial markets, we can say that the difference between demand (buying pressure) and supply (selling pressure) determines the proportional amount of price change reaction. (Demand pushes, then supply pushes back.)

Next, let's employ these physics principles in volume analysis by studying asymmetry between price momentum (using the RSI indicator) and volume-weighted price momentum (using the MFI indicator).

RELATIVE STRENGTH INDEX

Price momentum is relative. One form of price momentum relativity is internal price momentum, which contrasts a security's present velocity of price change to its previous velocity. There are many technical indicators built to measure a security's internal momentum. Of these, one of the most commonly used momentum indicators is J. Welles Wilder's relative strength index, more commonly known as the RSI.

Wilder, a mechanical engineer and real estate investor, sold his real estate investments at the age of 38 to focus on trading commodities. He applied his engineering background to develop his investment philosophy, which led to the creation of several technical indicators, including the average true range (ATR), directional movement index (DMI), parabolic stops, as well as the relative strength index (RSI). Wilder documented these innovations in his 1978 book, *New Concepts In Technical Trading Systems*.

Wilder's RSI is a ratio of the average points gained during *up* periods over past periods divided by the average points lost during *down* periods across the same period.

$$RS = \text{Avg. price change on up days} \div \text{Avg. price change on down days}$$

What happens when the movement in price exceeds the movement in volume, or vice versa?



The RS result is then plugged into the oscillation formula:

$$RSI = 100 - [100 \div (1 + RS)]$$

This oscillation formula creates an RSI value range between 1 and 99—hence, the term “oscillate” or “oscillator.” The RSI oscillator gauges the speed of ascent or descent of a security’s momentum relative to its prior momentum. Thus, RSI is a type of speedometer, measuring the momentum of a given security. A high and rising RSI reading implies that the momentum is strong and gaining strength. A low and falling RSI suggests that the momentum is weak and losing strength. Momentum investors typically desire to be long securities with strong and continually strengthening momentum.

We conducted a backtest using the current components of the Russell 3000 index from February 10, 2023 back to January 11, 2002. Of note, this test does have survivorship bias. Taking the Russell 3000 index back to January 2001, only 1,152 names were left to test by February 2023. We then ranked RSI by decile with each security equally weighted. Our RSI timeframe setting was 26 weeks. This timeframe was chosen because it represents approximately one half or two quarters of an annual 52-week cycle. Each quarter, the test securities were reranked based on the same RSI criteria.

Each quarter (13 weeks), the securities were reranked based on their 26-week RSI levels. The top decile, decile 1, represents the top 10% of stocks as ranked by the highest RSIs. Similarly, the bottom decile, decile 10, illustrates purchasing the bottom 10% of stocks ranked with the lowest RSIs. (See Figure 1.)

Contrary to momentum theory, the oversold, or low-RSI stocks, were the top performers while the overbought high-RSI stocks were the underperformers. The baseline benchmark, buying and holding the 1,152 securities equally weighted, resulted in an approximate 13% return. However, the first decile (highest RSI) only returned a bit over 10% annualized percentage return (APR) whereas the bottom decile (lowest RSI) returned over 19% APR. Moving from decile 1 towards 10, generally, the returns



FIGURE 1: 26-WEEK RSI, DECILE STUDY, 1/11/2002–2/10/2023. The RSI is ranked by decile. Each quarter, the test securities were reranked based on the same RSI criteria. Decile 1 represents the top 10% of stocks as ranked by the highest RSIs. Similarly, decile 10 illustrates purchasing the bottom 10% of stocks ranked with the lowest RSIs. Moving from decile 1 towards 10, the returns trended higher as stocks moved from being overbought (high upside momentum) to oversold (strong downward momentum).

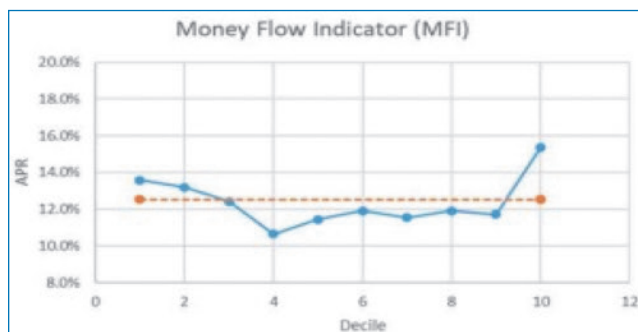


FIGURE 2: 26-WEEK MFI, DECILE STUDY, 1/11/2002–2/10/2023. The backtest from Figure 1 is rerun this time using the MFI instead of the RSI. The MFI is ranked by decile. Each quarter, the test securities were reranked based on the same MFI criteria. The MFI’s top decile outperformed the benchmark.

trended higher as stocks moved from being overbought (high upside momentum) to oversold (strong downward momentum).

MONEY FLOW INDEX

In order to gain a more complete understanding of momentum, we can incorporate volume data or *force* into the computation of momentum. The relative strength index can be amended to contain its force properties by incorporating volume into its calculation. This volume-weighted RSI indicator has already been created for us—the *money flow index* (MFI) is a volume-adjusted RSI that was created by Gene Quong and Avrum Soudack in 1989 and introduced in an article published here in STOCKS & COMMODITIES. For the most part, the calculations of RSI and MFI are nearly identical (RSI uses closing price, whereas MFI replaces closing price with average true range), but MFI volume weights price whereas RSI uses closing price (volume absent).

Could volume weighting improve the effectiveness of



In securities analysis, the effort (force) is the volume that achieves the result of price change (acceleration).

the RSI? To test this theory, we reran the earlier RSI backtest (using the current components of the Russell 3000 index from February 10, 2023 back to January 11, 2002 with the same 26-week setting). Each quarter, the securities were reranked, this time based on MFI criteria. (See Figure 2.)

Volume-weighting RSI via the MFI turned the unprofitable RSI top deciles 1 and 2 from underperformers to outperformers. The MFI's top decile's relative performance to RSI showed a significant improvement



FIGURE 3: VOLUME MOMENTUM INDICATOR. An example of the VMI plotted on a chart of SPY is shown. The VMI seeks to measure the asymmetry between price momentum and volume-weighted price momentum and represents the difference between the MFI and the RSI.



FIGURE 4: VMI PERFORMANCE RESULTS, WITH SURVIVORSHIP BIAS, 8/2/2000–5/4/2022. The strategy tested here on S&P 500 index components buys when $VMI \Rightarrow 0.50$ and sells when $VMI < 0.2$. A high VMI ($VMI > RSI$) suggests a favorable time to buy, whereas a low VMI ($VMI < RSI$) suggests a possible sell. The example performance results were superior to buy & hold for both risk and return metrics.

in APR. Overall, the MFI's top decile outperformed the benchmark universe by approximately 2% effective APR. Thus, infusing volume into momentum took a 2% underperforming strategy and transformed it into a 2% outperforming strategy, a 4% delta.

VMI: VOLUME MOMENTUM INDICATOR (THE VOLUME MOMENTUM ASYMMETRY FACTOR)

Returning to Newton's third law of motion, "Every action has an equal and opposite reaction," I'll again consider this concept in the economic realm. Economist Adam Smith developed a theory postulating that when demand exceeds supply, the price increases, and when supply surpasses demand, the price decreases. In other words, when demand rises, supply pushes back.

With this concept in front of mind, my volume momentum indicator (VMI) takes the difference between the MFI and RSI to unearth price-volume momentum asymmetry. The VMI is calculated as follows:

$$\text{VMI} = 1 + (\text{MFI} - \text{RSI}) / 100$$

The VMI measures the asymmetry between price momentum and volume-weighted price momentum. An example of the VMI plotted on a chart is shown in Figure 3.

When the MFI is greater than the RSI, volume-price momentum is greater than price momentum. Volume analysis seeks to identify issues with greater volume price momentum than price momentum alone. A high VMI represents an opportune time to buy ($\text{VMI} > \text{RSI}$), whereas as a low VMI may suggest it is time to sell ($\text{VMI} < \text{RSI}$).

Here, we buy stocks when VMI equals or exceeds 0.5 ($\text{MFI} \Rightarrow \text{RSI}$) and then sell when VMI is below 0.2. In essence, this strategy proposes buying S&P 500 index components with positive volume price momentum asymmetry, or, in other words, price-volume momentum confirmation. This strategy then proposes selling the long position when the previous confirmation (>50) has switched to a clear volume-momentum contradiction state (<20), where the volume-absent RSI is exceedingly greater than the volume-weighted MFI.

We then tested this strategy from August 2, 2000 to

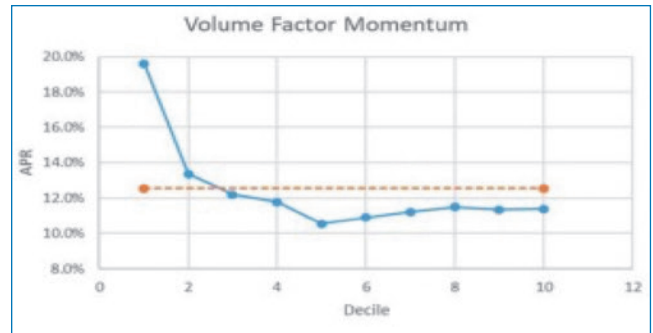


FIGURE 5: 26-WEEK VFI, DECILE STUDY, 1/11/2002–2/10/2023. The backtest from Figure 1 is rerun this time using the VFI. The VFI is ranked by decile. Each quarter, the test securities were reranked based on the same VFI criteria. The VFI's top decile represents the top 10% of stocks ranked by the difference between MFI and RSI (that is, by VFI). The bottom decile illustrates purchasing the bottom 10% of stocks ranked by the VFI. The top decile (highest VMI) shows dramatic improvement over the benchmark as well as over the other deciles.

May 4, 2022 using weekly data on the S&P 500 components using the Optuma software. This VMI strategy returned 17% compared to buying and holding the S&P 500 index at a return of 6.4%. Passively owning the S&P 500 index produced a Sharpe ratio of 0.34. By applying the volume momentum indicator strategy to the S&P 500 components, the Sharpe ratio surged to 0.93. The performance strategy results from the backtest (with survivorship bias) are shown in Figure 4.

Next, let's look at VMI ($\text{MFI} - \text{RSI}$) viability within a decile study. We tested the VMI using the current components of the Russell 3000 index from February 10, 2023 back to January 11, 2002 with a 26-week VMI setting. Each quarter (13 weeks), the securities were re-ranked based on the same VMI criteria. The top decile, decile 1, represents the top 10% of stocks ranked by the difference between MFI and RSI. Similarly, the bottom decile, decile 10, illustrates purchasing the bottom 10% of stocks ranked by the difference between the MFI and the RSI.

An example of the volume factor momentum is plotted in Figure 5. Notice that the top decile, decile 1 (highest VMI), shows dramatic improvement over the benchmark as well as over the other deciles. Over the course of the study, the benchmark universe returned approximately 13% effective APR whereas stocks in VMI decile 1, the highest VMI readings, returned just under 20% effective APR. This asymmetry between price momentum and volume-price momentum creates the investment factor of price-volume momentum asymmetry.

CONCLUSION

Newton's third law of motion—action and reaction—provides a fascinating lens for examining market dynam-



RSI is a type of speedometer, measuring the momentum of a given security.

ics, particularly the interplay between price and volume. As we've explored here, the financial markets follow the fundamental principles of supply and demand akin to traditional economics, where prices adjust according to shifts in supply and demand pressures. However, the auction market mechanism introduces nuances that highlight the finite nature of supply and the strategic actions of companies and investors, reinforcing the concept that for every buyer, there is a seller, and for every action, there is a reaction. By applying the principles of physics, specifically Newton's third law, to market analysis, we can gain deeper insights into price-volume asymmetry. The force (volume) exerted in the market leads to price change. In this way, the relationship between the two can indicate the health and sustainability of a trend. Price is the effect; volume is the cause.

This exploration into the volume momentum indicator (VMI) further elucidates this relationship. By contrasting the relative strength index (RSI) and the money flow index (MFI), we see how volume imbalances can significantly enhance the predictive power of traditional momentum indicators. The VMI, which measures the asymmetry between price momentum and volume-weighted price momentum, is a robust tool for identifying opportune buying and selling points, significantly outperforming traditional benchmarks.

Buff Pelz Dormeier, CMT, is a financial advisor and an expert in volume analysis. He is the developer of many volume-weighted indicators and cap-weighted volume-

based breadth indicators. He won the Charles H. Dow award for his technical research in 2006. His new book, released in July 2024, is titled The Volume Factor, available through his website, BuffDormeier.com.

FURTHER READING

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‡Optuma

‡See Editorial Resource Index

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EHLERS/PRECISION TREND ANALYSIS

Continued from page 12

8. Exact timing of the new trend onset is provided by the ROC of the trend indicator.
9. The ROC gives whipsaw trading signals in sideways or continuously trending markets.
10. The ROC can be smoothed with a small lag penalty using the UltimateSmoother.

John Ehlers is a retired electrical engineer and a retired technical analyst, specializing in the application of DSP (digital signal processing) to trading. For more information, see www.mesasoftware.com.

FURTHER READING

Ehlers, John F. [2024]. "The Ultimate Smoother," *Technical Analysis of STOCKS & COMMODITIES*, Volume 42, April.

‡TradeStation

‡See Editorial Resource Index

*The code given in this article is available in the **Article Code** section of our website, [Traders.com](https://www.Traders.com).*

*See our **Traders' Tips** section beginning on page 50 for implementation of John Ehlers' technique in various technical analysis programs and trading platforms. Code found in the Traders' Tips section is also posted at [Traders.com](https://www.Traders.com).*

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Highs And Lows

Which Is Better: The *N*-Day Breakout Or The Swing Breakout?

Here's a study that compares the classic method of using swing highs and lows for trading signals versus a modern approach of signals based on new highs and lows over a given number of days. Which will you choose?

by Perry J. Kaufman

The earliest of all systems was the *swing chart*, a new high or low going above the previous high or low. For most traders, that means some news has caused prices to move out of its current trading level into a new one—either up or down. That makes sense.

By way of background, the *swing breakout* is much the same as point-and-figure, but without assigning a box size, so any move above a previous high or below a previous low would cause a trading signal.

Most traders like the swing charts because it's not a

lot different from looking at previous highs as resistance or lows as support. You only need to decide which highs and lows are important, not always an easy task.

Then there is the *N-day breakout*, a much newer method. My earliest recollection is *Donchian's 4-week rule*, a simple strategy that bought when prices moved above or below the 4-week average. He then moved to the 10-day average. Life in the 1970s was much simpler.

My wife and I are both traders. I have done a lot of studies on which trend method works best. My conclusion is that they all work as long as the market trends. When it doesn't trend, none of them work. But when I use a breakout strategy, I've always used the *N-day breakout*. I just got into that habit.

On the other hand, my wife was a floor trader and uses support and resistance to decide if a market is doing something new. A floor trader always knows where price stopped and reversed. Support and resistance are

those prices. That's the same as a swing method.

TRADING RULES FOR SWINGS

Figure 1 shows the S&P ETF SPY with both highs and lows marked with dots. The highs are shown with blue dots and the lows with red dots. In this example, the swing must be greater than 5%.

You can plot this indicator using the code shown in the sidebar, "Swing Indicator, In EasyLanguage," giving it the minimum swing percentage and the distance of the dots from the high or low. In this case, the swing percent is 5% and dots are 1% above or below the swing extremes.

When a new swing high is above the previous swing high, we get a buy signal. A new sell signal occurs when the current low is below the previous swing low. The signals are shown in Figure 1. Position sizes for stocks are the investment (\$10,000) divided by the closing price.

One interesting feature of a swing chart is that time is unimportant. If prices remain the same, or if prices move less than the minimum swing, nothing happens. In Figure 1 the highs and lows are marked, but if you are familiar with a point-and-figure chart, those swings from one extreme to another would all be in the same vertical line.

TRADING RULES FOR BREAKOUTS

A buy signal for an N -day breakout is a new high above the high of the past N days. In Figure 2 you see the signals for a 20-day breakout on top of the chart with 5% swings. If you look back from the point of the entry, you can see that it was a 20-day high or low.

SIMILARITIES AND DIFFERENCES

In the swing example in Figure 1, we need a move of 5% from the current extreme to develop a new trend, and a move below the previous low or above the previous high to get a signal. For example, if the previous move down went from 450 to 400 without a reversal (a move of 10%), the next move up would need to exceed 450 to get a buy signal.



FIGURE 1: SWING HIGHS & Lows. The S&P ETF SPY is shown with dots representing a 5% minimum move. In this example, swings are defined as greater than 5%. When a new swing high is above the previous swing high, a buy is signaled. When a new swing low is below the previous swing low, a sell is signaled. The code in the sidebar "Swing Indicator, In EasyLanguage" will plot the dots for you.

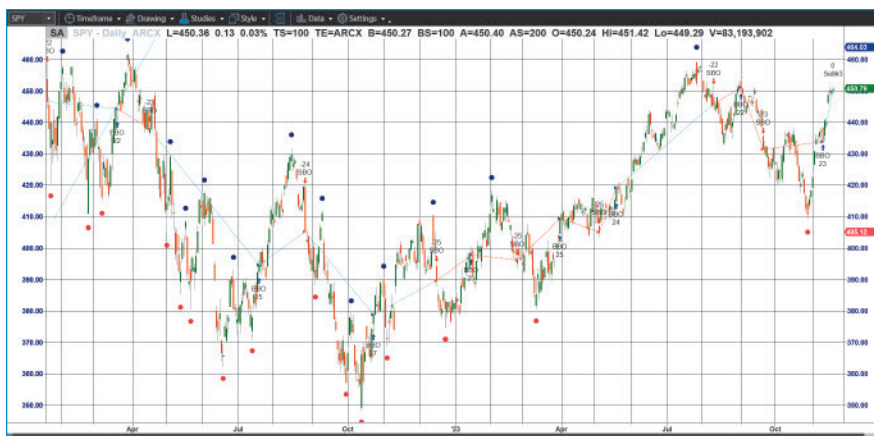


FIGURE 2: N -DAY BREAKOUT SYSTEM. The S&P ETF SPY is shown with signals for a 20-day breakout system. A buy is signaled when a new high occurs above the high of the past N days (in this case, 20 days).

For a 20-day breakout system, you sell on a new 20-day low and buy on a new 20-day high. As prices move forward, those highs and lows can drop off and new highs and lows become the new signals. If you buy on a 20-day high, your exit will always be the last 20-day low.

In both cases you wait for a substantial turn in the trend before exiting or entering a new trade. The idea is to let prices fluctuate without stopping you out. That's the nature of a trend.

Both systems require that you pick a parameter repre-

The earliest of all systems was the swing chart—a new high or low going above the previous high or low.



sending either the minimum swing or the N -day window. In both cases, the systems will adjust to volatility. As prices get higher, the 5% swing will get larger. At the same time, a 20-day breakout will get larger as volatility increases. The breakout seems to be less rigid about how it handles volatility.

Which is better? Using the natural swing highs and lows or using the highs and lows of the past N days? The swing method keeps the same values (the previous highs and lows), while the N -day breakout is simply the trend over the past N days.

STARTING WITH SPY

To test both systems, we try to find the upper and lower parameters that have about the same trades. I thought that

would be a way of relating the two methods, although you may find that you prefer your own way. For those traders who want to test this themselves, the code given in the sidebar “Swing Trading System, In EasyLanguage” will let you test the swing method, while the N -day breakout should be available in any trading platform.

For the SPY test, there were 352 trades for the N -day breakout with a 10-day period, and 362 trades for the swing program at 1%. On the higher end there were 22 trades for the 120-day breakout and 18 trades for the 12% swing.

Results are in Figure 3. The bottom scale on the swing chart shows the percentage swings and the bottom of the breakout chart shows the N -day calculation periods. I thought this was very promising. Both methods had about the same profits and losses, but they show very different patterns.

The N -day breakout is similar to a test of a moving average. As the calculation periods get longer, we smooth out the trend and tend to get better results. The swing results are different. They peak at 6% although there are good results from 4% to 9%. Very small reversals and very large reversals don't do as well.

If we only had this one test, we would find it difficult to show which was better; both seem to be fine.



FIGURE 3: SWING BREAKOUT SYSTEM VS. N -DAY BREAKOUT SYSTEM, SPY. This compares tests of the swing method (left) and the N -day breakout (right) using SPY from 2000. The bottom scale on the swing chart shows the percentage swings, and the bottom scale on the breakout chart shows the N -day calculation periods. Both methods showed about the same profits and losses, but with very different patterns.



FIGURE 4: SWING BREAKOUT SYSTEM VS. N -DAY BREAKOUT SYSTEM, QQQ. This compares tests of the swing method (left) and the N -day breakout (right) using QQQ from 2000. For the N -day breakout test, results are similar to the N -day breakout test results on the SPY in Figure 3, while the swing method shows very different results for the QQQ than the test on SPY in Figure 3.



FIGURE 5: SWING BREAKOUT SYSTEM VS. N -DAY BREAKOUT SYSTEM, AMZN. Results from the swing system test (left) are shown with results from the N -day breakout method (right) on Amazon stock from 2000. Results show a similar pattern to the test using QQQ in Figure 4.

OTHER STOCK TESTS

I normally expect NASDAQ (QQQ) to be similar to SPY. Figure 4 shows that the N -day breakout is much the same, while the swing method is very different. I'll attribute that to the volatility. Higher swing percentages do much better. If you look closely, the middle percentages, from 6% to 10%, perform about the same as the breakouts, between \$35,000 and \$40,000 net profits. It's just that the higher percentages, 11% to 13%, make the swing method look much better. At the end of this article I'll suggest that the far right choice for the swing would not be best.

Also note that the short sales, while none of them are profitable for the N -day breakout, are mostly neutral for the swing method.

Amazon (AMZN)

We all use Amazon as a benchmark. Figure 5 shows a very similar pattern as QQQ, better as both the swing percentage and the N -day breakout get larger. In this case the shorts all post losses and the largest breakout (120 days) has the outstanding results. Still, most results fall in the range of \$40,000.

Meta (META, formerly Facebook), and Nvidia (NVDA)

Perhaps it's the technology stocks that seem to have similar performance but somewhat different patterns. META and NVIDIA (NVDA) are similar to the previous tests. Figures 6 and 7 show results for META and NVDA tests.

These examples show similar results for these particular stocks. I'm sure there are stocks that have very different results, but in some brief searches, I didn't find any that were much different.

Crude oil (CL futures)

That is not to say that all results are easy to interpret. Figure 8 shows that crude oil futures, which have had very wide swings and varying volatility, can be difficult to find the right parameters. While the swing method is more consistent at lower percentages, where crude spends most of its time, the N -day breakout can be traded with short or long calculation periods. The longs do better with short sales, taking advantage of some precipitous declines.

Euro currency futures (CU)

While stocks seem more uniform, a test of the euro currency futures (Figure 9) shows that only small swing percentages work while the N -day breakout works at all levels.

WHICH DO YOU PREFER?

There is a certain comfort in using actual highs and lows, as does the swing method. You know that prices stopped



FIGURE 6: SWING BREAKOUT SYSTEM VS. N -DAY BREAKOUT SYSTEM, META. Results from the swing test (left) are shown with results from the N -day breakout method (right) on META stock from inception.



FIGURE 7: SWING BREAKOUT SYSTEM VS. N -DAY BREAKOUT SYSTEM, NVDA. Results from the swing test (left) are shown with results from the N -day breakout method (right) on Nvidia stock from 2000.



FIGURE 8: SWING BREAKOUT SYSTEM VS. N -DAY BREAKOUT SYSTEM, CL. Results from the swing test (left) are shown with results from the N -day breakout method (right) on crude oil futures (CL) from 2000. While the swing method is more consistent at lower percentages, the N -day breakout can be traded with short or long calculation periods in this market.

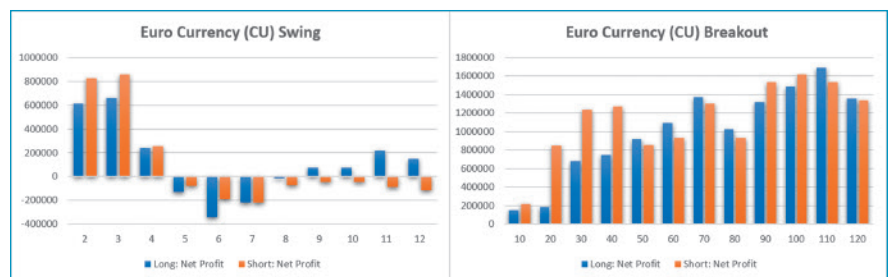


FIGURE 9: SWING BREAKOUT SYSTEM VS. N -DAY BREAKOUT SYSTEM, CU. Results from the swing test (left) are shown with results from the N -day breakout method (right) on euro currency futures (CU), from 2000. While results for tests on stocks seem more uniform, a test using euro currency futures shows that only small swing percentages work while the N -day breakout works at all levels.

Find a parameter that has a wide range of success.



SWING INDICATOR, IN EASYLANGUAGE

// TSM Swing: Plots swing highs and lows
 // Copyright 1994–2024, P.J. Kaufman. All rights reserved.

{ Plot setup:

1. Place on same graph window as price
2. Scale same as price
3. In style, set all values to "point" with weight 2

Inputs for TSM SWING:

type = 0, normal price
 = 1, 3-month rate
 = 2, bond price at par
 swing = price swing in whole % (e.g., 2% = 2.0) }

input: type(0), swing(2.5), distance(1);
 vars: pcswing(0), lastdir(0), curhigh(0), curlow(0), swhigh(0),
 slow(0), highbar(0),
 lowbar(0), chighbar(0), clowbar(0), lowp(0), highp(0),
 xclos(0), xhigh(0),
 xlow(0), divide(4), factor(1), par(800);

pcswing = swing / 100.;

if type = 0 then begin
 xhigh = high;
 xlow = low;
 xclos = close;
 end
 else if type = 1 then begin
 xhigh = 100 - low;
 xlow = 100 - high;
 xclos = 100 - close;
 end
 else if type = 2 then begin
 xhigh = par / low;
 xlow = par / high;
 xclos = par / close;
 end;

{ INITIALIZE MOST RECENT HIGH AND LOW }

if currentbar = 1 then begin
 curhigh = xclos; { current high }
 curlow = xclos; { current low }
 end;

{ SEARCH FOR A NEW HIGH -- favor reversals }
 if lastdir <> 1 then begin

{ REVERSE FROM HIGH IF MINIMUM % SWING }
 if xlow < curhigh - curhigh*pcswing then begin
 lastdir = 1; { lastdir high fixed }
 swhigh = curhigh; { new verified high }
 highbar = currentbar;
 curlow = xlow; { initialize new lows }
 lowp = xlow; { swing low for plot }
 clowbar = currentbar;
 if type = 0 then
 plot1[currentbar - highbar](high[currentbar - high-
 bar]*(1.0 + distance/100),"swinghigh")
 else
 plot3[currentbar - highbar](low[currentbar - high-
 bar]*(1.0 - distance/100),"swinglow");
 end
 else begin
 if xhigh > curhigh then begin
 curhigh = xhigh; { new current high }
 chighbar = currentbar;
 end;
 end;
 end;

// SEARCH FOR A NEW LOW - favor reversal
 if lastdir <> -1 then begin
 // REVERSAL FROM LOW IF MINIMUM % SWING
 if xhigh > curlow + curlow*pcswing then begin

lastdir = -1;
 slow = curlow;
 lowbar = clowbar;
 curhigh = xhigh; { initialize current high }
 highp = xhigh; { swing high for plot }
 chighbar = currentbar;
 if type = 0 then
 plot2[currentbar - lowbar](low[currentbar - low-
 bar]*(1.0 - distance/100),"swinglow")
 else
 plot4[currentbar - lowbar](high[currentbar - low-
 bar]*(1.0 + distance/100),"swinghigh");
 end
 else begin
 if xlow < curlow then begin
 curlow = xlow;
 clowbar = currentbar;
 end;
 end;
 end;
 end;

at those levels before and it was the furthest they could be pushed by traders. A breakout above or below those levels means that something new has happened.

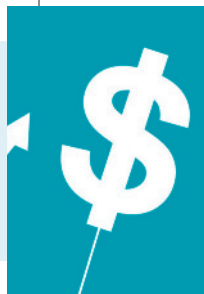
But the *N*-day breakout captures the trend a bit better.

That can usually be seen by the increased profits as the calculation periods get bigger.

Both methods take time to react, and both can have large stops. For stocks, the swing short sales seem to do better than the *N*-day breakout, which is good if you trade both sides. It may also mean that the exit on the long trades are a bit better.

I can't really tell you which is better. They have different patterns but both make money. It justifies whatever you are currently trading.

However, I can make one note from experience. Do not choose the best parameters unless they are profitable in the current market conditions. For energy, the best



Both methods had about the same profits and losses, but they show very different patterns.

SWING TRADING SYSTEM, IN EASYLANGUAGE

```
{ TSM Swing: Swing trading system
  Copyright 2012–2024, P.J. Kaufman. All rights reserved.
  The swing high and low points can be plotted using "TSM
  Swing"
  Inputs: swing      = price swing in whole % (e.g., 2% = 2.0) }

input: swingfactor(2.5), printdetail(false), longonly(false),
usefutures(false);
vars:   pcswing(0), swhigh(0), swlow(0), prevswing(0),
reverse(0),
        prevswinghigh(0), prevswinglow(0), currentswing(0);
vars:   size(0), adate(" "), investment(10000);

If Currentbar = 1 then begin
  pcswing = swingfactor / 100.;
  swhigh = high;      { current high }
  swlow = low;        { current low }
  if close > (high + low)/2 then begin
    currentswing = 1;
    prevswing = -1;
    end
  else begin
    currentswing = -1;
    prevswing = 1;
    end;
end;

// SEARCH FOR A NEW HIGH -- favor reversals
if currentswing < 0 and high > swlow*(1 + pcswing) then
begin
  // REVERSE TO HIGH IF MINIMUM % SWING
  currentswing = 1; { last high fixed }
  prevswing = -1;
  prevswinglow = swlow;
  prevswinghigh = swhigh;
  swhigh = high; { new verified high }
end
// Enter new low for downtrend
else if currentswing < 0 and low < swlow then begin
  swlow = low; { new current high }
end;

end;

// REVERSE TO DOWN IF LOW LESS THAN THRESHOLD
if currentswing > 0 and low < swhigh*(1 - pcswing) then
begin
  prevswing = 1;
  prevswinglow = swlow;
  prevswinghigh = swhigh;
  // new swing
  currentswing = -1;
  swlow = low;
  swhigh = swhigh;
  // save prevhigh and low
  end
  else if currentswing > 0 and high > swhigh then begin
    swhigh = high;
    end;

  // test for new buy signal
  adate = ELdate2string(date);
  if marketposition <= 0 and swhigh > prevswinghigh then
  begin
    buy to cover all shares next bar on open;
    if usefutures = false then size = investment/close
    else size = investment/(avgtruerange(20)*bigpo
    intvalue);
    buy size shares next bar on open;
    end;

    if marketposition >= 0 and swlow < prevswinglow then
    begin
      sell all shares next bar on open;
      if longonly = false then begin
        if usefutures = false then size = investment/
        close
        else size = investment/(avgtruerange(20)*
        bigpointvalue);
        sell short size shares next bar on open;
        end;
      end;
    end;
  end;
}
```

parameters may be the ones that profited from a move up to \$150/bbl and down to \$30/bbl. That probably won't help you now. Find a parameter that has a wide range of success.

The first sidebar provides code for an indicator to display the highs and lows of the swing method. The second sidebar provides code for a way to test the swing method. The *N*-day breakout should already be on any testing platform you use.

Perry J. Kaufman is a trader and financial engineer. He is the author of many books on trading and market

Continued on page 35

The *N*-day breakout captures the trend a bit better.

THE VOLUME FACTOR

— THE MISSING PIECE —

DISCOVER COMPELLING DATA PROVING VOLUME IS NOT JUST AN IMPORTANT DATA SET, NOR JUST A LEADING INDICATOR BUT THE MONARCH OF ALL FACTORS THE ONE THAT RULES THEM ALL.

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Quantifying A Market Bias

Metals Futures: How To Identify And Exploit Recurring Intraday Price Movements

For the study presented here, we will use four commonly traded metals futures markets to test for intraday biases that could give the trader an edge.

by Andrea Unger

In

this article, we'll explore a category of trading systems that don't rely on indicators or common price analysis-based entry setups. Instead, these systems depend entirely on temporal conditions to enter and exit the market. Temporal conditions refer to specific times of day, days of the week, or even months of the year when there is a consistent, time-bound repetitive behavior in the underlying asset, which we might refer to as a bias. In this article we will not limit ourselves to testing the bias on a single market, but will extend the analysis of these biases to the entire sector to which that market belongs, assessing not just

the presence of biases and their time horizon, but also whether they are characteristic of an individual market or encompass the entire sector.

For our studies, we will focus on the metals sector, where we find futures well-known to traders worldwide, including gold (@GC), which is among the largest commodity markets by volume, alongside other heavily traded futures like copper (@HG), silver (@SI), and platinum (@PL).

ANALYZING BIASES IN METALS FUTURES

At Unger Academy, we employ our proprietary Bias Finder software to uncover biases in a specific underlying asset across various time horizons, from intraday to annual, including weekly and monthly levels. Naturally, as traders, we tend to focus on the first two levels (intraday and weekly) because they are more aligned with our operational style. In this article, we will specifically

OSELOTE/SHUTTERSTOCK

focus on intraday analysis, thus omitting the annual and monthly seasonal biases.

We immediately put the Bias Finder to work by analyzing the historical series of our four futures with data from 2010 to the end of 2021. Why limit the backtest to 2021? Because recent years have been years of transition and significant changes in many sectors, including financial markets. Therefore, it seems logical to conduct our initial analysis without considering these data. After making our observations and analyzing what emerged, we can compare it with the last two years to confirm or refute our ideas.

To draw an analogy with the development of a trading system, let's say we'll consider the period from 2010 to 2021 as our in-sample (IS) and from 2022 to 2024 as our out-of-sample (OOS).

In Figure 1, we can see the intraday results obtained. On the x-axis at the bottom, we have the 24-hour daily scale with 1-hour intervals, while on the y-axis, we have the average monetary range, which is very useful data to quantify whether the bias will indeed be usable for building a trading system.

What immediately stands out from these images? You don't need to be an expert analyst to see that there is a common pattern among all four futures. Simplifying, it seems like a "V" with the tip positioned in the early hours of the morning, roughly between 7:00 am and 10:00 am, with the sides descending during the nighttime hours (let's say between 1:00 am and 4:00 am).

In financial terms, this means that these four markets tend to consistently fall during the night to then reach their lows in the morning, and subsequently rise for the rest of the day or in the following hours. It's important to note that the hours we are discussing are the trading hours of the exchanges where these instruments are listed, namely the Nymex for platinum (@PL) and the Comex for the other futures, both in the New York time zone.

It's crucial to remember that these futures, like those on stock indexes, are open 23 hours a day (from Sunday afternoon to Friday), so the movements that we see occur when the markets are open. I emphasize this aspect because, for commodities with much shorter sessions, there are very strong biases that depend on the gap between the closing of a session and opening of the next session, with the significant consequence of not being manageable, for example, through a stop-loss or a profit target.

Returning to our study, so far, we have seen a graphical representation of the bias over the entire historical arc considered (2010–2021), but this does not necessarily mean that the market moved in the same way throughout all the years. Precisely for this purpose, our software is

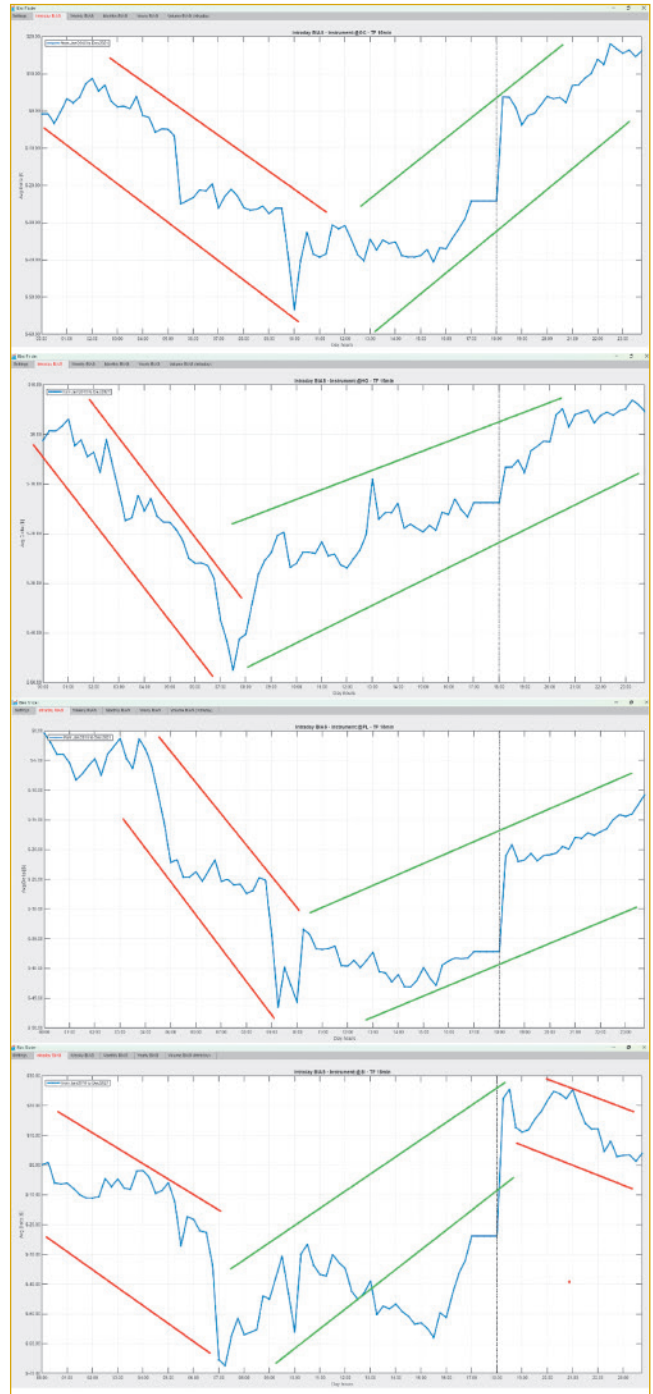


FIGURE 1: FOUR METALS FUTURES MARKETS, 2010–2021. Is there an intraday bias in gold (@GC), copper (@HG), platinum (@PL), or silver (@SI) futures that could be exploited in a trading strategy? These four markets tend to consistently display a V-shaped pattern, with the tip positioned in the exchange's morning hours and the sides of the V-shape descending during the nighttime hours.

capable of extending the analysis by representing the bias for time periods chosen by us to verify the persistence of the bias in the years considered for the backtest.

We have divided the historical data into three shorter periods: 2010–2013, 2014–2017, and 2018–2021. From

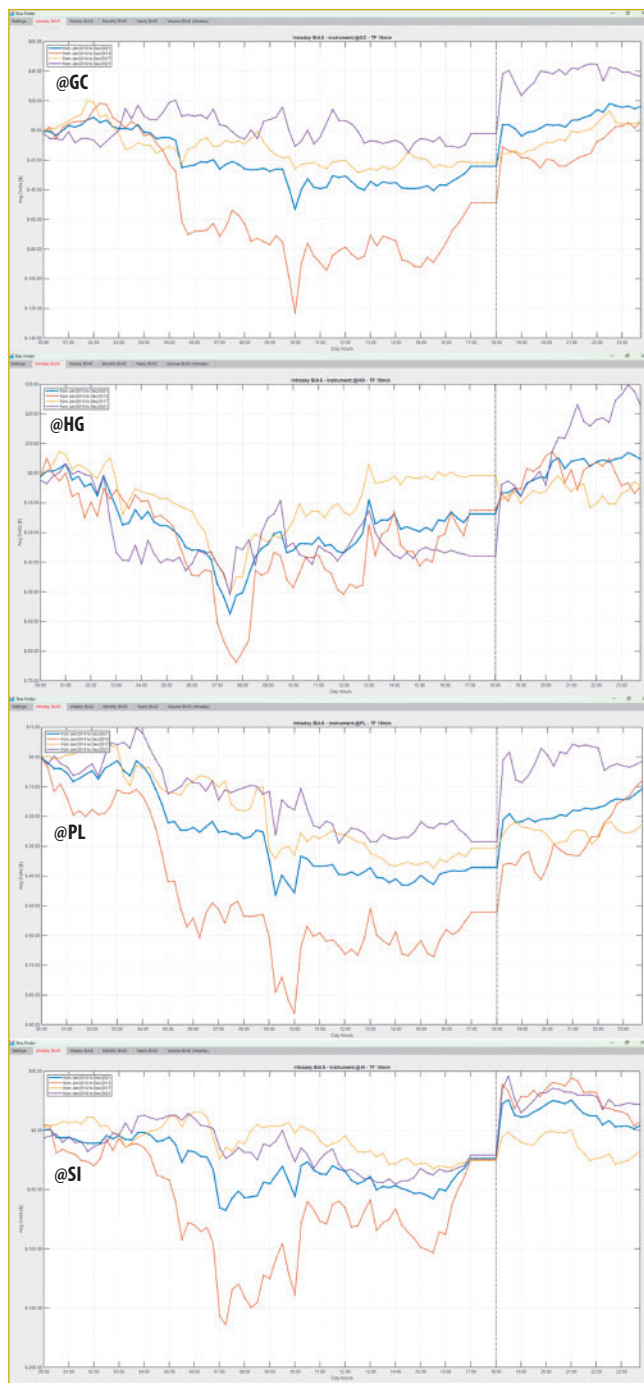


FIGURE 2: FOUR METALS FUTURES MARKETS, 2010–2013, 2014–2017, & 2018–2021. Here is another look at the same four futures markets, this time plotted as different time arcs superimposed, where each plot within the chart represents a different range of years. This view of the four markets basically confirms the market bias seen in Figure 1.

Figure 2, we can see that this different view of the bias fundamentally confirms the idea we had expressed earlier, obviously with a different “intensity” of movement between different historical periods; for example, during the four-year period 2010–2013, the bias is generally wider in terms of monetary excursion for both the long and

	Short Intraday Bias		Long Intraday Bias	
	Start	End	Start	End
@GC	2:00	10:00	10:00	2:00
@HG	1:00	7:30	7:30	22:45/23:00
@PL	4:00	10:00	10:00	3:00
@SI	18:30	7:15/7:30	7:15/7:30	18:15/18:30

FIGURE 3: COMPARISON OF EACH MARKET’S BIAS. There were slight differences for when the bias appeared during the trading day for each of the four markets studied. This table provides a summary of the approximate start and end times of the biases observed earlier for each of the four futures markets. This information can be used when developing a trading strategy for each market.

@GC <pre> if t>=145 and t<=200 then sellshort next bar at market; if t>=945 then buytocovert next bar at market; if t>=1000 and t<=1015 then buy next bar at market; if t>=145 and t<=200 then sell next bar at market; </pre> @HG <pre> if t>=100 and t<=115 then sellshort next bar at market; if t>=730 then buytocovert next bar at market if t>=730 and t<=745 then buy next bar at market; if t>=2245 then sell next bar at market; </pre> @PL <pre> if t>=345 and t<=400 then sellshort next bar at market; if then sellshort next bar at market; if t>=1000 and t<=1015 then buy next bar at market; if t>=245 and t<=300 then sell next bar at market; </pre> @SI <pre> if t>=1830 and t<=1845 then sellshort next bar at market; if t>=715 and t<=730 then buytocovert next bar at market; if t>=715 and t<=730 then buy next bar at market; if t>=1815 and t<=1830 then sell next bar at market; </pre>

FIGURE 4: CODE IN POWERLANGUAGE. Information from the table in Figure 3 suggesting entry and exit times is used to code a strategy to test.

short sides. We are talking here about years when these markets had only recently embraced electronic trading and were gradually changing structure towards the more mature and more liquid markets we see today; therefore, any inefficiencies were amplified and more evident.

BUILDING A TRADING SYSTEM TO EXPLOIT THE METALS BIAS

Now that we have indeed found an interesting bias in this sector, let’s translate it into code to lay the foundation for building a trading system. We choose to dif-

ferentiate the strategy based on the underlying asset because, despite the similarities in behavior across various futures, there are still notable differences in timing between each. For instance, the low for the gold market (@GC) is typically reached around 10:00, while for copper (@HG), it occurs around 7:30 (both times are according to the New York timezone).

Therefore, before proceeding, let's review the approximate start and end times of the biases observed in the charts for each underlying asset, providing a framework to guide our strategy implementation (Figure 3).

We will translate what is illustrated in the table into PowerLanguage code (Figure 4), applying it to charts with a 15-minute timeframe to allow for the most detailed selection of entry and exit times. We choose not to include any stop-loss or profit target settings in our model to objectively analyze the bias under study.

In Figure 5, we can see that with these few lines of code, without applying any filters, we achieve increasing and rather regular equity growth. The copper future (@HG), for instance, is particularly

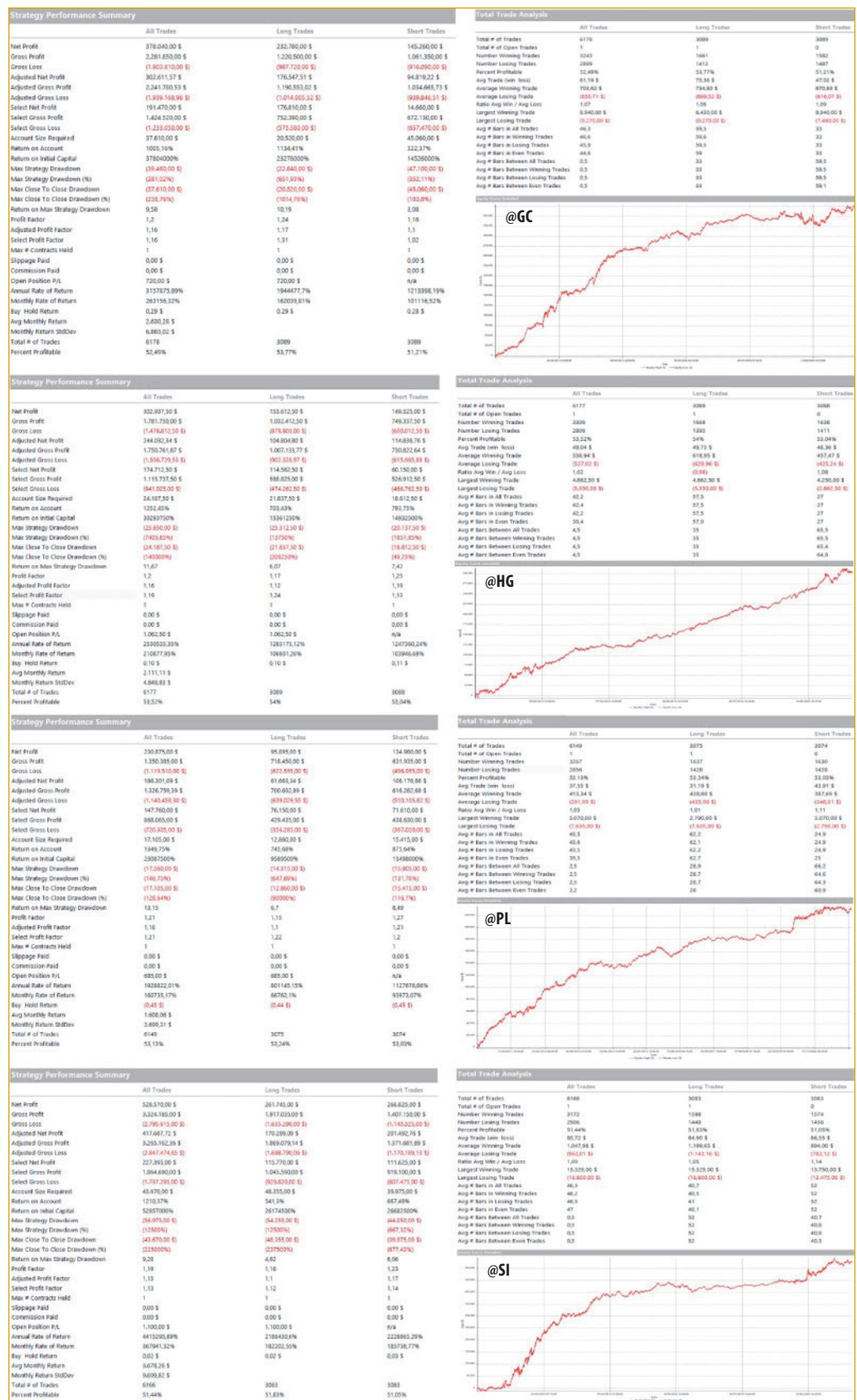


FIGURE 5: STRATEGY PERFORMANCE SUMMARY, 2010-2021. The strategy tested using the code in Figure 4 is encouraging, with increasing and regular equity growth. However, at this point in the strategy development, the number of trades is too high and the average trade value is too low.

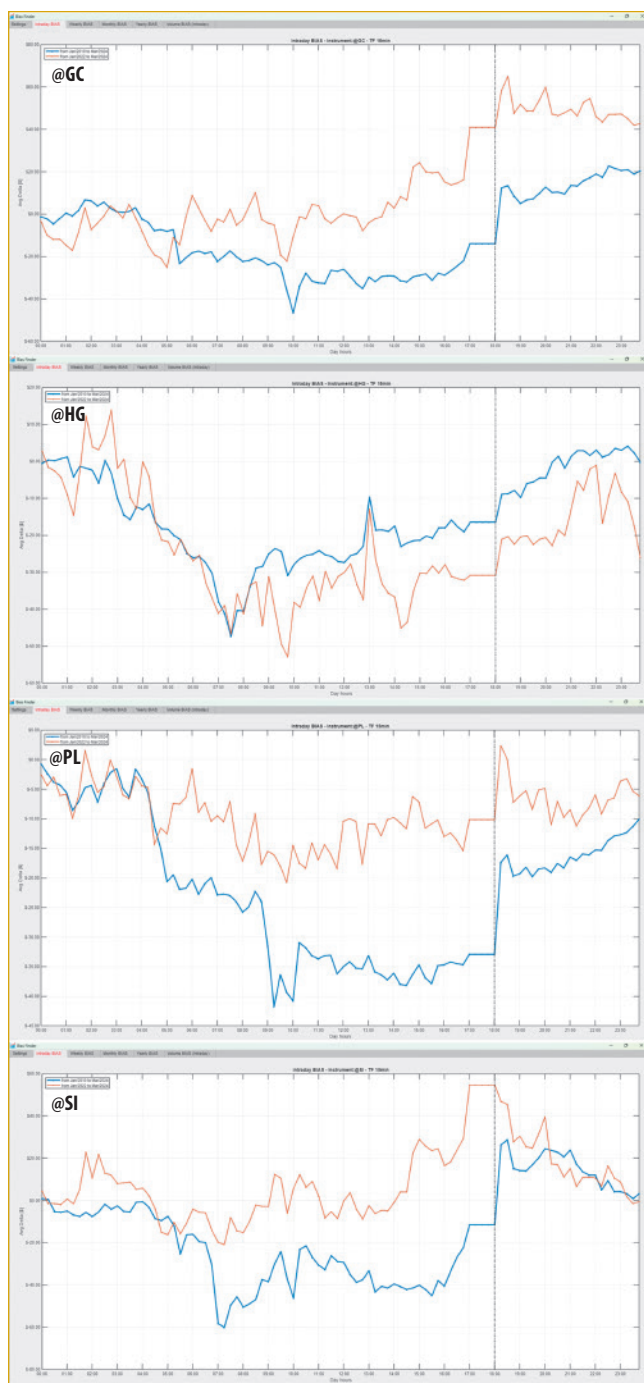


FIGURE 6: OVERVIEW OF METAL FUTURES BIAS, 2010–2024 VS. 2022–2024. The markets depicted here are (from top to bottom): @GC (gold), @HG (copper), @PL (platinum), and @SI (silver). The blue line represents the trend of the bias over the entire historical arc (2010–2024) while the orange line illustrates the period 2022–2024. The market dynamics observed earlier seem to hold up in recent years (2022–2024). In the copper (@HG) and gold (@GC) markets, the long-term trends are less pronounced and appear flatter.

impressive in this regard. Despite the high net profits, a significant downside is the high number of trades and an average trade value of just a few tens of euros, which is still far from being practical for live application.

Average trade	@GC	@HG	@PL	@SI
2010–2021	\$61.19	\$49.04	\$37.55	\$85.72
2022–2024	\$38.28	\$38.83	\$10.29	\$60.13

FIGURE 7: AVERAGE TRADE \$, 2010–2021 VS. 2022–2024. Comparing the average trade amount for the two periods suggests that the bias exists in the more recent period but with narrower excursions.

CONFIRMING THE BIAS PRESENCE IN RECENT YEARS

As initially intended, we proceed to verify if these recurrent behaviors in these futures have been confirmed over the last two years, from 1/1/2022 to 3/31/2024. To achieve this, we input the remaining data into the Bias Finder and analyze the outcomes.

In Figure 6, the blue line represents the trend of the bias over the entire historical arc, while the orange line specifically illustrates the period from 2022 to 2024. At first glance, it is evident that the market dynamics seem to be consistent even in recent years. However, the most notable observation is the reduction in price fluctuations across all cases, except perhaps for copper (@HG) and gold (@GC), where the long-term trends are less pronounced and appear flatter.

To verify if our impressions are correct, let's try applying the scripts previously tested until 2021, extending the limit to 2024, and comparing the average trade between the two periods to draw the appropriate conclusions (see Figure 7).

The comparison table in Figure 7 between the two periods analyzed confirms what the Bias Finder had already shown: all four biases still exist today but with narrower excursions. See Figure 8. As mentioned earlier, the copper future (@HG) maintains the consistency of the bias the most, with only a minor drop in average trade and a rather regular equity line. Without a doubt, platinum (@PL) shows the most significant deterioration, exhibiting very pronounced sideways behavior and an average trade of only \$10, indicating that the dynamics of this market are probably changing.

CONCLUSIONS ON THE BIAS TRADING SYSTEM APPLIED TO THE METALS SECTOR

We have reached the conclusion of this article, and we can confirm that indeed, the metals futures sector exhibits a recurring bias during the trading day. Moreover, we can confirm that this bias seems to be weakening in recent times, although it still exists. There can be many reasons for this decline, including structural changes, with markets becoming progressively more efficient, or macroeconomic factors related to modern economies.

What is certain is that, with a bit of work and the addition of filters and conditions to limit the number of trades, we can still create effective trading systems to enrich and diversify our portfolio. The foundations for their construction are all in place.

Happy trading and see you next time!

Andrea Unger is a full-time professional trader, president of The Unger Academy, and author of The Unger Method. He is a four-time World Trading Champion (2008, 2009, 2010, and 2012), an honorary member of SIAT (Italian Society of Technical Analysis, a branch of IFTA), and speaks throughout Europe, America, Australia, and Asia. He may be reached at Andrea@UngerAcademy.com. The Unger Academy provides services to traders, including individuals, to help them improve their approach to trading (more information can be found at <https://autc.pro/tasc>).

FURTHER READING

Unger, Andrea [2021]. *The Successful Trader's Guide To Money Management: Proven Strategies, Applications, And Management Techniques*, Wiley Trading.

——— [2021]. *The Unger Method: The Winning Strategy Of The 4-Time World Trading Champion*, The Boss Books.

‡MultiCharts

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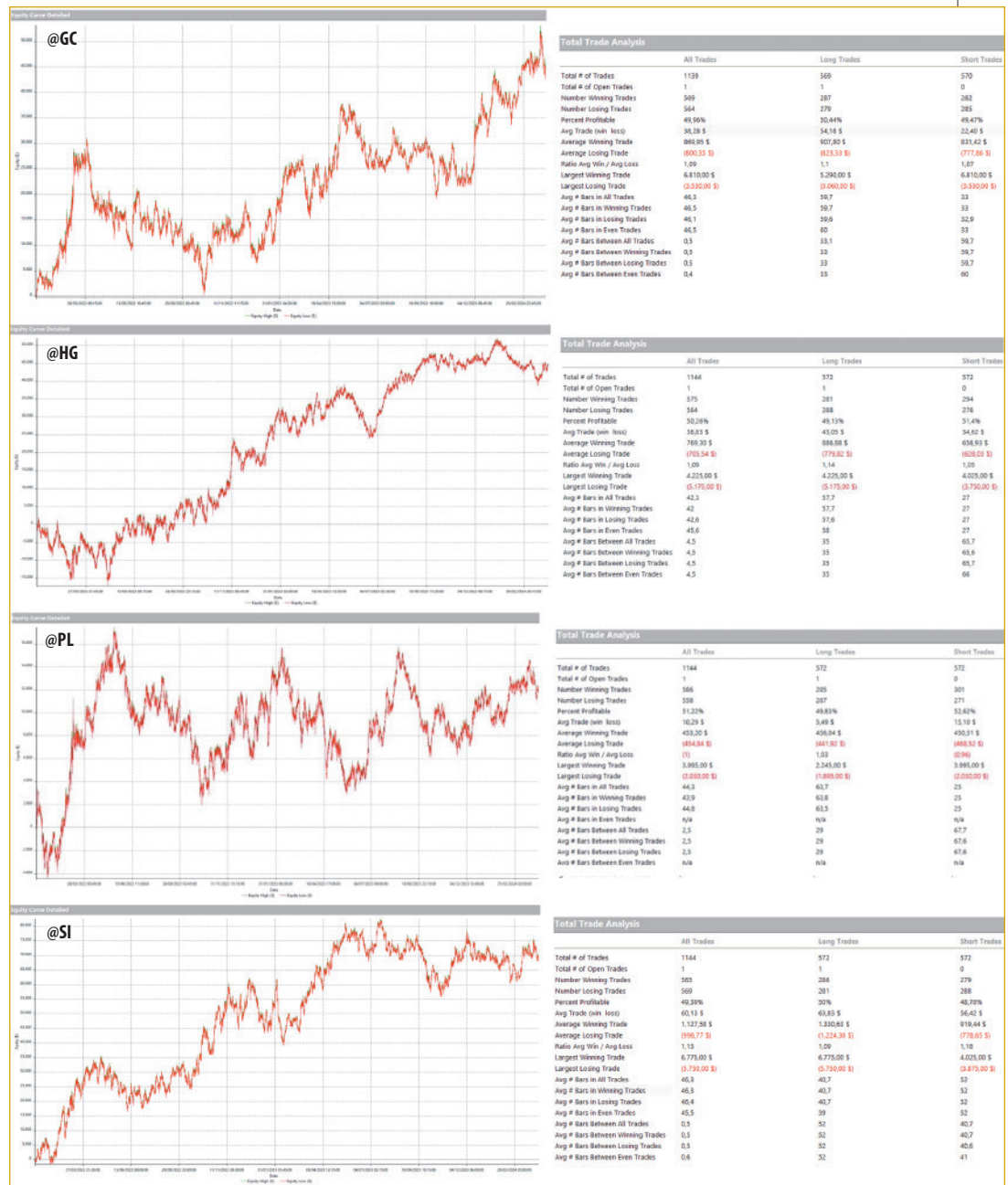


FIGURE 8: TOTAL TRADE ANALYSIS, 2022–2024. When testing the more recent period (1/1/2022–3/31/2024), copper futures (@HG) maintains the consistency of the bias the most, and platinum (@PL) the least with sideways behavior.

This bias seems to be weakening in recent times, although it still exists.





Swimming With The Current

Mastering The MACD In A Strategy

Combine a long-term moving average with the classic MACD to create a trend-following trading strategy for trading forex pairs. Here's how.

by Azeez Mustapha

The art of trading demands meticulous attention and strategic finesse. It is imperative to employ methodologies that streamline the complexities inherent in the trading landscape.

Amidst the abundance of opportunities that market dynamics offer, many traders find themselves ensnared in the pursuit of maximizing profits. The temptation to capitalize on every potential setup often leads to a perilous path, where the discernment to recognize opportune moments becomes obscured. However, it is crucial to acknowledge that not all setups warrant execution.

In fact, attempting to trade on every instance can prove detrimental, potentially ensnaring individuals in

a precarious cycle of losses. Therefore, the formulation of a robust trading strategy necessitates a disciplined approach, characterized by refined rules designed to navigate through market fluctuations.

In this article, I'll demonstrate a trading strategy based on the MACD and a moving average applied to two forex markets.

A TREND APPROACH

The methodology elucidated in this discourse places paramount emphasis on identifying and leveraging strong market trends. While some traders may be enticed by seemingly lucrative countertrend opportunities, that approach is akin to rowing against a powerful current. Instead, aligning one's trades with the prevailing market trend, akin to sailing with the tide, offers a more favorable and sustainable approach.

The strategy demonstrated here hinges on the utilization of two key indicators:

1. *The 200-day moving average:* A pivotal tool for gauging the overarching market trend
2. *The moving average convergence divergence (MACD):* Offers insights into the resumption of prevailing trends.

Recognizing that market dynamics entail periodic pullbacks, the latter indicator serves as a crucial signal, indicating the conclusion of pullback phases and facilitating synchronization with the dominant trend. By integrating these indicators within a cohesive framework, traders can cultivate a disciplined strategy poised to navigate the complexities of the trading terrain with greater precision and efficacy.

The MACD strategy is a venerable trading tool and can help make trading strategies be more successful, with its innate simplicity and adaptability across various markets, notably forex. MACD ranks among the most extensively employed technical indicators in trading spheres, and the tool is found on nearly every trading platform. At its core, this indicator harnesses moving averages (MA) to discern market trends.

Nonetheless, the MACD indicator singularly may produce merely modest outcomes. To truly optimize its effectiveness, it is imperative to amalgamate it with complementary indicators. Primarily, it is imperative to integrate the indicator into our price charts.

MACD + MA

The MACD encompasses four principal constituents: the MACD string, the signal string, the histogram, and the zero line. The MACD string, customarily depicted in cerulean (that is, a light blue or sky blue color), generally symbolizes a 12-day MA, whereas the signal string, typically drawn in orange, symbolizes a 26-day MA.

The histogram delineates the discrepancy between these two lines, with its magnitude indicative of the disparity between them. Remarkably, when the MACD string transcends above the signal string, the histogram assumes a verdant hue, signifying bullish momentum; conversely, a crimson histogram denotes bearish momentum. Lastly, the zero line serves as a pivotal benchmark, demarcating the midpoint of the MACD indicator.



FIGURE 1: EXAMPLE POSITION TRADE IN EUR/USD. A position trade is demonstrated on the EUR/USD currency pair. The trade lasted approximately one month, March–April 2023. The decision to enter a long position was based on the MA indicating a bullish trend direction, a bullish MACD crossover, and a support level offering a strategic entry point.

Grasping these components lays the groundwork for adept utilization of the strategy. Its efficacy lies in its proficiency in identifying market direction. An upward crossover between the MACD string and the signal string intimates an impending uptrend, while a downward crossover signals a downtrend. Moreover, the oscillations of the histogram proffer insight into the intensity of momentum shifts, with an expanding histogram indicative of heightened momentum.

However, to enhance the application of this strategy, it is imperative to consider the market context. Trading against prevailing trends often yields suboptimal outcomes. Hence, it is prudent to ascertain the market's trend before executing trades. Incorporating a 200-day moving average facilitates this endeavor, serving as a reliable gauge of market direction. When the price resides above this MA, it denotes an uptrend, warranting long positions.

By amalgamating these insights, we delineate a lucid set of criteria for trade initiation.

THE TRADING RULES

For long positions, we await a bullish crossover between the MACD and signal strings, concomitant with the price trading above the 200-day MA. Conversely, for short positions, we seek a bearish crossover above the zero line, with the price situated below the 200-day MA.

Implementing prudent risk management measures, such as establishing stop-loss orders below the 200-day MA fortifies our trading approach. Additionally, delineating favorable risk–reward ratios further enhances our prospects of success.

Nevertheless, while the MACD strategy, in conjunc-

tion with the 200-day MA, excels in trending markets, its efficacy wanes in sideways markets characterized by diminished momentum. To address this limitation, we integrate price action analysis, focusing on pivotal support and resistance levels to discern potential trend changes. By awaiting price confirmation at these critical junctures and aligning it with MACD signals, we bolster the robustness of our trading methodology. This amalgamation of technical indicators, coupled with astute price analysis, underscores a holistic approach to trading.

EXAMPLE TRADES

The example shown in Figure 1 presents an analysis of a position trade executed on the EUR/USD currency pair employing a strategic approach grounded in technical analysis. The trade duration spanned approximately one month, commencing in March 2023 and concluding in April 2023. The methodology employed in this trade centered on the utilization of the 200-day moving average (DMA) within a higher timeframe framework, aimed at capturing prevailing market trends.

Trade overview:

- Instrument: EUR/USD
- Trade type: Position trade (swing trade)
- Direction: Long (buy)
- Entry price: 1.05749
- Stop-loss: 1.04236
- Target price: 1.10396
- Recommended risk: 1%
- Risk-reward ratio (RR): 1:3



Recognizing that market dynamics entail periodic pullbacks, the MACD serves as a crucial signal.



FIGURE 2: EXAMPLE SHORT TRADE IN NZD/CAD. A short trade is demonstrated on the NZD/CAD currency pair. The trade lasted a couple of weeks from April 12–April 28, 2022. The decision to enter a short position was based in part on a trading signal in the form of the MACD line descending below the signal line accompanied by a red histogram suggestive of imminent downward momentum. A resistance level offers a strategic entry point. Exiting the trade is guided here by setting a stop-loss and adhering to a profit target.

Trade rationale: In adherence to the strategic approach, the decision to enter a long position on the EUR/USD currency pair was underpinned by several key factors:

1. *Utilization of 200 DMA:* The trade was executed within the context of the 200 DMA, a widely acknowledged technical indicator employed for trend analysis. Given the emphasis on higher timeframes, the 200 DMA served as a robust reference point to ascertain the prevailing market trend.
2. *Bullish trend confirmation:* The price action analysis revealed a bullish trend, substantiated by the EUR/USD trading above the 200 DMA during the period under consideration. This bullish bias provided a favorable backdrop for long positions.
3. *Identification of support levels:* A meticulous analysis identified a significant support level, serving as a pivotal anchor for initiating a long trade. This support level offered a strategic entry point, aligning with the broader bullish sentiment.
4. *Technical indicators alignment:* Confluence was observed between technical indicators, notably the MACD. The bullish crossover of the MACD string above the signal string, accompanied by a verdant histogram hue, further reinforced the bullish outlook.

Risk management, stop-loss placement: To mitigate downside risk, a stop-loss order was strategically positioned below the significant low, situated beneath the identified demand zone. This prudent risk management

measure aims to limit potential losses in the event of adverse price movements.

An example of a short trade in NZD/CAD is shown in Figure 2. The example demonstrates how this strategy can be effective for trading cross-currency pairs. The trade began on April 12, 2022 and culminated on April 28, 2022.

Trade overview:

- Currency pair: NZD/CAD
- Trade type: Short trade (swing trade)
- Direction: Sell
- Entry price: 0.86460
- Stop-loss: 0.87504
- Target price: 0.83338
- Recommended risk: 1%
- Risk-reward ratio (RR): 1:3

Trade rationale: The decision to initiate a short position on the NZD/CAD currency pair was informed by the following salient factors:

1. *Recognition of resistance level:* The trade was executed at a pivotal resistance level, where historical price action suggested a predisposition for price reversal. This strategic entry point aligned with the overarching objective of capitalizing on potential downward movements within the pair.
2. *Confirmation via MACD signal:* A pivotal facet of the trading strategy is the utilization of the MACD indicator. The MACD line descending below the signal line, accompanied by a crimson histogram, provided corroborative evidence of imminent downward momentum, reinforcing the rationale for a short trade.

3. *Prudent stop-loss placement:* To mitigate risk exposure, a stop-loss order was judiciously positioned above the preceding significant peak before entry. This risk management measure aimed to curtail potential losses in the event of adverse price fluctuations, thereby safeguarding capital preservation.

4. *Identification of profit target:* The take-profit level was strategically set at the subsequent demand zone, reflecting a risk–reward ratio of 1:3. This sagacious approach to profit-taking ensured a balanced tradeoff between potential gains and acceptable risk exposure.

CONCLUSION

The integration of the MACD strategy with supplementary indicators and discerning market analysis emerges as a formidable arsenal for traders. By adhering to predefined entry criteria and exercising prudent risk management, traders can navigate through diverse market conditions with confidence. As you embark on your trading journey, remember that continual learning and adaptation stand as paramount pillars of success.

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KAUFMAN/WHICH IS BETTER

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analysis, including the sixth edition (2020) of Trading Systems and Methods (with the first edition published in 1978 as a seminal book in the field of technical analysis), as well as Kaufman Constructs Trading Systems (2020), and Learn To Trade (2022). For questions or comments, please go to www.kaufmansignals.com.

*The code given in this article is available in the **Article Code** section of our website, Traders.com.*

FURTHER READING

Kaufman, Perry J. [2022]. *Learn To Trade*, Amazon.

—— [2020]. *Trading Systems and Methods*, 6th Edition, Wiley.

—— [2020]. *Kaufman Constructs Trading Systems* (print and ebook editions), Amazon.

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Following The Money: ETF Flows And Assets

Consider Sector-Rotation ETFs? A Second Look After 5 Years

Sector rotation strategies and enthusiasm are alive and well. And six ETFs have joined the existing four in this tiny market niche. But one fact has not changed: There is approximately a 30 percentage-point difference between the annual performance of the best and worst stock sectors. Should you consider any of the newcomer ETFs, and are any of the longtime funds a viable portfolio addition? Here's an updated review.

by Leslie N. Masonson, MBA

In the March 2019 issue of this magazine, I reviewed five sector rotation ETFs. My conclusion was that none of them were suited for investors' consideration because of their inferior performance and low asset base.

Now, five years later, it is time for another look at this ETF category to determine if any of these ETFs should be in your portfolio.

NEWER SECTOR ROTATION ETFs ARE LAUNCHED

The early entrants to the sector rotation category had weak performance, so it is surprising that issuers con-

tinue to offer new ETFs in this category. As one who has researched and backtested sector rotation strategies for many years, I decided to write my earlier article about sector rotation ETFs to provide investors and traders with an insight into the performance and challenges of investing in them.

In the past few years, six new sector rotation ETFs have entered the fray. However, two of the original five have since folded due to weak performance, low assets under management (AUM), and very low average daily trading volume. Those were the Invesco DWA Tactical Sector Rotation ETF (DWTR) and the Global X JPMorgan US Sector Rotation Index (SCTO).

There were two other funds that didn't make it into my last article and that have closed. They are the Guggenheim Sector Rotation ETF (XRO), which closed after six years on March 23, 2012, and ALPS/DorseyWright Sector Momentum ETF (SWIN), which was only in existence 1.75 years and closed on October 22, 2018 with a paltry \$11.6 million in AUM.

Therefore, this article will review the three old-timers still in existence since my last review five years ago—FV, FVC, and SECT—plus the six newbies. It should be interesting to determine how the old-timers have performed

over the past five years and how the new additions made out as well during their shorter lifespan.

Figure 1 provides the names and tickers of the eleven ETFs analyzed in this article.

On April 30, 2024, a new ETF came to market dubbed PeakShares Sector Rotation (PSTR) and was listed on the Nasdaq with \$6.7 million in AUM with a 1.05% expense ratio. This ETF will not be covered here since it has a minimal track record. But if you are considering investing in an ETF in the sector rotation category, definitely go to PSTR's website to check it out.

ETF sponsors have not given up on designing and offering this type of ETF because the possible rewards are great. If they can come up with a performance winner that beats the benchmark, then their AUM will grow. Likewise, investors, traders, and financial advisors are always on the lookout for ETFs to add to their portfolios, especially ETFs that are able to offer a different niche or an asset diversifier and that has above-average performance.

Based on the overall underwhelming performance we have seen in the ETFs in this category, the question is whether the new entrants offer any value in the performance arena. For example, trying to select the best one or two sectors from among the eleven Select Sector SPDRs is challenging. The sector roller-coaster is always moving, with some sectors doing well and others poorly, and top performers can become bottom performers over a period of weeks or months, seemingly without rhyme or reason.

FUTURE SECTOR WINNERS ARE HARD TO FORECAST

Stock market participants are always looking for an edge to increase their returns against their chosen benchmarks. Sector investing, and in particular sector rotation strategies, have been around for decades. However, many technical-based trading strategies don't seem to work well because of sector price volatility and unexpected changes in direction. The strategies work well in some years, then fail to work in other years, which is odd since the selection criteria and rules don't change.

Kent Thune, writing for etf.com in

his role as a research lead, authored an article titled "10 Best Performing ETFs Of The Last 10 Years." The article reveals that, perhaps not surprisingly, the best-performing ETFs in the past decade were all from the technology sector, with annualized returns between 19.36% and 28.18% for the ten years ending June 10, 2024. They all

Ticker	Fund Name
FV	First Trust Dorsey Wright Focus 5 ETF
SECT	Main Sector Rotation ETF
SSUS	Day Hagan/Ned Davis Research Smart Sector ETF
XLSR	SPDR SSGA U.S. Sector Rotation ETF
TACK	Fairlead Tactical Sector ETF
FVC	First Trust Dorsey Wright Dynamic Focus 5 ETF
AESR	Anfield U.S. Equity Sector Rotation ETF
MSMR	McElhenny Sheffield Managed Risk ETF
SSXU	Day Hagan/Ned Davis Research Smart Sector International ETF
SZNE	Pacer CFRA-Stovall Equal Weight Seasonal Rotation ETF
RHRX	RH Tactical Rotation ETF

FIGURE 1: SECTOR ROTATION ETFs. Here is a list of the ETFs and tickers symbols covered in this article. Note that First Trust has two ETFs in this category.

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Utilities 28.58	Consumer Discretionary 9.64	Energy 23.01	Technology 34.29	Healthcare 6.26	Technology 49.97	Technology 43.57	Energy 53.02	Energy 64.42	Technology 55.98
Healthcare 25.18	Healthcare 6.86	Financials 22.09	Materials 21.94	Utilities 4.01	Financials 31.9	Consumer Discretionary 29.58	Real Estate 45.97	Utilities 1.44	Communication Services 52.34
Technology 17.75	Consumer Staples 6.33	Industrials 19.85	Industrials 23.84	Consumer Discretionary 1.84	S&P 500 31.49	Communication Services 29.82	Financials 34.56	Consumer Staples 4.82	Consumer Discretionary 39.54
Consumer Staples 15.86	Technology 6.69	Materials 18.66	Consumer Discretionary 22.77	Technology -1.57	Communication Services 31.23	Materials 29.34	Technology 24.53	Healthcare -2.05	S&P 500 26.29
Financials 15.03	S&P 500 1.38	Utilities 16	Financials 22.04	Real Estate -2.27	Industrials 29.12	S&P 500 18.4	NYSE 29.46	Industrials -1.54	Industrials 18.05
S&P 500 13.66	NYSE -1.37	Technology 14.82	S&P 500 21.83	S&P 500 -4.38	Real Estate 28.54	Healthcare 13.27	S&P 500 28.71	Financials -10.66	NYSE 16.99
NYSE 18.41	Financials -1.6	NYSE 14.51	Healthcare 21.7	NYSE -6.74	Consumer Discretionary 28.42	NYSE 11.29	Consumer Discretionary 27.39	NYSE -10.48	Materials 12.46
Industrials 10.45	Industrials -4.25	S&P 500 11.93	NYSE 16.27	Consumer Staples -8	NYSE 28.21	Industrials 19.83	Materials 27.43	Materials -12.31	Real Estate 12.38
Consumer Discretionary 9.49	Utilities -4.86	Consumer Discretionary 5.88	Consumer Staples 12.92	Financials -13.09	Consumer Staples 27.45	Consumer Staples 19.13	Healthcare 25.92	S&P 500 -18.11	Financials 12.05
Materials 7.21	Materials 8.38	Consumer Staples 5	Utilities 12.02	Industrials -13.1	Utilities 16.08	Utilities 0.36	Industrials 20.03	Real Estate -26.3	Healthcare 1.99
Energy -8.6	Energy -21.46	Real Estate -1.19	Real Estate 10.7	Materials -14.78	Materials 24.18	Financials -1.83	Utilities 17.58	Technology -27.71	Energy -0.39
		Healthcare -2.83	Energy -1.06	Communication Services -19.98	Healthcare 20.05	Real Estate -4.27	Consumer Staples 17.1	Consumer Discretionary -36.24	Consumer Staples -0.37
				Energy -13.15	Energy 11.35	Energy -32.61	Communication Services 15.39	Communication Services -37.65	Utilities -7.37

Disclosure: Performance data quoted represents past performance. Current performance for the underlying ETFs may be higher or lower than data quoted. For the most current month-end performance data for the individual Select Sector SPDR Funds

Source: Bloomberg Data shown in percentages. Returns are based on the Net Asset Value of the Select Sector SPDRs. XLC 2013 performance is annualized from inception, 6/18/18.

FIGURE 2: SELECT SECTOR SPDRs ONE DECADE YEARLY PERFORMANCE. Each year, the leaders and laggards change, but Technology and Energy had multiple years in the #1 position, although Energy was in last place from 2018 through 2020.

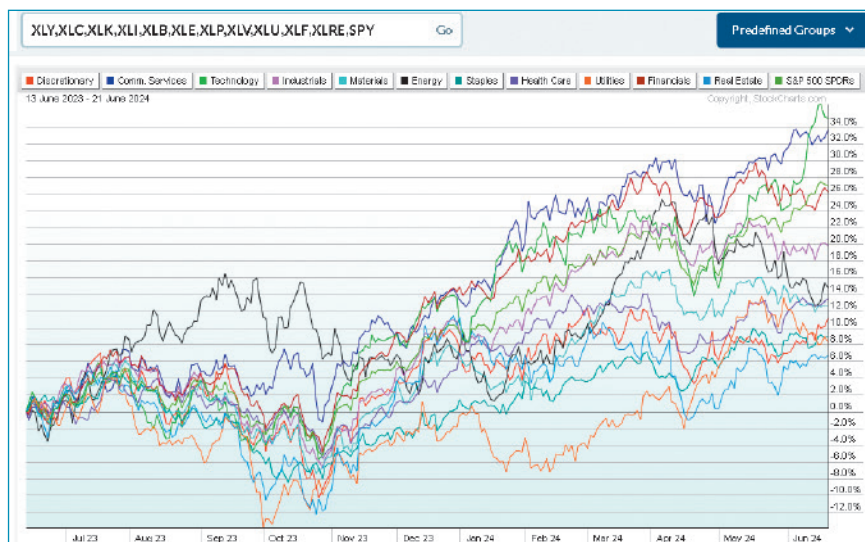


FIGURE 3: SECTOR ETF PERFORMANCE OVER ONE YEAR. Over the period ending June 21, 2024, you can see the changing relative strength positions of the 11 Select Sector SPDR ETFs. Technology jumped to first place after being in the middle of the pack in April.

easily trounced the 12.84% S&P 500 index return during that time period.

Unfortunately, most investors don't stick around for a decade and missed these terrific returns. Few investors achieved them. Morningstar data indicates that the average sector fund rose 10.8% annually for the decade ending December 31, 2022, while investors only earned 6.42%, a definite underperformance.

Just take a look at Figure 2 to see the annual performance of the eleven Select Sector SPDRs over the last decade. (The Select Sector SPDRs are funds that correspond to the eleven sectors of the S&P 500 stock market index.) You'll immediately notice the patchwork of colors denoting a specific sector and its annual ranking from top to bottom. For comparative purposes, the NYSE Composite index and the S&P 500 index were included in the graphic. All the stocks in these sectors are extracted from the S&P 500 and placed in one of these sectors by the S&P committee in charge of making changes and additions over time.

The PeakShares website (peaksharesfunds.com/) notes the following about the sector landscape: "Over the period 2014 to 2023, the best-performing sector produced a total of +2,082% cumulative returns as compared to a

total of -71% cumulative returns for the worst-performing sector. The S&P 500 index during the same period generated 605% cumulative returns. The sector returns are regardless of market timing and security selection. This shows that a judicious over- and underweighting of sectors may produce excess returns. Past performance does not guarantee future results."

My guess is that their big winner was the technology sector, which was #1 for four of the last seven years; in third place in 2014; and in fourth place in the years 2015, 2018, and 2021. In hindsight, that turned out to be an excellent sector to be invested in. Likewise, my guess is that the biggest loser was either the utilities or energy

sector. Although energy was tops in 2021 and 2022, it was in last place in 2018 through 2020 and next-to-last place in 2017. Unfortunately, no one knows in advance which sectors will be the top performers. That is the challenge in a nutshell.

A FEW POSSIBLE SECTOR ROTATION STRATEGIES TO CONSIDER

On the surface, it appears pretty simple to cash in on sector performance. For example, one can just jump on the one or two best-performing sectors, say, get in at January month-end each year and ride them without selling them to the end of the year, where the process can start all over again. Or perhaps just pick any other month like October to start and pick the sectors that are in the lead and use the same approach.

Remember that October has been a turnaround month for a decent number of bear markets or corrections over recent years. Of course, you need to backtest this strategy to see if it is viable, and of course you should have a defensive strategy in place in case the sectors purchased decline to a level that you have previously determined as your sell point.

Another common approach is to use relative strength based on the last twelve-month performance period, for example, on the eleven Sector SPDR ETFs. At each month-end, evaluate the latest 12-month performance and switch to the sectors ranked #1 and #2, for example. This approach was known as the "switching strategy" and was originally used with mutual funds before ETFs were born. This strategy worked well in many years but not in other years; in a big bull market cycle, the strategy

The sector roller-coaster is always moving, with some sectors doing well and others poorly.

usually underperformed the S&P 500, since in big bull markets it generally worked better to be consistently invested in the top three or four sectors.

Figure 3 provides a view of the sector performance for about one year ending June 21, 2024. You can readily see the fluctuation and leadership changes throughout the year. XLK (green) and XLC (blue) finally broke through the pack and were the leaders with performances of 34.93% and 33.54%, respectively. The S&P 500 index (the dark green line) rose 26.91% and came in at third place due to its “Magnificent 7” component stocks (a group of growth stocks focused mainly on cutting-edge technology and AI, named after a movie of the same name; that group of stocks skyrocketed in 2023 and 2024). The fluctuation and leadership changes throughout any given year is why trying to capture the best performers by the end of any year is a difficult feat, especially on a consistent yearly basis.

SECTOR ROTATION ETF REVIEW

With this background, let’s begin with a top-down view of the ETF comparative data in Figure 4. What stands out the most? Clearly, the arrival of five newcomers since April 2019, and the low AUM totals below \$60 million for four of them (MSMR, SSXU, SZNE, and RHRX).

On the other hand, XLSR, TACK, and AESR were able to capture at least \$119 million each in AUM, which is impressive. In particular, TACK’s current \$208 million is quite remarkable as a new kid on the block with only a bit over a two-year history. Actually, the picture is not as bright as it appears, since TACK started with nearly \$250 million in assets, but has disgorged \$54 million over the past year, most likely related to its mediocre performance.

Regarding the loss of AUM, notice that two of the original ETFs—FV and FVC—have shed a substantial \$251 million and \$392 million, respectively, over the past five years, as investor interest has waned, again probably due to poor performance.

Each of the ETFs reviewed here has a somewhat different sector selection and timing approach, which I will cover shortly. Notably, both AESR and RHRX, with a five-year and one-year track record, respectively, have beaten the S&P 500 index over the past year (by 380 basis points and 85 basis points) as well as the competitors.

This is an impressive accomplishment considering that the benchmark S&P 500’s performance was greatly enhanced by the Magnificent 7 hot tech and AI stocks with a 30% weighting in that index. The performance of the other S&P 500’s 493 stocks was about 3% for the same period (one year ending June 17, 2024). But don’t jump to a conclusion yet about buying either of these ETFs before reviewing all the important parameters.

BASIC KEY NUMBERS: AUM, EXPENSE RATIO, AND YIELD

The remainder of this article focuses on the current crop of eleven sector rotation ETFs. Data from ETFAction.com is used exclusively in this article unless otherwise noted. ETFAction.com is a comprehensive fee-based website that has seen significant enhancements since my review of the website in the May 2020 issue of this magazine. It is one of most comprehensive sites concerning ETFs on the market.

Let’s first begin with the elements in common for these ETFs. The ETFs are: open-ended funds; equity-based with a heavy U.S. focus (except FV, FVC and RHRX, which have a global reach while SSXU is global ex-US);

Ticker	FV	SECT	SSUS	XLSR	TACK	FVC	AESR	MSMR	SSXU	SZNE	RHRX
Inception Date	March 6, 2014	Sept. 5, 2017	Jan. 17, 2010	April 2, 2019	March 23, 2022	March 17, 2016	Dec. 16, 2019	Nov. 16, 2021	July 1, 2022	July 23, 2018	Nov. 8, 2021
Holdings	6	16	13	9	11	6	24	7	17	103	7
AUM (\$MM)	3,733	1,710	619	548	208	180	119	60	39	37	15
Expense Ratio	0.9	0.77	0.79	0.7	0.73	0.84	1.11	0.97	1.15	0.6	1.36
Avg. Daily Volume	110,794	69,833	59,754	61,834	20,475	9,652	64,393	9,722	4,880	3,552	4,027
Yield—TTM	0.81	1.19	1.44	1.24	1.33	0.81	1.04	1.3	2.97	2.04	0.89
Perf. 1 Year (%)	24.59	19.11	13.64	20.26	10.32	7.14	29.66	15.48	3.41	5.53	26.99
Perf. 3 Years (%)	8.44	8.68	7.24	7.7		1.16	10			0.48	
Perf. 5 Years (%)	14.87	13.53		13		6.93				6.7	
Flows 1 Year (\$MM)	−244.14	275.1	47.39	183.85	−54.12	−95.93	−17.59	18.07	10.15	−27.36	−7.56
Flows 3 Years (\$MM)	419.59	526.91	295.96	320.55	195.53	−47.69	−1.22	54.05	35.61	−32.57	−9.60
Flows 5 Years (\$MM)	−251.01	704.23	496.48	432.22	195.53	−391.7	79.24	54.05	35.61	17.97	−9.60

FIGURE 4: SECTOR ROTATON ETF COMPARISON. The key metrics are provided for inspection. FV, SECT, and SSUS captured 75% of the AUM. FV, and FVC had large cash inflows over multiple years.

all except SZNE are considered a “fund-of-funds”; nine are multisector (except SSUS, AESR, and SSXU, which are broad-market focused); most of the ETFs have different issuers except for FV and FVC, which are both issued by First Trust; nine are actively managed and two passively managed (FV and FVC); eight offer quarterly dividends, with the other three offering dividends annually (SSUS, SSXU, and RHRX); no leverage is used; 1099 tax reporting is used: all but FV have an average trading volume below 70,000 shares and five of them have volume below 12,000 shares a day.

AUM is one of the most critical factors for an ETF to grow and remain viable. As a group, assets of the ETFs in this category totaled \$7.31 billion as of June 19, 2024; their average expense ratio was 0.90%; and their year-to-date new cash inflows were \$35 million while their one-year net flows were \$91 million. Overall, this category has not amassed the asset size that most of the sponsors had hoped for, as the category is of little interest to most investors—there are too many other competing categories with more pizzaz, and there has been no exceptional long-time performer since inception.

The two AUM leaders are FV and SECT, which respectively are ten and seven years old, and have AUM of \$3.8 billion and \$1.7 billion. SSUS and TACK have done well with \$619 million and \$209 million in AUM, respectively, for their short lifespans of four years and two years.

Interestingly, SZNE, with a six-year history, has only amassed \$37 million AUM. I did not cover this ETF in my earlier article even though it was available at the time, but it has not performed well in any respect since then so I’m not too disappointed that I had overlooked it.

Regarding annual expense ratios, they are mostly in a tight range of 0.70% to 0.90%. The outliers are SZNE on the low side at 0.60%, and RHRX and SSXU on the

high side at 1.36% and 1.15%. The lower this ratio, the better, since it eats into performance over the years.

As far as dividend yield is concerned, the leaders were SSXU and SZNE with yields of 2.97% and 2.04%, respectively. Bunched between 1.04% to 1.44% were six ETFs, as shown in Figure 4. The lowest yield was generated by both FV and FVC at 0.81%.

CASH INFOWS AND TRADING VOLUME

Incoming cashflow is the lifeblood of an ETF’s future existence. Cash outflows and poor performance lead to ETFs closing their doors. This ETF category offers no consistency in capturing inflows. For example, among the three oldest, both FVC and FV have each disgorged over \$250 million in AUM over five years. AESR and SZNE have also lost assets in the last three-year and one-year periods.

The overwhelming asset gatherers have been SECT, SSUS, and XLSR with three-year AUM inflows of \$527 million, \$295 million, and \$321 million, respectively. TACK’s \$195 million is deceptive since in its early life the AUM was at \$250 million and it has given up \$54 million in past years. Both MSMR and SSXU have pulled in \$18 million and \$10 million in the past year, respectively. And RHRX has had negative numbers for the past three years, which does not bode well for its future.

Trading volume is another important indicator of investor and trader interest. Clearly, these ETFs do not offer traders the liquidity and tight bid-to-ask spreads needed to limit trading costs. Only FV has over 100,000 shares a day on average. The next three largest ETFs have about 62,000 shares a day each, as does AESR. Five of these ETFs have less than 10,000 shares a day, which is very low and will eventually lead to the closing if their assets remain underwhelming.

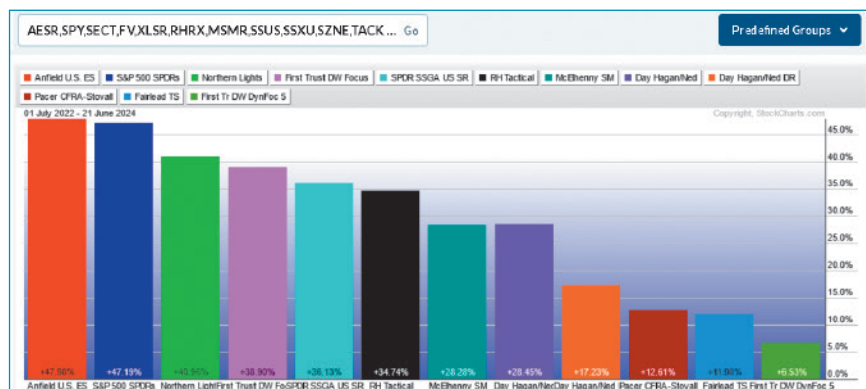


FIGURE 5: SECTOR ETF PERFORMANCE OVER ONE YEAR. Over the period ending June 21, 2024, only AESR U.S. beat the S&P 500 while all the others underperformed. SECT and FV were the next best, with TACK and FVC at the low end.

ETF SECTOR PERFORMANCE

Only seven ETFs have been around long enough to sport three-year performance records. The two top performers were FV and SECT with about 8.5% annualized returns, but that return underperformed the S&P 500’s annualized return of 10.7%. Figure 5 illustrates the price performance from July 1, 2022 (the earliest common date) to compare these ETFs on an equal footing.

The performance difference is exceptionally large, indicating that certain sector strategies were much

more in tune with the market's performance than others. Be aware that the S&P 500 had the benefit of holding the Magnificent 7 stocks throughout this entire period, and especially in 2023 through June 21, 2024 when their prices went ballistic. Those seven stocks comprised about 46% of the S&P 500's market cap.

Anfield US Equity Sector Rotation ETF (AESR) was the clear leader with a gain of nearly 48%, even edging out the S&P's return of 47%. SECT also did well with a gain of 41%. At the other end of the spectrum were the laggards, in particular, First Trust Dorsey Wright Dynamic Focus (FVC) producing a positive return of only 6.5%, followed by Fairlead Tactical Sector ETF (TACK) capturing 12%, followed closely by Pacer CFRA-Stovall Equal Weight Seasonal Rotation ET (SZNE) at a 13% performance.

ETF ADDITIONAL ANALYSIS

This section covers additional analysis of each ETF's focus, portfolio holdings, as well as risk statistics, if available, as of June 21, 2024. When reviewing the Morningstar ratings presented for each ETF, realize that the Morningstar first-quartile performers are the best, as are the ones with a low-percentile ranking. Any ETFs in the third or fourth quartile with a percentile ranking lower than 50 are among the worst performers. These rankings are as of June 21, 2024. Also, the Morningstar star ratings are ranked from 1 star to 5 stars with 5 being the best.

Anfield US Equity Sector Rotation ETF (AESR)

This ETF was launched on December 16, 2019. It is traded on the Cboe BZX Exchange and has \$120 million in AUM with a 1.11% total expense ratio. This actively managed ETF focuses on outpacing common large-cap equity indexes and styles over full market cycles by investing in multiple sectors and a handful of stocks depending on market conditions. The fund manager employs fundamental analysis as well as economic analysis and cycle forecasting to structure the portfolio for providing the best risk–return. Technical analysis screening was not mentioned as a method used.

This ETF has an average 3-star Morningstar rating. Year-to-date 2024 it is ranked in the top quartile and ranked in the eighth percentile out of 1,301 ETFs. In 2023 it was ranked in the third quartile, with a 67 percentile rank out of 1,430 ETFs. In 2020 through 2022, its percentile rank was 28, 69, and 44, respectively. Year-to-date it has had its best performance since inception. Moreover, this ETF has outperformed all its competitors during the past year as well as the S&P 500 by one

Incoming cashflow is the lifeblood of an ETF's future existence.



percentage point. This is due to its focus on technology ETFs and stocks.

There are currently 20 positions in its portfolio. The top five with the most weight over 10% are: SPY, XLC, XLF, SMH, and XLK. Their combined weight is 61%. There are also about ten stocks in the portfolio including 1% positions in NVDA, ANET, FICO, DECK, LLY, GOOG, and NFLX.

This ETF's alpha is -1.20% and its beta is 1.03. *Alpha* represents a stock or ETF's performance against its benchmark. A positive alpha indicates it has outperformed its benchmark while a negative alpha indicates it has underperformed its benchmark. *Beta* represents a stock or ETF's volatility in relation to the S&P 500 index, in most cases with 1.00 being of equal risk to that benchmark.

AESR's up-capture ratio is 100.7% and its down-capture ratio is 103.6% with a Sharpe ratio of 0.43. The *up-capture* ratio, also known as an *upside-capture ratio* or *up-market capture ratio*, indicates its performance when the market rises, with the market benchmark tagged at 100%. In the case of AESR, this ETF has performed 0.7% better than the market in an uptrending market but 3.06% worse in a downtrending market, not really favorable statistics.

The *Sharpe ratio* measures the risk-adjusted return of a portfolio in relationship to a risk-free asset like a T-bill. The higher this number, the better. In the case of AESR, the negative alpha is definitely in the wrong direction along with having a weak Sharpe ratio.

SPDR SSGA U.S. Sector Rotation ETF (XLSR)

This actively managed ETF with over \$500 million in AUM focuses on providing capital appreciation. It invests in individual sector ETFs. This ETF has a 3-star Morningstar rating, which is average. Year-to-date 2024 and in 2023 it was ranked in the third quartile and 70th percentile out 210 ETFs in its category. This is below-average performance. It is traded on the NYSE Arca.

This ETF's alpha is -2.53% and its beta is 0.95. Its up-capture ratio is 84.2% and its down-capture ratio is 98.7% with a Sharpe ratio of 0.36. These are not good numbers. It would have been better if the up- and down-capture numbers were reversed.

There are currently 14 positions in the portfolio including QQQ, IJK, XLC, XLK, and SMH with a combined weighting of 67%. The clear focus on tech and semiconductors is a winning strategy, but it has only gained 12% year-to-date versus 18% for the S&P 500 (as of June 21, 2024), which most likely means that most of these top performers were not in the portfolio for most of this year or otherwise the performance would have been much better.

First Trust Dorsey Wright Focus 5 ETF (FV)

This ETF strives to match or exceed the performance of Dorsey Wright Focus Five Index.

DWA uses only a universe of First Trust sector and industry ETFs, since the fund purchases only First Trust ETFs for its portfolio. The ETFs are compared to each other to determine inclusion by measuring each ETF's price momentum relative to other ETFs in the universe, which is a common relative strength (RS) approach. Each ETF is scored to determine its relative rank compared to all others. Only five ETFs are placed in the portfolio at a time. This analysis is performed bimonthly and ETFs are replaced as necessary if they lose RS ranking. The index is rebalanced so that each position is equally weighted.

The fund manager uses a point-and-figure charting approach to select among First Trust sector-targeted ETFs that offer the highest potential to outperform the index. Selection is based also on price performance, relative strength, trading volume, and liquidity. Five ETFs are selected and changed as deemed necessary. This ETF has the largest AUM in the category and is the second oldest with an inception date of March 6, 2014. It is traded on the Nasdaq exchange.

Its one-year performance of 24.6% is third best in the category and only 120 basis points lower than the S&P's performance. Interestingly, this ETF keeps losing assets to the tune of \$244 million in the past year. Hopefully, if performance continues to replicate or improve on that of 2023, its outflows will be reversed.

This ETF has a 5-star Morningstar rating. Year-to-date it is in the top Morningstar quartile and ranked in the eighth percentile out of 389 category ETFs, as determined by Morningstar.

This ETF's alpha is 1.80% and its beta is 1.10. Its up-capture ratio is 115% and its down-capture ratio is 103.6%. This represents a good risk-to-reward ratio. The Sharpe ratio is 0.30. However, its tracking error is high at 11.85%. The *tracking error* measures the divergence between the ETF's price and its benchmark. Normally, this number is well below 1%.

There are currently five positions in the portfolio in-

cluding First Trust Nasdaq Semiconductor ETF (FTXL), First Trust Nasdaq-100 Sector Index Fund (QTEC), First Trust Dow Jones Internet Index Fund (FDN), First Trust Industrials/Producer Durables AlphaDEX Fund (FXR), and First Trust Consumer Discretionary AlphaDEX Fund (FXD), all with approximately 20% weightings. The heavy tech and Magnificent 7 embedded stocks were a major factor in its excellent performance this year. Over five years, its 14.87% return compares favorably to the S&P 500 index return of 15.4%.

First Trust Dorsey Wright Dynamic Focus 5 (FVC)

This actively managed ETF seeks to replicate the price and yield of the Dorsey Wright Dynamic Focus Five Index.

The fund manager uses a point-and-figure charting approach to select among First Trust sector- and industry-targeted ETFs that offer the highest potential to outperform the index based also on price performance, relative strength, trading volume, and liquidity. It is traded on the Nasdaq exchange.

DWA uses only a universe of First Trust sector and industry ETFs, as well as an ultra short-duration ETF known as the First Trust Enhanced Short Maturity ETF (FTSM). The ETFs are compared to each other to determine inclusion by measuring each ETF's price momentum relative to other ETFs in the universe, which is a common relative strength approach. Each ETF is scored to determine its relative rank compared to all others. The top 5 are selected for the portfolio. This analysis is performed bimonthly and ETFs are replaced as necessary if they lose RS ranking. The index is rebalanced so that each position is equally weighted.

With AUM of \$180 million since its inception in March 2016, it is tiny compared to its cousin FV with \$3.7 billion. Average trading volume of less than 10,000 is pathetic. Over five years it has underperformed the S&P 500 by over 8 percentage points. Moreover, it has been disgorging assets continually over the past five years, which is the only ETF in this group with such a poor record.

This ETF has a Morningstar rating of 2, which is below average. That is not surprising, as it was in the bottom quartile in 2018 through 2020 and 2023, and in the third quartile in 2021. Year-to-date it is in the first quartile with a 19th percentile rank out of 399 ETFs. This was also the case in 2017 when it was ranked in the 15th percentile out of 443 ETFs. 2022 was also a good year with a top quartile ranking and with a seventh percentile rank out of 405 ETFs. This inconsistent performance is not one that is acceptable to most investors, especially when over five years it has gained only an average an-

nual return of only 6.93% compared to 15.43% for the S&P 500 index.

This ETF's annualized alpha is -3.73% and its beta is 0.64. Its up-capture ratio is 50.2% and its down-capture ratio is 81.6% with a Sharpe ratio of -0.03 . These are not favorable numbers, except for the low beta, which means it is 36% less volatile than the S&P 500 index.

There are currently five positions in the portfolio including First Trust Nasdaq Semiconductor ETF (FTXL), First Trust Nasdaq-100 Sector Index Fund (QTEC), First Trust Dow Jones Internet Index Fund (FDN), First Trust Industrials/Producer Durables AlphaDEX Fund (FXR), and First Trust Consumer Discretionary AlphaDEX Fund (FXD), all with approximately 20% weightings. This is exactly the same portfolio and weights as its close relative FV covered earlier, but with a much worse performance over the one-, three-, and five-year periods.

Fairlead Tactical Sector ETF (TACK)

TACK, an actively managed ETF, focuses on delivering capital appreciation with limited drawdowns. This ETF started out in the first few months of March 2022 with \$250 million in assets, which is exceptional for an ETF in this selective category. Interestingly, the fund flows have been negative since inception for every month through June 2024 except April, where they were a positive \$1.5 million. Currently, assets stand at \$208 million, most likely due to investors cashing in because of weaker-than-expected market performance. The portfolio is reviewed quarterly for changes. It is traded on the NYSE Arca.

This ETF invests in a very limited universe of 13 ETFs that includes only the 11 Select Sector SPDRs as well as GLD (gold) and U.S. Treasuries during defensive periods.

The portfolio manager, Katie Stockton, uses a systematic rules-based technical analysis approach to identify and invest with the prevailing trend. This systematic trading approach with trend analysis is of paramount importance. The strategy encompasses tactical market timing, positioning, and relative strength. The benchmark used is the Morningstar Moderate Target Risk Index.

Year-to-date in 2024 and in 2023, TACK was ranked in the third quartile and 61st percentile out of 210 ETFs in its category. There is no current Morningstar rating due to its recency. Therefore, there are no risk stats on alpha, beta, Sharpe ratio, or up- or down-capture data.

There are currently eight Select Sector SPDR positions in the portfolio (from the eleven available) with a near-equal weighting. The only sectors not included are XLE, XLY, and XLRE. Over the past year, TACK has gained 10.3% against the S&P 500's 25.8%. TACK

Six more ETFs have entered the sector rotation arena using the fund-of-funds approach.



uses a different benchmark, which is its choice, with a lower threshold than 100% equities, so its performance against that benchmark tends to be better.

RH Tactical Rotation ETF (RHRX)

This actively managed ETF's goal is to capture capital appreciation by buying securities in the S&P 500 sectors. AUM of \$15 million is the lowest in the group. It has a miniscule daily trading volume below 5,000 shares. RHRX was launched in November 2021 and has been the second-best performer over the past year at 27%. It is traded on the NYSE Arca.

This EFT has an average 3-star Morningstar rating. Year-to-date it was ranked in the first quartile and with a third percentile ranking out of 210 ETFs. In 2023 it was ranked in the second quartile and with a 49th percentile rank out of 210 ETFs in its category. Unfortunately, there are no risk stats for alpha, beta, Sharpe ratio, or up- or down-capture due to its recency.

There are currently five positions in the portfolio including: SPY, SMH, SPYG, XLK, and XLC with a sliding scale of weights starting at 29% for the SPY and then declining in order to 15% for XLC, respectively. The heavy focus on tech and semiconductors was a winning strategy, as it has gained 21.8% compared to 15.3% for the S&P 500.

Pacer CFRA-Stovall Equal Weight Seasonal Rotation ET (SZNE)

This actively managed ETF looks to track the performance of the CFRA-Stovall Equal Weight Seasonal Rotation Index, which uses a rules-based methodology developed by Sam Stovall, who is a popular and well-known strategist, to track the performance of a semi-annual rotation of sectors within the S&P 500 Equal Weight Index.

Year-to-date 2024 and in 2023 it was ranked in the bottom fourth quartile. Year-to date 2024 it was in the 99th percentile (worst) out of 1,301 ETFs in its category. In 2023, it was in the 98th percentile out of 1,430 ETFs in its category. Clearly, this has been a laggard in the performance metric, which is demonstrated by its Morningstar rating of 1 star.

This ETF's alpha is a large -7.17% and its beta is 0.89. Its up-capture ratio is 62.8% and its down-capture



These ETFs do not offer traders the liquidity and tight bid-to-ask spreads needed to limit trading costs.

ratio is 99.2% with a Sharpe ratio of 0.04. These are all terrible numbers except for being 11% less volatile than the S&P 500 with a beta of 0.89. The down capture of nearly 100% is a big negative, indicating the fund does not minimize its losses during periods of market declines. (The *down-capture ratio* measures the fund's performance in down markets relative to the benchmark; a value of less than 100 indicates the investment has lost less than its benchmark during periods of negative returns for the benchmark.)

There are currently 101 stocks in the portfolio, with a 1% weight each, from the consumer staples and health-care sectors.

McElhenny Sheffield Managed Risk ETF (MSMR)

This actively managed ETF focuses on benefitting from capital appreciation while managing downside risk. The fund uses a strategy combining proprietary trend-based and sector rotation strategies with the goal of allocating about 50% of the portfolio to each of these strategies.

The fund is nondiversified and is traded on the Cboe BZX Exchange.

Its AUM of only \$60 million is the fourth lowest of the group and with a yield of 1.3%, which is about average. Daily trading volume of less than 10,000 is almost infinitesimal. It has underperformed the S&P 500 index over the past year by a whopping 10 percentage points. But AUM over three years has increased by \$54 million with \$18 coming in over the past year, which is surprising based on its poor performance.

There is no Morningstar rating due to its recency. Since its debut in November 2021, it has been ranked in the first Morningstar quartile. Year-to-date 2024 it is in the seventh percentile ranking out of 680 ETFs. In 2023, it had an 11th percentile ranking out of 754 ETFs in its category. These numbers mean that MSMR has handily beat its Morningstar category performance.

There are no risk stats on alpha, beta, Sharpe ratio, or up- or down-capture due to its recency. There are currently six positions in the portfolio including: Invesco Nasdaq 100 ETF (QQQM) with a 42.1% weighting, iShares U.S. Pharmaceuticals (IHE) with a 19.5% weighting, Fidelity MSCI Financials Index ETF (FNCL) with

a 14.2% weighting, Select Sector Industrial ETF (XLI) with a 14.2 % weighting, iShares Core S&P Total U.S. Stock Market ETF (ITOT) with a 9.5% weighting, and First American Funds, Inc. X Treasury Obligations Fund (FXFXX) with a 0.39% weighting.

Day Hagan/Ned Davis Research Smart Sector International ETF (SSXU)

This actively managed ETF's strategy is to maximize the total return of capital appreciation and dividend income by investing in international country ETFs holding equities. The fund's goal is to perform better than its benchmark (MSCI ACWI ex-USA Index). SSXU is traded on the NYSE Arca, and came to market in July 2022.

Its AUM of only \$39 million is third lowest of the group, with the highest yield of the group at 2.97%. Daily trading volume of less than 5,000 shares is disappointing. It has underperformed the S&P 500 index over the past year by a whopping 22.3 percentage points. However, AUM over three years has increased by \$35.6 million with \$10.2 million coming in over the past year.

There is no Morningstar rating due to its recency. Year-to-date 2024 and in 2023 it was ranked in the third and fourth quartiles, respectively, with a 59 percentile rank year-to-date out of 654 ETFs, and a 2023 percentile rank of 97 out of 744 ETFs. Clearly, this has been a laggard in the performance metric. There are no risk stats on alpha, beta, Sharpe ratio, or up- or down-capture due to the fund's recency.

There are currently 14 country ETFs in the portfolio with the top two being iShares MSCI China at 14.5% and iShares MSCI France at 10.5%. For the past year, the best ETF international performers were Taiwan, Turkey, Netherlands, India, and China, gaining between 10% to 18%, with Turkey gaining 31%. None of them were in this portfolio. No wonder the ETF has not performed well—it has too many laggards including Mexico (–15.6% in the last year), France (–2%), Canada (–0.52%), Germany (1.65%), and Australia (0.12%).

The difficulty with this strategy is that there is not only a wide discrepancy between the best and worst international ETFs, but also that they have been underperforming compared to the U.S. markets for years. Also, there are so many ETFs to select from that it makes it harder to pinpoint the winners. This ETF is one to avoid until international ETFs come back in favor, and then another look may be warranted.

Main Sector Rotation ETF (SECT)

SECT is an actively managed ETF using fundamental analysis to pursue a sector rotation strategy. The fund

aims to outperform the S&P 500 while limiting losses during periods of decline, and may hold equities of any market cap or geographic exposure. The fund manager's universe is large and includes sectors, industries, and sub-industries. Positions are sold when they hit their price target. SECT is traded on the Cboe BZX Exchange.

This is a 3-star Morningstar ranked ETF, which is an average rating. Year-to-date 2024 this ETF is in fourth quartile (lowest) with an 83 percentile rank (with 100 being the lowest) out of 1,301 ETFs. The last time it was in the fourth quartile was 2016. It performed well in the first quartile in 2021 and 2022 but ended up in the third quartile in 2023 with a percentile ranking of 67 out of 1,430. And in 2019 and 2022 it was stuck in the third quartile. Thus, overall, SECT has been a middling performer.

There are currently fourteen positions in the portfolio including the top ones of QQQ, IJK, XLC, XLK, and SMH, which have a total weighting of 67% with about 14% each. The clear focus on tech and semiconductors accounts for its winning strategy in general since early 2023, and it has benefited by gaining 19.1% for the year, but it was still about 7 percentage points lower than the S&P 500 index. This performance difference is most likely due to the current positions not being in the portfolio for the entire year.

This ETF's alpha is a *negative* 0.49% and its beta is 0.92. Its up-capture ratio is 84.4% and its down-capture ratio is 92.91% with a Sharpe ratio of 0.47. Thus, it is 8% less volatile than the S&P 500 index but does not do as well during up or down markets, which is why it is an average performer.

CONCLUSION

Although six more ETFs have entered the sector rotation arena using the fund-of-funds approach, the results have not been impressive when comparing their performance to the S&P 500 index. Of the ETFs reviewed, FV stands out as the category leader with \$3.7 billion in AUM, which is a massive 51% of the category assets. This achievement alone should have been enough reason for sponsors considering competitive ETFs to the category to back off, but instead they brought out their products anyway with most generating low assets, trading volume, and worse-than-benchmark performance.

FV has some of the best numbers compared to the others, such as the highest average daily volume of 111,000, which is not really so terrific, a one-year performance only 2.3 percentage points worse than the S&P 500, and a five-year annualized performance of 14.9% compared to 15.4% for the S&P 500. However, this ETF has been

losing assets at an alarming rate of \$251 million over five years and \$244 million over one year. Nonetheless, it is the only 5-star rated ETF in this category.

Its close cousin, FVC, came out two years after FV but has not done well, with volume below 10,000 shares daily, a loss of almost \$100 million in AUM in the past year, a massive loss of \$392 million in five years, and underperforming the benchmark by 20 percentage points over one year and 8 percentage points over five years. Scratch this one off your list.

SECT, around since September 2017, has not performed as well as FV by a few percentage points but has a solid \$1.7 billion in AUM, as well as the biggest inflows of the group for the past five years at \$704 million. Trading volume of 70,000 shares a day is weak but not a reason to forgo it if interested as an investment, not to trade.

The most recent ETF to join the ranks was SSXU in July 2022. After two years, assets have only reached \$39 million with daily volume less than 5,000 shares coupled with terrible performance compared to the market benchmark. Thus, no reason to get involved here.

TACK entered the category in March 2022 with an AUM of nearly \$250 million or more at one point during its first year, which is extremely impressive for such a rarefied category. No doubt, the fund was able to pull in such big assets initially due to the sterling reputation of its portfolio manager, Katie Stockton, with her deep experience and knowledge of technical analysis, her history as the founder of Fairlead Strategies, plus her frequent media exposure.

Unfortunately, the fund's 10.3% one-year performance against the S&P 500's 25.8% did not help and assets began fleeing. That trend will most likely continue unless performance greatly improves. TACK uses the Morningstar Moderate Target Risk Index benchmark, which is much less volatile than the S&P 500 index, so the fund looks better when compared to that. For this article, I've compared each of the ETFs to the S&P 500 index since the ETFs were all equity-based portfolio components.

SZNE with a three-year track record and only \$37 million in AUM, volume under 4,000 a day, an asset outflow of \$27 million in one year, and 20 percentage points worse than the S&P 500 is also a nonstarter.

So where do we stand on the question of whether to invest in one of these sector rotation ETFs? Basically, they've all underperformed over multiple years. Though AESR and RHRX have beaten the S&P over one year, their low volume and outflows are not positive factors. And

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INSIDE THE FUTURES WORLD

Want to find out how the futures markets really work? Carley Garner is the senior strategist for DeCarley Trading, a division of Zaner, where she also works as a broker. She has written five books on futures and options trading, with the latest being Trading Commodity Options...With Creativity (July 2020), as well as A Trader's First Book On Commodities (third edition, October 2017) and Higher Probability Commodity Trading (July 2016). Garner also authors widely distributed e-newsletters; for a free subscription, visit www.DeCarleyTrading.com. To submit a question, email her at info@carleygarnertrading.com or via www.DeCarleyTrading.com. Selected questions will appear in a future issue of S&C.



Carley Garner

MICRO NATURAL GAS FUTURES

What are the specifics of micro natural gas futures?

Micro-sized natural gas futures have been welcomed with open arms. However, just as exchanges tend to list ETFs at the end of their heydays, we may be seeing the listing of micro natural gas futures at the tail end of the energy contract's time in the spotlight. Before the volatile events in the natural gas market in 2021 and 2022, gas spent a decade hovering between \$2.00 and \$3.00 with a few temporary trips above \$4.00 and into the \$1.00 handle. We suspect we are entering a similar period of low volatility for natural gas.

Natural gas is abundant in the United States, and the energy exporting infrastructure is currently in its infancy. Thus, domestic supply disruptions are few and far between. The fundamental backdrop that enabled prices to rally to nearly \$10.00 might not be seen again anytime soon or even in our lifetimes. For instance, the double-digit gas rally was made possible by an influx of cash coming into the commodity sector with the intention of hedging inflation. This type of panic buying of goods can only occur on the heels of once-in-a-generation inflation. Furthermore, the intentional destruction of the primary natural gas pipeline used to distribute the product to Europe from Russia is an event with a relatively

low probability of repeating itself. Thus, lower for longer regarding both price and volatility will probably be the modus operandi in natural gas for the foreseeable future.

While natural gas was moving a dollar or more in every session, even the mini-contracts were a lot to stomach. The original natural gas futures contract represents 10,000 MMBtu; with gas at \$2.50 per MMBtu, the value of the futures contract is \$25,000 ($\$2.50 \times 10,000$). For context, a few days in 2021 and 2022 saw gas prices rise or fall more than a dollar in a single trading day.

Micro-futures contracts are an amazing addition to the industry.

Thus, anyone with an open position could make or lose \$10,000 daily, or even quicker, because many of these moves occurred instantly rather than slowly throughout the day. The mini contract is 1/4th the size (2,500 MMBtu), so it made or lost \$2,500 in some sessions. It would have been nice to have a more manageable micro-sized option during that time. The newly listed micro futures contract represents 1,000 MMBtu and makes or loses \$1,000 per dollar in price change. Of course, those daily \$1.00 moves are long gone; instead, a big day in gas might be 15 to 20 cents

(\$150 to 200 per micro or \$1,500 to \$2,000 in the original contract), but the volatility is often less than that. Nevertheless, micro-sized contracts are a fantastic way for beginning traders to get involved without risking more than they can afford to lose and, more importantly, their sanity.

Micro-futures contracts are an amazing addition to the industry. The three primary benefits of accessible micro-sized commodity contracts are that they bring futures trading to the masses, they allow for scale trading, and they are an opportunity for enhanced paper trading.

Prior to micros, trading commodity futures contracts was limited to those with deep pockets and significant risk tolerance. However, the smaller contract size translated into lower risk and lower margin requirements, making speculation in such products possible for almost any retail trader. Furthermore, because commodities trade sideways rather than with an upward trajectory, they are better candidates for scale trades than stocks might be. Before micro futures, scale trading required a massive amount of risk capital. For many markets, it can now be adequately done with \$10,000 to \$20,000. Lastly, I've met my share of career paper traders. They practice trading commodities for years, or even decades, believing that they are honing their skills. In reality, they have left out the most

Futures For You

critical component of speculation: emotion. Without human emotion, it is much easier to predict price changes. Micros are a great way to transition from paper trading to live trading without taking a dangerous leap. Trading micros is much like paper trading with a little skin in the game.

It's important to note that neither

the mini nor micro natural gas futures have options written against them. If you prefer option trading, the only "option" is the full-sized contract. Yet, the micro and mini futures can be used to hedge options and vice versa. In any case, these bite-sized contracts written with the "widow maker" as the underlying are worth a look.

Micros are a great way to transition from paper trading to live trading without taking a dangerous leap.

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Explore Your Options

KAEPPEL/OPTIONS

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is built into AMZN options and vice versa. A trader would prefer the black line on the low end of the historical range when buying premium and on the higher end when selling premium.

TIME LEFT UNTIL OPTION EXPIRATION

Every option will lose all its time premium at option expiration, and any option that is out-of-the-money at expiration will expire worthless. As a result, when we refer to "expiration" we mean "time until expiration."

When buying premium, it is important to allow enough time before option expiration for the underlying security to make the hoped-for move. When selling premium, a trader will often prefer to sell shorter-term options to limit the amount of time the underlying security has to move against them and for the option to lose time premium as quickly as possible.

There is nothing wrong with buying a short-term option *if* your objective is to bet on a short-term burst in price. Conversely, selling longer-term options can afford a

trader the potential to take in more premium. The main point here is to make sure the expiration date for the options you trade is in line with your expectations for the timing of a given movement in price.

VOLATILITY SKEW

Volatility skew, or simply *skew*, refers to the difference in the implied volatility of two different options. In a perfect world, a trader entering a spread trade would prefer to buy an option with a lower implied volatility and sell an option with a higher implied volatility.

Figure 3 displays a calendar spread for Netflix (NFLX). Note that the implied volatility for the option bought is 36.08%, and the IV for the option sold is significantly higher at 49.43%. Having an edge in skew does not guarantee a profitable trade. It only means that the trader gained a slight edge when the trade was entered by buying a relatively "cheaper" option and selling a relatively more "expensive" option (with "cheap" and "expensive" referring to the relative amount of time premium built into each option's price, and not the price of the option itself).

MARKET TIMING

The timing of entry and exit into

a trade is a key determinant of the outcome for most options trades.

For most option trades, the movement of the underlying security price after the option trade is entered is the key determinant to success or failure. If a trader puts all the other factors in their favor in entering a bullish trade, but the underlying security falls hard in price, a loss is still the most likely outcome.

Market timing is out of the realm of this piece; however, traders should carefully consider their expectations for price movement and how long it might take for it to play out. If you expect a stock to rally over the next 12 months but buy a one-month option, you risk seeing your option expire worthless before the move you are hoping for occurs. Likewise, if you buy a call option that requires the underlying stock to move 20% by expiration to generate a profit, a gain of even 15% can still result in the option trade showing a loss. The bottom line: Know what the underlying security must do and how soon it must do it for a profit to be generated.

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ALGORITHMIC TRADING

Have a question about system or algo trading? Kevin J. Davey has over 30 years of system trading experience. Davey is a full-time trader, and also teaches and consults via his Strategy Factory online workshop (<https://kjtradingsystems.com>), which was the winner of the 2024 Readers' Choice Award in this magazine for the category of "Trading Schools." Davey is also the author of five books on trading. Send your questions or topic suggestions to Kevin Davey at kdavey@kjtradingsystems.com. Selected questions will appear in a future issue of S&C.



Kevin J. Davey

WHAT MAKES A GOOD ALGO TRADER?

I am just getting into trading, and there are a lot of competing approaches and styles. Since you algo trade, can you explain the characteristics and qualities of a good algo trader?

First off, let me say that algo trading is not for everyone. To succeed in algo trading, a trader needs certain skills and a certain outlook on the markets. Let's discuss a few of the important characteristics of a good algo trader.

RELY ON NUMBERS & DATA

Most good algo traders are data driven; that is, they make decisions based on numbers and data. This is why almost every algo trader backtests strategies. If the historical data says it is wise to buy after condition "X" is met, then that is what should be done going forward. If buying on Mondays, for example, always led to profitable trades, it would make sense to continue that in the future.

Remember, algos are just buy and sell rules that a computer can backtest and automatically trade. By analyzing the data from testing, algo traders put their faith in those numbers. Of course, this can be dangerous, unless the backtest process is correct. This leads us to our second characteristic of good algo traders.

RESPECT THE PROCESS

Just because a backtest shows a profitable outcome, it does not mean that

the strategy itself is good. If this was the case, everyone selling a profitable-looking strategy would be heroes in the trading community—and they most certainly are not!

Good algo traders realize that building a strategy is a difficult process, yet one that can be repeated over and over once it is established. The trick is developing a process that yields not only acceptable backtests, but also good future performance. This is very challenging to do, as a solid process involves much more than creating many rules, adding filters and optimizing everything.

Once an algo trader has a good strategy development process and creates backtests with numbers and metrics that are acceptable, it becomes a matter of execution.

EMOTIONAL FOCUS

Once an algo trader has a good strategy development process and creates backtests with numbers and metrics that are acceptable, it becomes a matter of execution. In other words, the trader has to be able to trade the algo live—or more accurately, has to let the computer execute the trades. This is much harder than it sounds. Emotions can play a big role here,

as any trader may question signals coming from their algo.

Regardless of what some uninformed people say, algo trading is emotional, and having proper focus is essential. For example, just today I was long gold, got stopped out, and then the market rebounded about \$3,000 per contract. Of course, I missed that runup, as my algo exited at a loss before that. It would have been easy for me to be upset about the money not made. I think most traders in that situation would be upset.

But my emotional focus is never on the outcome of the trade. Instead, I focus on the execution of the trade. If, for instance, an order is missed, or my internet goes down, I will get upset or angry. That is because those problems deviate from the established algo rules. I can't be mad when any algo follows the rules and loses; otherwise I will constantly second-guess every algo decision.

WRAPPING UP

If you are a new trader thinking of algo trading, ask yourself if you trust numbers and data, if you can repeatedly follow a defined process, and if you can be emotionally calm and focused while running your algos. If you cannot, then another form of trading will likely suit you better. But if you can, algo trading might be a good path to choose.



GOT A QUESTION ABOUT USING TRADING STRATEGIES?

Dave Mabe has 25 years of experience in trading strategy development. With a background as a computer engineer and chief technology officer for Trade-Ideas, he is interested in the design of innovative algorithms for rules-based trading systems as well as the intersection of artificial intelligence and finance. He launched DaveMabe.com to help other traders learn how they can improve their trading performance and consistency in results. Through his website he offers a road map for trading strategy development and offers one-on-one coaching. Send your questions or topic suggestions to Dave Mabe at dave@davemabe.com. Selected questions will appear in a future issue of S&C.



Dave Mabe

IDENTIFYING FALSE BREAKOUTS

How can I identify false breakouts?

This is a great question because many traders scan for stocks breaking out of recent ranges. These breakouts form the foundation of many trading strategies.

Identifying which breakouts are valid and which ones you can ignore is a fundamental skill that will ultimately determine your long-term success in the markets.

It's important to take a systematic approach to answering this question. When you have a data-driven process in place, not only can you identify false breakouts, but also, it gives you the ability to find the real breakouts and create a trading system for profiting from them.

Here's the process I use. Come up with your definition of breakout, false or otherwise. Don't worry about trying to classify them as valid or false yet. The point here is to create criteria to identify a comprehensive list of breakout situations in the markets you trade.

Once you identify your criteria for a generic breakout, you can start creating a list of the breakout situations. You can do this each day by scanning for them using your criteria and reviewing the charts to detect patterns. Pay special attention to the breakouts that worked especially well or poorly.

Over time you'll develop theories

about what makes a breakout tend to work or fail. Test those theories by reviewing more charts and using your theories to classify whether they'll work or fail using information available at or before the time of the breakout.

With persistence, your intuition will improve as well as your accuracy at classifying the breakouts. Keep in mind that your goal here is not 100% accuracy, which is impossible, but enough to have a trading edge. That level might be lower than you think.

Over time you'll develop theories about what makes a breakout tend to work or fail.

Once you gain the ability to classify whether a breakout is likely to work or not, you actually have two potential trading ideas: one to trade the valid breakouts as a continuation play, and another to fade the false breakouts. That's two different and distinct ideas for a potential trading edge.

A fully data-driven approach would be to backtest for these breakouts. That will ultimately save you a lot of time since you can look back in time and find all the breakout situations and simulate trades on them. Rather than waiting to watch the breakouts in real time, backtesting allows you to review many trades at

once and comprehensively test your theories in a simulated environment. This will both save time and allow you to gain confidence knowing that you've examined a huge number of breakouts.

While this process won't give you a way to predict the future perfectly, it gives you the confidence that your approach has an edge across a large number of trades and differing market conditions.

This is where real trading success comes from because it reduces the importance of any single breakout, trade, or result on a particular day or week. You'll know you have a trading edge that you can cultivate and improve over time.

The real power of this approach is how it can generalize across not only breakouts, but any trading situation that can serve as a trading signal.

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The focus of Traders' Tips this month is John Ehlers' article in this issue, "Precision Trend Analysis." Here, we present the September 2024 Traders' Tips code with possible implementations in various software.

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At Traders.com you can also right-click on any chart to open it in a new tab or window and view the chart at a much larger size.

The Traders' Tips section is provided to help readers implement a selected technique from an article in this issue or another recent issue. The entries here are contributed by software developers or programmers for software that is capable of customization.

The code for the following Traders' Tips selections is posted here:



◆ TRADESTATION: SEPTEMBER 2024 TRADERS' TIPS CODE

In "Precision Trend Analysis" in this issue, author John Ehlers describes a method for effective trend detection and confirmation. The indicator can be easily interpreted: it suggests a long position when positive and a short position when negative. Provided here are two EasyLanguage functions and the indicator itself.

Function - \$HighPass

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{
  $HighPass Function
  (C) 2004-2024 John F. Ehlers
}
inputs:
  Price(numericseries),
  Period(numericinteger);

```

variables:

```

a1(0),
b1(0),
c1(0),
c2(0),
c3(0);

```

```

a1 = ExpValue(-1.414 * 3.14159 / Period);

```

```

b1 = 2 * a1 * Cosine(1.414 * 180 / Period);
c2 = b1;
c3 = -a1 * a1;
c1 = (1 + c2 - c3) / 4;

```

```

if CurrentBar >= 4 then
  $HighPass = c1*(Price - 2 * Price[1] + Price[2]) +
    c2 * $HighPass[1] + c3 * $HighPass[2];
if Currentbar < 4 then
  $HighPass = 0;

```

Function - \$SuperSmoother

```

{
  SuperSmoother Function
  (C) 2004-2024 John F. Ehlers
}
inputs:
  Price(numericseries),
  Period(numericinteger);

```

variables:

```

a1(0),
b1(0),
c1(0),
c2(0),
c3(0);

```

```

a1 = ExpValue(-1.414 * 3.14159 / Period);
b1 = 2 * a1 * Cosine(1.414 * 180 / Period);

```

```

c2 = b1;
c3 = -a1 * a1;
c1 = 1 - c2 - c3;

```

```

if CurrentBar >= 4 then
  $SuperSmoother = c1*(Price +
    Price[1]) / 2
    + c2 * $SuperSmoother[1] + c3 *
  $SuperSmoother[2];
if CurrentBar < 4 then
  $SuperSmoother = Price;

```

Indicator - Trend Analysis

```

{
  TASC SEP 2024
  Trend Analysis Indicator
  (c) 2024 John F. Ehlers
}
inputs:
  Length1( 250 ),

```

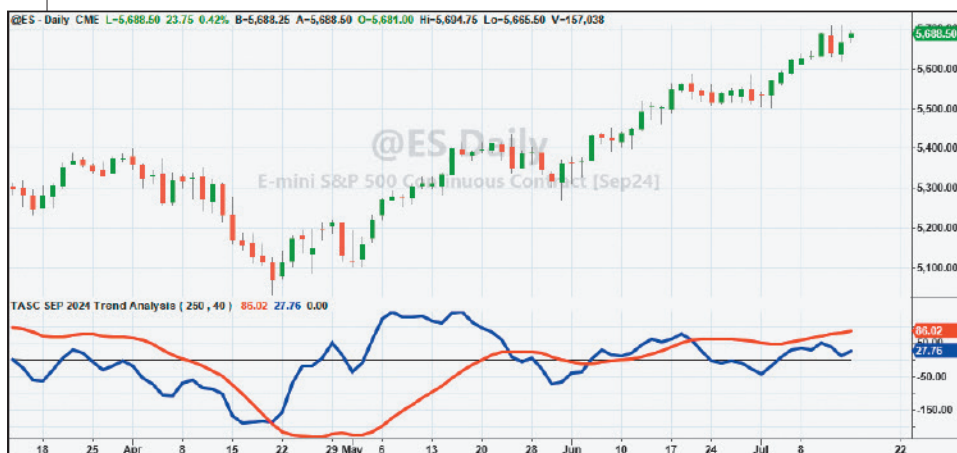


FIGURE 1: TRADESTATION. This demonstrates a daily chart of the emini S&P continuous futures contract with the indicator applied showing a portion of 2024.



```
Length2( 40 );
```

variables:

```
HP1(0),  
HP2(0),  
Trend(0),  
ROC(0);
```

```
HP1 = $Highpass(Close, Length1);
HP2 = $Highpass(Close, Length2);
Trend = HP1 - HP2;
ROC = (Length2 / 6.28) * (Trend - Trend[1]);
Plot1(Trend, "Trend", Red );
Plot2(ROC, "ROC", Blue );
Plot3(0, "Zero", Black);
```

A sample chart is shown in Figure 1.

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—*John Robinson*

TradeStation Securities, Inc.
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◆ **WEALTH-LAB: SEPTEMBER 2024 TRADERS' TIPS CODE**

At the core of both indicators discussed in John Ehlers' article in this issue, "Precision Trend Analysis," and its companion "ROC" indicators is a highpass filter, now shipped with Wealth-Lab 8 out of the box.

As Ehlers suggests in his article, crossings of the ROC of trend analysis indicator over and under zero pinpoint the onset of a new trend.

Is the ROC effective for timing signals? Here, we provide some C# code for a sample trading system with rules simple enough for users to get a look and feel of the new indicators:

- **Enter** next bar at market when the ROC of the trend analysis indicator crosses above zero
- **Exit** next bar at market when the ROC of the trend analysis indicator crosses below zero

You can view some example signals for this trading system in Figure 2. As you can see, for this simple trading system, the ROC of the trend analysis crossovers indicate trend changes but produce quite a bit of whipsaws, as Ehlers discusses in his article.

C# code for Wealth-Lab:

```
using WealthLab.Backtest;
using System;
```

```
using WealthLab.Core;  
using WealthLab.TASC;
```

```
namespace WealthScript1
```

```
{
    public class TASCSep2024 : UserStrategyBase
    {
        public TASCSep2024() : base()
        {
            AddParameter("Period 1", ParameterType.Int32, 250,
10, 250, 10);
            AddParameter("Period 2", ParameterType.Int32, 40, 2,
40, 2);
        }
    }
}
```

```
public override void Initialize(BarHistory bars)
{
```

```
period1 = Parameters[0].AsInt;  
period2 = Parameters[1].AsInt;  
StartIndex = Math.Max(period1, period2);
```

```
hp1 = HighPass.Series(bars.Close, period1);
hp2 = HighPass.Series(bars.Close, period2);
ta = (hp1 - hp2);
roc = ((period2 / 6.28) * (ta - (ta >> 1)))
```

```
PlotTimeSeries( ta, "Trend Analysis", "ta", WLCOLOR.Dark-
Red, PlotStyle.ThickLine, default);
PlotTimeSeries( _roc, "ROC of TA", "ta", WLCOLOR.Dark-
Blue, PlotStyle.ThickLine, default);
DrawHorzLine( 0, WLCOLOR.White, 1, LineStyle.Dashed,
"ta");
}
```

```
HighPass hp1, hp2;  
TimeSeries ta, _roc;  
int period1, period2;
```

```
public override void Execute(BarHistory bars, int idx)
{
    if (!HasOpenPosition(bars, PositionType.Long))
    {
        if (_roc.CrossesOver(0, idx))
            PlaceTrade(bars, TransactionType.Buy, OrderType.Market);
    }
    else
    {

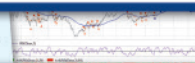
```



FIGURE 2: WEALTH-LAB. Sample trades in ES=F (emini S&P 500). Data courtesy Yahoo! Finance.

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```
if (isSecondLast == 1000) {
    xVmp = xVmp + xVmp * 1.1;
    xVmp = getSeries(xVmp, 1);
    xVmp_TrendRange = getSeries(xVmp, 2);
    xVmp_TrendRange = true;
}
```



```
if (xVmp.getValue(LengthVortex) == null || xVmp.TrueRange.getValue(
    for (i = Math.max(LengthVortex, LengthTR); i >= 0; i--) {
        xVmpSum += xVmp.getValue(i);
    }
}
```



Strategy: trend_short
Side: Short
EntrySetup: goShort
ExitRule: goLong
Quantity: 1

—Marsten Parker
MHP Trading
mhp@mhptrading.com

TradingView

◆ TRADINGVIEW: SEPTEMBER 2024 TRADERS' TIPS CODE

The TradingView Pine Script code presented here implements the trend indicator and its rate of change (ROC), as described in John Ehlers' article in this issue, "Precision Trend Analysis." The script generates on-chart signals for trend reversals at peaks and valleys and colors chart bars based on whether the trend indicator is above or below the zero balance point, providing clear visual cues for trend direction and potential trade entry/exit points.

```
// TASC Issue: September 2024
// Article: Precision Trend Analysis.
// A New Way To Pinpoint Trend.
// Article By: John F. Ehlers
// Language: TradingView's Pine Script™ v5
// Provided By: PineCoders, for tradingview.com
```

```
//@version=5
title="TASC 2024.09 Precision Trend Analysis"
stitle="Trend Analysis"
indicator(title, stitle, false)
```

```
// --- Inputs ---
int length01 = input.int(250, "Length 1:")
int length02 = input.int(40, "Length 2:")
```

```
// --- Functions ---
highpass(float Source, float Period) =>
    float a1 = math.exp(-1.414 * math.pi / Period)
    float b1 = 2 * a1 * math.cos(1.414 * math.pi / Period)
    float c2 = b1
    float c3 = -a1 * a1
    float c1 = (1.0 + c2 - c3) * 0.25
    float hp = 0.0
    if bar_index >= 4
        hp := c1 * (Source - 2 * Source[1] + Source[2]) +
            c2 * nz(hp[1]) + c3 * nz(hp[2])
    hp
```

```
// --- Calculations ---
float HP1 = highpass(close, length01)
float HP2 = highpass(close, length02)
float Trend = HP1 - HP2
float ROC = (length02 / 6.28) * ta.change(Trend)
```

```
// --- Visuals ---
color colTrend = Trend > 0 ? #4daf4a : #e41a1c
```



FIGURE 4: TRADINGVIEW. Here you can see an example of John Ehlers' indicators plotted on a chart of the S&P 500 (ES).

```
plot(Trend, "Trend Indicator", colTrend, 2)
plot(ROC, "ROC", #377eb8, 2)
hline(0.0, "Zero Point")

plotshape(ta.crossunder(ROC, 0) and Trend < 0 ? ROC : na,
    "Peak", shape.triangledown, location.absolute,
    colTrend, size = size.tiny)
plotshape(ta.crossover(ROC, 0) and Trend > 0 ? ROC : na,
    "Valley", shape.triangleup, location.absolute,
    colTrend, size = size.tiny)

barcolor(colTrend, editable = true)
```

The script is available on TradingView from the PineCodersTASC account at: <https://www.tradingview.com/u/PineCodersTASC/#published-scripts>.

An example chart is shown in Figure 4.

—PineCoders, for TradingView
www.TradingView.com



◆ ZORRO: SEPTEMBER 2024 TRADERS' TIPS CODE

In his article in this issue, "Precision Trend Analysis," John Ehlers presents functions for separating the trend from a price curve. Some of these functions, for instance Ehlers' SuperSmoother, are already available in the indicator library of the Zorro platform. The remaining functions are a 1:1 conversion from the EasyLanguage code provided in Ehlers' article to C:

```
var HighPass3(vars Data, int Length)
{
    var f = 1.414 * PI / Length;
    var a1 = exp(-f);
    var c2 = 2 * a1 * cos(f);
    var c3 = -a1 * a1;
    var c1 = (1 + c2 - c3) / 4;
    vars HP = series(0, 4);
    return HP[0] = c1 * (Data[0] - 2 * Data[1] + Data[2])
        + c2 * HP[1] + c3 * HP[2];
}
```



```
var TROC;  
var Trend(vars Data,int Length1,int  
Length2)  
{  
    var HP1 = HighPass3(Data,Length1);  
    var HP2 = HighPass3(Data,Length2);  
    vars Trends = series(HP1-HP2,2);  
    TROC = (Length2/6.28)*(Trends[0]-  
Trends[1]);  
    return Trends[0];  
}
```

The filter name is HighPass3 because Zorro already has three other highpass filters in its library.

For comparing our code conversion with Ehlers' charts in his article, we can apply the functions to an ES chart from 2022–2024, using the following code:

```
void run()
{
    BarPeriod = 1440;
    StartDate = 20221001;
    EndDate = 20240401;
    LookBack = 250;
    assetAdd("ES","YAHOO:ES=F");
    asset("ES");
    plot("HP",HighPass3(seriesC(),250),
NEW,RED);
    plot("Trend",Trend(seriesC(),250,40)
,NEW,RED);
    plot("ROC",TROC,0,BLUE);
}
```

The resulting chart is shown in Figure 5. We can see that the high-pass, trend, and ROC lines perfectly replicate Ehlers' charts given in his article.

The code can be downloaded from the 2024 script repository on <https://financial-hacker.com>. The Zorro platform can be downloaded from <https://zorro-project.com>.

—Petra Volkova
The Zorro Project
by oP group Germany
www.zorro-project.com



◆ **NEUROSHELL TRADER:
SEPTEMBER 2024
TRADERS' TIPS CODE**

John Ehlers' trend indicator and ROC can be easily implemented in NeuroShell Trader by combining some of NeuroShell Trader's 800+ indicators. To implement the indicators, select "new indicator" from the *insert* menu and use the indicator wizard to create the following indicators:

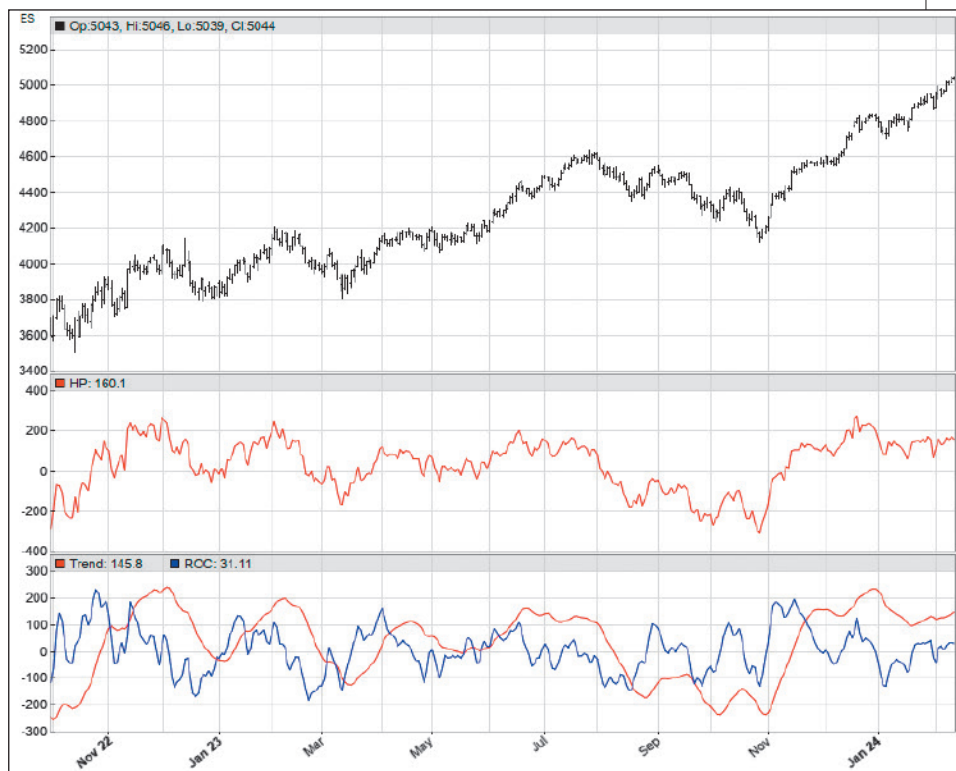


FIGURE 5: ZORRO. Here is an example of the highpass, trend, and ROC lines plotted on a chart of ES.



FIGURE 6: NEUROSHELL TRADER. This NeuroShell Trader chart shows the trend indicator and ROC for the S&P emini futures (ES).

TREND Subtract(Highpass(Close, 250), Highpass(Close, 40))
ROC:Mul2(Divide(40, 6.28), Momentum(TREND, 1))

Users of NeuroShell Trader can go to the STOCKS & COMMODITIES section of the NeuroShell Trader free technical support website to download a copy of this or any previous Traders' Tips.



The highpass and SuperSmoother indicators are available for download on the free technical support website with the Traders' Tip.

—Ward Systems Group, Inc.
sales@wardsystems.com
www.neuroshell.com

◆ EXCEL: SEPTEMBER 2024 TRADERS' TIPS CODE

In his article in this issue, "Precision Trend Analysis," John Ehlers combines a pair of his high-pass filters at two different cutoff settings to create a new trend analysis indicator that shows the relative strength of a trend in either direction.

Calculating and plotting a rate of change line over this indicator will rather precisely locate points of price trend change (trend analysis indicator inflection points) when the rate of change plot crosses zero.

In Figure 7 you see plots of the longer and shorter high-pass filters and the trend analysis, which is the difference between the high-pass filters.

In the bottom of Figure 8 we have our trend indicator with its rate of change. I have positioned the cursor on the most recent bar, where the ROC has just crossed above zero, indicating a positive change of trend.

In his article, Ehlers acknowledges that the ROC can become a bit choppy (whipsaw) in longer trends and in sideways (nontrending) intervals. He suggests the possibility of applying hysteresis bands to the trend indicator to stand as overbought and oversold levels to help filter entries and exits. He also suggests applying the SuperSmoother to the rate of change indicator to perhaps filter some of the chop.

In Figure 9, I have added the SuperSmoother ROC in green (the checkbox at right controls the SuperSmoother ROC display). As he notes in his article, the SuperSmoother adds a bit of lag proportional to the smoothing length. At a SuperSmoother length of 12 as used here, several of the choppy zero crossings (at the left side) have been eliminated at the cost of the remaining up or down zero crossings lagging by about three bars.

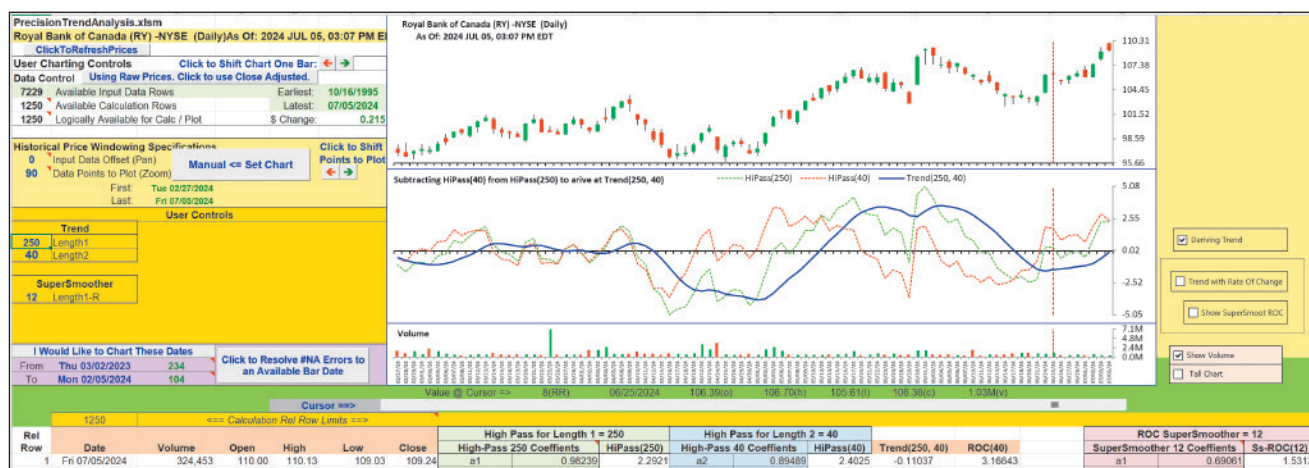


FIGURE 7: EXCEL. Here you see the trend analysis indicator with its components.

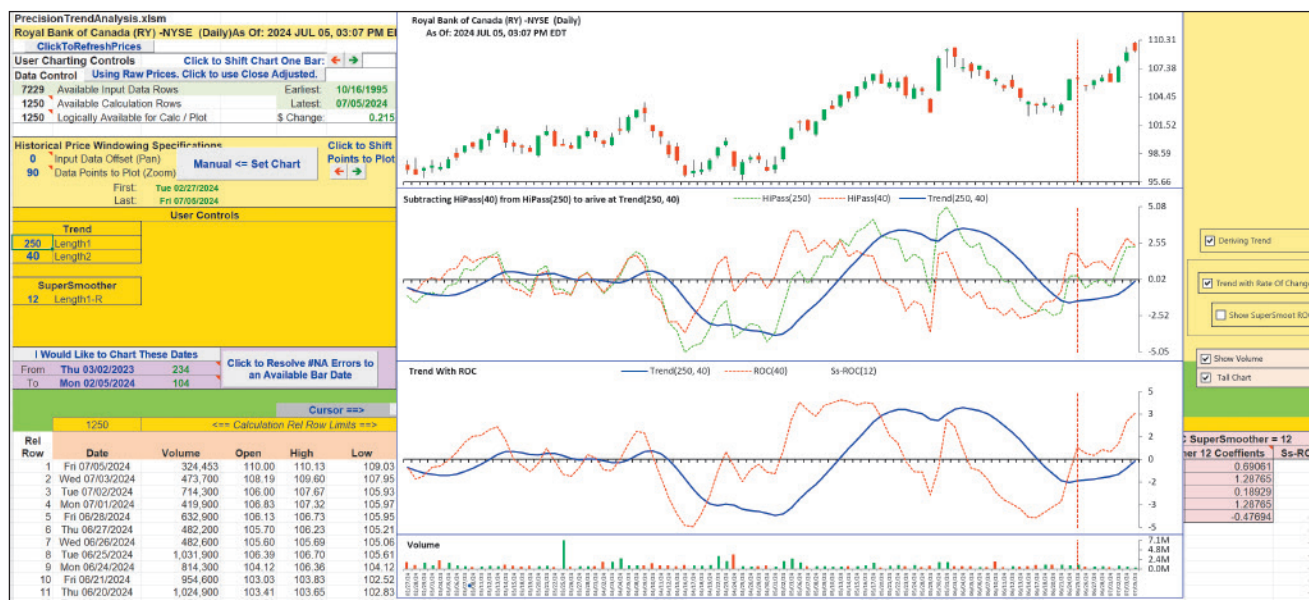


FIGURE 8: EXCEL. Here is a demonstration of the trend indicator with its rate of change.



In his article, Ehlers also suggests that the bandpass filtering technique can be applied to other indicators and layered on top of itself to deal with shorter-term bulges. So, lots to play with here!

To download this spreadsheet: The spreadsheet file for this Traders' Tip can be downloaded from www.traders.com in the Traders' Tips area. To successfully download it, follow these steps:

- Right-click on the link to the Excel file, then
- Select "save target as" to place a copy of the spreadsheet file on your hard drive.

—Ron McAllister
 Excel and VBA programmer
 rpmac_xltd@sprynet.com

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MASONSON/WHY TRADE ETFs?

Continued from page 45

one year is not a track record to base any investment on. If you wanted to pick one to consider for a small portfolio position, you could choose FV as the most viable of the group. But don't count on it doing better than the S&P 500, which has been a solid performer over the years. And at this point, I don't plan on writing another article about sector rotation ETFs in 2029, for good reason.

S&C contributing writer and ETF columnist Leslie N. Masonson is president of Cash Management Resources, a firm focusing on ETF trading strategies. He is an active NASDAQ futures and ETF trader, and the author of six books including Buy—Don't Hold: Investing With ETFs Using Relative Strength To Increase Returns With Less Risk, and All About Market Timing (two editions), as well as Day Trading On The Edge. lesmasonson@yahoo.com or 845 323-7276.

FURTHER READING & RESOURCES

Masonson, Leslie N. [2019]. "Sector-Rotation ETFs Underperform," *Technical Analysis of STOCKS & COMMODITIES*, Volume 37: March.
 — [2017]. "ETF Sector Investing," *Technical Analysis of STOCKS & COMMODITIES*, Volume 35: January.
 — [2016]. "ETF Sector Investing," *Technical Analysis of STOCKS & COMMODITIES*, Volume 34: November.

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FUTURES LIQUIDITY

Trading liquidity is often overlooked as a key technical measurement in the analysis and selection of commodity futures. The following explains how to read the futures liquidity chart published by *Technical Analysis of STOCKS & COMMODITIES* every month.

COMMODITY FUTURES

The futures liquidity chart shown below is intended to rank publicly traded futures contracts in order of liquidity. Relative contract liquidity is indicated by the number of dots on the right-hand side of the chart.

This liquidity ranking is produced by multiplying contract point value times the maximum conceivable price motion (based on the past three years' historical data) times the contract's open interest times a factor (usually 1 to 4) for low or

very high volumes. The greatest number of dots indicates the greatest activity; futures with one or no dots show little activity and are therefore less desirable for speculators.

Courtesy of CBOT



All futures listed are weighted equally under "contracts to trade for equal dollar profit." This is done by multiplying contract value times the maximum possible change in price observed in the last

three-year period. Thus, all numbers in this column have an equal dollar value.

Columns indicating percent margin and effective percent margin provide a helpful comparison for traders who wish to place their margin money efficiently. The effective percent margin is determined by dividing the margin value (\$) by the three-year price range of contract dollar value, and then multiplying by one hundred.

STOCKS

Trading liquidity has a significant effect on the change in price of a security. Theoretically, trading *activity* can serve as a proxy for trading liquidity and equals the total volume for a given period expressed as a percentage of the total number of shares outstanding. This value can be thought of as the turnover rate of a firm's shares outstanding.

Trading Liquidity: Futures

Commodity Futures	Symbol	Exchange	% Margin	Effective % Margin	Contracts to Trade for Equal Dollar Profit	Relative Contract Liquidity
S&P 500 E-Mini (Sep '24)	ESU24	CME	5.2	14.4	3	>>>>
10-Year T-Note (Sep '24)	ZNU24	CBOT	2	9.2	11	>>
5-Year T-Note (Sep '24)	ZFU24	CBOT	1.3	8.3	15	>
Ultra T-Bond (Sep '24)	UDU24	CBOT	4.8	7.7	3	>
Ultra 10-Year T-Note (Sep '24)	TNU24	CBOT	2.5	7.8	7	>
2-Year T-Note (Sep '24)	ZTU24	CBOT	0.6	7.4	17	>
30-Year T-Bond (Sep '24)	ZBU24	CBOT	3.4	8.6	6	>
Nasdaq 100 E-Mini (Sep '24)	NQU24	CME	5.7	12.4	2	.....
Soybean (Nov '24)	ZSX24	CBOT	2.5	3.5	4	.....
Natural Gas (Sep '24)	NGU24	NYMEX	13.8	3.5	3	.....
Russell 2000 E-Mini (Sep '24)	QRU24	CME	3.3	12.2	4	.....
Soybean Meal (Dec '24)	ZMZ24	CBOT	2.2	3.5	2	.....
Crude Oil WTI (Sep '24)	CLU24	NYMEX	8.6	11.9	5	.....
3-Month SOFR (Dec '24)	SQZ24	CME	0.1	1.9	23	.....
Corn (Dec '24)	ZCZ24	CBOT	6.9	6.9	13	.....
Euro FX (Sep '24)	E6U24	CME	1.7	14.2	16	.....
30-Day Fed Funds (Aug '24)	ZQQ24	CBOT	0.1	1	12	.....
ULSD NY Harbor (Sep '24)	HOU24	NYMEX	7.6	6.5	2	.....
Gasoline RBOB (Sep '24)	RBV24	NYMEX	7.3	8.9	3	.....
Wheat (Sep '24)	ZWU24	CBOT	8.7	5.2	6	.....
Dow Futures Mini (Sep '24)	YMU24	CBOT	5	16.8	4	.....
Gold (Aug '24)	GCQ24	COMEX	4.6	14.3	3	.....
Silver (Sep '24)	SIU24	COMEX	9	23.7	5	.....
Bitcoin Futures (Aug '24)	BTQ24	CME	25.1	32.1	1	....
British Pound (Sep '24)	B6U24	CME	2.6	13.5	17	....
Cotton #2 (Dec '24)	CTZ24	ICE/US	6.8	5.3	6	....
Canadian Dollar (Sep '24)	D6U24	CME	1.5	12.1	29	...
Hard Red Wheat (Sep '24)	KEU24	KCBT	8.3	5.6	6	...
High Grade Copper (Sep '24)	HGU24	COMEX	6.6	24.2	10	...
Live Cattle (Oct '24)	LEV24	CME	3.6	10.1	10	...
Nasdaq 100 Micro (Sep '24)	NMU24	CME	5.7	12.4	15	...
Palladium (Sep '24)	PAU24	NYMEX	12.9	4.6	1	...
S&P 500 VIX (Aug '24)	VIQ24	CFE	39.7	30.5	13	...
Sugar #11 (Oct '24)	SBV24	ICE/US	6.7	13.8	26	...
Australian Dollar (Sep '24)	A6U24	CME	2.4	14.4	24	..
Canola (Nov '24)	RSX24	ICE/CA	5.6	6.1	23	..
Coffee (Sep '24)	KCU24	ICE/US	8.5	22.1	8	..
S&P 500 Micro (Sep '24)	ETU24	CME	5.2	14.4	26	..
S&P Midcap E-Mini (Sep '24)	EWU24	CME	5.9	20.1	3	..
Cocoa (Sep '24)	CCU24	ICE/US	22.4	31.3	5	.
Crude Oil Brent (F) (Oct '24)	QAV24	NYMEX	7.4	10.1	5	.
Lean Hogs (Oct '24)	HEV24	CME	5.5	8.6	14	.

2409

Trading Liquidity: Futures is a reference chart for speculators. It compares markets according to their per-contract potential for profit and how easily contracts can be bought or sold (i.e., trading liquidity). Each is a proportional measure and is meaningful only when compared to others in the same column.

The number in the "Contracts to Trade for Equal Dollar Profit" column shows how many contracts of one commodity must be traded to obtain the same potential return as another commodity. Contracts to Trade = (Tick \$ value) x (3-year Maximum Price Excursion).

"Relative Contract Liquidity" places commodities in descending order according to how easily all of their contracts can be traded. Commodities at the top of the list are easiest to buy and sell; commodities at the bottom of the list are the most difficult. "Relative Contract Liquidity" is the number of contracts to trade times total open interest times a volume factor, which is the greater of:

$$1 \text{ or } \exp \left(\frac{\ln(\text{volume})}{\ln(5000)} \right) - 2$$

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They say that the more you learn, the more you know you need to learn. This is true in trading. If you're not fully prepared when you go to trade, you could be the one whom the smart money profits from.

Education is crucial in trading. If you don't step up to the line with the right tools and know-how to trade the markets, you might as well be gambling—with the odds on the house's side. But help is available, in courses, seminars, classes, manuals, books, tutorials, and personal trading mentors.

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CHARTING THE MARKETS

Stella Osoba, CMT, Esq., is an attorney, trader, and financial writer in New York, NY, and is also the Senior Editor, Trading and Investing, for Investopedia.com. Her work in financial litigation involving regulatory bodies and large multinational corporations led to an interest in the financial markets, then technical analysis and the psychological aspects of market behavior. She earned a CMT charter in 2013 and was a director-at-large on the board of the CMT Association for four years. This column will focus on recognizing and applying technical chart patterns to trading with flexibility and astuteness for better decision-making in trading. She can be reached at stellaosoba@gmail.com.



Stella Osoba

ANTICIPATING DOWNTRENDS

CrowdStrike Holdings, Inc. (CRWD) was recently in the news. A software glitch resulted in what has been described as the largest IT outage in history. Many Fortune 500 companies use the cybersecurity's companies' software to stop hacks and breaches. So, when the company issued an update to Falcon, its signature cybersecurity software, millions of computers around the world crashed because of a glitch in the way the update interacted with the Microsoft Windows software they were already running. This glitch caused a crash that disrupted services worldwide from airlines to banking and healthcare. It has been estimated by insurers that more than \$5 billion in direct losses was caused.

The effect on CRWD's stock price was immediate. Figure 1 shows a daily chart of CRWD. Annotated on the chart is the date of the global outage and what happened following the glitch. As we can see, price gapped down on the day. Over the following five days, price continued to decline, forming bearish candles. The question is, how can we trade this trend?

HAS THE TREND CHANGED?

The first question to ask is whether the trend has in fact changed. Figure 2 is a two-year daily chart of CRWD showing the V-shaped reversal back in January 2023 and the uptrend that

proceeded from there. The test of the new uptrend did not come until May 2024, when price made another V-shaped test and slipped under the 50-day moving average (MA). The recovery saw price break upward through the 50-day moving average and the 50-day MA cross up above the 200-day MA, forming a bullish golden cross. Price continued to make impressive gains as it moved above the 50-day MA and stayed above it until February 2024.

Long before the glitch, the CRWD chart had begun to show some weakness. Signs of a reaction or

reversal emerged as price once again began to slip below the 50-day MA, only to recover. Even though price went on to make new highs, from February 2024 until July 2024, price was showing subtle signs of what could be distribution. But it was still possible to shrug off the reactions and expect a healthy recovery each time.

THE IMPACT OF JULY 19TH

July 19, 2024 was a disastrous day for CrowdStrike Holdings and its stock, CRWD. The IT outage caused it to be in the news for all the wrong

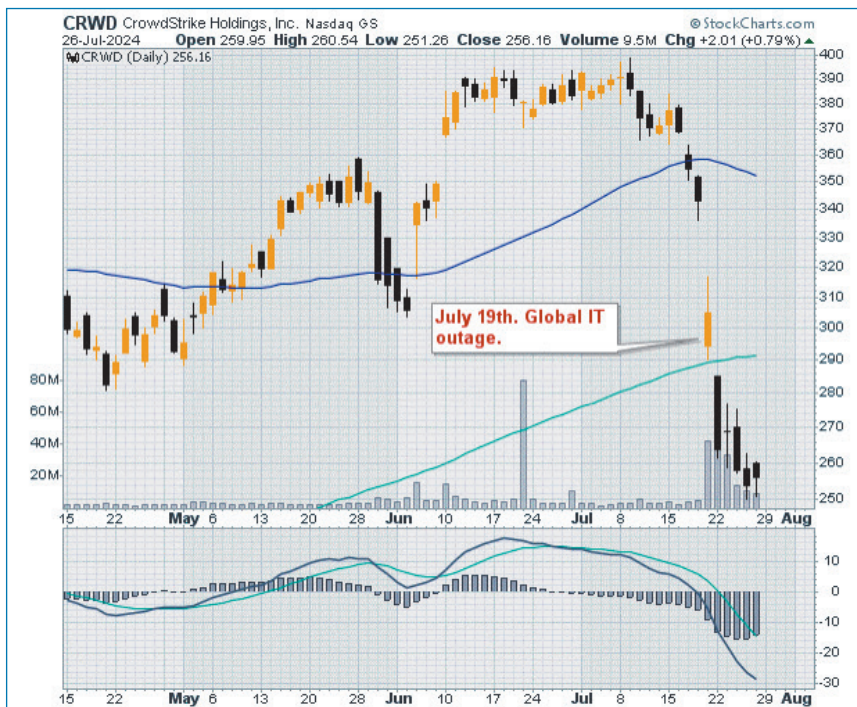


FIGURE 1: DAILY CHART OF CRWD. Annotated on the chart is the date of the global outage and what happened to the stock following this event.

reasons and traders bailed on its stock, causing a gap down.

Figure 3 is a daily chart showing the uptrend line. As we can see, the July 19th gap down did not break the uptrend line. The trendline was not broken until July 25, or six days later. But this break of the trend by one candle may not be the most convincing signal of a coming reversal. When trading in the markets, we want our signals to be as clear and as convincing as we can find them. The signals should be backed up by confirmation. Patience is a virtue in this business. There is never any need to practice FOMO (fear of missing out).

TRENDS PERSIST UNTIL THERE IS A CLEAR REVERSAL

Dow theory has six tenets, one of which is *trends persist until there is a clear reversal*. As we look at CRWD's charts, we can anticipate a reversal and a trend change. But until it actually shows up on the chart, it can be extremely risky to trade as if there is one. The area of the gap down becomes new resistance (see Figure 2). Patience would mean waiting for price to test the area of resistance and seeing what it does. Price might well fail at the test and then we would have a clearer signal of what it might do next.

Trading is difficult because we have to train ourselves to defer our instincts to a force greater than ourselves: the market. It will do what it does in its own time. Our will cannot be greater than the force of the market. Recall the V-shaped reversal that formed in CRWD in January 2023 as seen in Figure 2. The test did not come until about four months later, which was



FIGURE 2: TWO-YEAR DAILY CHART OF CRWD. This shows the V-shaped reversal in January 2023 and the uptrend that proceeded from there.



FIGURE 3: DAILY CHART SHOWING THE UPTREND LINE. The July 19th gap down did not break the uptrend line.

in May 2023.

Successful trading is and has always been a deeply personal endeavor. How you trade will evolve with experience and you will form your own style. You will look for your own signals and what constitutes confirmation.

You will decide if you are willing to trade in a more aggressive or conservative style. Articles like these can only provide basic guidance in this process. It is purely educational, so take from it what you will.

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THE WORLD OF RETAIL TRADING

Emilio Tomasini has been an adjunct professor of corporate finance at the University of Bologna in Italy for almost 20 years and is also a professional trader. In this column, he shares his sometimes “unserious” thoughts on serious topics in finance. Through his writings, he aims to help retail traders better understand the leap from unprofitable to profitable trading, firmly believing that the right answers can only come if the right questions are asked. Since 1996, he has published a weekly newsletter on Nasdaq stocks on his website, www.emiliotomasini.com, using a trend-following strategy based on the principles he has learned during his 30-year career in the financial markets.



Emilio Tomasini

ARE SUCCESSFUL PRIVATE TRADERS SOCIOPATHS OR SIMPLY BRILLIANT INDIVIDUALS?

The postman rings the doorbell: he has a judicial document to deliver, perhaps a fine, maybe something more serious like a summons. None of us are pleased when the dreaded envelope from the judiciary arrives. The postman rings repeatedly, eager to deliver the letter, as failing to do so means more work for him in the following days. Yet, no one answers from inside the house. The postman is well aware that one of Italy’s most renowned traders lives there, which frustrates him even more because, despite the recipient being home, he never answers the door. This happens every time, day after day, year after year. The registered mail will be collected at the post office on Saturday morning after the holding period expires.

Our trader finds it completely logical, even expected, not to open the door to the postman because those few minutes away from the monitor could mean lost money on the markets. Another trader doesn’t stop for lunch at noon but continues undeterred until the markets close, with his wife bringing him a plate which he quickly consumes in front of the monitor. Yet another trader has kept his iPad on for over seven years, constantly monitoring the crypto market 24/7, placing trades (up to 100 a day) even at his son’s year-end

school party, during dinner with the family, or while watching TV with his son asleep on his lap.

The question I pose today is this: can professional retail trading become a form of sociopathy or psychological disorder? Fausto Manara, a well-known psychiatrist, wrote a remarkable book, unfortunately out of print: *L’Io e la Borsa* (“The Self And The Stock Market”), published by Il Sole 24 Ore in 2000. I interviewed him back then. Manara, a bright and cheerful person, confided—perhaps jokingly—that he wrote the book to recover from stock market losses.

Essentially, the stock market leaves no one unscathed, whether you win or lose.

It’s an analysis of the psychological effects of stock market trading: losing money leads to depression, insomnia, and loss of sexual appetite, while making money results in euphoria, diminished risk perception, and imbalance of values and sensations. Essentially, the stock market leaves no one unscathed, whether you win or lose. And it confirms that if you choose to be a trader holed up in your room, you probably have a few screws loose.

The scenario is different, of course, for those who play with other people’s money from an office on the seventh

floor of a New York skyscraper and spend their evenings at nightclubs. As the organizer of the late but much-missed International Top Trader Championship, which ran for 11 consecutive years in Italy and Europe, I had the chance to analyze the behavior and trading techniques of nearly 5,000 retail traders, both Italian and foreign. I spoke with dozens of successful traders and hundreds of unsuccessful ones. I can certainly say that the emotions of the stock market are devastating for many, both positively and negatively. Especially since nothing is certain in trading, and even if the activity is successful, we cannot guarantee it will continue to be so in the coming years. Everything is written on water when it comes to financial markets, yet many, after their initial successes, behave as if these are destined to last forever. This is undoubtedly the first problem.

But perhaps to clarify the picture, we need to ask whether a successful person necessarily has behavioral problems. I recently devoured a spectacular book on clinical psychology, which I recommend to my readers: *Personality Disorders* by Len Sperry, McGraw Hill, 2004. I was never fascinated by psychology; in fact, I always considered it an insignificant ornament of modern times: once, there was the priest, and it was free; today, there’s the psychologist, and it costs money. I

now eat humble pie: now in the later years of my life, I found in the book explanations for many behaviors I had never fully understood, some of which have caused me real pain. The book is wonderfully organized: each disorder has a table with different diagnostic criteria. If the individual under analysis suffers from most of the symptoms listed, then there's a good likelihood that they are affected by that disorder.

Of course, I do not want to simplify something that should be the reserved domain of a professional psychologist. I would never want to meet a psychologist who reads only one trading book and starts pontificating about my field without any real knowledge. Finance and clinical psychology are not subjects to be trivialized. Having said this,

and having fulfilled all obligations towards political correctness, I must say that when reading Sperry's manual, you feel tempted to start listing the names of people you've met in your life who fit this or that disorder: paranoid, schizoid, schizotypal, antisocial, avoidant, dependent, narcissistic, histrionic, and so on. Well, if I may wear the psychologist's hat for just a moment, it seems to me that the two most recurring disorders among top successful traders are narcissism (putting the supposed importance of oneself above all else) and antisocial personality (hostile, cunning, impulsive and angry, energetic, thrill-seeking, highly competitive). However, the sacred texts of clinical psychology tell me that it is precisely the most socially brilliant individuals (entrepreneurs,

artists, professionals, politicians, etc.) who sometimes suffer from these two personality disorders. So we can file away our initial doubt about whether successful traders have personality disorders with a very simple answer: they do, to the extent that all other brilliant and successful people do as well.

And I conclude this article with the amusing justification that the trader who doesn't answer the postman gave for his behavior: "If someone can play golf at 60, then at the same age, I can afford not to open the door while trading." The world of trading is fascinating for this reason too: it seems like a world apart, but when you delve deep into it, you realize it is just another aspect of our complex reality.

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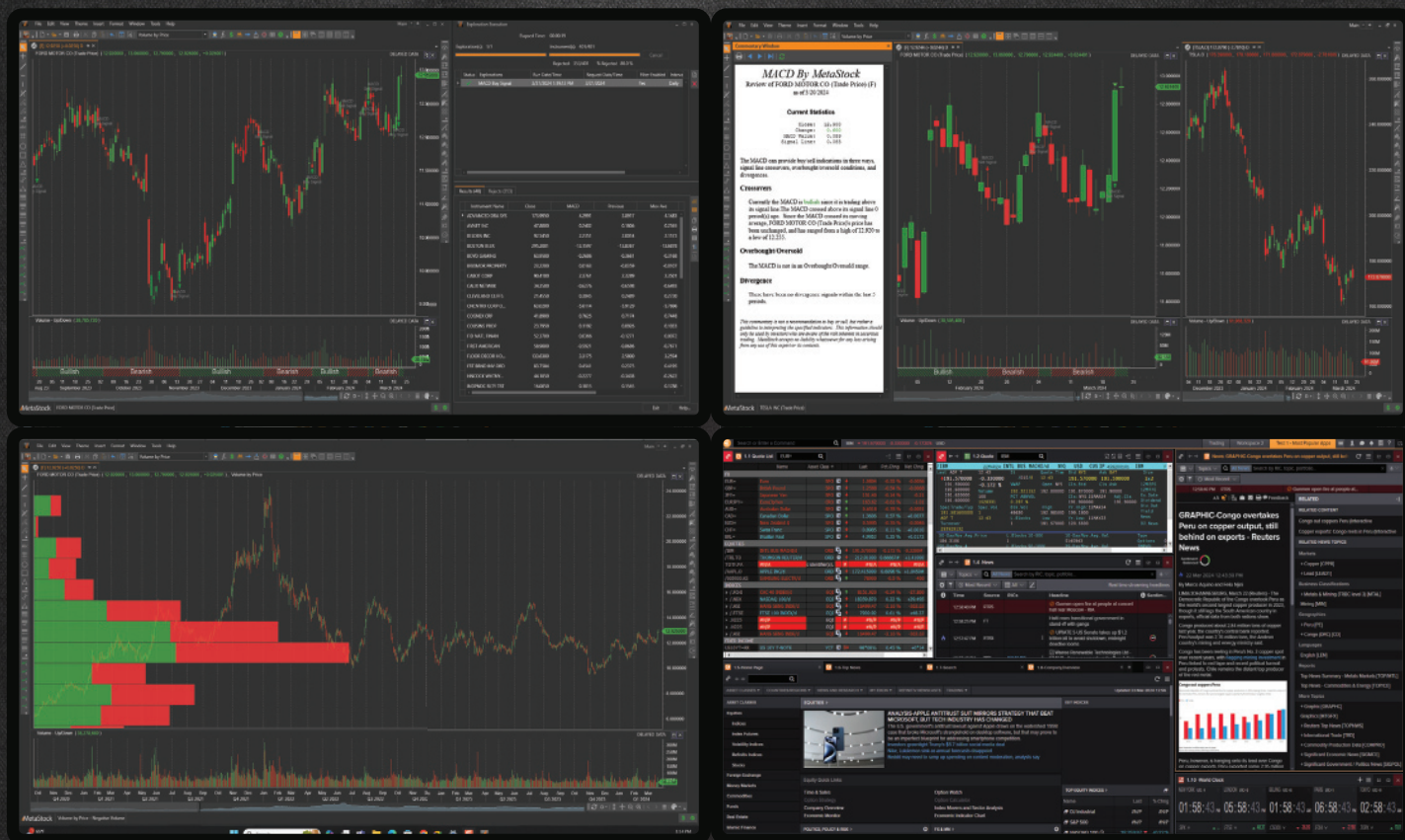
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