

TECHNICAL ANALYSIS OF STOCKS & COMMODITIES™

OVERLOOKED STRATEGY RULES

Some wisdoms for trading 8

PREDICTING S&P 500 TOPS AND BOTTOMS WITH SHANNON ENTROPY

Uncovering market dynamics 14

AUTOMATIC TREND-FOLLOWING STRATEGY FOR STOCK TRADING

Microsoft, Apple, Google, and Meta 20

THE ICT JUDAS SWING STRATEGY

Common moves in forex 26

WILL AI EVER BE USEFUL FOR TECHNICAL ANALYSIS?

Part 1: It's not a given 36

DECEMBER 2024

\$6.99



TAKE CONTROL OF YOUR TRADING WITH THE PROFESSIONAL TRADERS' STARTER KIT™

STOCKS & COMMODITIES MAGAZINE

DIGITAL
EDITION

ARTICLE CODE

OPTIMIZED
TRADING



WORKING
MONEY

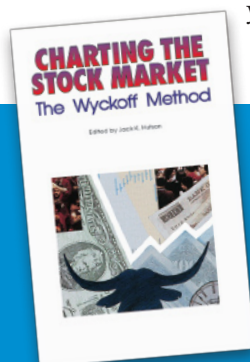
DIGITAL
ARCHIVE

TRADERS.COM ADVANTAGE

THE FOREMOST COLLECTION FOR TRADERS

This massive collection packages the best tools for trading and investing in *any* market!

1. *Technical Analysis of STOCKS & COMMODITIES*, the Traders' Magazine™. The premier magazine for technical analysis. You'll get **five years** — 65 issues — including our annual Bonus Issues with our Readers' Choice Awards.
2. *S&C Digital Edition*. Recent complete issues available in their entirety as PDFs for you to either download or read directly in your browser. No more waiting for the mail to deliver your magazine! You will still receive the printed magazine unless you opt for a digital-only subscription.
3. *Complete Digital Archive*. The complete archives as PDFs — more than 17,000 pages — from *Technical Analysis of STOCKS & COMMODITIES* from 1982 through the present. The articles can be read in your browser or download to your computer (or any device with Internet access and the ability to read a PDF)!
4. *Traders.com Advantage*, premium website content delivering real-world technical analysis to you! You'll get **five years** of charts, indicators, and “how-to” advice for specific markets, currencies, stocks, and commodities; near-term opportunities; price movement; new techniques. Posted in real-time with an archive of thousands of articles.
5. *Working Money*, the Investors' Magazine online. You'll get **five years** of market observations; explanations of charts, markets, and market sectors; money management; and interviews with money people that will help you trade and invest wisely.
6. *Article Code*. Download or copy & paste code presented in past issues of *STOCKS & COMMODITIES* — no need to type it out manually.
7. *Optimized Trading*. The optimized indicator values can be used as starting points when trying to decide what values to input into your charting software. Search for a certain symbol or company or build your own portfolio.



ALSO RECEIVE A FREE[†] BOOK WITH YOUR PTSK ORDER!

Charting The Stock Market: The Wyckoff Method, edited by Jack K. Hutson, is yours free[†] with your order for the Professional Traders' Starter Kit.

[†]Shipping and handling charges apply for foreign orders.



TECHNICAL
ANALYSIS OF **STOCKS &
COMMODITIES**

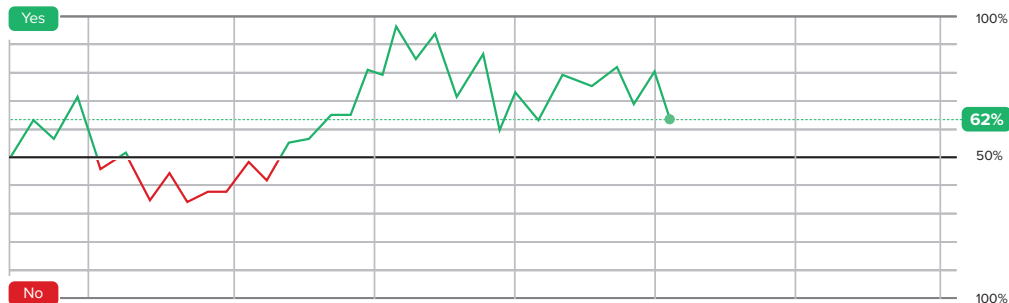
www.Traders.com

*Based on the 5-year subscription rate of \$299.99. Shipping extra for foreign addresses.

Use Forecast Contracts to trade your view on economic and climate indicators

Will the year-over-year change in
the **US Consumer Price Index**
exceed 2.5% this month?

Yes	\$0.62 62%
No	\$0.38 38%



Trade your opinion on **Yes** or **No** questions on
economic and climate indicators at Interactive Brokers
and receive 4.33% APY* as an incentive coupon on
the daily closing value of your contracts.



ibkr.com/sc-forecastex



Member - NYSE, FINRA, SIPC. *Incentive coupon subject to variation with benchmark rates. Restrictions apply. Interactive Brokers LLC is a CFTC-registered Futures Commission Merchant and a clearing member and affiliate of ForecastEx LLC ("ForecastEx"). ForecastEx is a CFTC-registered Designated Contract Market and Derivatives Clearing Organization. Interactive Brokers LLC provides access to ForecastEx forecast contracts for eligible customers. Interactive Brokers LLC does not make recommendations with respect to any products available on its platform, including those offered by ForecastEx.

10-IB24-168CH1682

EDITORIAL

editor@traders.com

Editor in Chief Jack K. Hutson

Production Manager Karen E. Wasserman

Graphic Designer Wayne Shaw

Webmaster Han J. Kim

Contributing Editors John Ehlers,
Anthony W. Warren, PhD.

Contributing Writers Thomas Bulkowski, Martin
Pring, Barbara Star, Markos Katsanos, Leslie N.
Masonson

OFFICE OF THE PUBLISHER

Publisher Jack K. Hutson

Industrial Engineer Jason K. Hutson

Project Engineer Sean M. Moore

ADVERTISING SALES

4757 California Ave. S.W.

Seattle, WA 98116-4499

206 660-8577 Fax 206 938-1307

advert@traders.com

National Sales Manager Edward W. Schramm
ESchramm@traders.com

CIRCULATION

Subscription & Order Service 1 800 832-4642

1 206 938-0570 Fax 1 206 938-1307

circ@traders.com

Subscription Manager Sean M. Moore

WEBSITE

http://www.traders.com

Staff members may be emailed using first initial
plus last name plus @traders.com

Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by Technical Analysis, Inc. for users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of \$1.00 per copy, plus 50¢ per page is paid directly to CCC, 222 Rosewood Drive, Danvers, MA 01923. Online: <http://www.copyright.com>. For those organizations that have been granted a photocopy license by CCC, a separate system of payment has been arranged. The fee code for users of the Transactional Reporting Service is: 0738-3355/2023 \$1.00 + 0.50.

Subscriptions: USA: one year (13 issues) \$89.99; Magazines shipped outside the US require additional postage as follows: Canada, US\$15 per year; Europe, US\$25.50 per year; all other countries US\$39 per year. Single copies of most past issues from the current year are available prepaid at \$8 per copy. Prior years are available in book format (without ads) or digitally from www.traders.com. USA funds only. Washington state residents add sales tax for their locale. VISA, MasterCard, AmEx, and Discover accepted. Subscription orders: 1 800 832-4642 or 1 206 938-0570.

Technical Analysis of Stocks & Commodities™, The Traders' Magazine™, is prepared from information believed to be reliable but not guaranteed by us without further verification, and does not purport to be complete. Opinions expressed are subject to revision without notification. We are not offering to buy or sell securities or commodities discussed. Technical Analysis Inc., one or more of its officers, and authors may have a position in the securities discussed herein.

The names of products and services presented in this magazine are used only in an editorial fashion, and to the benefit of the trademark owner, with no intention of infringing on trademark rights.

CONTENTS

DECEMBER 2024, VOLUME 42 NUMBER 13

6 Futures For You

by Carley Garner

Here's how the futures market *really* works. This month: Margin Rates.

FEATURE ARTICLE

8 Overlooked Strategy Rules

by Perry J. Kaufman

If you're only using a trend and a stop-loss, you're missing out on a lot.



14 Predicting S&P 500 Tops And Bottoms With Shannon Entropy

by Yuqi Fan

This measure of uncertainty can provide insights into market dynamics that traditional methods may overlook. Find out how.

18 Strategy Corner

by Dave Mabe

Got a question about using trading strategies? This month: Eliminate Sub-Optimal Trades.



20 Automatic Trend-Following Strategy For Stock Trading: Microsoft, Apple, Google, And Meta

by Andrea Unger

Is it a good idea to enter on what appears to be a pullback in a bullish trend? Here is how you can code, test, and measure performance of a trend strategy so you can compare different approaches to entry.

25 Algo Q&A

by Kevin J. Davey

Got a question about system or algo trading? This month: The Real Scoop.



26 Navigating Through Market Manipulations: The ICT Judas Swing Strategy

by Azeez Mustapha

The name of this strategy reflects that it attempts to capitalize on some of the deceptive market manipulations carried out by big market players. Here are the details of this trading strategy.

30 The Savvy Technician

by Stella Osoba, CMT, Esq.

Recognizing and applying technical chart patterns to trading. This month: Remembering To Take Profits.

34 Market Rap

by Emilio Tomasini

"Unserious" thoughts on serious topics in finance. This month: Trading Contests (Part 1 of 2).



36 Will AI Ever Be Useful For Technical Analysis? Part 1: It's Not A Given

by Greg Aharonian

Are AI tools giving traders improvements in alpha and beta, and if not, why not?

48 Explore Your Options

by Jay Kaeppl

Got a question about options? This month: Long Straddles.

DEPARTMENTS

40 Traders' Tips

52 Advertisers' Index

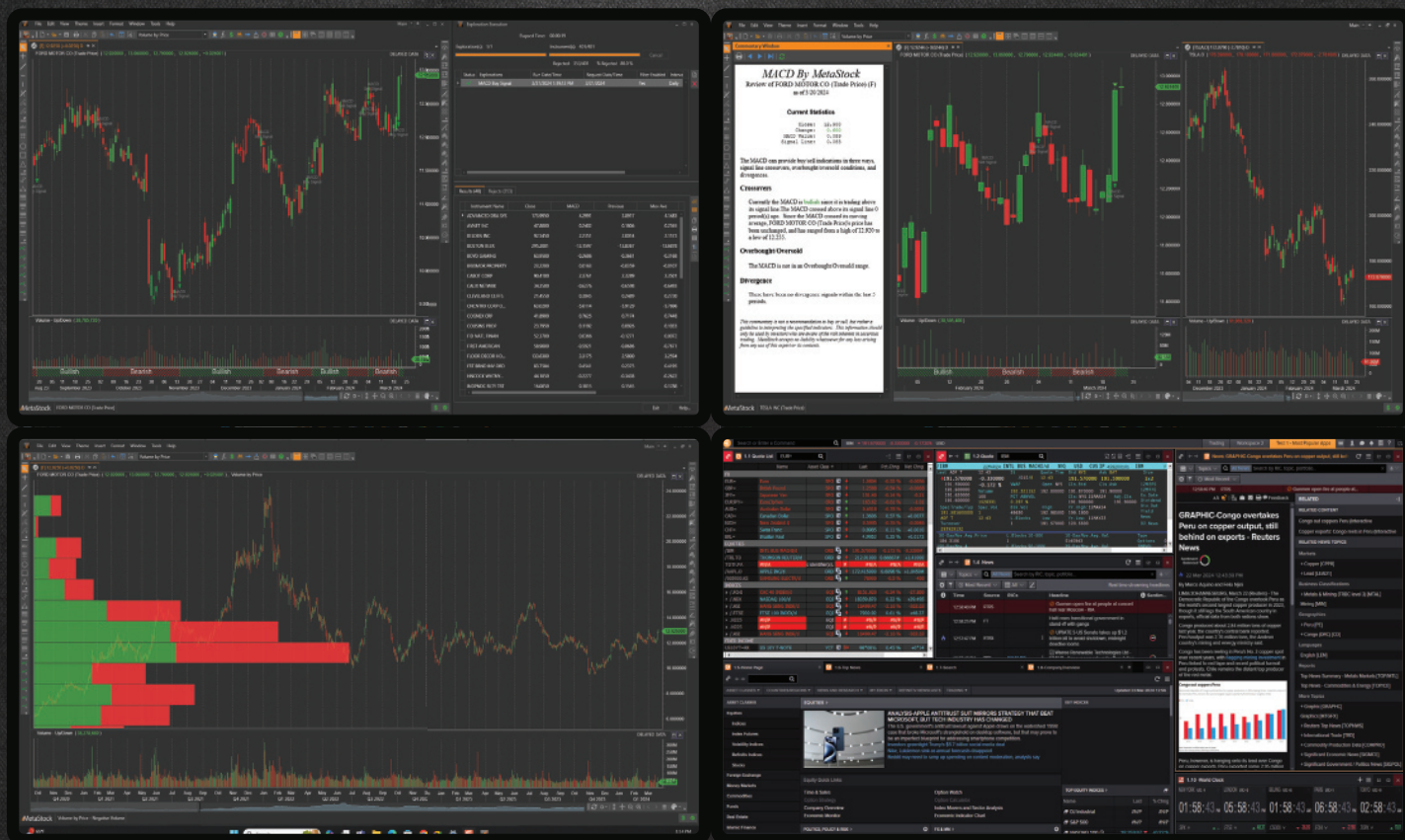
52 Editorial Resource Index

53 Futures Liquidity

54 Classified Advertising

54 Traders' Resource

■ Cover: Thapana_Studio/vectorfusionart/Shutterstock



“Whoa. This is amazing.”

-pretty much anyone who has tried MetaStock 19

Watch a demo and get an extended trial of the **All-New MetaStock 19** featuring **Improved Workflows** and **Next-Gen Flexible Layouts**
[MetaStock.com/P424](https://www.metastock.com/P424)

This is neither a solicitation to buy or sell any type of financial instruments, nor intended as investment recommendations. All investment trading involves multiple substantial risks of monetary loss. Don't trade with money you can't afford to lose. Trading is not suitable for everyone. Past performance, whether indicated by actual or hypothetical results or testimonials are no guarantee of future performance or success. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS OR TESTIMONIALS AND THE ACTUAL RESULTS SUBSEQUENTLY ACHIEVED BY ANY PARTICULAR TRADING PROGRAM. Furthermore, all internal and external computer and software systems are not fail-safe. Have contingency plans in place for such occasions. MetaStock assumes no responsibility for errors, inaccuracies, or omissions in these materials, nor shall it be liable for any special, indirect, incidental, or consequential damages, including without limitation losses, lost revenue, or lost profits, that may result from reliance upon the information presented.

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

MARGIN RATES

Why do different brokerages charge different margin rates for futures and options on futures?

You might have noticed that margin rates can vary widely by brokerage firm. This is true of overnight margins for both futures and options. There are many reasons for this, but the simplest explanation is that the futures exchange sets a floor for margin rates, but brokerages can opt to increase the margin to fit their business model. In other words, brokerages can charge more than the exchange requires for a particular option or futures position, but they cannot charge less for any position held into the close of a trading session. Adding to the confusion, day trading margin rates, which are applied to trades that are offset before the session's close, are often wildly low. They are so low that they are minuscule relative to the actual risk involved in trading the products. Day trading margin rates are between you and your brokerage, not your broker and the exchange, as overnight rates are.

You might be surprised to learn that brokerages who charge exchange minimum margin rates are less common than those who charge higher margin rates than are required. This is particularly true in the option trading arena. A common misconception is that options don't have margin requirements, but

that isn't exactly true. Long option traders, or those who buy calls and puts outright, face risk limited to the premium paid for the option. Therefore, in the past, the exchange didn't charge any margin to hold the position. But over the years, it became apparent that a small margin should be charged to account for the possibility of that option being exercised into a futures contract and any slippage that might come with that process. Thus, futures exchanges generally charge a minimal margin

You might be surprised to learn that brokerages who charge exchange minimum margin rates are less common than those who charge higher margin rates than are required.

requirement to option buyers; it can be as low as \$10, so it isn't a game changer, but it is worth noting just in case someone brings it up at your next cocktail party.

More consequential is the option margin charged for those selling options outright (which comes with unlimited risk) or those trading option spreads in which a naked leg is involved. This can come in many forms, but it is a strategy that contains

more short options of the same type (call or put) than long. For instance, a trader who buys a call option near-the-money and sells an out-of-the-money call option has limited risk because the long option covers the risk of the short option. But if he also sold an extra call or put option, there would be unlimited risk exposure and a significant margin charge. The margin charge by the exchange is roughly the amount of what they deem to be a relatively worst-case scenario one-day loss. Of course, there is no such thing as a limit to the worst-case; misery is limitless. But if the trade goes horribly wrong, the exchange's margin requirement is designed to absorb a single day's worth of risk.

Short option traders and spread traders generally hold positions longer than a single trading session, so it is fair to say that the exchange's minimum margin requirement is probably lower than the overall risk of the trade. Thus, some brokerages opt to charge a higher amount to account for the risk throughout multiple trading sessions rather than a single trading session. The problem is that most of them go a little too far and restrict clients from employing a statistically viable trading strategy. In many cases, the margin upcharge for short options goes beyond risk management justification; it is a corner-cutting

Futures

method or even a way to deter clients from participating in a strategy that requires a little more effort on the brokerage end of things. For example, some brokerages multiply the exchange margin by three to five times to determine the rate charged to clients. In my view, a better way is to grant exchange minimum margin to option clients and educate them on the perils of quantity and leverage risk. This way, they can freely implement their strategy responsibly (one that doesn't put their and their brokerage's financial well-being in danger) while decreasing the odds of an account-decimating margin call. As a short option or option spread trader, most trades will statistically be winners. Still, the lower-probability losers can wipe out years of work or the entire trading capital if traders are slow to hedge their risk or are forced out at inopportune times.

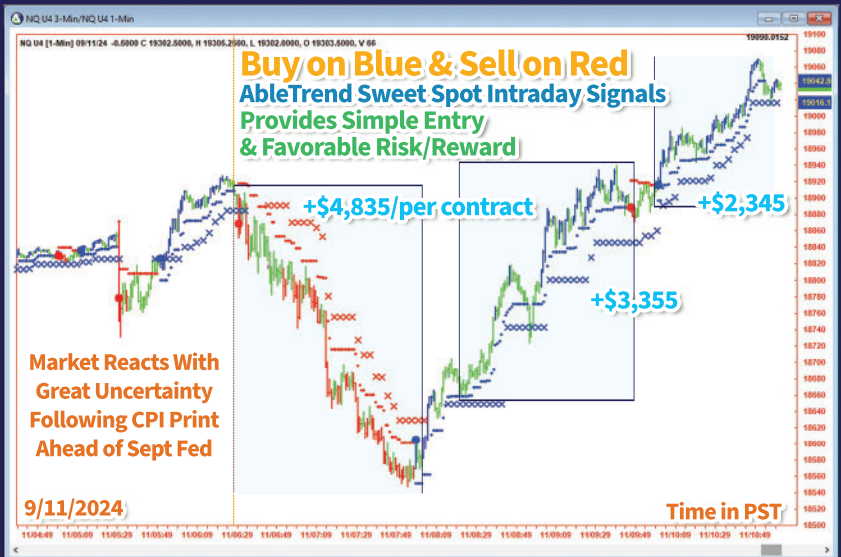
In addition to margin rates, some brokerages extend portfolio margin systems in which spread traders receive the margin break the exchange intends. This means a trader selling a call and a put won't be charged full margins on both sides. Further, a trader who buys a futures contract and sells a call against it won't be charged full futures or short call margin because the two positions counteract each other to lessen the risk.

Options trading and particularly option selling, even via spreads, isn't for everyone. However, if you partake in the practice and are disciplined, choosing a brokerage capable of providing exchange minimum margins is highly recommended. Even so, undisciplined traders might be better off with a brokerage that upcharges margin beyond exchange minimums because it acts as a deterrent to becoming overleveraged.

Find similar articles online at [Traders.com](https://www.Traders.com)



ABLETREND Trusted Reliable Signals for Volatile Markets Since 1994



Extensive Chart Library Available Online
Free Access for Featured Trade Signal Examples



Updated Daily
Intraday & Swing Trading

*Access the New Resource from the Link Below



Traders Rave Over AbleTrend

1997-2024 Award Winning Trading Systems for Stocks, Futures and Options



ABLESYS
SINCE 1994

ABLETREND 7.0 COLLECTED BY



- "32 years in the market. This is the best I've seen yet." - Anthony
- "Those times that I lose money are usually because I haven't followed the signals being generated by Ablesys. It's a **very dependable system**." - Peter
- "Best ever helper for my stock **Entry and Exit executions**." - Neil
- "This system is **absolutely amazing**. I have been trading for over **twenty years** and **nothing can come to the accuracy of this awesome system**." - Customer
- "Great tool without bias. **Extremely easy to use**." - Steve
- "I am extremely happy with AbleTrend software. It has **changed my trading in the best possible way**." - Francesco
- "I have used it for **10+ years** and have tried many other trading software systems. This is by far the **very best system** that can adjust to any market condition...I am exceptional pleased with its results." - Joe S
- "I have been using AbleTrend for **13 years!** Primarily for day trading stocks...I could not do without it!" - Ricardo DaSilva
- "Have been using Able Trend for **20 years** and it is just as effective and accurate as it was in 1999. I have used it profitably for day trading for futures, just as I have for position trading stocks...Use every day whether trading that day or not." - Dan Sayyer
- "I **never make a trade without checking with Ablesys**. The program is my important guiding light and has been for **over 10 years**." - Harvey Saff

TEST DRIVE THE LATEST SIGNALS
www.ablesys.com/SCM

Risk FREE AbleTrend 30-Day Trial
50% Discount code: SCA50

©2024 Ablesys Corp. • 35111F Newark Blvd. Suite 506, Newark, CA 94560 • 510-495-0976 • sales@ablesys.com

THESE RESULTS ARE BASED ON SIMULATED OR HYPOTHETICAL PERFORMANCE RESULTS THAT HAVE CERTAIN INHERENT LIMITATIONS. UNLIKE THE RESULTS SHOWN IN AN ACTUAL PERFORMANCE RECORD, THESE RESULTS DO NOT REPRESENT ACTUAL TRADING. ALSO, BECAUSE THESE TRADES HAVE NOT ACTUALLY BEEN EXECUTED, THESE RESULTS MAY HAVE UNDER-OR OVER-COMPENSATED FOR THE IMPACT, IF ANY, OF CERTAIN MARKET FACTORS, SUCH AS LACK OF LIQUIDITY. SIMULATED OR HYPOTHETICAL TRADING PROGRAMS IN GENERAL ARE ALSO SUBJECT TO THE FACT THAT THEY ARE DESIGNED WITH THE BENEFIT OF HINDSIGHT. NO REPRESENTATION IS BEING MADE THAT ANY ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE BEING SHOWN. THE TESTIMONIAL MAY NOT BE REPRESENTATIVE OF THE EXPERIENCE OF OTHER CLIENTS AND THE TESTIMONIAL IS NO GUARANTEE OF FUTURE PERFORMANCE OR SUCCESS. TECHNICAL ANALYSIS OF STOCKS & COMMODITIES LOGO AND AWARD ARE TRADEMARKS OF TECHNICAL ANALYSIS, INC.



Some Wisdoms For Trading

Overlooked Strategy Rules

If you're only using a trend and a stop-loss, you're missing out on a lot.



Some rules, such as the trend calculation period, a profit-taking level, or stop-loss ATR can be optimized for each market. I prefer a more general approach, using the same parameters for all markets. I admit that some markets are different and can benefit from some “personalization.” However, I avoid that.

I don't want to discuss here how you come up with a trend, or multiple trends, or how to position a stop-loss. There are other rules that can benefit nearly every strategy without “overfitting.” The following is a look at some of those rules. You can apply them to all markets.

SCALING IN AND SCALING OUT

If you have more than one trend, whether two or more moving averages, or a moving average and a breakout, you have a choice of waiting until both confirm an up or down move, or you can scale into a trade based on the net number of signals.

Let's say you have three trend indicators. If all three are long or short, you are 100% long or 100% short. If two are long and one is short, you net +1 of 3 and are long one-third of your full position. This way, you can net as many indicators as you want.

How does this compare to being long or short only when all indicators are in the same direction? I won't give you test results, because there are too many variations, so you'll need to take my word, or test it yourself. If you have a large number of stocks in your candidate list, then waiting until all indicators are fully long or short is the best option. The stock is clearly in a major trend. You can wait for all of them to confirm because you have a lot of stocks to choose from. You will not miss Tesla, Amazon, or Nvidia.

For smaller candidate lists, you want to scale in and out. Otherwise, you don't get enough trades. Without scaling in, you will miss profits when the trend turns. Not all multiple trends need to be long or short to generate a profit.

CORRELATIONS

Correlations are a tricky item. If you try to have a portfolio of uncorrelated stocks, you end up with more diversification, lower returns, and lower risk—except when the whole market sells off, as it did in 2008 and 2021. Then you have high risk regardless of correlations and diversification.

On the other hand, if you want to beat the returns of the S&P, you will need to be long the most active stocks, the ones with “high betas.” They will be riskier, but they have the best chance of high returns. There is also a point where extreme portfolio risk needs to be dampened. We'll discuss that in a bit.

Futures are different. There are six major sectors: interest rates, forex, stock index, energy, metals, and ags (agricultural commodities). Having positions in at least three of these sectors at one time gives good diversification. But often it is the interest rates where the profits are focused.

My approach is to deleverage my futures account by 50% if my positions are in only one sector. I deleverage by 25% if I have positions in two sectors, and I'm fully leveraged with three or more sectors. You may want to personalize that based on the size of those positions and the amount of correlation you are getting. But having only interest rate positions can be risky.

DELAYING AN ENTRY

We often get a stock entry signal after a big move. It could have been an interest rate reaction to the Fed reducing rates (or implying that it will reduce rates), or

by Perry J. Kaufman

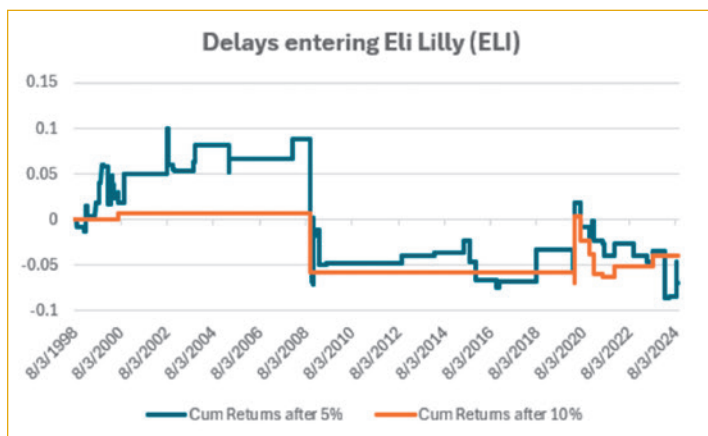


FIGURE 1: DELAYING MARKET ENTRY (ELI). In this test, you see ELI cumulative returns (from 1998) based on entering the day after a rally of 5% or 10%. Trading systems sometimes give an entry signal after a big move. Rather than entering on the next open, in some cases it is better to buy on the next close (or later), since sometimes a pullback occurs the day after a rally.

an interruption in crude oil flows, or better-than-expected earnings.

But if the market surged 10% yesterday, do we want to enter on the next open? In most cases, no. Normally, you can expect a pullback on the next day. You can then buy on the next close, even wait another day, or wait until there is a new high.

I've run a number of tests using a spreadsheet. Most of them have the same results. First, create a column of returns, $p(t)/p(t-1) - 1$, where p is the closing price.

If the returns are greater than a threshold (I used 5% and 10%) then accumulate the difference between the next close($t+1$) minus the next open($t+1$) divided by the previous close(t). That gives you another way of calculating returns.

For this test, I used a moving average of 40 days in order to get enough trades. Total profits were good. Figure 1 shows the results for Eli Lilly (ELI) and Figure 2 are the results for Nvidia (NVDA). ELI starts in 1998 and NVDA in 2015.

DON'T TRADE A STOCK UNDER \$10

I've said this before and I stick to this rule. I don't trade stocks under \$10. They are too volatile and will distort your portfolio returns.

It is very easy to prove. In Excel, calculate the daily returns, $\text{close}(\text{today})/\text{close}(\text{yesterday}) - 1$. Also calculate the 20-day volatility as standard deviation (STDEV) using each of the past 20-day returns times the SQRT(252). Now do a scatter chart of the price and corresponding volatility. You will see that prices under \$10 have much higher volatility than at high prices. Figure 3 shows the price versus percentage returns of BAC, and Figure 4 shows the

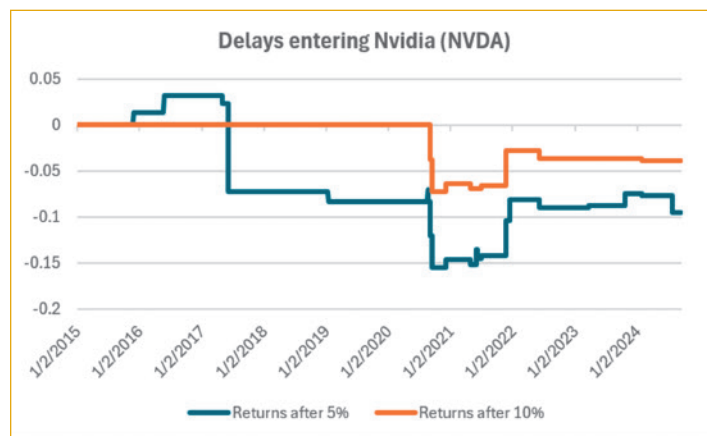


FIGURE 2: DELAYING MARKET ENTRY (NVDA). Here you see NVDA cumulative returns (from 2015) based on entering on the open the day after a rally of 5% or 10%. If a test on your particular market shows that entering the next day is a losing strategy, you can look for a better way to enter after a strong day.

price versus the 20-day annualized volatility.

When picking a stock to do this analysis, you need one that has had wide fluctuations and has not been split. In Figure 3 we see a gradual increase in daily percentage returns as prices move lower, until we get below \$10, where volatility can be extreme. This is contrary to the theory that prices are lognormal (increasing returns as prices get larger). The same is true if we use annualized volatility, shown in Figure 4.

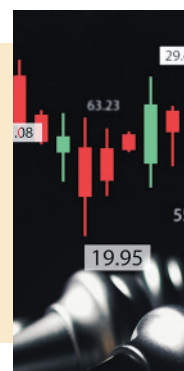
Just to confirm our "theory," Figure 5 shows the returns versus price for Eli Lilly (ELI), also from 1998.

When allocating size to each stock in your portfolio, you can simply use an equal allocation for each stock divided by the current price, as long you avoid trading at low prices. It may not be perfect, but it's easy!

IF POSSIBLE, ENTER ON TODAY'S CLOSE, NOT AT TOMORROW'S OPEN

This can be tricky and inconvenient, but entering as soon as you get a trading signal tends to produce more profits, especially in those markets getting publicity.

There are rules that can benefit nearly every strategy without "overfitting." The following is a look at some of those rules.



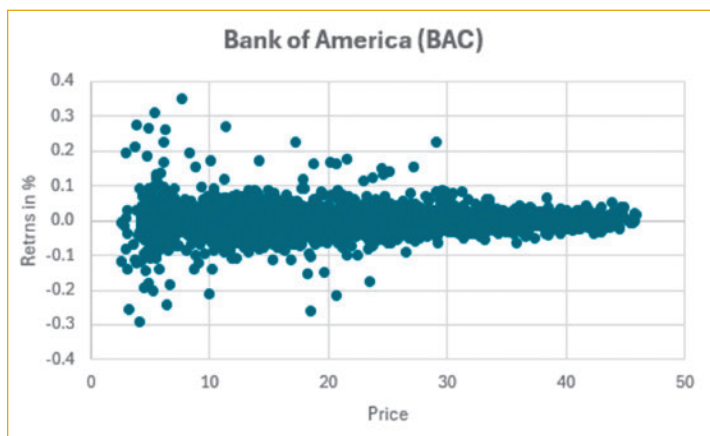


FIGURE 3: RETURN VS. PRICE (BAC). Stocks under \$10 are often too volatile to trade well. You can see here that when the stock price of Bank of America (BAC) was under \$10, it had much higher volatility than when BAC was at high prices. This scatterplot shows percentage returns versus price. See Figure 4 for a look at the annualized volatility.

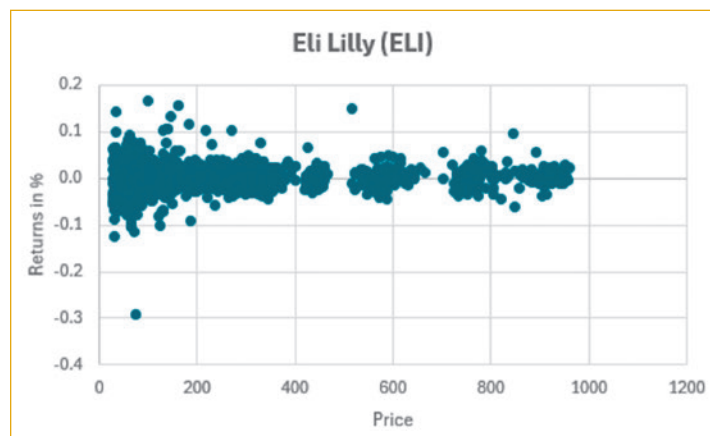


FIGURE 5: RETURN VS. PRICE (ELI). Here you see percentage returns versus price for Eli Lilly (from 1998). This is a similar finding as in Figure 3 with a different stock.

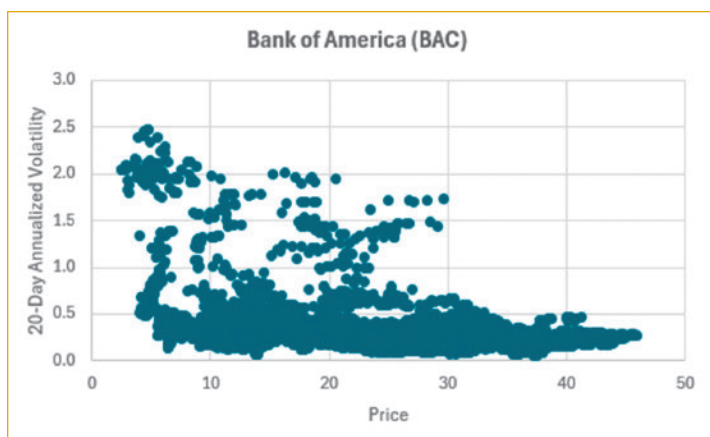


FIGURE 4: ANNUALIZED VOLATILITY (BAC). A plot of 20-day annualized volatility versus price for Bank of America (from 1998) shows that stocks under \$10 can be extremely volatile. That can distort portfolio returns.

As an example, I looked at Amazon (AMZN) and Nvidia (NVDA), both using a 40-day moving average. Again, I used 40 days so that we would have enough trades to draw a conclusion.

For AMZN, entering on the close when there was a moving average signal generated \$175,512. Entering on the next open reduced that to \$164,919. The profit factor was also better entering on the close.

For NVDA, entering on the close produced a gain of \$498,112, while waiting for the next open netted \$491,292, also with a higher profit factor.

I think you will find this generally true, but each market has its own personality. Trending markets, such as interest rate futures, should work better entering sooner; noisy markets may not.

If you are trading a single trend or a single breakout, you can usually see if there is a new signal simply by looking

at the price and your moving average on your screen. If you make a mistake, you can exit in the afterhours with a tiny loss.

If you are trading a crossover system, much of the same logic applies.

But what if it requires multiple criteria, such as a trend, volatility, and confirmation of one or more indicators? There are quite a few trading platforms that allow you to program those combinations. Or you can simply have them on your screen and watch them as they approach the close of the day.

Of course, entering on the close doesn't work for algorithmic systems that need to download each day's data to calculate trading signals. The good news is that they still make money.

EXTREME RISK FOR STOCKS AND PORTFOLIOS

There is a point where a single stock or your entire portfolio is too risky. That's where the returns don't justify the risk. If you're good with spreadsheets or programming, calculate the 20-day volatility as we did in the section "Don't Trade Stocks Under \$10."

Figure 6 shows the 20-day annualized volatility for Bank of America. In 2008 it topped 250% (of course that's because it was annualized from 20 days). In general, it stayed below 50%, which is the threshold I use for

My approach is to deleverage my futures account by 50% if my positions are in only one sector.



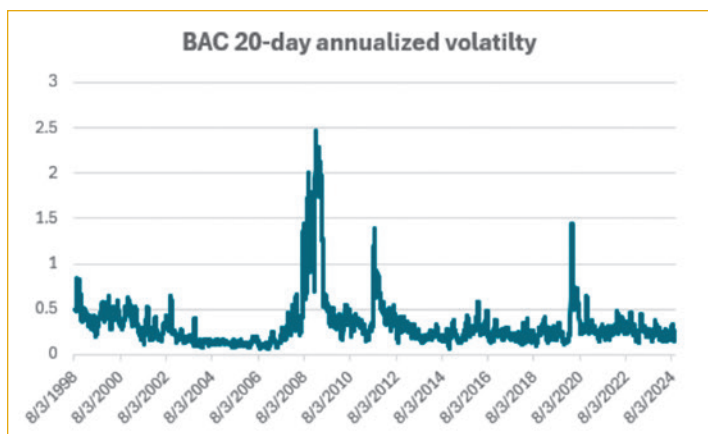


FIGURE 6: ANNUALIZED VOLATILITY (BAC). In this plot of the 20-day annualized volatility for Bank of America (from 1998), you can see that above the 50% threshold, prices tend to be erratic and short-lived.

individual stocks. You can see that above 50%, prices are erratic and short-lived.

Diversified portfolios and index markets have lower volatility. Figure 7 shows that SPY tends to be below 20%, but most traders consider 32% as the extreme threshold. You will probably find that your own portfolio matches the patterns in SPY. Consider lightening your position when volatility moves over 32%. Losses can be big.

Then there are exceptions. Tesla and Nvidia have reached 1.00 volatility (100%). You may not have wanted to exit at 50%. You might need a rule that says, “I’ll exit above 50% only when the price starts down.” You’ll need to figure that one out yourself!

SUMMARY

It’s a lot to think about. While you’re doing that, you might consider other rules. Do you think adding these rules is overfitting? If the rules are general and can be applied to all markets in the same way, then I don’t think so. I’ll let you be the judge.

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

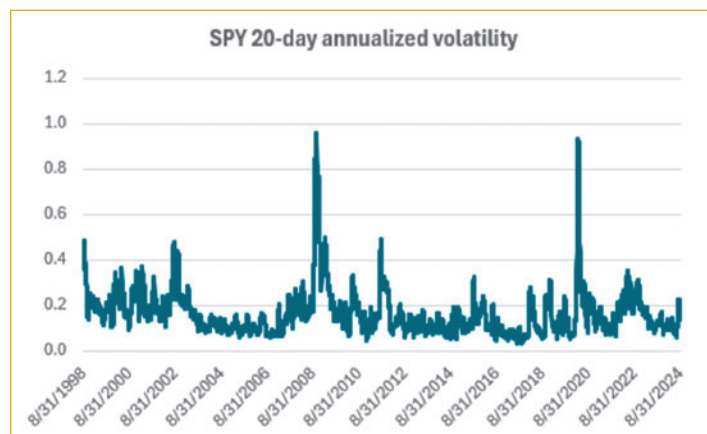


FIGURE 7: ANNUALIZED VOLATILITY (SPY). This is the 20-day annualized volatility for SPY (from 1998). Typically, index markets have lower volatility than individual stocks. The SPY tends to be below 20% annualized volatility, which is well under the threshold that most traders would consider an extreme level of volatility.

as well as Kaufman Constructs Trading Systems (2020), and Learn To Trade (2022). For questions or comments, please go to www.kaufmansignals.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.

‡TradeStation

‡See Editorial Resource Index

Find similar articles online at Traders.com

You can see that above the 50% threshold for the 20-day annualized volatility, prices are erratic and short-lived.



TRADE BRILLIANTLY



thinkorswim® is now at Schwab.

Our award-winning* thinkorswim trading platforms are loaded with powerful features that let you dive deeper into the market.

- Pull from 400+ technical studies** on thinkorswim desktop, including basic support, resistance, profile, and candlestick pattern charts. Plus support your more advanced strategies with sophisticated charts, like Monkey Bars and Renko charts and up to 20 drawings with eight Fibonacci tools.
- Uncover new opportunities with up-to-the-minute market news and insights.
- Tailor the platforms to your trading style with an array of customization options – from interfaces to charts to orders.

Built by the trading-obsessed, so you can trade brilliantly.

thinkorswim desktop
Candlestick Chart
with Ribbon Study



Powered by **Ameritrade**™



Ameritrade, now part of Charles Schwab,
ranked #1 for Satisfaction among DIY investors

Schwab.com/Trading

*StockBrokers.com Annual Awards 2024 was given on January 23, 2024. The criteria, evaluation, and ranking were determined by StockBrokers.com. Companies were assessed in StockBrokers.com's 8 Primary Categories: Commissions & Fees, Investment Options, Platforms & Tools, Research, Mobile Trading, Education, Ease of Use, and Overall. See stockbrokers.com/annual-awards-2024 for more information.

TD Ameritrade, Inc. ("Ameritrade"), Member SIPC, a subsidiary of The Charles Schwab Corporation ("Charles Schwab"), received the highest score in the do-it-yourself segment of the J.D. Power 2024 U.S. Self-Directed Investor Satisfaction Study of investors' satisfaction with self-directed investment firms. It is independently conducted, and the participating firms do not pay to participate. Use of study results in promotional materials is subject to a license fee. Visit jdpower.com/awards for more details.

Investing involves risks, including loss of principal.

**Schwab does not recommend the use of technical analysis as a sole means of investment research.

©2024 Charles Schwab & Co., Inc. All rights reserved. Member SIPC. (0924-4ECJ) ADP123106-01



Uncovering Market Dynamics

Predicting S&P 500 Tops And Bottoms With Shannon Entropy

This measure of uncertainty can provide insights into market dynamics that traditional methods may overlook. Find out how.

by Yuqi Fan

Identifying market tops and bottoms is one of the most challenging tasks for traders, investors, and financial analysts, as it involves predicting the turning points where market trends are likely to reverse. Market behavior is influenced by a wide array of factors, including investor psychology, economic indicators, geopolitical events, and market sentiment, making these turning points particularly difficult to forecast. Traditional methods of analysis, such as technical and fundamental analysis, often struggle to accurately identify these critical moments due to the inherent noise and randomness

in market data.

However, with advancements in technology and the exponential growth of available market data, new approaches have emerged for understanding market dynamics. One innovative method involves applying information theory, a mathematical framework originally developed to study the transmission of information in communication systems. By leveraging large datasets and sophisticated algorithms, researchers and practitioners can now uncover underlying patterns and structures in financial markets that were previously obscured.

In this context, Shannon entropy, a key concept from information theory, has been proposed as a tool for analyzing the uncertainty and randomness in market movements. Shannon entropy measures the amount of information or uncertainty associated with a random variable. In financial markets, it can be used to quantify the unpredictability of price changes. By assessing the

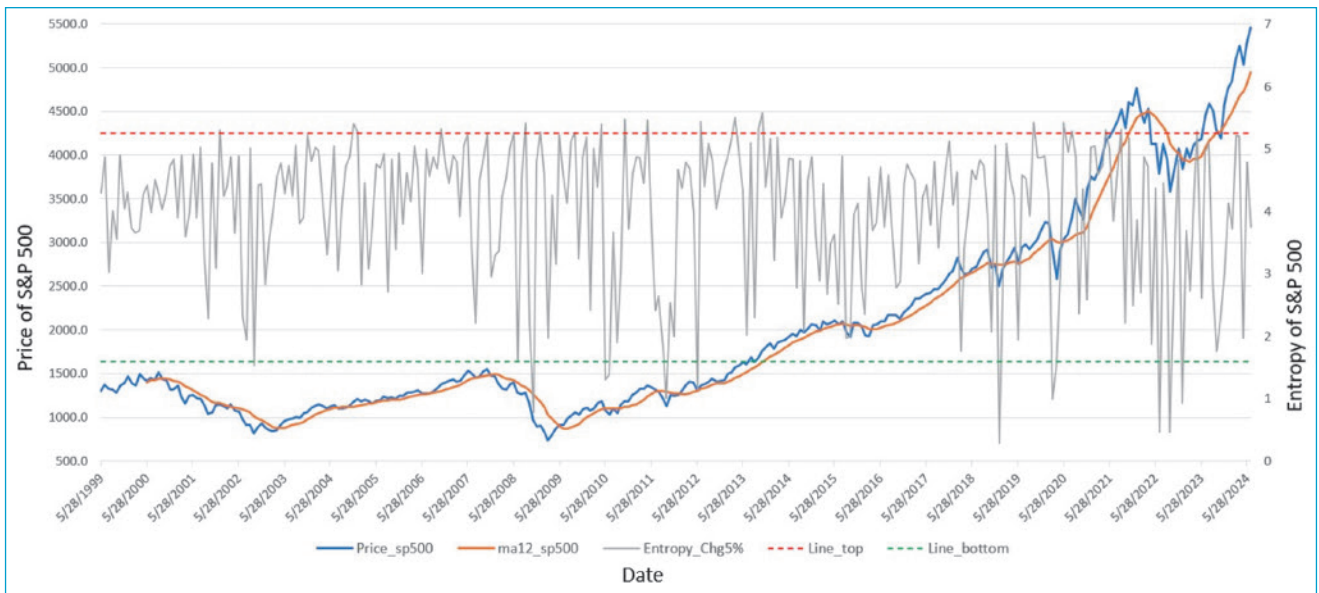


FIGURE 1: SHANNON ENTROPY. Shannon entropy is calculated here based on the monthly performance over time of the S&P 500 index components. The blue and orange lines represent the S&P 500 index and its 12-month simple moving average, while the gray plot shows the Shannon entropy. The red and green dashed horizontal lines indicate possible significant thresholds of entropy levels. Low entropy levels may be a useful signal for identifying market bottoms.

entropy of market data, it may be possible to identify periods of high and low uncertainty, which could correspond to market tops and bottoms.

The aim of this article is to explore the application of Shannon entropy in identifying market tops and bottoms, examining how this measure of uncertainty can provide insights into market dynamics that traditional methods may overlook. This study focuses on analyzing the historical data of the S&P 500 constituents using Shannon entropy calculations to evaluate its potential in identifying critical turning points. Specifically, the study will calculate the Shannon entropy of the S&P 500 constituents over the period from January 2000 to June 2024. By examining the entropy values throughout this timeframe, the goal is to uncover patterns that correlate with market tops and bottoms.

SHANNON ENTROPY

Shannon entropy is a concept from information theory that measures the amount of uncertainty or unpredictability in a set of outcomes. To understand this concept better, consider flipping a coin. When you flip a coin, there are two possible outcomes: heads or tails. If the coin is fair, there is an equal chance of landing on heads or tails, introducing uncertainty because you cannot predict the result until the coin lands. This uncertainty is what Shannon entropy measures.

You can find several good sources online for examples of calculating entropy in a coin-flipping example, so I won't detail that here. In a nutshell, entropy quantifies the "information" generated when one outcome happens

over another. The more unpredictable the outcome, the higher the entropy. Simply put, Shannon entropy provides a way to quantify how much we do not know about the result of a random process.

ENTROPY CALCULATION OF S&P 500

In this analysis, I'll propose a method to calculate the Shannon entropy of the S&P 500 index based on monthly price movements among its constituent companies. The first step in this approach is to group the S&P 500 companies into their respective sectors, such as information technology, healthcare, financials, etc., based on Bloomberg Terminal data. This classification provides a sectoral perspective on market behavior.

Next, we calculate the probability ratio of each sector based on a predefined threshold of monthly price percentage change. Specifically, we focus on companies that experience a price change greater than 5% within a given month. For each sector, we determine the proportion of companies that meet this criterion relative to the total number of companies in that sector. These ratios are used in the Shannon entropy formula, which quantifies the uncertainty or unpredictability of sectoral movements

Normalized Shannon entropy can provide valuable signals for predicting market performance.



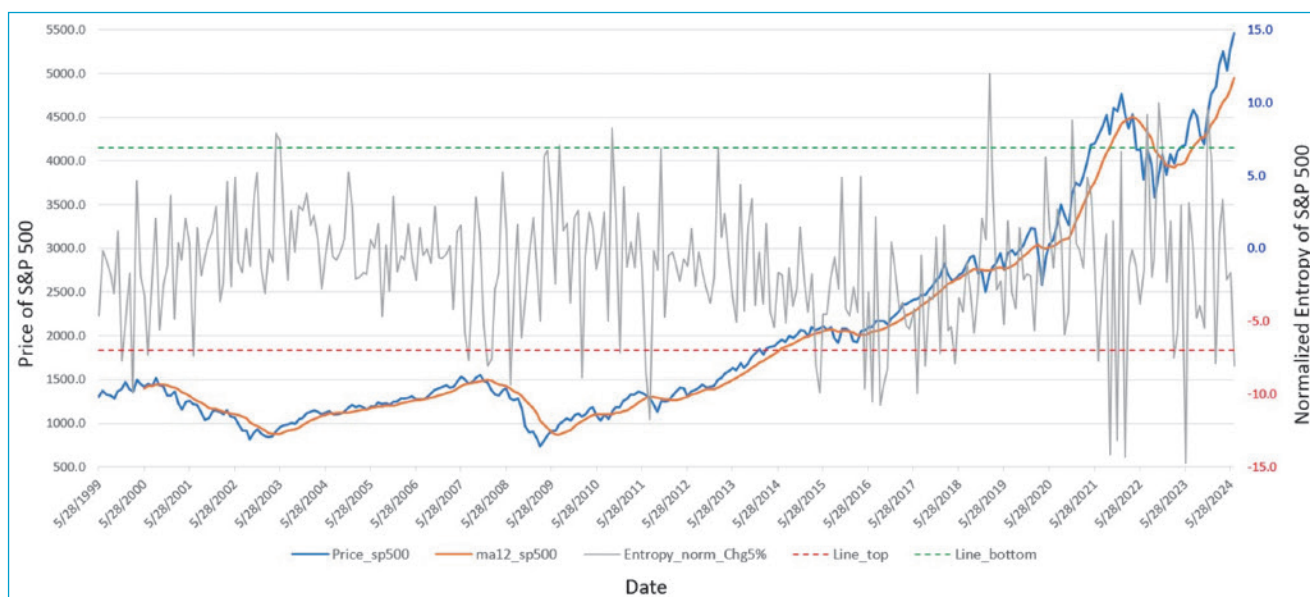


FIGURE 2: NORMALIZED SHANNON ENTROPY. Shown here is a plot of the S&P 500 index (blue line) and its 12-month simple moving average (orange line), along with a normalized Shannon entropy (gray plot). The red and green dashed horizontal lines represent potential significant thresholds of entropy levels. Low normalized entropy values (near or below the red dashed line) often correspond with market tops, while high values of normalized entropy (near or above the green dashed line) often align with major market bottoms, indicating possible market entry points.

within the S&P 500. A higher entropy value suggests a more diverse distribution of price changes across sectors, reflecting a less predictable market. In contrast, a lower entropy value indicates a concentration of price changes in fewer sectors or a small number of companies experiencing significant moves above the threshold in a given month.

After calculating the actual entropy for a given month, we perform a stochastic simulation to understand how random chance might affect the distribution of these price movements. In this simulation, companies with a monthly percentage change above 5% are randomly assigned to different sectors while keeping the total number of such companies constant. This randomization is repeated 100,000 times to create a baseline entropy distribution, allowing us to calculate the mean entropy and its standard deviation under random conditions.

Finally, we normalize the observed entropy by using the difference between the observed entropy and the stochastic mean entropy, divided by the standard deviation of the stochastic entropy. This normalization process provides a z -score-like measure, helping us to understand how significantly the observed distribution of price changes deviates from what would be expected under random chance. A higher absolute value of normalized entropy indicates that the observed distribution is less likely to be the result of randomness, pointing to underlying sectoral trends or market dynamics driving price movements in the S&P 500.

SHANNON ENTROPY AND S&P 500 INDEX

Figure 1 illustrates the relationship between the S&P 500 index price and Shannon entropy, calculated based on the monthly performance of its components over time. The blue line represents the S&P 500 index price, the orange line is its 12-month simple moving average (SMA), and the gray line indicates the Shannon entropy, which measures the diversity and unpredictability of the monthly price changes among the index's constituent companies. The entropy values fluctuate significantly over time, reflecting varying levels of market unpredictability. Periods of high entropy correspond to times when the components' price movements are more diverse across sectors, suggesting increased randomness in the performance of companies with rising prices. Conversely, lower entropy values reflect fewer rising companies or uneven price movements across sectors. The red and green dashed lines represent thresholds that may indicate significant entropy levels, helping to identify periods of exceptionally high or low diversity in market behavior. Overall, the plot reveals the dynamic nature of the market, showing how sectoral performance can vary dramatically and impact the overall entropy of the S&P 500.

Lower entropy levels tend to coincide with market bottoms, such as those observed in 2003, near the end of the tech bubble; the 2008 financial crisis; the 2020 COVID-19 pandemic; and the 2022 market downturn. These periods of low entropy reflect a more uniform decline in prices across the S&P 500's constituent companies, suggesting a

convergence in performance and overall negative market sentiment. This pattern indicates that lower entropy may serve as a useful signal for identifying market bottoms, where uncertainty decreases, and investor sentiment begins to recover.

On the other hand, high entropy does not correlate as strongly with market tops. Given that markets generally trend upward about 70% of the time, high entropy produces too many false positive signals when attempting to identify market tops. This is because high entropy reflects diverse price movements across sectors, which can frequently occur during prolonged bull markets without necessarily indicating an impending market top. Therefore, while low entropy seems to be a more reliable indicator of market bottoms, high entropy lacks the precision needed to effectively predict market tops due to the frequent occurrence of false positives during overall upward market trends.

NORMALIZED SHANNON ENTROPY AND S&P 500 INDEX

To improve the effectiveness of entropy as a predictive tool, normalized Shannon entropy is applied to examine the correlation between market turning points and entropy. The normalization process can enhance the predictive power of entropy for market analysis by allowing a more systematic comparison across different time periods, as it accounts for the expected entropy under random conditions. This adjustment helps highlight periods where market behavior is truly unusual, potentially improving the utility of entropy as an analytical tool for identifying significant market shifts.

Figure 2 presents the S&P 500 index alongside normalized Shannon entropy. Notably, in this plot, low normalized entropy values correspond more closely with market tops, such as those observed during the 2000 tech bubble, the 2008 financial crisis, and the 2022 market downturn. This suggests that normalized entropy may be more effective at identifying market tops compared to unnormalized entropy. However, it still generates some false positive signals, particularly during the period from 2016 to the present.

In contrast to unnormalized entropy shown in Figure 1, the high values of normalized entropy (near or above the green dashed line) more closely align with major market bottoms, offering entry points in 2003, 2009, 2019, 2020, 2022, and 2023.

To quantify the effectiveness of this signal, Figure 3 displays the S&P 500 index returns from January 2000 to June 2023 following instances where normalized Shannon entropy crosses specific thresholds. The end period was

Threshold of normalized Entropy	Return in 3 months	Return in 6 months	Return in 12 months	Number of trades
The entropy crosses above				
5	3.6%	6.3%	12.1%	15
6	5.9%	10.0%	16.6%	12
7	5.2%	10.3%	13.8%	7
The entropy crosses below				
-5	-0.4%	1.3%	1.3%	34
-6	-0.1%	-0.5%	-1.0%	25
-7	0.8%	0.8%	-0.7%	24
The entropy crosses below with S&P500 < 12-month SMA				
-5	-9.7%	-13.0%	-18.9%	6
-6	-14.1%	-20.0%	-23.8%	4
-7	-11.3%	-16.2%	-28.6%	3
S&P 500 from Jan 2000 to Jun 2023	1.5%	3.2%	6.7%	290

FIGURE 3: NORMALIZED SHANNON ENTROPY CROSSES. Here you see S&P 500 index performance from January 2000 to June 2023 following instances where normalized Shannon entropy crosses above or below certain thresholds. "SMA" refers to the simple moving average.

selected to ensure the availability of a complete dataset for 12-month returns.

After normalized Shannon entropy crosses above thresholds

When normalized entropy crosses above positive thresholds of 5, 6, and 7, there are generally positive returns observed over the following 3, 6, and 12 months. Higher thresholds (6 and 7) are associated with even stronger performance, with returns reaching up to 16.6% over 12 months when crossing above 6. This suggests that rising entropy above these levels could be a bullish signal for future market performance.

After normalized Shannon entropy crosses below thresholds

When entropy crosses below negative thresholds (-5, -6, and -7), the performance is mixed. For example, crossing below -5 shows a slightly negative return over 3 months but moves into positive territory over 6 and 12 months. However, more extreme negative entropy

Continued on page 19

Shannon entropy measures the amount of information or uncertainty associated with a random variable.



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

ELIMINATE SUB-OPTIMAL TRADES

A trader named Raj asks (used with permission):

"I have been a breakeven trader for the last 2 years. The biggest obstacle for me is taking nearly 30 percent of my trades with sub-optimal setups. How can I fix this?"

I love hearing this question and variations of it from traders for a couple of reasons. First, it tells me that the trader has a process for reviewing trades after the fact to see where they can get better. Because of this, they're further along the path toward consistent profitability than they realize because they've built a solid foundation for improvement.

I asked Raj how he knew that 30 percent of his trades were sub-optimal. He responded:

"I use TraderVue to log my trades. 30 percent is a rough estimate after reviewing and seeing a lot of setups that I would no longer take today. If there is no setup, I should not take the trade. But I end up taking it with smaller size and as a result, I take a lot of unnecessary losses."

First off, logging your trades (all of them!) is critical for improving your trading performance. The best traders keep score and routinely evaluate their performance, looking for ways to improve. Honestly assessing how well you're trading is fundamental to long-term success. The fact that Raj is already doing this means he has established an excellent foundation

for his trading process.

It can be difficult for some traders to stop taking trades that they've been trading for some period of time, especially if some of them have worked well in the past. It's difficult to tell in the moment when certain setups have less trading edge than others.

It's much easier to make this determination with hindsight but to make real progress in eliminating poor trades, you must identify them before executing the trade.

The best traders keep score and routinely evaluate their performance, looking for ways to improve.

Here's the plan we came up with:

- Identify the sub-optimal trades
- Categorize them and view performance separately from the optimal setups
- Eliminate them from the daily trading routine

IDENTIFY THE SUB-OPTIMAL TRADES

By retroactively reviewing the trades you've logged to your journal, you can identify key patterns that cause trades to perform poorly. A good place to start is to review the charts of your

most profitable and least profitable trades. These are the big difference makers in your strategy and provide clues for making your strategy more profitable.

CATEGORIZE THE SUB-OPTIMAL TRADES

Once you identify a clear pattern as Raj was able to do, the next step is to categorize them so you can evaluate the performance of this subset of your trades.

I suggested to Raj that he assign a tag (that is, a category) to the trades he identified as sub-optimal. For example, he might label them "sub-optimal" or "grade B."

Modern online trade journal software makes assigning these categories a breeze.

ELIMINATE POOR TRADES FROM YOUR STRATEGY

Once you've assigned the "sub-optimal" tag to the trades in your journal, you can analyze the performance of the subset.

Figure 1 is a chart that represents a set of trades I recently worked with a client on to help him analyze his sub-optimal trades. The red line represents the subset of sub-optimal trades while the green line represents the remaining trades (that is, the poor trades have been excluded). It's easy to see how the poor trades are holding back the trader's performance.

Even when traders intuitively know

that some trades in their system are worse than others, it's still mentally difficult to stop taking the poor ones for "fear of missing out" (FOMO).

It helps to plot the equity curves of both subsets of trades to compare such as in Figure 1. When you see the actual equity lines on a chart, it becomes hard to ignore the truth about what's going on. Most of the time, a trader suddenly gets very motivated when they see their results this way! It's not uncommon for traders to find ways to improve their profit per trade by 40 percent or more.

Identifying and eliminating the worst trades is often the easiest way for someone to improve their trading

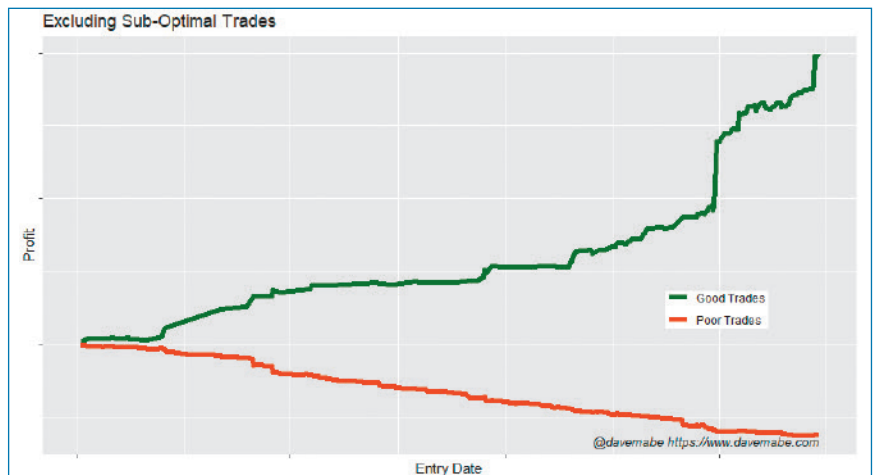


FIGURE 1: EQUITY LINES FOR TWO CATEGORIES OF TRADES. Plotting separate equity lines for your most profitable trades and least profitable trades can offer insights for making your strategy more profitable.

system. With a structured approach like this, you can do it too.

Find similar articles online at [Traders.com](https://www.traders.com)

FAN/SHANNON ENTROPY

Continued from page 17

levels (−6 and −7) tend to show negative returns over time, indicating a potential bearish signal, albeit with less pronounced declines compared to when combined with other conditions.

A strong bearish signal emerges when entropy crosses below negative thresholds and the S&P 500 is also below its 12-month simple moving average. Returns in these cases are significantly negative across all timeframes. For instance, at an entropy threshold of −6, the returns are −14.1% over 3 months, −20.0% over 6 months, and −23.8% over 12 months. This indicates that combining low entropy with the S&P 500 being below its moving average could be a reliable indicator of further declines.

Comparison with overall market performance

The average returns for the S&P 500 from January 2000 to June 2023 are 1.5% over 3 months, 3.2% over 6 months, and 6.7% over 12 months. The returns when entropy crosses above positive thresholds outperform the average market returns significantly, while the returns when entropy crosses below negative thresholds and the market is also below its 12-month SMA underperform the average market returns significantly.

SUMMARY

Normalized Shannon entropy can provide valuable signals for predicting market performance. Positive

entropy crossings are generally bullish, while negative entropy crossings, especially when combined with the S&P 500 being below its moving average, suggest bearish conditions. These insights could be useful for traders and investors looking to gauge market direction based on entropy levels.

Yuqi Fan is a market student with interests in biology and data modeling. She can be reached at ninayqf@163.com. The author extends gratitude to Dr. Jian Wang for his guidance on this project.

FURTHER READING

- Shternshis, Andrey, et al. [2022]. "Measuring Market Efficiency: The Shannon Entropy Of High-Frequency Financial Time Series," *Chaos, Solitons, and Fractals*, Vol. 162, <https://doi.org/10.1016/j.chaos.2022.112403>.
- Gu, Rongbao [2017]. "Multiscale Shannon Entropy And Its Application In The Stock Market," *Physica A*, Vol. 484, pp. 215–224, <https://doi.org/10.1016/j.physa.2017.04.164>.
- Fort, Hugo [2022]. *Forecasting With Maximum Entropy: The Interface Between Physics, Biology, Economics, And Information Theory*, first ed., IOP Publishing, <https://doi.org/10.1088/978-0-7503-3931-5>.
- Massel, Stephen [2015]. "Shannon Entropy," *Technical Analysis of STOCKS & COMMODITIES*, Volume 33: August.

Find similar articles online at [Traders.com](https://www.traders.com)



Testing Market Entry On Pullbacks

Automatic Trend-Following Strategy For Stock Trading: Microsoft, Apple, Google, And Meta

Is it a good idea to enter on what appears to be a pullback in a bullish trend? Here is how you can code, test, and measure performance of a trend strategy so you can compare different approaches to entry.

by Andrea Unger



Trend-following is one of the most popular and powerful approaches to trading. It's a straightforward strategy: you follow the market trends that are already in motion. But here's the tricky part—timing. The biggest challenge is knowing when to jump in—without acting too early, before the market takes a clear direction, or too late, when the trend is about to lose momentum. Markets that are

trending often experience pullbacks (Figure 1), and it's hard to know if that pullback is just a correction or the end of the trend. It often feels safer to wait for a pullback before entering a position and then wait for the market to resume its movement in the same direction.

BUILDING THE PORTFOLIO: MICROSOFT, APPLE, GOOGLE, META

With this in mind, let's explore how to build a trading system for a stock portfolio made up of four of the biggest names in US tech: Microsoft, Apple, Google, and Meta.

Over the past decade, these tech giants have experienced explosive price growth and long-term bullish trends. In Figure 2, you'll see an equity line of a simple buy-and-hold portfolio with \$10,000 invested in each stock from



FIGURE 1: PULLBACK EXAMPLES. Markets that are trending often experience pullbacks, as seen here. In real time, it's difficult to know whether a pullback is just a correction or if the trend is ending. It's worth testing different approaches to entry for different markets.

2010 (2012 for Meta, which went public that year) through September 2024, with the assumption that all gains were reinvested. The chart shows some incredible returns, but it also highlights some severe drawdowns.

This is exactly why our goal is to develop faster, more nimble trading methods that manage risk more effectively. We'll do this by applying the concepts of trends and pullbacks.



FIGURE 2: THE BUY & HOLD CASE. Here you see buy & hold returns on a hypothetical portfolio of four large-cap tech stocks: Microsoft (MSFT), Google (GOOGL), Apple (AAPL), and Meta (META). Returns are generally very high but the chart also reveals some significant drawdowns.

HOW THE AUTOMATIC TREND-FOLLOWING STRATEGY WORKS

Let's lay out the rules for our system and backtest. We'll be testing a portfolio of the four stocks, using a fixed position size of \$10,000 for each trade. The test will cover historical data from 2010 to July 31, 2024. The system will operate on a daily timeframe and will take only long positions to capitalize on the natural bullish bias of these stocks. To define the trend, we'll use a simple 200-period moving average to differentiate uptrends from down-

```
input: mystop(0),myprofit(0),mybreakeven(0);
input: max_days(5);
input: len(200),high_len(2);
input: pullback_type_0_3(0),entry_type_0_2(0);
```

```
var:uptrend(false),pullback(false);
```

```
//Trend filter
```

```
uptrend=close>Average(c,len);
```

```
//Pullback
```

```
switch(pullback_type_0_3) begin
```

```
  //0 pullback 3 bar
```

```
  case 0 : pullback=c<c[1] and c[1]<c[2];
```

```
  //1 pullback 4 bar
```

```
  case 1 : pullback=c<c[1] and c[1]<c[2] and c[2]<c[3];
```

```
  //2 pullback 5 bar
```

```
  case 2 : pullback=c<c[1] and c[1]<c[2] and c[2]<c[3]
and c[3]<c[4];
```

```
  //3 pullback 6 bar
```

```
  case 3 : pullback=c<c[1] and c[1]<c[2] and c[2]<c[3]
and c[3]<c[4] and c[4]<c[5];
```

```
end;
```

```
//Entries
```

```
if uptrend and pullback then begin
```

```
  switch(entry_type_0_2) begin
```

```
    //market
```

```
    case 0: buy next bar at market;
```

```
    //1 Stop Highd(1)
```

```
    case 1: buy next bar at highd(1)stop;
```

```
    //2 Stop Highest(high,n)
```

```
    case 2: buy next bar at highest(h,high_len)stop;
```

```
  end;
```

```
end;
```

```
//Exits
```

```
if (date-entrydate)>max_days then setexitonclose;
```

```
if mp=1 then begin
```

```
  if MyStop>0 then setstoploss(MyStop);
```

```
  if Myprofit>0 then setproftarget(Myprofit);
```

```
  if Mybreakeven>0 then setbreakeven(Mybreakeven);
```

```
end;
```

```
setstopposition;
```

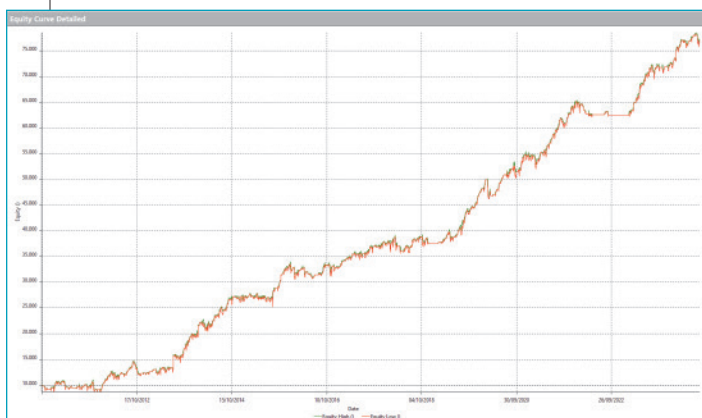
FIGURE 3: POWERLANGUAGE CODE. Here you see the coding used to create the initial trend-following strategy being tested.

Using reinvestment-based position sizing can significantly increase profits while reducing risk compared to a simple buy-and-hold strategy.

trends. For pullbacks, we'll test various configurations, based on the number of retracement bars, to determine which is most effective. The number of bars should give the market enough time to retrace, but not so much that it kills the original momentum. For this test, we'll use a minimum of 3 bars and a maximum of 6.

Here's a summary of the system's rules:

1. If the stock price is above its 200-period simple moving average



2. If there's a pullback of N bars
3. Enter a long position (at the next session's open)
4. Exit after five sessions, unless the stop-loss or profit target is hit

To make this test more interesting, we could add two more variations for entry (point 3). For example, instead of entering at the next session's open, we could enter only when the previous day's high is broken, providing an extra layer of confirmation that the pullback is indeed over and the stock is resuming its trend. Another option is to enter on the break of the highest high over N sessions.

Here's how the entry rules for point 3 could look:

- 3a. Enter long at the next session's open
- 3b. Enter long on the break of the previous day's high
- 3c. Enter long on the break of the highest high over N days

In Figure 3, you'll find the PowerLanguage code used for these tests. We'll optimize various input combinations, including stop-loss and profit targets, which are yet to be defined.

RESULTS ANALYSIS AND COMPARISON OF DIFFERENT PULLBACK CONFIGURATIONS

The results, shown in Figure 4, clearly demonstrate that the strategy works, with positive net profits across all configurations. However, there are notable differences between the various pullback settings (see Figure 5). As we increase the number of pullback bars from 3 to deeper levels, performance declines significantly, as

Performance Summary		All Trades		Total Trade Analysis		Overview	
Net Profit	66,825,83			Total # of Trades	1079	Market	Start Date
Gross Profit	162,876,32			Total # of Open Trades	2		End Date
Gross Loss	(96,050,49)			Number Winning Trades	660		Net Profit
Account Size Required	9,390,38			Number Losing Trades	418		# Trades
Return on Account	711,64%			Percent Profitable	61,17%	AAPL	25/10/2010
Return on Initial Capital	668,26%			Avg Trade (win loss)	61,93	GOOGL	11/11/2010
Profit Factor	1,7			Average Winning Trade	246,78	MSFT	29/12/2010
Slippage Paid	0,00			Average Losing Trade	(229,79)	META	14/03/2013
Commission Paid	0,00			Ratio Avg Win / Avg Loss	1,07		
Open Position P/L	358,92						
Select Net Profit	81,345,58						
Adjusted Net Profit	55,787,89						
Max Portfolio Drawdown	(4,014,13)						
Max Portfolio Drawdown (%)	(21,28%)						
Max Portfolio Close To Close Drawdown	(3,631,00)						
Max Portfolio Close To Close Drawdown (%)	(19,49%)						
Return on Max Portfolio Drawdown	16,65						
Annual Rate of Return	48,49%						

FIGURE 4A&4B: EQUITY LINE AND PORTFOLIO METRICS FOR A 3-BAR PULLBACK TREND STRATEGY WITH MARKET ENTRIES. Performance metrics for the initial trend-following strategy (without money management rules applied yet) demonstrate positive net profits across all configurations.

NET PROFIT	Pullback 3 bars	Pullback 4 bars	Pullback 5 bars	Pullback 6 bars
Entry market	\$66,825.83	\$41,260.89	\$15,795.55	\$12,155.18
Entry stop highd(1)	\$19,884.87	\$9,320.13	\$3,480.59	\$2,359.88
Entry stop highest (high,2)	\$14,790.61	\$8,711.48	\$3,001.25	\$1,519.78
AVERAGE TRADE	Pullback 3 bars	Pullback 4 bars	Pullback 5 bars	Pullback 6 bars
Entry market	\$61.93	\$69.82	\$76.31	\$144.70
Entry stop highd(1)	\$59.54	\$56.83	\$55.25	\$81.38
Entry stop highest (high,2)	\$47.41	\$58.08	\$49.20	\$56.29
NR TRADE	Pullback 3 bars	Pullback 4 bars	Pullback 5 bars	Pullback 6 bars
Entry market	1,079	591	207	84
Entry stop highd(1)	334	164	63	29
Entry stop highest (high,2)	312	150	61	27
MAX DRAWDOWN	Pullback 3 bars	Pullback 4 bars	Pullback 5 bars	Pullback 6 bars
Entry market	-\$4,014.13	-\$3,003.22	-\$3,335.34	-\$1,601.09
Entry stop highd(1)	-\$4,202.30	-\$3,272.57	-\$1,569.02	-\$2,061.78
Entry stop highest (high,2)	-\$4,717.11	-\$3,001.64	-\$1,992.08	-\$2,389.49

FIGURE 5: COMPARATIVE TABLE OF PORTFOLIO RESULTS USING DIFFERENT PULLBACK SETTINGS. The trend strategy was varied to test entry on pullbacks by delaying entry by a given number of bars. As the setting for the number of pullback bars increases from 3 to deeper levels, performance declines significantly as does the number of trades. This is a logical test result—for strongly bullish stocks, you don’t want to wait too long before entering.

does the number of trades. This is logical considering we’re testing stocks with strong, persistent trends where corrections tend to be short-lived and quickly absorbed by the market.

It’s also worth noting that the most profitable entry type is the simplest one—entering at the next session’s open, rather than waiting for additional confirmation like a break of the previous day’s high. In such strongly trending markets, waiting for confirmation limits the number of trades and, ultimately, the profits.

```
//money management
var:mysize(0);
var:mycapital(0);

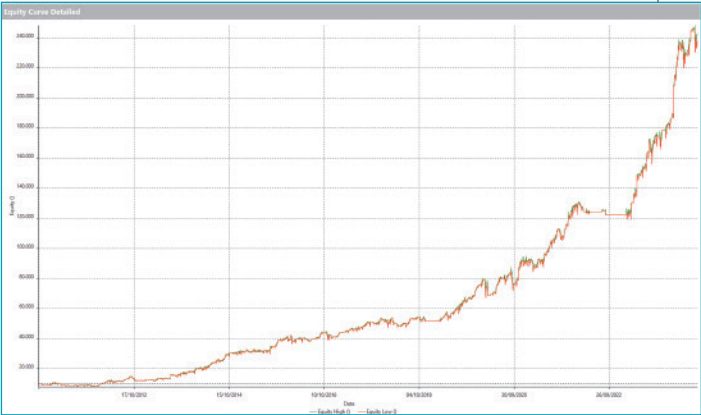
mycapital=10000+(netprofit+openpositionprofit);

mysize=(mycapital/close*bigpointvalue);
```

FIGURE 6: CODE FOR ADDING MONEY MANAGEMENT RULES TO THE STOCK TREND-FOLLOWING STRATEGY. Can the strategy be improved further by integrating position-sizing rules? This script defines the “mysize” (position size) variable.

IMPROVING THE TREND-FOLLOWING STRATEGY WITH MONEY MANAGEMENT TECHNIQUES

Next, we can improve the strategy further by integrating money management techniques. Since we’re trading stocks, we can use their inherent divisibility to our advantage and apply more advanced position-sizing rules.



Performance Summary	
All Trades	
Net Profit	227,262.36
Gross Profit	444,936.13
Gross Loss	(217,673.77)
Account Size Required	23,823.53
Return on Account	953.94%
Return on Initial Capital	2272.62%
Profit Factor	2.04
Slippage Paid	0.00
Commission Paid	0.00
Open Position P/L	4,276.52
Select Net Profit	149,763.34
Adjusted Net Profit	198,962.87
Max Portfolio Drawdown	(18,764.59)
Max Portfolio Drawdown (%)	(27.46%)
Max Portfolio Close To Close Drawdown	(10,543.20)
Max Portfolio Close To Close Drawdown (%)	(24.97%)
Return on Max Portfolio Drawdown	12.11
Annual Rate of Return	164.89%

Total Trade Analysis	
All Trades	
Total # of Trades	1057
Total # of Open Trades	3
Number Winning Trades	629
Number Losing Trades	425
Percent Profitable	59.51%
Avg Trade (win loss)	215.01
Average Winning Trade	707.37
Average Losing Trade	(512.17)
Ratio Avg Win / Avg Loss	1.38

Overview				
Market	Start Date	End Date	Net Profit	# Trades
AAPL	25/10/2010	31/07/2024	28,348.64	275
GOOGL	11/11/2010	31/07/2024	20,301.38	267
MSFT	29/12/2010	31/07/2024	21,848.41	277
META	14/03/2013	31/07/2024	156,763.93	238

FIGURE 7A & 7B: EQUITY LINE AND PORTFOLIO METRICS FOR A 3-BAR PULLBACK TREND STRATEGY WITH MARKET ENTRIES AND MONEY MANAGEMENT RULES. Performance metrics for the trend-following strategy, this time with position-sizing rules applied, demonstrate positive net profits and shows good improvement over the fixed position-size approach tested in Figure 4.

	NET PROFIT	AVERAGE TRADE	MAX DRAWDOWN
Buy & Hold	\$639,508.63	\$159,877.16	-\$225,629.22
Pullback 3 bar strategy	\$66,825.83	\$61.93	-\$4,014.13
Pullback 3 bar MM strategy	\$227,262.36	\$215.01	-\$18,764.59

FIGURE 8: COMPARATIVE TABLE OF PORTFOLIO RESULTS FOR BUY & HOLD, 3-BAR PULLBACK TREND STRATEGY, AND 3-BAR PULLBACK TREND STRATEGY WITH MONEY MANAGEMENT. Test results show the trend strategy has better risk-adjusted metrics than the buy & hold approach, and also, the trend strategy with position sizing has better risk-adjusted metrics than the same trend strategy with fixed position sizing.

A concept that has proven successful in previous stock studies is to use a variable position size based on profits and losses, rather than the fixed \$10,000 size used earlier. In Figure 6, you'll see part of the script that defines the "mysize" variable according to this concept.

Let's test this money management method on the strategy with a 3-bar pullback and market entries. We'll compare the results to those of the fixed-size approach.

The results are clear: using a more sophisticated money management approach significantly boosts performance. Figure 7 shows the equity line and portfolio metrics for a 3-bar pullback strategy with market entries and money management. Figure 8 shows a comparative table of results for buy & hold, the 3-bar pullback strategy, and the 3-bar pullback strategy with money management applied.

As you can see, for the 3-bar pullback strategy with money management applied, the portfolio's net profit more than triples, reaching nearly \$230,000, with a modest drawdown of just \$18,764. It's interesting to note that META benefits the most from this approach, with net profits surging from around \$24,000 to \$156,764. This is likely because META has been the most volatile stock among the four, allowing it to capitalize on the variable position sizes. The 200-period moving average also proves effective, as it helps us avoid the worst bear markets, such as the downturn in early 2022, when the equity line remains flat due to no trades being executed.

CONCLUSION: PROFITABILITY OF AN AUTOMATIC TREND-FOLLOWING STRATEGY FOR MICROSOFT, APPLE, GOOGLE, AND META

In this article, we've shown how to systematically generate profits from a stock portfolio made up of four large-cap tech giants. We've also highlighted how using reinvestment-based position sizing can significantly increase profits while reducing risk compared to a simple buy-and-hold strategy.

Of course, this strategy can be further enhanced or personalized based on your preferences, but this provides a solid foundation to build from.

Until 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.

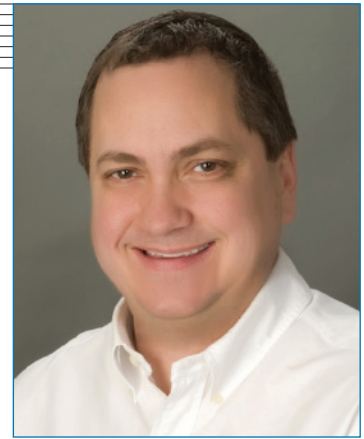
‡MultiCharts

‡See Editorial Resource Index

In such strongly trending markets, waiting for confirmation limits the number of trades and, ultimately, the profits.

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

THE REAL SCOOP

Algo trading sounds easy, based on all the social media ads I see. Can you share some "war stories" to provide the "real scoop" on algo trading?

Great question! I see the same ads that you do, and I can tell you that anyone who says algo trading is easy is 1) lying to you and 2) probably does not trade with real money. I know this because traders reach out to me after getting crushed in the markets from bad trading vendor advice. From the stories they tell, it is obvious that they have been taken advantage of. A good example of this occurred in July 2024, when many traders running expensive algo "bots" had their accounts wiped out by a dangerous Martingale position-sizing approach built into the algo. Millions of dollars vanished overnight from a "can't miss" bot.

But not all "war stories" involve poorly created algos. The terrible events I remember the most were hiccups you never really heard about, ones that involved the hidden dangers of automated algo trading. I have a few of my own war stories. Here are two of them.

The first war story involves a major screwup by a broker or data provider (I never found out which exactly). A programmer was updating conversion factors for Japanese yen futures for a software update. While doing so, they mistakenly moved a

decimal point two places, so a price of 0.6729 became 0.006729. It may not sound like a big deal, but it had major implications for me. I was long the yen, and at 0.6729, I was in profit about \$1,000 per contract. But suddenly, with the new price of 0.006729, the system calculating my position showed an \$83,000 loss per contract!

That huge loss caused the brokerage to automatically liquidate *all* my positions in my account—probably

You could do everything correctly with great algos, and things could still go wrong in between your trading platform and your trading account.

close to a dozen separate positions. That was bad enough, but then an interest rate announcement caused many markets to move, and instead of being in positions, I was flat and my account was locked. By the time I got it all sorted out, I had lost over \$5,000. And of course the group that created the error was not going to compensate me for that loss!

Here's another war story. This actually happened on the day I am writing this, which is a Monday. Over the weekend, a programmer or technician

in the automated trading connection chain (brokerage, FCM, data provider, bridge provider, who knows?) updated software and conveniently did not tell the end users before rolling it out. That meant Sunday night, I could not log in to my automated platform. As (bad) luck would have it, the S&P market moved, and my algo reversed from short to long. Or at least it did on my computer—just not at my brokerage! My account lost \$4,000 per contract due to this issue. Here too, I am not expecting anyone to step up and make me whole.

Notice the theme here? My worst memories are not of my algos making bad trades—but trust me, that happens and I accept it—but rather screwups that are out of my control. Those are the bad memories that live rent free in my head. Trading is difficult enough without having external factors degrade your trading.

The lesson in these stories is that real algo trading involves real risks, not just from the market, but from all aspects of automated algo trading. You could do everything correctly with great algos, and things could still go wrong in between your trading platform and your trading account. Frustrating to be sure, but at the same time, you must realize it is part of the cost of doing business.



Recognizing Common Moves In Forex

Navigating Through Market Manipulations: The ICT Judas Swing Strategy

The name of this strategy reflects that it attempts to capitalize on some of the deceptive market manipulations carried out by big market players. Here are the details of this trading strategy.

by Azeez Mustapha



In the world of forex trading, the primary goal for everyone involved is to turn a profit. It's an exhilarating pursuit for newcomers, but as losses inevitably arise, doubts about one's strategy often emerge. The ICT Judas swing strategy can provide traders with valuable insights into the apparently unpredictable nature of the market, aiding them in navigating the challenging landscape of price fluctuations.

One harsh reality of the market is its resemblance to a battlefield, where victories for some entail losses for

others. Banks wield considerable power in influencing price movements, leading to instances of manipulation aimed at exploiting the losses of other traders. In this competitive environment, finger-pointing achieves little; instead, traders must adapt to the market's dynamics.

The ICT Judas swing strategy is taught by Michael Huddleston and Chris Lori through their company Inner Circle Trader (ICT). The strategy revolves around timing and price movements. Certain periods witness decreased market activity, particularly during the Asian session for dollar-based pairs, often resulting in *consolidation*—a phase characterized by price fluctuations within a defined range lacking clear direction.

Traders employing breakout strategies place limit orders beyond the range boundaries, anticipating significant price movements. However, banks may deliberately engineer false breakouts to capitalize on liquidity, underscoring the sometimes deceptive nature of market

ELNUR/SHUTTERSTOCK



FIGURE 1: USD/ZAR, HIGHER TIMEFRAME. In this chart of the US dollar/South African rand, a bearish shift in market structure following a failed swing low is seen in this higher timeframe chart.



FIGURE 2: USD/ZAR, LOWER TIMEFRAME. After you determine market direction on the higher timeframe chart, you can check the lower timeframe chart for more detailed analysis. During the New York session, there's a tendency for a retracement.

movements or players, which is why this strategy is named as it is.

These false swings, aimed at misleading other traders, precede the establishment of the actual market direction. Often, prices revert to fair value levels above or below the consolidation range, ensuring market efficiency before the genuine trend resumes.

The timing aspect plays a crucial role in identifying consolidation and manipulation. For dollar pairs, consolidations typically occur during the Asian session, which aligns with the period following the close of trading hours

in the United States (between 20:00-23:59 UTC -5, New York Time). This timing strategy leverages the reduced

Look for a market structure shift accompanied by a fair value gap, indicating a potential reversal.



FIGURE 3: USD/ZAR, HIGHER TIMEFRAME. A trade was taken on March 29, 2024. Optimal entry strategies involve leveraging the fair value gap or the order block above the consolidation for short positions, and below the consolidation for long positions. Stop-losses should be placed above the significant high for shorts and below the significant low for longs.

market activity during the Asian session to initiate and manipulate price movements.

KEY CONCEPTS

Before delving into the specifics of the ICT Judas swing strategy, it's crucial to grasp several fundamental concepts:

- **The Asian session:** This trading period, occurring between 8:00 p.m. and 12:00 a.m. EST, sees active markets primarily in Asia. During this time, with other major banks still closed, the market tends to exhibit low volume and range-bound behavior, setting the stage for our strategy.
- **Market structure shifts:** These signify a reversal pattern, observed when price breaks above a lower high in a downtrend or below a higher low in an uptrend, indicating a shift in market sentiment.
- **Fair value gap:** This three-candlestick pattern

highlights unfulfilled orders in the market, signaling potential areas of price retracement to restore equilibrium.

- **Liquidity:** Critical price points characterized by equal highs or lows where retail traders' stop orders reside provide potential entry and exit points for trades.

IMPLEMENTING THE ICT JUDAS SWING STRATEGY

I'll outline the four-step process to executing this strategy effectively:

- **Determine market trend:** Analyze the market trend on the 30-minute or 1-hour timeframe before the specified session's start time. This enables you to align your trading direction with the prevailing market sentiment.
- **Identify key liquidity levels:** Mark out significant liquidity points before the designated session begins, based on the trend direction. These levels serve as magnets for price action during the session.
- **Wait for confirmation:** After the session commences, monitor price action and wait for liquidity levels to be breached. For a higher risk-to-reward ratio, switch to a shorter timeframe, such as the 3-minute chart, to identify confirmation signals (although this is not necessary).
- **Execute the trade:** Look for a market structure shift accompanied by a fair value gap, indicating



This timing strategy leverages the reduced market activity during the Asian session to initiate and manipulate price movements.



FIGURE 4: USD/ZAR, LOWER TIMEFRAME. Scaling to a lower timeframe can give higher risk-to-reward ratios for traders. In this example, the lower timeframe gave a risk-to-reward ratio of 1:8.

a potential reversal. Place limit orders at the fair value gap, with stops below or above significant highs and lows before the gaps and targets set aiming for nearby opposing liquidity points.

Let's examine the example shown in Figure 1.

The first thing is to establish a bias. Here, due to a failed swing low, a bearish shift in market structure is established in the higher timeframe.

After the direction is established, the trader can dive gently into the lower timeframe for more detailed analysis (see Figure 2).

The trade was taken on March 29, 2024.

In the scenario outlined above, during the Asian session, the market exhibits a sluggish price action, leading to a consolidation phase. As the London session begins, there's an immediate breakout, typically downward from the Asian range. However, this breakout proves to be false, targeting the sell-side liquidity (SSL) and causing a surge in price above the initial range. Consequently, breakout traders on both sides of the range incur losses as the price exceeds the range, seeking equilibrium above it before establishing its original direction.

Optimal entry strategies involve leveraging the fair value gap or the order block above the consolidation for short positions, and below the consolidation for long positions. Stop-losses should be placed above the significant high for shorts and below the significant low for longs.

During the New York session, there's a tendency for a retracement to the London session's bearish order block, as seen in the example. Similarly, as the London

session concludes, there's often a retracement back to the New York session's bearish order block, as seen in the example.

Judas swings can also manifest before the New York session, particularly during the lunch period (11:30 a.m.–1 p.m. UTC-5). During this time, the market may undergo another minor consolidation. Before the original trend continues, the low or high of the range formed is swept during the New York session. Frequently, these manipulative moves aim to enhance market efficiency or retest an order block from the previous session or day. The targets or take-profit levels for this strategy are major liquidity regions in the direction of the trend.

This is what the entry looks like for the trade taken on March 29, 2024 (Figure 3):

Trade snapshot (higher timeframe chart)

- Type: Swing trade
- Instrument: USD/ZAR
- My opinion: Sell
- Entry price: 19.232

Continued on page 33

These false swings, aimed at misleading other traders, precede the establishment of the actual market direction.



The Savvy Technician

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

REMEMBERING TO TAKE PROFITS

There is room in a portfolio for investments that mimic the market or particular sectors within it. This can be successfully done through vehicles like mutual funds and ETFs. That type of investing can be an important part of a successful investing strategy.

But traders will also want a portion of their account to be working for them in shorter-term more speculative instruments. Having two parts of a portfolio focused on very different strategies can often mean that the less-experienced operative might get sucked into the easy lull of outstay-

ing their time in a trade, much like a house guest outstaying their welcome. This article is a quick reminder on the importance of making sure to center your trading decisions, after entering a trade, on the initial reasons why you entered the position, and managing the trade with that in mind always. This should mean that taking profits at set targets is an essential part of this process.

In the last few years, Micron Technology Inc. (MU) had been in a downtrend. Price subsequently found a bottom and then entered an uptrend. I'll use MU's price history and a few charts to illustrate several key concepts.

ENTERING THE TRADE

Figure 1 is a daily chart of MU showing its price history from June 2022 to September 2024. We can see that price formed a double-bottom pattern from October to December 2022. The formation of the second bottom was a good time to take a position at a price of about \$50 per share, and enter a stop below the lows of the pattern. It is always easy to read price history objectively when presented with enough historical data. But reading historical information omits how



FIGURE 1: PRICE CHART IN HINDSIGHT. A price chart of Micron Technology Inc. (MU) is shown from June 2022 to September 2024. Price formed a double-bottom pattern from October to December 2022. The formation of the second bottom was a good time to take a long position—easy to see in hindsight on this multiyear price chart.

Taking profits at set targets is an essential part of this process.

FIGURE 2: ENTERING THE TRADE. Taking a closer look at the October–December 2022 double bottom from Figure 1, the trader would have been considering at that point whether the double-bottom lows would hold or whether price would continue its downward trajectory after this pause. Adding to the evidence that a bottom was indeed forming, after the first low formed, the red trendline is broken. In this example, a long position is taken at the second test of the low. A stop is placed below the lows of the double-bottom pattern.

psychology influences perception at the time a price pattern is forming. So, let's put Figure 1 to one side for now and look at Figure 2. Here, we can see the double bottom on the lower right of the chart. But as MU was in a downtrend, the sentiment surrounding the stock would have been extremely negative. There was no way to tell as it was happening whether the lows of the double bottom would hold, whether there would be a try at a triple bottom, or whether the lows were part of a pause in the continuation of the downtrend. As technicians, we know to read the information presented on the charts before us. The red trendline was broken after the first low formed, which would have added to the evidence that a bottom was indeed forming and the next test of the initial low was important.

It is important to trade to your comfort level. For some, taking the long position at the second test of the low was appropriate, while for others it would be taking a long position at the so-called golden cross, which is a break by the 50-day moving average above the 200-day moving average (seen in Figure 1). Once the golden cross appeared, there was enough evidence to confirm that the trend had changed and MU was now in an uptrend. Stops could have been moved to below the reaction low near the golden cross.

In May 2023, price traded at a high of \$74.27 and then proceeded



FIGURE 3: TAKING PARTIAL PROFITS ALONG THE WAY. A symmetrical triangle formed between May and November 2023. The completed triangle pattern provides an initial price target for the trade (green dotted lines). Some profits can be taken at the initial price target, after which further price targets will be identified for the remaining shares. In this example, the break below the 50-day MA was a good time to close out the long position altogether.

to enter a triangle formation (as seen in Figure 1). A triangle is a continuation price pattern and price is likely

to exit the pattern in the direction that it entered. Because there are no givens in technical analysis, stops

The longer it takes for a pattern to form, the more convincing the pattern.

should be moved up to below the low of the first reaction in the triangle. Then you allow the pattern to form and watch it for the direction of exit. In this case, price successfully exited the triangle to the upside and stops can now be moved up to just above the upper line of the triangle.

EXITING THE TRADE

Vigilance and patience are two of the most essential qualities in trading. For much of the time, apart from paying attention to the charts, there is not much to do. In the MU example discussed above seen in Figure 1, the duration of time from the trade entry until price exited the triangle is between 8 to 10 months, depending on when you decided to enter the trade. During this period of time, you might choose to add to your long position and to adjust your stops, but that's all you really need to do.

But then, once the triangle pattern has completed its formation, you'll have your first price target. Technical analysis tells us that the minimum price objective of a triangle formation is the widest distance of the symmetrical triangle plotted at the breakout point. You can see this illustrated in Figure 3. Figure 3 is a price study of the symmetrical triangle that formed between May and November 2023. The green dotted lines show how to measure the initial price target. Using this chart, we can see that when price breaks out of the triangle at \$71, we will be looking for it to reach \$86, at which point we would begin to put our profit-taking plan into effect.

Some might think, how could we



FIGURE 4: TIME TO REENTER? A shallow double bottom following a downtrend can be seen here in MU as well as a gap up in price. Does that suggest a new long position? Given that a few negative indications also can be seen on the chart, creating a conflicting picture, waiting for more developments in the price chart might be the best course.

have known when we entered a trade that a triangle would form, giving us an opportunity to measure an initial price objective? The answer is we could not. But given that we are looking for a trade, not an investment, we will be watching for opportunities like these to get objective price targets. There are also many other ways to take profits in a trade.

So, if we took some profits off the table at \$86 we'd gain a neat profit yet we would still be in the trade. MU is still in an uptrend tracking the 50-day MA as it rises higher. The break below the moving average in February quickly corrects to the upside and should not have triggered well-placed stops.

The gap up in March of 2024 is

the next time to pay close attention to the trade. Stops can be moved up to just below the lower line of the gap up and this would be another good time to reduce the position in MU. A gap up such as this on a trade in a mature trend can point to exuberance. More and more people are noticing the trade and are piling in. If we were in the trade early, reducing our position further is a sensible way to go. From here, price tests the top line of the gap up and then rises to make new highs, which it cannot sustain. The break below the 50-day MA is a good time to close out of all long positions for the time being. The long trade is over. Price subsequently plunges below the 200-day MA proving our hypothesis right. We have completed

a successful long trade and have the profits to show for it.

REENTERING THE TRADE

Figure 4 is a daily chart showing four months of price activity in MU in 2024. We can see that the chart has formed what we can describe as a shallow double bottom from the latest downtrend. It also gapped up on positive earnings news. Is this a

good time to initiate a new long trade in MU? What does the chart tell us? Compared to the formation of the initial downtrend, which took over seven months to complete, this one has only taken around six weeks before the formation of the first bottom. Remember, the longer it takes for a pattern to form, the more convincing the pattern. Also, it should not go unnoticed that even though price

has gapped up, the death cross has not been negated. A so-called “death cross” is formed when the slower moving average moves above the faster moving average. When faced with conflicting signals, waiting by the sidelines might be the more prudent course of conduct.

Find similar articles online at [Traders.com](https://www.Traders.com)



MUSTAPHA/ICT JUDAS SWING STRATEGY

Continued from page 29

- Stop: 19.326
- Target: 19.057
- Recommended risk: 1%
- Risk-to-reward ratio (RRR): 1:2

Scaling to a lower timeframe (Figure 4) can give higher risk-to-reward ratios for traders who are more critical and who want to increase their edge in the market. Here, the lower timeframe gave a 1:8 risk-to-reward.

Trade snapshot (lower timeframe chart)

- Type: Swing trade
- Instrument: USD/ZAR
- My opinion: Sell
- Entry price: 19.225
- Stop: 19.245
- Target: 19.057
- Recommended risk: 1%
- Risk-to-reward ratio (RRR): 1:8

ENHANCING YOUR SUCCESS RATE

To further optimize the ICT Judas swing strategy, consider the following tips:

- **Avoid trading during high-impact news hours:** Price manipulation during volatile news periods can increase risk. Exercise caution and refrain from trading during these times to safeguard your capital.
- **Provide adequate breathing room:** Expand your stop-loss parameters to allow trades more flexibility to develop, reducing the likelihood of premature exits due to minor fluctuations.
- **Establish a daily bias:** Incorporate a daily bias

into your trading approach, aligning your trades with the prevailing market direction for an additional edge.

- **Be patient:** The Judas swing strategy is highly regarded for its ability to anticipate instances of market manipulation, thereby mitigating potential losses. However, it's important to note that the setup for this strategy doesn't occur frequently. Consequently, traders must exercise caution against forcing a setup. It is advisable to exercise patience and await the opportune moment for the setup to materialize.

This intraday trading strategy is great forex, especially dollar-based pairs.

CONCLUSION

The ICT Judas swing strategy offers a systematic approach to trading, leveraging market manipulations to achieve consistent profitability. By mastering the underlying concepts and diligently executing the prescribed steps, traders can unlock the strategy's full potential and embark on a path to financial success.

Remember, success in trading requires discipline, persistence, and continuous learning. Stay informed, adapt to market conditions, and never cease striving for improvement in your trading endeavors.

Azeez Mustapha is an analyst at Instaforex Companies Group and a blogger at Advfn.com, and as well as a freelance author for various trading publications. He is a trading signals provider at some websites. He can be reached via email at azeez.mustapha@analytics.instaforex.com.

‡TradingView

‡See Editorial Resource Index

Find similar articles online at [Traders.com](https://www.Traders.com)



THE WORLD OF RETAIL TRADING

Emilio Tomasini is a professional trader and was an adjunct professor of corporate finance at the University of Bologna in Italy for almost 20 years. 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

TRADING CONTESTS (PART 1 OF 2)

What is the point for a trader to participate in a trading competition with real money? After Larry Williams' spectacular success at the Robbins World Cup in 1987, trading contests became a frequent spectacle in the U.S. and around the world. I organized the Top Trader Stock Championship with real money for 11 consecutive years and audited more than 5,000 private traders from different countries. So I believe I have the right to express my opinion on this subject, which, frankly, seems to have very few experts, especially considering the many trading contests worldwide that folded.

The idea for the Top Trader Stock Championship with real money came to me in 1998 during a trip to Chicago. I suffer from insomnia so at night I was reading books I had just bought from a bookstore near the CME. I had bought *Pit Bull: Lessons From Wall Street's Champion Day Trader* (Harper Business) by Martin Schwartz. It tells the personal story of a trader who starts from a humble job in the financial sector, becomes a private trader, and then wins the U.S. Investing Championship that was organized by Norm Zadeh. More importantly, it's the story of the U.S. Investing Championship itself, which dominated its field for a decade before ending, at least according to the book. Essentially, Schwartz offers a participant's perspective and recog-

nizes that a trading championship could give traders the feeling and conviction of being truly successful professionals.

In fact, the profession of private trader often lacks public recognition, and this weighs heavily on some retail traders, who must draw on their ego to give social meaning to their profession. If you are an entrepreneur, you have some tangible things to point to such as a company, employees who respect you, registration with the chamber of commerce, and financial

The champions of the Top Trader Stock Championship all had in common a passion for researching the best trading methodologies.

statements, thus giving you direct legal recognition as an entrepreneur. If you are a private trader, you can tell people what you do for a living but it's hard to show what you do or be recognized for what you do.

Another issue for private traders is comparison with other traders or measuring their success. How do private traders know they are genuine traders rather than just telling themselves and others they are?

There is such a thing as “voyeur traders” as we like to call them, those who are excellent at identifying market trends but terrible at pulling

the trigger and actually clicking the buy button. For this type of trader, participating in and winning a trading championship is a great step toward a profitable career because it turns dreams into reality. On the other side of the coin, going through the process of participating in a trading competition can also help some people to realize that trading is not for them. For some, the reality may be that another profession is their future. We all have a path of improvement in life, and if opportunities like a trading championship allow you to balance expectations and reality, why not take them?

There is another very important aspect of a trading championship: the educational aspect. The true purpose of a trading contest is to give visibility to both people and trading techniques. A real champion has successful trading techniques, and where possible, it is the organizers' duty to highlight real trading champions and distinguish them from the merely lucky who made the right trade at the right time.

During the 11 years that I ran my trading competition, I would organize a public event at the end to recognize the winners. I would interview the winners in public and ask probing questions about their approach. I assure you, if a participant had won by chance, it would be discovered

Continued on page 39

Vote Now!

TECHNICAL
ANALYSIS OF **STOCKS &
COMMODITIES**



2025 Readers' Choice Awards

Winners will be announced in the Bonus Issue, available February 2025

If you are a current subscriber, go to **Traders.com** and log in to vote.

Not a current S&C subscriber? Become one today! Call 1-206-938-0570 or go to **Traders.com** to subscribe.

Voting ends December 31, 2024. Must use your subscriber ID number to vote.

 Join us on Facebook at www.facebook.com/STOCKSandCOMMODITIES

 Follow us on Twitter @STOCKSandCOMM



Build A Personal AI Model

Will AI Ever Be Useful For Technical Analysis?

Part 1: It's Not A Given

Are AI tools giving traders improvements in alpha and beta, and if not, why not?

by Greg Aharonian

Despite the steep rise in stocks we've seen for companies involved in areas of artificial intelligence (AI), and despite the power of the generative AI tools we've seen lately such as ChatGPT, the question remains: Will AI ever be more useful for technical analysis than traditional signal processing techniques and advanced statistical tools (such as ARIMA, and k-NN)?

In this series of articles, I will explore these issues, and I'll show you how to run personalized AI models on your computers—if you want to go there and try it! Here in part 1, I first want to focus on why AI tools have failed to provide traders with significant improvements in alpha and beta so far. At best, we've gained modest improvements over using traditional technical analysis techniques. What are we lacking?

“INTELLIGENCE”—THE LIE OF AI CLAIMS

One reason to be skeptical of applying AI to trading, or to anything else for that matter, is the semantic lie that is the term itself “artificial intelligence.” No standardized, generally agreed upon definition of the term “intelligence” exists. Much like terms such as “consciousness,” there is no consensus in the scientific world as to how to define and measure these terms. While this makes for extremely fun science to resolve these profound definitional problems, in the commercial world, the lack of definition raises issues of false advertising and product liability.

How do AI companies know their products are “intelligent” if they have no definition of “intelligence,” and if they have no way to measure their product’s “intelligence” and to compare it with other AI products? They can’t, which makes “superintelligence” more meaningless.

So initially, it is healthy to be skeptical about using AI for trading, since you don’t know what intelligence you are buying for your trading. For example, you don’t know exactly what data an AI model was trained on, an important aspect of the testing of any trading system.

PHONLAMA/PHOTO/SHUTTERSTOCK

AI-DRIVEN ETFs MOSTLY UNDERPERFORM INDEXES

Well, who cares what the definition of “intelligence” is if you can make more money in the markets using AI? After all, some people swear by using astrology for making investment decisions despite the fact that astrology is not a scientific, mathematically supported approach and would never survive a double-blind controlled test.

One way to look at whether AI is helping anyone to make money is to examine the success rate of ETFs that use AI to guide most of their investment decisions. (Note: I am not referring to ETFs that invest in AI-related companies, which are a different topic.)

As is the case with many money managers on Wall Street, AI-driven ETFs have not beat the index-based ETFs such as the SPY.

In one case I examined, in 2017 commodity trader Jim Rogers launched the BIKR ETF that used a proprietary AI model based on Roger’s expertise to manage the portfolio. Since 2017, the SPY and GLD are roughly up 100% as I write this (my two fundamental comparisons), while BIKR is defunct. Also formed in 2017 but still in business is Amplify AI Powered Equity ETF (AIEQ). From its inception, it has underperformed SPY and GLD. Qraft Technologies has two AI-powered funds that have been around for many years: QRFT and AMOM. QRFT has pretty much done as well as GLD and SPY, while AMOM has underperformed QRFT a bit. In this example, I don’t see that the “intelligence” added to the fund management by AI-enabled decision-making has added much alpha over just buying the SPY or GLD.

A September 2024 MarketWatch article offered performance data on eight AI-managed ETFs (including AIEQ). Of the eight funds, five terminated within two years after having poor performance. The three survivors—AIEQ, AIVL, AIVI—have seen returns that are half that of the S&P 500 index.

I don’t doubt that there exists some AI-managed funds that are performing better than the SPY and GLD. But generally, over seven years of the existence of this type of fund, their performance isn’t remarkable and in some cases is less than acceptable.

And this poor performance is an insult to the authors and readers of this magazine, since in the last 20 years, at least two SPY-based systems have been presented in S&C articles that with a few tweaks would steadily outperform the SPY—without AI!

AI VERSUS ARIMA, GARCH, K-NN, ETC.

There exists a variety of traditional multivariate statistical techniques that can be used to generate extra returns in

trading, all while not requiring the power of Finland to train their models.

ARIMA and GARCH are two powerful techniques for time series analysis, including time series prediction. And to the extent that one can predict, say, the close of a stock price tomorrow, these techniques work reasonably well. That is, if nothing disruptive happens overnight (economically, politically, environmentally, etc.), these techniques can make a reasonable prediction of tomorrow’s close.

In recent years, a variety of machine learning (ML) models, for example, *long short term memory* (LSTM) neural networks, have been applied to predicting tomorrow’s stock prices. These models work as well. But one observation across many research papers I’ve seen is that the AI models really don’t work that much better than the traditional statistical techniques.

A nonparametric, multivariate statistical technique that I use is kNN—k-nearest neighbors. Consider a database of vectors the elements of which are the changes in the open, high, low, close, volume from day to day, plus the change in closes one day forward (the predictor). Then, when you have a new day’s vector, compare it to the k-closest vectors in the database (the comparison is an art in itself). If the predictors in the database are similar in value and direction, there is a reasonable chance that they will be the predictors for the change to tomorrow’s close.

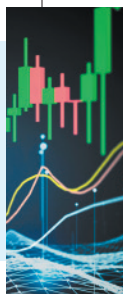
Again, comparisons between techniques such as kNN and machine learning models do not find orders of magnitude improvement with the machine learning models. It is not that these AI techniques are not helpful for trading, but rather that they are not that much more helpful than traditional techniques, which are often easier to use and understand.

AI REINFORCEMENT LEARNING WORKS, FOR NOW

In September 2024, ING bank announced an AI trading success: using AI *reinforcement learning* to outperform humans in pricing currencies—monitoring the market, adjusting spreads, and managing risk. But is it “intelligent” to announce this success, since other banks and traders

Should you use AI for trading? Sure, if you can find a way to make more money.





There exist a variety of traditional multivariate statistical techniques that can be used to generate extra returns in trading.

will soon do much the same, especially if it's easy to do and eliminates the discovered trading advantage? Or are the financial gains not that significant, making the bank willing to freely share a trade secret in return for some good publicity, as well as sending a message to labor?

WILL CHATGPT AND SIMILAR TOOLS SAVE AI FOR TRADING?

The stock markets have been in the midst of a big bubble surrounding AI. Stocks related to AI such as Nvidia (a chip maker) have seen big rises in recent times (lately, the gains have withered).

Generative large language models (LLMs), while extremely expensive to train and use a lot of energy, nonetheless are being used to create "intelligent" applications. For example, Amazon recently released a tool that, given a photo of your product, will generate a video pitch for advertising your product (eliminating the need for human intelligence).

Not surprisingly, LLM-powered trading advisory systems can now be found everywhere. If you perform an internet search using the search term "chatgpt stock trading," the search will return a huge number results with links to websites offering such systems. Some of these AI systems will review and summarize financial news to provide some sort of investment advice or recommendations. But are these recommendations any better than similar reports that have already been available from places such as Barron's, MarketWatch, SeekingAlpha, Reddit, and so on? Especially given that some of those AI systems were trained on the human-generated analyses just mentioned?

For technical analysis, there is already a plethora of tools enhanced by ChatGPT or LLM. For example, TradingView.com, which offers nice tools and lots of open source scripts, is seeing more and more scripts that use ChatGPT (www.tradingview.com/scripts/search/ChatGPT). Other platforms and software are also incorporating this approach.

But are products based on ChatGPT useful and will they be more valuable than what we've already had available to us? I don't think so, for at least two reasons.

First, earlier AI systems were more mathematically sophisticated than many current chat-like systems (many of which are not much more than guess-the-next-word algorithms). And frankly, their knowledge of the stock market is trite. For example, on September 24, 2024, I queried ChatGPT.com: "When will the AI bubble in the stock markets burst?" Some "intelligent" answers could include any of the following: "when Nvidia's earnings plateau," or "when a sufficient number of AI-related stocks are overbought," or "when their money flow indexes are all above 70", or "when the Fed is forced to raise interest rates again because of too much inflation," or whatever your preferred theory might be. However, the following is what ChatGPT offered for its response to my query:

Predicting the exact timing of market fluctuations, including a potential "AI bubble," is highly uncertain. Market trends are influenced by a variety of factors such as technological advancements, regulatory changes, investor sentiment, and broader economic conditions. While some analysts express concerns about overvaluation in certain tech stocks, others see strong fundamentals driving growth. Keeping an eye on these factors and maintaining a diversified investment strategy can help navigate potential volatility. If you're considering investments in AI or tech stocks, it's wise to stay informed and consult with a financial advisor.

As you can see, the output we get is little more than a fancy (and less delicious) fortune cookie saying, or the boilerplate warnings that funds put in their prospectuses. It's not wrong but it's vague and it's not helpful for trading.

Second, to the extent that consumers need more "intelligence" in their products (so that they buy AI products that create earnings for AI companies), are AI products useful for anything more than entertainment? A recent *New York Times* article reported on concerns expressed by Jim Covello, head of stock research at Goldman Sachs, who commented that much of the latest AI is "too much of what the world doesn't need," which "typically ends badly" for the markets. The billboards I see on Highway 101 in Silicon Valley were once for crypto products, and now they all seem to be about AI. Apparently, investing \$1 trillion into AI products is going to need at least \$1 trillion in revenue for any sort of return.

About the same time, Sequoia Capital issued a blog commentary titled, "AI's \$600B question. The AI bubble is reaching a tipping point." The question again was, "Where is all the revenue?" Especially revenue from

consumers (which is about 70% of GDP/earnings).

If there are not enough “intelligent” applications of this new AI to generate the revenues needed to justify trillion-dollar investments, is there enough “intelligence” in these new AI products to make them any more useful than earlier generations of AI systems for trading, which are not really much more “intelligent” than traditional technical analysis and statistical analysis techniques?

CONCLUSION

So should you use AI for trading? Sure, if you can find a way to make more money. Heck, if you can make more money trading using astrology (or any fringe approach) though some may question it, go for it. The late U.S. president Ronald Reagan famously once advised, “Trust but verify.” I suspect he would say for AI and trading, “Don’t trust and verify, verify, verify.”

In part 2, I will demonstrate how to download one of these chat-like AI models onto your computer and use it privately, training it with your curated data.

Gregory Aharonian is founder of KukaXoco Finance. He can be reached at greg.aharonian@kukaxoco.org.

FURTHER READING

Wyatt, Sam, and Gary Smith [2024]. “AI-Powered Stock ETFs Were Hyped As Superior Investments. Then Reality Hit,” MarketWatch, September 14, 2024, retrieved from: <https://www.marketwatch.com/story/ai-powered-stock-etfs-were-hyped-as-superior-investments-then-reality-hit-79375965>

The AI models really don’t work that much better the traditional statistical techniques.



Mickle, Tripp [2024]. “Will AI Be A Bust? A Wall Street Skeptic Rings The Alarm,” *New York Times*, September 23, 2024, retrieved from: <https://www.nytimes.com/2024/09/23/technology/ai-jim-covello-goldman-sachs.html>

Cahn, David [2024]. “AI’s \$600B Question. The AI Bubble Is Reaching A Tipping Point. Navigating What Comes Next Will Be Essential,” June 20, 2024, retrieved from: <https://www.sequoiacap.com/article/ais-600b-question>

Hudson, Matthew [2024]. “Forget ChatGPT: Why Researchers Now Run Small AIs On Their Laptops,” *Nature*, September 16, 2024, retrieved from: <https://www.nature.com/articles/d41586-024-02998-y>

Atkins, Alice [2024]. “AI Model Is Better At Pricing Currencies Than Human, ING Says,” *Business Week*, September 25, 2024, retrieved from (locked) at: <https://www.bloomberg.com/news/articles/2024-09-25/ai-model-is-better-at-pricing-currencies-than-humans-ing-says>

Find similar articles online at [Traders.com](https://www.Traders.com)



TOMASINI

Continued from page 34

through this exercise, and the impression they end up making would not be good. In my view, a real trading champion is someone who has something to offer to others, not just someone who takes something. The champions of the Top Trader Stock Championship all had in common a passion for researching the best trading methodologies. Those who were real champions remained champions in the public eye; those who were on the podium by chance tended to dis-

appear into oblivion within days.

Another motivation for participating in a trading contest is to gain a sort of public authority to then market services and software. There is nothing wrong with this; I believe that anything that can help other traders improve their trading is welcome. It’s a free market system, after all. This aspect of winning a contest should not be denigrated; if the technique or software that helped to win the contest is valid, then the goal of sharing the winning system is commendable.

But this raises a doubt: Are the performances in trading championships truly representative of a person’s real

The profession of private trader often lacks public recognition.

ability to beat the market? Next time in part 2, I will examine that.

FURTHER READING

Schwartz, Martin “Buzzy” with Dave Marine and Paul Flint [1999]. *Pit Bull: Lessons From Wall Street’s Champion Day Trader*, Harper Business.

Find similar articles online at [Traders.com](https://www.Traders.com)





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

- 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.



In his October 2024 article in *Technical Analysis of STOCKS & COMMODITIES* magazine, “Revisualizing The ADX Oscillator,” Neil Jon Harrington presents an enhanced ADX oscillator based on the original ADX and DMI indicators created by J. Welles Wilder in the 1970s. The Harrington ADX Oscillator applies smoothing and includes a color-coded histogram for a more perceptive display of trend direction and strength.

Indicator: Harrington ADX Oscillator

TASC DEC 2024
Harrington ADX Oscillator
Copyright: Neil Jon Harrington, NJH Group
© Copyright 2024

Description: Display the ADX and DMI information as a histogram above or below zero. The color reflects the direction, slope, and location of the ADX. The histogram is above zero when $DMI+ > DMI-$, and vice versa. Tradeable when the ADX is above/below the low threshold and sloping

in the direction of the trend.

inputs:

```
ADXLength( 10 ),
ADXLowThreshold( 15 ),
ADXHighThreshold( 40 ),
ADXSmoothLength( 1 ),
OBUpColor( Cyan ),
OBWeakUpColor( DarkCyan ),
UpColor( Green ),
WeakUpColor( DarkGreen ),
NeutralUpColor( DarkGray ),
NeutralDownColor( Black ),
WeakDownColor( DarkRed ),
DownColor( Red ),
OSWeakDownColor( DarkMagenta ),
OSDownColor( Magenta );
```

variables:

```
oDMIPlus( 0 ),
oDMIMinus( 0 ),
oDMI( 0 ),
oADX( 0 ),
oADXR( 0 ),
oVolty( 0 ),
NegativeADX( 0 ),
```

```
SmoothedPlus( 0 ),
SmoothedMinus( 0 ),
NetDMI( 0 ),
ADXColor( White ),
TrendColor( White );
```

```
Value1 = DirMovement(High,
Low, Close, ADXLength,
oDMIPlus, oDMIMinus, oDMI,
oADX, oADXr, oVolty);
NegativeADX = -oADX;
SmoothedPlus =
Average(oDMIPlus, ADXSmooth-
Length);
SmoothedMinus =
Average(oDMIMinus, ADXS-
moothLength);
NetDMI = SmoothedPlus -
SmoothedMinus;
```

```
if oADX > oADX[1] then
  ADXColor = NeutralUpColor;
```



FIGURE 1: TRADESTATION. This shows a daily chart of the continuous emini NASDAQ-100 futures contract with the indicator applied and the DMI indicator applied above it.

NINJATRADER®

NinjaTrader 8: ninjatrader.com/SC/December2024SCNT8.zip

—Chelsea Bell
NinjaTrader, LLC
www.ninjatrader.com

—John Robinson
TradeStation Securities, Inc.
www.TradeStation.com

Neil Jon Harrington's article in the October 2024 issue, "Re-visualizing The ADX oscillator," introduces a reimagining of the ADX indicator. Here is the formula to add that indicator to MetaStock.

Please note that the suggested colors are in comments and will not change the display. MetaStock 19 will prompt you for the input values when you plot the indicator in your chart. Click the **color/style** tab to set the color and tell MetaStock to display the indicator lines as histograms. If you click the **defaults** button at the bottom of that tab, you can save your settings as the default, so you do not have to adjust the line style or colors when you add the indicator to other charts.

Dynamic ADX histogram

{aka Harrington ADX Oscillator}

```

pds:= Input("ADX length", 2, 50, 10);
loth:= Input("Low Threshold", 5, 30, 15);
hith:= Input("High Threshold", 30, 60, 40);
spds:= Input("Smooth Length", 1, 5, 1);

```

```
base:= ADX(pds);
smpdi:= Mov(PDI(pds), spds, s);
smmmdi:= Mov(MDI(pds), spds, s);
netdmi:= smpdi - smmmdi;
```

```
{OB up - Cyan}
if(netdmi > 0 AND base >= hith and base > Ref(base, -1), base, 0);
{OB weak up - Dark Cyan}
if(netdmi > 0 AND base >= hith and base <= Ref(base, -1), base, 0);
{up - Green}
if(netdmi > 0 AND base >= loth AND base < hith AND base > Ref(base, -1), base, 0);
{weak up - Dark Green}
if(netdmi > 0 AND base >= loth AND base < hith AND base <= Ref(base, -1), base, 0);
{neutral up - Dark Gray}
if(netdmi > 0 AND base < loth, base, 0);
{neutral down - Black}
if(netdmi <= 0 AND base < loth, -base, 0);
{weak down - Dark Red}
if(netdmi <= 0 AND base >= loth AND base < hith AND base <= Ref(base, -1), -base, 0);
{down - Red}
if(netdmi <= 0 AND base >= loth AND base < hith AND base > Ref(base, -1), -base, 0);
{OS weak down - Dark Magenta}
if(netdmi <= 0 AND base >= hith and base <= Ref(base, -1), -base, 0);
{OS down - Magenta}
if(netdmi <= 0 AND base >= hith and base > Ref(base, -1), -base, 0);
```

—William Golson
MetaStock Technical Support
www.MetaStock.com



◆ **WEALTH-LAB: DECEMBER 2024 TRADERS' TIPS CODE**

Neil Jon Harrington, in his October 2024 article in *Technical Analysis of STOCKS & COMMODITIES* magazine titled “Revisualizing The ADX Oscillator,” introduces a technique in which he reenvision

the classic ADX indicator developed in the 1970s by J. Welles Wilder to create what he feels is a more useful and intuitive indicator for traders. We have now prepared this indicator for use in Wealth-Lab for Wealth-Lab users.

Users will find this new multicolored ADX indicator as “ADXHist” in our “TASC Indicator library.” You can drag and drop it onto a chart and use it as you would any other indicator in strategies that you may wish to create. For a demonstration of this, see Figure 3, which shows an example strategy based on this new indicator, using the convenient Building Blocks feature in Wealth-Lab to set up the strategy rules without having to write code.

In our example strategy, note that even without any sort of optimization, the simple two-indicator strategy shown in Figure 4 for demonstration purposes approximates the

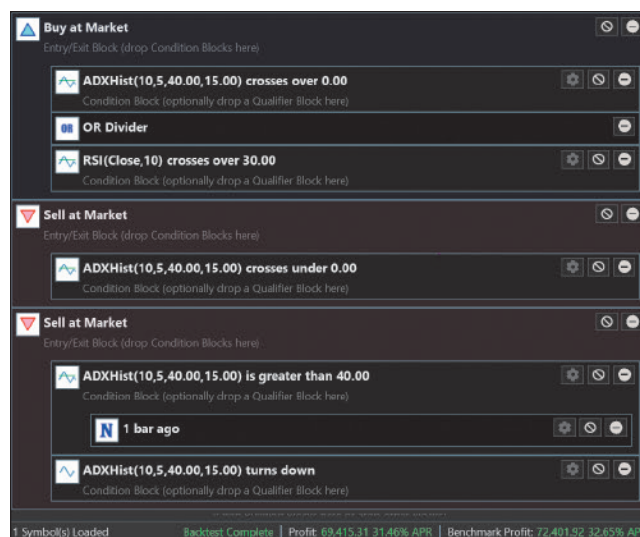


FIGURE 3: WEALTH-LAB. Users can take advantage of the convenient Building Blocks feature in Wealth-Lab to set up strategy rules to develop a strategy without the need for the user to write code. Here you see an example strategy.



FIGURE 4: WEALTH-LAB. This sample chart demonstrates the multicolored indicator on a chart of the daily 000.



QQQ's buy and hold return over the same period, with far less risk and exposure.

—Robert Sucher
Wealth-Lab team
www.wealth-lab.com

TradingView

◆ TRADINGVIEW: DECEMBER 2024 TRADERS' TIPS CODE

The TradingView Pine Script code presented here implements the dynamic ADX histogram indicator that is introduced by Neil Jon Harrington in his article in the October 2024 issue, "Revisualizing The ADX Oscillator."

```
// TASC Issue: December 2024
// Article: Revisualizing The ADX Oscillator
// Article By: Neil Jon Harrington
// Language: TradingView's Pine Script™ v5
// Provided By: PineCoders, for tradingview.com
```

```
//@version=5
title = 'TASC 2024.11 Dynamic ADX Histogram'
stitle = 'DADX'
indicator(title, stitle, false)
```

```
int ADX_Length = input.int(10)
int ADX_THLo = input.int(15)
int ADX_THHi = input.int(40)
int ADX_Smooth = input.int(15)
```

```
string gu = 'Colors, Up:'
string gn = 'Neutral:'
string gd = 'Down:'
color col_OBUp = input.color(#00ffff, gu, inline=gu)
color col_OBWUp = input.color(#008b8b, "", inline=gu)
color col_Up = input.color(#09ff00, "", inline=gu)
color col_WUp = input.color(#048000, "", inline=gu)
color col_NUp = input.color(#383838, gn, inline=gn)
color col_Ndn = input.color(#000000, "", inline=gn)
color col_Wdn = input.color(#680000, gd, inline=gd)
color col_dn = input.color(#ff0000, "", inline=gd)
color col_OSwdn = input.color(#5c001f, "", inline=gd)
color col_OSdn = input.color(#ff00aa, "", inline=gd)
```

```
[DIP, DIN, DIA] = ta.dmi(ADX_Length, ADX_Smooth)
float NADX = -DIA
float SP = math.avg(DIP, ADX_Smooth - ADX_Length)
float SM = math.avg(DIN, ADX_Smooth - ADX_Length)
float NET = SP - SM
```

```
bool isDIAup = DIA > DIA[1]
bool isDIAdn = DIA < DIA[1]
```

```
color col = color(na)
if isDIAup
    col := col_NUp
if isDIAdn
    col := col_Ndn
```

```
float hp = na
float hn = na
switch
    NET >= 0 =>
        if DIA >= ADX_THHi
            if isDIAup
                col := col_OBUp
            if isDIAdn
                col := col_OBWUp
        if DIA >= ADX_THLo and DIA <= ADX_THHi
            if isDIAup
                col := col_Up
            if isDIAdn
                col := col_WUp
        hp := DIA
    NET < 0 =>
        if DIA >= ADX_THHi
            if isDIAup
                col := col_OSdn
            if isDIAdn
                col := col_OSwdn
        if DIA >= ADX_THLo and DIA <= ADX_THHi
            if isDIAup
                col := col_dn
            if isDIAdn
                col := col_Wdn
        hn := NADX
```

```
plot(hp, "ADXO", col, 1, plot.style_columns)
plot(hn, "ADXO", col, 1, plot.style_columns)
```

```
hline(ADX_THHi, 'High Threshold')
hline(ADX_THLo, 'Low Threshold')
hline(0, 'Zero')
hline(-ADX_THLo, 'Low Threshold')
hline(-ADX_THHi, 'High Threshold')
```

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

An example chart is shown in Figure 5.

—PineCoders, for TradingView
www.TradingView.com



FIGURE 5: TRADINGVIEW. Here you see an example of the indicator on a chart of the S&P 500 emini.



◆ NEUROSHELL TRADER: DECEMBER 2024 TRADERS' TIPS CODE

The new dynamic ADX histogram oscillator introduced by Neil Jon Harrington in

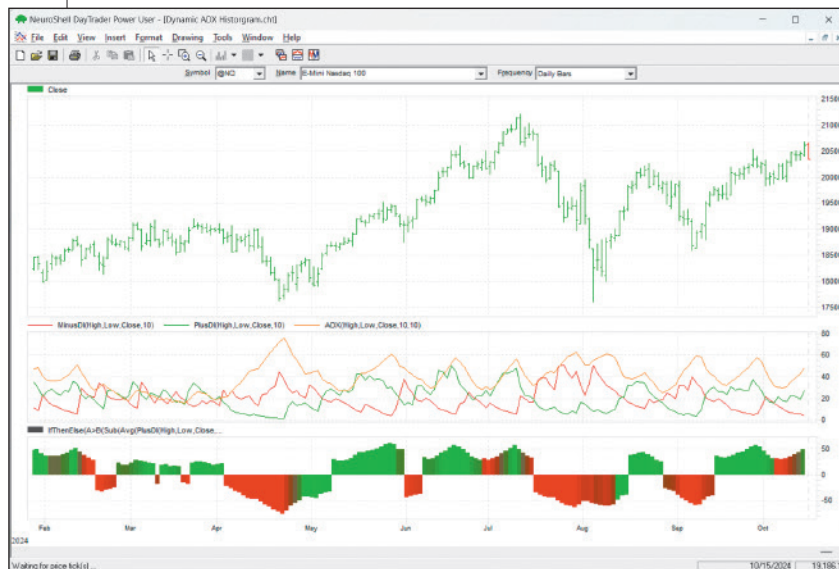


FIGURE 6: NEUROSHELL TRADER. This NeuroShell Trader chart demonstrates the oscillator on the emini Nasdaq-100.

In his October 2024 article in *Technical Analysis of STOCKS & COMMODITIES* magazine, “Revisualizing The ADX Oscillator,” can be easily implemented in NeuroShell Trader. Simply select “new indicator” from the *insert* menu and use the indicator wizard in NeuroShell Trader to set up the indicators as follows:

```
ADX:ADX(High,Low,Close,10,10),
NetDMI: Sub(Avg(PlusDI(High,Low,Close,10),5),Avg(MinusDI(
High,Low,Close,10),5))
Dynamic ADX:IfThenElse(A>B(NetDMI,0), ADX, Neg(ADX))
```

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.

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



◆ AIQ: DECEMBER 2024 TRADERS' TIPS CODE

The importable AIQ EDS file based on Neil Jon Harrington’s article in the October 2024 issue of *Technical Analysis of STOCKS & COMMODITIES* magazine, titled “Revisualizing The ADX Oscillator,” can be obtained on request via rden CPA@gmail.com. The code is also available on this magazine’s website at Traders.com in the Traders’ Tips section.

Code for the author’s indicator is set up in the AIQ EDS code file. Figure 7 demonstrates the indicator on a daily chart of the QQQ. Note that I did not implement here all of the colors the author uses. I implemented the *strong up* (green), *strong down* (red) and *neutral* (yellow).

!DMI & ADX indicators
!Coded by Rich Denning, 10/14/24

Dailyrange is [high]-[low].
Ycloseh is abs(val([close],1)-[low]).
Yclosel is abs(val([close],1)-[high]).
Trange1 is Max(Dailyrange,Ycloseh).
Trange is Max(Trange1,Yclosel).

define HarringtonLength 10.
define sLen 5.
define ADXlow 15.
define ADXHigh 40.

!To convert Wilder averaging to exponential averaging use this formula:
!ExponentialPeriods = 2 * WilderPeriod - 1.

days is 2 * HarringtonLength - 1.

!+DM CODE:
yhigh is val([high],1).
ylow is val([low],1).
rhigh is ([high]-yhigh).

rlow is (ylow-[low]).
DMplus is iff(rhigh > 0 and rhigh > rlow, rhigh, 0).
DMminus is iff(rlow > 0 and rlow >= rhigh, rlow, 0).

AvgPlusDM is expAvg(DMplus,days).
AvgMinusDM is expavg(DMminus,days).

!AVERAGE TRUE RANGE:
ATR is expAvg(Trange,days).
!DMI CODE:
PlusDMI is (AvgPlusDM/ATR)*100.
sPlusDMI is simpleavg(PlusDMI,sLen).
MinusDMI is AvgMinusDM/ATR*100.
sMinusDMI is simpleavg(MinusDMI,sLen).

!PLOT sDIdiff as historigram:

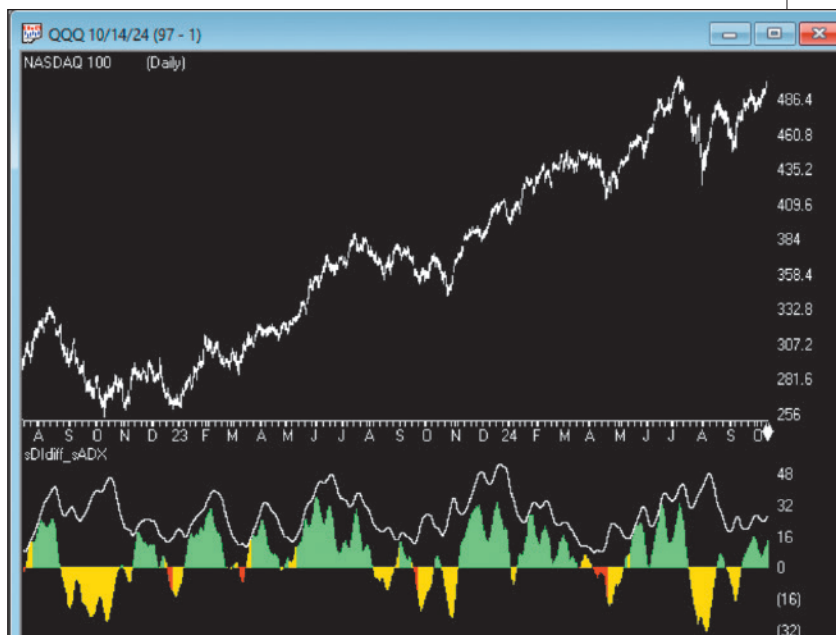


FIGURE 7: AIQ. The indicator is displayed on a chart of the NASDAQ-100 ETF (QQQ).



Green if $sDI_{diff} > 0$ and $sADX > ADX_{low}$.
Red if $sDI_{diff} \leq 0$ and $sADX \leq ADX_{low}$.

—Richard Denning
rdencpa@gmail.com
for AIO Systems

◆ **TRADE NAVIGATOR: DECEMBER
2024 TRADERS' TIPS CODE**

—Genesis Financial Data
Tech support 719 884-0245
www.TradeNavigator.com

Next, Harrington formulates a way to display a final layer of the larger ADX trend and finer bar-to-bar movement by color-coding the histogram bars. The low trend strength ranges are assigned a color group taken from greens and blues. The high trend strength ranges are assigned a color group taken from reds and oranges. ADX values closer to zero are assigned black or gray.

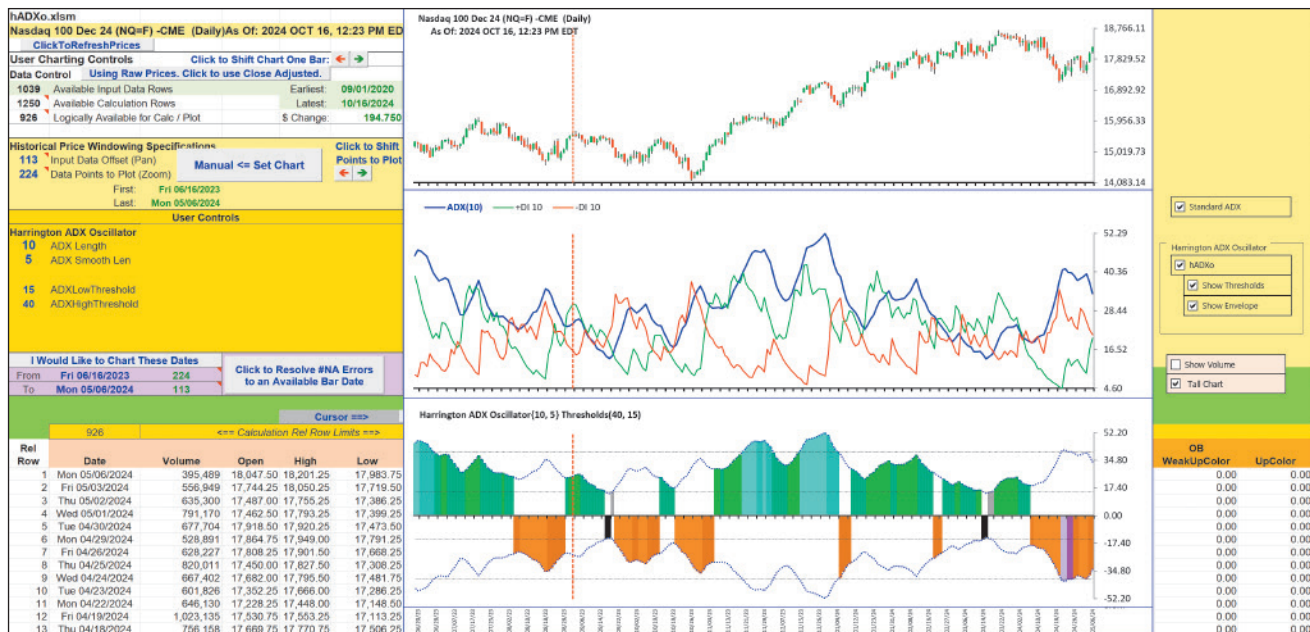


FIGURE 9: EXCEL. Here you see the standard ADX along with the hADXo with thresholds and envelope.

Within a range, a bar that is further from zero than the previous bar (gaining trend strength) is assigned the base color for that threshold range.

A bar that is closer to zero than the previous bar (declin-

ing trend strength) is assigned a slightly darker shade of the base color for that threshold range.

See Figure 9 for an implementation of this in Excel.

So there you have it—a colorful, quick boost from Harrington to an old indicator friend, the ADX oscillator.

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.

Problem and fix notice

Early on the morning of Saturday, September 7, 2024, the spreadsheets that I developed for Traders' Tips began displaying the following error message:

Status(4) - Get Prices Error: Symbol (A) "401 - Unauthorized"

While fixing *that* situation, I accidentally messed up handling stock splits when they were present in the history download.

The changes necessary to make my November 2024 spreadsheet functional were extensive.

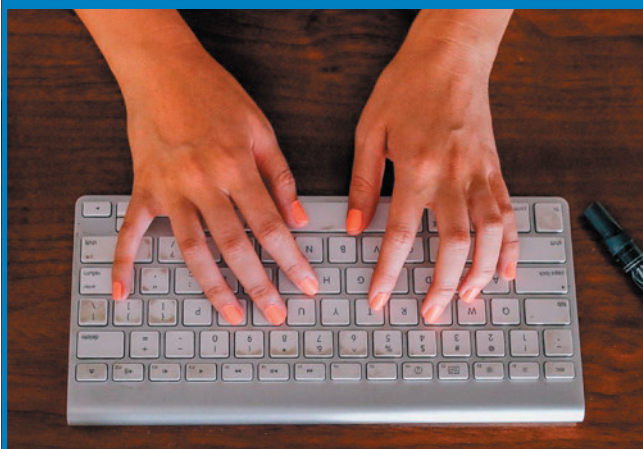
The splits problem, by comparison, wasn't nearly as difficult to fix.

In any case, the REPAIRS tab of the spreadsheet I am providing for this issue containing Harrington's ADX histogram can deal with both of these problems.

—Ron McAllister

Excel and VBA programmer
rmpac_xltd@sprynet.com

SUBMIT AN ARTICLE!



Are you knowledgeable about technical indicators, charting, trading systems, and money management? Or do you have a solid background with intraday trading, trading psychology, options and cycles? If so, we'd like to hear from you!

To write for any of our publications or obtain more information, please click on **Contact Us** at www.Traders.com.

TECHNICAL ANALYSIS OF **STOCKS & COMMODITIES**



Fax resume to 206-938-1307 or call 206-938-0570
email Editor@Traders.com, or see www.Traders.com for more information.

Find similar articles online at Traders.com

Go digital and stay connected



DID YOU KNOW THAT EVERY SUBSCRIBER TO *Technical Analysis of Stocks & Commodities* magazine has full access to the magazine in digital format? No waiting for the mail to be delivered, no need to carry around back issues — just log on to **Traders.com** on any internet-capable device and read any issue or article we've ever published, either in your browser, or downloaded to your device as a PDF for reading anytime, anywhere.

1 year	\$89 ⁹⁹
2 years	\$149 ⁹⁹
3 years	\$199 ⁹⁹
5 years [†]	\$299 ⁹⁹

[†]Includes free* book, *Charting The Stock Market: The Wyckoff Method*, all for a price that saves you \$150 off the year-by-year price!

*Shipping & handling charges apply for foreign orders.

DIGITAL EDITION

The complete magazine as a PDF, available to read in your browser or download to your device for offline viewing. You will still receive the printed magazine unless you opt for a digital-only subscription.

COMPLETE DIGITAL ARCHIVE

Our complete archive of content from 1982 through to the present. More than 17,000 pages of searchable articles, product reviews, charts, spreadsheets, and computer code. Read online or download to your device.

WORKING MONEY

Working Money gives insight on how to minimize your losses and maximize your profits while investing for maximum growth. Full access to thousands of online articles.

TRADERS.COM ADVANTAGE

Online-only articles, updated several times a week. Whether you need to learn how an indicator works or just want to know what a trader is looking at now, this is your source of real-time information.

ARTICLE CODE

Download or copy & paste code presented in past issues of *Stocks & Commodities* — including *Traders' Tips* code — no need to type it out manually.

OPTIMIZED TRADING

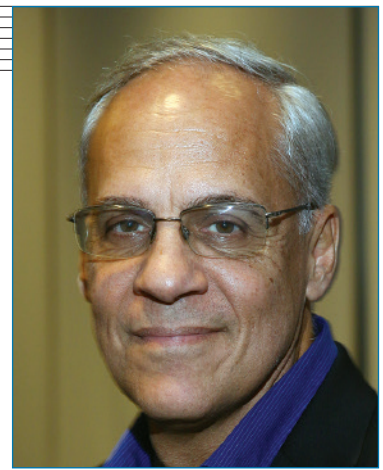
The optimized indicator values can be used as starting points when trying to decide what values to input into your charting software. Search for a certain symbol or company or build your own portfolio.

Visit **www.Traders.com** to find out more!

Explore Your Options

GOT A QUESTION ABOUT OPTIONS?

Jay Kaepfel 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 Kaepfel at jay@sentimentrader.com. Selected questions will appear in a future issue of S&C.



Jay Kaepfel

LONG STRADDLES

I am intrigued by the idea of buying a long straddle on stocks in the hope that a big price move will ensue. Do you have any suggestions?

A straddle involves buying a call and a put with the same strike price and expiration on a particular stock, index, or ETF. As you suggested, this position can benefit whether the underlying security increases or decreases in price. The caveat is that you are paying two premiums, so the stock must move far enough in one

direction to generate enough profit in one option to offset the loss in the other and leave you with a net gain.

There are two keys to making this strategy work. The first is limiting the amount you pay to purchase the straddle. The second is that the underlying security must make a meaningful price move sometime during the trade's life. For this piece, we will focus on the former since that is really the only thing we can control.

Another critical factor to consider

is how far out in time to go when buying the call and put. There is a natural desire to trade shorter-term options. They cost less to buy than longer-term options and offer more leverage if your timing is right. The problem is that they don't give the stock much time to make a big move. Short-term options might work if you have a reliable method for picking stocks that are about to move right away. But do not underestimate the importance of giving the stock enough time to move.

FIGURE 1: SETTINGS FOR STARTING SCAN. When looking to enter a straddle option trade, the trader may want to search for underlying stocks or ETFs that have options with good volume and low option implied volatility. Shown here is an example of setting up some search criteria using OptionsAnalysis.com.

FINDING STRADDLE CANDIDATES

Since we desire to limit the price we pay to enter a straddle, it makes sense to look for stocks with the following:

- A good amount of option volume (to minimize the bid/ask spread)
- Low option implied volatility

START WITH STOCKS WITH ACTIVELY TRADED OPTIONS

Generally speaking, the greater the option volume for a given stock, the tighter the bid/ask spreads. This helps to limit the amount we pay for the options. For our example, we will look for stocks which:

There is a natural desire to trade shorter-term options.

Explore Your Options

- Trade at least 1,000 options a day
- Have average bid/ask spreads of no more than 2.5%

We can do this in Optionsanalysis (courtesy of www.Optionsanalysis.com) using the settings shown in Figure 1.

When we run this test on 4,979 stocks and ETFs, we end up with 321 that meet the options volume and bid/ask criteria listed above. The twenty stocks with the smallest average bid/ask spread appear in Figure 2. We save these 321 stocks to “my stock list.”

Next, we want to filter for low implied volatility to limit the time premium we pay to buy the call and put options that will comprise our straddle.

FILTERING FOR RELATIVELY LOW OPTION IMPLIED VOLATILITY

Remember, high implied volatility means a relatively large amount of time premium is built into the price of the options for that stock. Low implied volatility means a relatively small amount of time premium is built into the price of the options for that stock. Therefore, we can gain a slight edge by focusing on stocks with low option implied volatility.

Figure 3 shows a routine for doing this in Optionsanalysis. There, we look at IV for all options with between 7 and 149 days left until expiration and we sort by “low IV.” The current day’s average IV for each stock is compared to the range of IV for that stock over the past 365 days and then ranked based on where today’s IV falls within the one-year range of high and low readings.

A zero reading indicates a stock with IV at (or very near) a one-year low, and a reading of 100 indicates a stock with IV at (or very near) a

Search Output:

4979 stocks were found and the top 321 that satisfied the search are shown below.

Add the top: Stocks to the list:

Or overwrite stocks in list and change name to:

Rank Checked:

Click a stock symbol to get the Option Data Table. Table Header is fixed. (Allow Table Header to Scroll)

Rank	Name	Stock	Close	Stock Volume (/1000)	Open Interest (/100)	Option Volume (/10)	7-149 day ATM IV	Number of All Options	Bid Ask Spread Avg (% of close)
1	☒ NASDAQ-100 Index Weeklies	NDXP Chart pic News	18093.60	0	287	3595	16.01	13701	0.07
2	☒ NASDAQ-100 Index	NDX Chart pic News	18093.60	0	1008	553	16.73	5941	0.09
3	☒ Russell 2000	RUT Chart pic News	2060.67	0	7121	5809	19.19	8530	0.14
4	☒ POWERSHARES QQQ	QQQ Chart pic News	440.25	29285	79972	146169	15.45	8348	0.19
5	☒ ISHARES RUSSELL 2000 INDEX	IWM Chart pic News	204.44	22334	101274	89506	19.10	4568	0.23
6	☒ SPDR GOLD SHARES	GLD Chart pic News	215.20	6678	20861	9043	14.87	3080	0.29
7	☒ ISHARES BARCLAYS 20+ YEAR TREA	TLT Chart pic News	90.19	23727	29472	22784	13.24	3034	0.31
8	☒ CHIPOTLE MEXICAN GRILL	CMG Chart pic News	3199.10	193	544	426	19.80	4748	0.35
9	☒ AMAZON.COM	AMZN Chart pic News	188.70	33363	36931	37626	25.13	1866	0.36
10	☒ TESLA MOTORS INC.	TSLA Chart pic News	184.76	83915	66819	128506	45.63	3402	0.40
11	☒ NVIDIA	NVDA Chart pic News	921.40	36862	31190	111163	54.65	8788	0.41
12	☒ Meta Platforms Inc Class A	META Chart pic News	465.68	14970	21944	35753	31.04	5126	0.41
13	☒ MICROSOFT	MSFT Chart pic News	413.54	16319	20151	23356	20.52	3022	0.43
14	☒ VANGUARD REIT INDEX ETF	VNO Chart pic News	81.37	3043	317	177	16.73	500	0.43
15	☒ ISHARES DOW JONES US HOME CONS	ITB Chart pic News	108.87	775	580	132	25.00	1172	0.45
16	☒ Booking Holdings Inc	BKNG Chart pic News	3598.41	330	376	425	22.39	5868	0.45
17	☒ APPLE	AAPL Chart pic News	181.71	76053	49362	90600	20.45	2188	0.49
18	☒ Airbnb Inc Class A	ABNB Chart pic News	162.00	2889	3081	2085	51.38	1040	0.52
19	☒ MASTERCARD	MA Chart pic News	449.37	2513	1289	929	16.71	1948	0.55
20	☒ GOLDMAN SACHS GROUP	GS Chart pic News	443.67	1906	2479	2520	20.02	2240	0.56

FIGURE 2: SCAN RESULTS. After the scan in Figure 1 is performed on a database of 4,979 stocks and ETFs, 321 candidates met the search criteria for option volume and option implied volatility. The top 20 scan results when sorted by average bid/ask spread are shown here, saved to a list named “my stock list.”

OPTIONS ANALYSIS

IV Percentile Ranker

OA TOOLS

Backtest date: 2024 / 05 / 06

Update Backtest Date:

Update to: 2024-10-10 12:59 EST

HELP ??

Wizard Criteria:

Number of Calendar Days used for Percentile Ranking:

Output Min and Max IV Percentile Values: Min Max

Output Min and Max Stock Close: Min Max

Wizard Rankings:

☐ High IV

☒ Low IV

IVs Ranked:

☐ IV : 7-30 day Options

☐ IV : 30-60 day Options

☐ IV : 60-90 day Options

☐ IV : >90 day Options

☒ IV : 7-149 day Options

Searched Stocks:

☐ Stock Symbol:

☒ Stock Lists:

Search Controls:

Elapsed Time: ~30s max

Max number of stocks displayed in output: ☐ 100 ☐ 250 ☒ 500 ☐ 1000

FIGURE 3: SCANNING FOR IV. This demonstrates scanning the “my stock list” from Figure 2 for options with low implied volatility relative to their own one-year historical range.

one-year high. The output appears in Figure 4 and is sorted by IV rank (lowest to highest). For straddle buying, we will focus only on those stocks with an “IV 7-149 day percentile of 20 or less.”

Seventy-two of the original 321

stocks show an IV rank of 20 or less. We save those 72 stocks to “my stock list,” overwriting the original list.

We now have a list of 72 stocks with actively traded options and relatively low option implied volatility. Next, let’s look for an actual trade.

Explore Your Options

SCANNING FOR STRADDLES

Many variables can be considered when scanning for straddles, and there is no “one magic set of criteria” that will always be better than any other. But for our purpose, we will set the following criteria:

- Options with between 75 and 120 calendar days left until expiration
- Options with volume and open interest of at least one hundred
- We will assume a market order is used and that we will buy at the ask price (in Figure 5, you see this choice as “natural bid/ask” rather than “mid quotes”)
- Our sorting criteria is the highest probability that the underlying stock will reach the “% to double” price for either the call or put

These criteria appear in Figure 5.

The output for this scan appears in Figure 6. It should be noted that there is no guarantee that the trade at the top of the list will necessarily be a better trade. All this ranking means is that based on current criteria, it has the most favorable mathematical odds at the moment.

A CLOSER LOOK AT THE SELECTED TRADE

The “top” trade involves buying the

- INTC Aug16 2024 30 call @ \$3.10
- INTC Aug16 2024 30 put @ \$1.71

These options have 102 days left until option expiration, so the stock has over three months to make a significant price move. The particulars for this trade appear in Figure 7, and the risk curves (that is, the expected \$ profit/loss as of a given date and a given price for INTC

Search Output:

93 stocks were found and 93 that satisfied the search are shown below.

Add the top 75 Stocks to the list: My Stock List ADD
Or overwrite stocks in list and change name to: My Stock List REPLACE

Rank Checked: CLEAR CHECK ALL

Stocks ranked by Lowest IV Percentile for IV >=90 day Options
Click a stock symbol to get the Option Data Table.
(Allow Table Header to Scroll)

Rank	Name	Stock	Date of Next Earnings	Days to Next Earnings	Close	IV 2-30 day	IV 30-60 day	IV 60-90 day	IV 90-120 day	IV 120-150 day	IV 150-180 day	IV 180-210 day	IV 210-240 day
1	WESCO INTERNATIONAL	WCC	2024-08-01	87	172.89	2.69	26.59	0.00	26.44	0.00	26.92	16.78	35.82
2	YUM BRANDS	YUM	2024-08-06	82	136.18	0.00	10.81	10.45	15.14	16.35	16.25	18.78	17.57
3	EXPEDIA	EXPE	2024-08-08	94	116.02	6.43	26.55	0.00	25.66	0.00	26.28	0.00	33.75
4	SCHLUMBERGER	SLB	2024-07-19	74	47.95	9.61	24.50	0.00	23.70	0.13	25.95	0.00	26.23
5	CEGHA	CI	2024-08-01	87	342.41	5.77	18.41	1.87	19.21	0.00	19.89	0.00	22.47
6	GENERAC HOLDINGS	GNRC	2024-07-31	86	136.30	4.00	34.74	1.43	33.94	0.00	34.35	0.00	40.32
7	Roku Inc Class A	ROKU	2024-08-01	87	60.33	1.12	42.51	3.02	45.04	0.00	43.97	0.00	53.33
8	PNC FINANCIAL SERVICES	PNC	2024-07-16	71	156.43	3.34	22.58	0.00	23.36	5.04	25.70	5.99	25.51
9	Carvana Co	CVNA	2024-07-31	86	122.97	4.79	82.24	0.40	76.09	0.55	76.93	0.00	84.54
10	KIMBERLY-CLARK	KMB	2024-07-23	78	125.97	0.00	12.12	8.29	13.53	0.00	12.80	11.53	15.64
11	CHARLES SCHWAB	SCHW	2024-07-16	71	76.86	0.84	22.69	3.05	23.03	3.06	25.72	0.00	34.52
12	BANK OF AMERICA	BAC	2024-07-16	71	37.69	8.14	19.81	4.89	21.26	5.07	22.70	1.75	22.82
13	DARAZER	DRH	2024-07-23	78	247.40	4.63	18.55	0.00	18.43	0.00	19.93	0.00	21.04
14	Atlassian Corp Plc Class A	TEAM	2024-08-01	87	181.77	5.97	38.18	2.82	36.38	0.00	36.69	3.20	44.95
15	AMAZON.COM	AMZN	2024-08-01	87	188.70	5.03	24.28	1.05	23.60	1.81	24.33	11.11	29.75
16	WELLS FARGO	WFC	2024-07-12	67	60.19	3.81	20.78	7.24	20.87	15.32	22.76	5.91	22.69
17	Raytheon Technologies Corp	RTX	2024-07-25	80	101.91	3.08	14.95	5.23	14.52	3.61	14.80	3.90	17.89
18	FIRST SOLAR INC	FSLR	2024-07-30	85	193.81	8.74	41.83	3.96	39.57	0.00	39.94	0.81	41.91
19	LOCKHEED MARTIN	LMT	2024-07-23	78	452.78	11.98	14.36	2.81	14.06	0.00	14.46	8.35	19.20
20	DISCOVER FINANCIAL	DFS	2024-07-17	72	125.56	6.63	22.93	0.00	22.64	17.14	26.97	19.97	26.65

FIGURE 4: RANKING THE SCAN RESULTS BY IV. In the highlighted column, option implied volatility is sorted from low to high in the scan results. For the example straddle trade, we are looking for options with relatively low IV.

Home Help Trades Stocks Options Searchers Web Site Add-Ons

Options ANALYSIS

Straddles OA TOOLS

Backtest dates: 2024 / 05 / 06
Update Backtest Date: GO
Update to: 2024-10-10 13:29 EST GO

Wizard Criteria:

Option Strike Search Direction from Stock Close
☒ Up and Down ☐ Up Only ☐ Down Only

Option Strike Search Distance from Stock Close (0 for both finds the option strike closest to Close)
0 Minimum 0 Maximum

Calendar Days To Option Expiration
75 Minimum 120 Maximum

Minimum Volume and Open Interest of Both Options
100 Volume 100 Open Interest

When to compute % to Double
30 Calendar Days Before Expiration

Maximum Straddle Trades Displayed Per Stock
3 Maximum Displayed

Use Natural Bid/Ask or Mid Quotes=(Bid+Ask)/2
☒ Natural ☐ Mid Quotes

Trade Ranking Criteria:
☐ Minimum Cost as Percent of Stock Close
☐ Lowest Put+Call combined % to Double
☒ Probability of Touch to either % to Double Using above Calendar Days Before Expiration
☐ Greek Gamma divided by Greek [Theta]

Searched Stocks:
☐ Stock Symbols: AMD
☒ Stock Lists: My Stock List

Wizards:
☐ None
☐ Minimum Cost - 20-90 days
☐ Lowest % to Double - 20-90 days
☐ Lowest % to Double - 60-145 days
☒ Highest Probability of Touch - 20-90 days
☐ Gamma/Theta - 5-35 days
☐ Gamma/Theta - 35-90 days

Wizard Criteria:
Show Hide

New Name: Default Wizard
Loaded: JK 60-140 My Stock List

Saved Wizards:
Default Wizard
JK 45-90 HOV
JK 60-140 My Stock List

Save New Wizard:
Update JK 60-140 My Stock List
Delete Other Wizards:
Load Other Wizards:
Run Other Wizards:

SAVE UPDATE DELETE LOAD RUN

FIGURE 5: SCANNING FOR POTENTIAL STRADDLES. Search criteria are set up in this example to scan for option characteristics such as time left until expiration, volume and open interest, and probability that the underlying stock will reach the “% to double” price for either the call or put.

shares) appear in Figure 8.

Things to note:

- If bought “at the market,” this trade costs \$481 to enter. The alternative is to enter a limit order and try to buy closer to the

midpoint of the bid/ask spread for each option.

- If held until expiration, the breakeven prices for this position are \$34.81 on the upside and \$25.19 on the downside. The position will lose money if INTC

Explore Your Options

shares are inside that range at expiration.

Regarding sizing the trade, it is generally a good idea to assume that you can absorb a 100% loss of premium (although you don't necessarily have to "hold on until the bitter end" if the stock continues to go nowhere). It is also generally a good rule of thumb to consider taking a profit (or adjusting the trade) once an open profit of 15% or more is available. Profits can be exceedingly fleeting if

the stock moves significantly in one direction and then suddenly reverses the other way.

A WORD ON TRADING PSYCHOLOGY

Straddles can be psychologically challenging to trade. Many traders enjoy getting into a position, watching profits accumulate over time, and then triumphantly taking a profit. Holding a straddle often involves looking at an underwater trade day after day until suddenly, the underlying security

makes a big move, and it's time to take a profit and get out quickly. The psychological satisfaction of "riding a winner" can be almost nonexistent in trading straddles. The example INTC trade is a case in point. The INTC straddle highlighted here reached an open profit of \$81 (or 17.3%) on 2024-07-10 after spending most of two months showing a loss.

Optionsanalysis.com
See Editorial Resource Index

Find similar articles online at [Traders.com](https://www.Traders.com)

Rank	Stock	Cost Close	Strikes	Expire	Prices Coll/Put	Volume	Open Interest	Days to Expire	Earnings	Cost/Close (%)	Call/Put % to Double	Probability of Touch Either	Gamma/Theta
1	INTC Chart, pic News	4.81 30.97	30.00	2024 Aug 16	3.10 1.71	640 706	21322 12450	102	87	15.53	27.63 -34.19	22.36	5.58
2	AMD Chart, pic News	28.95 155.78	155.00	2024 Aug 16	16.05 12.90	164 388	2856 2263	102	85	18.58	36.21 -37.65	21.32	0.15
3	QCOM Chart, pic News	23.85 181.85	180.00	2024 Aug 16	14.10 9.75	166 283	337 128	102	86	13.12	24.93 -27.23	14.06	0.23
4	QQQ Chart, pic News	33.03 440.25	440.00	2024 Aug 16	19.35 13.68	258 432	287 658	102	-	7.50	14.54 -15.05	8.17	0.12

FIGURE 6: SCAN RESULTS FOR POTENTIAL STRADDLE. Here you see the output from the example scan shown in Figure 5. The purpose of the scan is to help locate potential trades with favorable mathematical odds—at least at the moment that the scan is conducted.

Stock: INTC Stock News Name: INTEL Sector: Electronic Components And Accessories Dividend: 1.61 % (2024-05-06) 100 Day SV: 42.57% Trade: INTC 24Aug16 30 Put Call	Quote Type Entry Debit Profit Rate of Return Natural \$481.00 \$-13.00 -2.7% Max Profit Max Risk Delta (Shares) Gamma Vega Theta Unlimited \$-481.00 24.64 12.877 \$12.37 \$-2.18 Downside Break-even Upside Break-even Max Profit/Max Risk Max Profit/Cost 25.19 34.81 0% Unlimited%	Leg Date Position Num Option Symbol Expire Type Entry Bid/Ask Leg Profit TV % Vol OT Days Delta % Gamma % Vega % Theta \$/day 2024-05-06 Bought 1 INTC240816C30 2024 Aug 16 30 Call 3.10 3.00 3.10 \$-10.00 98.03 706 12450 102 62.02 6.34 6.2 -1.3 2024-05-06 Bought 1 INTC240816P30 2024 Aug 16 30 Put 1.71 1.68 1.71 \$-3.00 35.81 640 21322 102 -37.39 6.53 6.2 -0.9
---	---	---

FIGURE 7: TRADE PARTICULARS, STRADDLE. Here is a closer look at the trade that came out at the top of the ranked list in Figure 6. With 102 days left until option expiration, the underlying stock has over three months to make a significant price move.



FIGURE 8: RISK CURVES, STRADDLE. The risk curves are shown here for the example trade in Figure 7. Risk curves show the expected dollar gain or loss based on the price of the underlying stock as of several given dates leading up to option expiration. The option expiration date is shown here as a black line.

UNITED STATES POSTAL SERVICE® (All Periodicals Publications Except Requester Publications)

Statement of Ownership, Management, and Circulation

1. Publication Title: Technical Analysis of Stocks & Commodities

2. Publication Number: 726830

3. Filing Date: 11 October 2024

4. Issue Frequency: Monthly with a Bonus Issue in March

5. Number of Issues Published Annually: 13

6. Annual Subscription Price: \$89.99

7. Complete Mailing Address of Known Office of Publication (Not printer) (Street, city, county, state, and ZIP+4®): 4757 California Ave. SW, Seattle, WA 98116-4499

8. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not printer): 4757 California Ave. SW, Seattle, WA 98116-4499

9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (Do not leave blank):
Publisher (Name and complete mailing address): Jack K. Hutson, 4757 California Ave. SW, Seattle, WA 98116-4499
Editor (Name and complete mailing address): Karen Wasserman, 4757 California Ave. SW, Seattle, WA 98116-4499
Managing Editor (Name and complete mailing address):

10. Owner (Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owner. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name and address.)

11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box ☒ None

12. Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates. Check one.)
☐ The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes.
☐ Has Not Changed During Preceding 12 Months
☐ Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this statement)

13. Publication Title: Technical Analysis of Stocks & Commodities

14. Issue Date for Circulation Data Below: October 2023

15. Extent and Nature of Circulation: Monthly with a Bonus Issue in March

16. Total Number of Copies (Net press run): 9,920

17. Total Paid Distribution (Sum of 16a, 16b, and 16c): 9,920

18. Total Free or Nominal Rate Distribution (Sum of 16d, 16e, and 16f): 9,920

19. Total Paid Distribution (Sum of 16g, 16h, and 16i): 9,920

20. Total Free or Nominal Rate Distribution (Sum of 16j, 16k, and 16l): 9,920

21. Percent Paid (16c divided by 16e times 100): 99.69%

22. Percent Free or Nominal Rate (16f divided by 16e times 100): 0.31%

23. Publication of Statement of Ownership: ☒ Publication is a general publication, publication of this statement is required. Will be printed in Dec 2024 issue of this publication. ☐ Publication not required.

24. Signature and Title of Editor, Publisher, Business Manager, or Owner: [Signature] Date: 11 October 2024



FREE INFORMATION FROM ADVERTISERS

Advertiser	Page	Advertiser	Page
BROKERAGES		SOFTWARE	
Charles Schwab Schwab.com/Trading	13	AbleSys www.ablesys.com/SCM	07
Interactive Brokers ibkr.com/sc-forecastex	03	Charles Schwab Schwab.com/Trading	13
Ninjabroker ninjabroker.com	56	MetaStock MetaStock.com/P424	05
PUBLICATIONS		Ninjabroker ninjabroker.com	56
Stocks & Commodities Store.Traders.com, Traders.com	2, 35, 47, 55	WEBSITES	
		Stocks & Commodities Store.Traders.com, Traders.com	2, 35, 47, 55

EDITORIAL RESOURCE INDEX

Microsoft Excel	10	AIQ	44
DaveMabe.com	19	Trade Navigator (Genesis Financial Tech.)	45
MultiCharts	21		
TradingView	27		
StockCharts.com	30		
TradeStation	40		
NinjaTrader	41		
Wealth-Lab.com	42		
NeuroShell Trader (Ward Systems Group)	44		



For more information about our advertisers, go to **Traders.com/reader** where you will find the alphabetized list of this month's advertisers. For reference, the list is also printed above along with the corresponding page number for each ad. Just follow the simple directions below and the advertisers will get your requests the same day!

STEP 1: Go to **Traders.com/reader** and scroll through the list of our current month's advertisers. Click the box for each advertiser you'd like to hear from. At the bottom of the list, click **Continue** when finished.

STEP 2: Fill out your contact information and click **Send Request**. Your request will then be sent to the advertisers you selected. And that's it!

TECHNICAL ANALYSIS OF STOCKS & COMMODITIES

HOW TO REACH US

For questions, address changes, or ordering information for *Technical Analysis of STOCKS & COMMODITIES* magazine and its online publications:



Toll-free 800 832-4642
(800-TECHNICAL) or:
206 938-0570.



Email us at:
circ@traders.com.



Or write to us at:
4757 California Ave. SW,
Seattle, WA 98116-4499.

Do your magazines arrive tattered and torn? Polybagging of magazines (domestic delivery) is available for \$6/year.

Single back issues from the current year (subject to availability) are \$8 prepaid. Subscribers have access to our digital archive of all past articles. Individual articles can be purchased from the Online Store at our website, Traders.com.

EDITORIAL FEEDBACK

We always want to know more about the needs of our readers: What kinds of articles would you like to see more of? What do you find useful? Address your written questions and comments to editor@traders.com or to: Editor, STOCKS & COMMODITIES, 4757 California Ave SW, Seattle, WA 98116-4499. Sorry, we cannot perform research on individual financial questions not related to this magazine and we cannot respond to all mail. Letters or emails containing questions or information that other readers may enjoy or that relate to our articles or technical analysis topics may be published in our Letters to S&C column.



Join us on Facebook at
www.facebook.com/
STOCKSandCOMMODITIES



Follow us on Twitter
@STOCKSandCOMM

To receive information on the products and services listed in the Editorial and Advertisers' Indexes, go to: Traders.com/reader. These indexes are published solely as a convenience. While every effort is made to maintain accuracy, last-minute changes may result in omissions or errors.

FUTURES LIQUIDITY

Tradings 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 (Dec '24)	ESZ24	CME	5.5	13.4	2	>>>>	
10-Year T-Note (Dec '24)	ZNZ24	CBOT	2	10.5	13	>	
Ultra T-Bond (Dec '24)	UDZ24	CBOT	4.8	7.6	3	>	
5-Year T-Note (Dec '24)	ZFZ24	CBOT	1.3	9.8	18	>	
30-Year T-Bond (Dec '24)	ZBZ24	CBOT	3.4	8.6	6	>	
Ultra 10-Year T-Note (Dec '24)	TNZ24	CBOT	2.5	8.5	8	>	
2-Year T-Note (Dec '24)	ZTZ24	CBOT	0.6	9.6	20	.....	
Nasdaq 100 E-Mini (Dec '24)	NQZ24	CME	5.9	12.1	1	.....	
Gold (Dec '24)	GCZ24	COMEX	4.4	10.6	2	.....	
Crude Oil WTI (Dec '24)	CLZ24	NYMEX	9.2	11.3	4	.....	
Russell 2000 E-Mini (Dec '24)	QRZ24	CME	3.7	13.7	4	.....	
Soybean Meal (Dec '24)	ZMZ24	CBOT	1.2	1.8	2	.....	
Soybean (Nov '24)	ZSX24	CBOT	2.4	3.1	3	.....	
Natural Gas (Dec '24)	NGZ24	NYMEX	9.9	4	4	.....	
Corn (Dec '24)	ZCZ24	CBOT	6.3	6.4	13	.....	
3-Month SOFR (Dec '24)	SQZ24	CME	0.1	2.3	24	.....	
ULSD NY Harbor (Dec '24)	HOZ24	NYMEX	8.1	6.1	2	.....	
Euro FX (Dec '24)	E6Z24	CME	2	16.5	16	.....	
Silver (Dec '24)	SI24	COMEX	7.2	14.4	3	.....	
Gasoline RBOB (Dec '24)	RBZ24	NYMEX	8.3	7.4	3	.....	
30-Day Fed Funds (Oct '24)	ZQV24	CBOT	0.1	1.2	13	.....	
Wheat (Dec '24)	ZWZ24	CBOT	7.3	4.9	6	.....	
Dow Futures Mini (Dec '24)	YMZ24	CBOT	5.3	15.7	4	.....	
British Pound (Dec '24)	B6Z24	CME	2.6	12.9	16	...	
Cotton #2 (Dec '24)	CTZ24	ICE/US	5.7	4.8	6	...	
Hard Red Wheat (Dec '24)	KEZ24	KCBT	7.1	5.3	7	...	
High Grade Copper (Dec '24)	HGZ24	COMEX	6	21.4	9	...	
Nasdaq 100 Micro (Dec '24)	NMZ24	CME	5.9	12.1	13	...	
Canadian Dollar (Dec '24)	D6Z24	CME	1.7	14.3	31	..	
Coffee (Dec '24)	KCZ24	ICE/US	7.8	18.2	7	..	
Crude Oil Brent (F) (Dec '24)	QAZ24	NYMEX	8	9.9	4	..	
Live Cattle (Dec '24)	LEZ24	CME	3.6	11.3	11	..	CBOT Chicago Board of Trade, Division of CME
Palladium (Dec '24)	PAZ24	NYMEX	10.6	5	1	..	CFE CBOE Futures Exchange
S&P 500 Micro (Dec '24)	ETZ24	CME	5.5	13.4	22	..	CME Chicago Mercantile Exchange
S&P 500 VIX (Nov '24)	VIX24	CFE	36.1	35.7	14	..	COMEX Commodity Exchange, Inc. CME Group
S&P Midcap E-Mini (Dec '24)	EWZ24	CME	6.4	20.6	3	..	ICE-EU Intercontinental Exchange-Futures-Europe
Sugar #11 (Mar '25)	SBH25	ICE/US	7	23.8	37	..	ICE-US Intercontinental Exchange-Futures-US
Australian Dollar (Dec '24)	A6Z24	CME	2.6	18.1	27	.	KCBT Kansas City Board of Trade
Bitcoin Futures (Oct '24)	BTV24	CME	26.2	33.6	1	.	MGEX Minneapolis Grain Exchange
Canola (Jan '25)	RSF25	ICE/CA	5.5	6.2	23	.	NYMEX New York Mercantile Exchange
Cocoa (Dec '24)	CCZ24	ICE/US	15.6	21.8	5	.	
Lean Hogs (Dec '24)	HEZ24	CME	5.2	9.5	15	.	

2412

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:

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

ADVISORY SERVICES

SOFTWARE

CLASSIFIED

Yes, You Can Cash In On Chaos! Certified Chaos Traders Courses teach you how. Learn to earn at <http://moneytide.com?r=s> EMini MoonTide Hotline up **272 months** in a row <http://daytradingforecasts.com?r=s>



Build and test systems without coding!

www.NeuroShell.com

TO ADVERTISE CONTACT:

Ed Schramm

ESchramm@traders.com • (206) 660 8577



TRADERS' RESOURCE TOP 10 VIEWED MUTUAL FUNDS/ETFs FOR TRADERS



When investing with mutual funds & ETFs, the issue is cost of all kinds. Sales charges, turnover costs (trading costs), tax costs, management fees, marketing costs, and cash-holding costs all eat into your returns; then the compounding effect magnifies your losses. It's critical to consider all of these costs when approaching mutual fund investing and do the appropriate research to make sure you are making the most of your investment. A family of low-cost, no-load funds that allows costless switching between funds can be beneficial in the long run.

After you've minimized costs, you can look at returns. The benchmarks for returns are usually index funds that mirror one of the market indexes, such as the Standard & Poor's 500. It's a challenge for actively managed funds to beat the returns of the benchmarks, especially when you take into account the costs of active management, so consider these index funds in your research.

Finally, consider balancing your portfolio between bonds or money market funds and equity funds. A mix of bond funds and equity funds is best for all but the youngest investor. This portfolio diversification will help limit your risk while still allowing for respectable returns.

Product	Company
1. Schwab 1000 Index	Charles Schwab
2. SPDR S&P 500 ETF	State Street Global Advisors
3. Fidelity	Fidelity Investments
4. Strong Opportunity Fund	Wells Fargo Advantage Funds
5. Smith Barney Aggressive Growth A	Citi Smith Barney
6. Fidelity Aggressive Growth	Fidelity Investments
7. Federated Aggressive Growth C	Federated Investors, Inc.
8. Scudder Capital Growth Fund	DWS Investments
9. AAL Capital Growth Fund	Thrivent Investment Management
10. Scudder High Income Fund	DWS Investments

These are the 10 Mutual Fund/ETF listings clicked on most often on the Traders' Resource website, in order of clicks received. This is not an editorial rating or ranking. For more information on specific products and services, try checking store.Traders.com for archived S&C product reviews.

TRADERS' RESOURCE AT TRADERS.COM

Traders' Resource is available at our website, Traders.com, where you'll find information on other products and services in numerous other categories, such as data services, broker-

ages, seminars, hardware, software, and trading systems. Just click on the Traders' Resource link. Then follow the Mutual Funds category link, or use the search feature to find products or services with specific attributes in this or other categories.

The information in Traders' Resource is the most accurate at the time of posting and is subject to change. Because the vendors posting to Traders' Resource are responsible for their own listing, Technical Analysis, Inc. declines any and all liability for any representations made by the businesses and individuals listed. Nor can Technical Analysis, Inc. endorse any business or individual listed on Traders' Resource. Technical Analysis, Inc. makes no warranties, express or implied, as to the accuracy and reliability of claims herein. You agree to release Technical Analysis, Inc., together with its respective employees, agents, officers, directors and shareholders, from any and all liability and obligations whatsoever in connection with or arising from your use of Traders' Resource. If at any time you are not happy with the information posted to Traders' Resource or object to any material within Traders' Resource, your sole remedy is to cease using it. This list is updated frequently. If you are aware of a business that should be listed, please email us at Editor@Traders.com.



SUBSCRIBE OR RENEW TODAY!

Every STOCKS & COMMODITIES subscription (regular and digital) includes:

- Full access to our Digital Edition
The complete magazine as a PDF you can download.
- Full access to our Digital Archives
Every article from 1982 onward!
- Complete access to WorkingMoney.com
The information you need to invest smartly and successfully.
- Access to Traders.com Advantage
Insights, tips and techniques that can help you trade smarter.

PROFESSIONAL TRADERS' STARTER KIT

A 5-year subscription to S&C magazine that includes everything above PLUS a free* book, Charting The Stock Market: The Wyckoff Method, all for a price that saves you \$150 off the year-by-year price!

*Shipping & handling charges apply for foreign orders.

1 year	\$89 ⁹⁹
2 years	\$149 ⁹⁹
3 years	\$199 ⁹⁹

5 years \$299⁹⁹
That's around \$5 a month!

VISIT **TRADERS.COM** TO FIND OUT MORE!

NINJATRADER

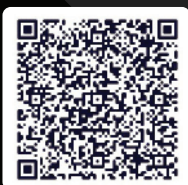
NO RISK, ALL REWARD: PRACTICE FUTURES TRADING WITH LIVE DATA

Test and tweak your futures trading strategies risk-free with **unlimited simulated trading** and live market data on our powerful, award-winning platform.



JUMPSTART YOUR TRADING JOURNEY with the leading futures broker:

- 1,000+ third-party tools, apps, and add-ons
- Education for new and experienced traders
- 100+ technical analysis tools and 24/5 live support
- Daily market prep and analysis from our pros



**BETTER FUTURES
START HERE.**

Open your free
account today.

VISIT

 NinjaTrader.com/TASC

Futures trading contains substantial risk
and is not suitable for every investor.