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# BEING RIGHT or making money

Once I listened to a veteran trader explain how trading exposes any weaknesses or “character flaws” we possess. The markets, he claimed, tend to pick at the scabs on our psyches.

The markets are funny that way (if funny is the right word). No matter what kind of stumbling block you’re talking about — stubbornness, recklessness, insecurity — trading will uncover it and make you pay for it, monetarily and psychologically.

This idea of the market as a psychological pressure-cooker is reflected in this month’s interview with trader, hedge-fund manager and industry commentator Courtney Smith (see “Courtney Smith: Inside the trading lab”). In it, he describes trading as “applied psychology,” saying, “I realized that when you look at the markets you’re seeing a very clear, concrete indication of people’s needs and desires. It’s a true laboratory for human behavior.”

There are few needs or desires more detrimental to traders than the need to be right. Such a compulsion results in, among other things, holding on to losing trades because you’re *sure* your analysis is correct and the market is *bound* to go your way. But as Smith points out, trading is about making money, not being right — and if those two concepts aren’t necessarily mutually exclusive, they’re certainly often at odds with each other.

Smith’s cure for such ills? Discipline, discipline and more discipline. Admit when you’re wrong. Take your losses. Move on. “I’ve never cared about taking a loss; it’s never bothered me,” he says.

This is a lesson every market player should internalize, but it’s especially important for short-term traders. The shorter the time frame you trade on, the more likely you are to feel the pressure of assessing constantly shifting market conditions. A disciplined plan — backed by the ability to react objectively to unfolding events — is essential.

Gauging evolving market conditions is the subject of “Cutting in front of the ‘ax’”, which follows the intraday decision-making process of a trader trying to play off a market maker’s moves on the Nasdaq Level II screen. What you see isn’t always what you get. As this article points out, on any given day it doesn’t matter what the long-term trend is; it only

matters what the big boys are doing right now. It’s an interesting take on how to identify the “ax” in a stock and how to adjust to the moves he makes throughout the day.

For a look inside a different kind of trading lab, check out our expanded trading system analysis. This month we look at how a hybrid breakout/bottom-picking system performed on a portfolio of Nasdaq stocks over the course of a decade. We give you a thorough breakdown — no general assessments or cherry-picked results. It’s an “under-the-hood” look at how different trading approaches work — or don’t work — over an extended period.

Strategies, though, are useless without risk control and money-management rules that keep the odds on your side. In “Sizing your trades” we look at the rules of probability that are essential to understand regardless of strategy. It’s one thing to pick an entry point; it’s another to know how much of your account to risk and how many shares to buy or sell to maximize your strategy’s effectiveness.

Finally, are you ready for decimalization? Penny ticks are on the horizon, but not everyone is convinced this change is in your best interests. Tighter spreads? Yes, but at what cost in terms of liquidity and limit-order execution? In this month’s Inside the Market, we look at the decimal debate as well as the latest on payment for order flow and the government’s report on online broker complaints.

The markets are full of head games. The first line of defense is gaining the knowledge you need to be a disciplined, objective market player.

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Mark Etzkorn, Editor-in-chief



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# "I" of the volatility storm

Professional option traders know their volatility. While the general public is busy trying to guess whether a stock is going up or down, the pros are gauging volatility to help determine which options are the most over- or under-valued. This allows them to play the market no matter what direction it goes.

Ivolatility.com ([www.ivolatility.com](http://www.ivolatility.com)) is an online research tool that allows you to tap into an extensive database of implied and historical volatility information, and rank and compare stocks and options using a variety of inputs. There are other sites that give you option and volatility stats, but you'd be hard-pressed to find one that gives you the level of detail or lets you massage the numbers the way Ivolatility.com does.

The site has four major sections: options, volatility ranker, calculator and commentary. (A fifth section, "Forum," was not yet operational when we looked at the site in mid-July.)

Central to the site is an implied volatility (IV) index used for many of the comparisons and rankings you can perform. Unlike the commonly referenced Chicago Board Option Exchange volatility index (VIX), which measures the implied

## IVOLATILITY.COM

Ivolatility.com's volatility ranker allows you to organize stocks and options based on a variety of inputs. Here, Nasdaq 100 issues are ranked based on the ratio of implied volatility to historical volatility.

Stock Symbol (Company name)	IV Index Last	IV Index Change	IV Index % Change	30-day H/L range of IV Index	IV Index H/L range scaled	300 Historical volatility	IV Index / 300 HV, %
SABR (SABRINA CORP)	57.28	24.80	39.50%	32.05 / 45.91	0.89	99.33	147.18
BYND (BYND INC)	83.28	3.37	4.00%	150.08 / 50.98	0.35	57.46	144.79
EDU (EDUCATION ARTS INC)	91.63	4.95	5.37%	130.45 / 49.43	0.40	65.29	139.97
WISA (WISDOM TREE ASSOCIATES INC)	78.19	3.27	4.19%	129.78 / 67.83	0.18	98.63	130.13
CPWR (COURTNEY WARE CORP)	81.81	8.88	8.88%	119.22 / 62.73	0.80	79.17	122.14

volatility of at-the-money options, Ivolatility.com's IV index uses both at-the-money and out-of-the-money options, averaged using a proprietary weighting technique that factors the delta and vega of each option. The IV is then normalized to a 30-day maturity.

The "options" section gives you an in-depth look at an individual stock, with calculations ranging from historical and implied volatility to Greeks on as many as a dozen strike prices.

The heart of the site, the volatility ranker, is itself broken into four sections that allow you to sort symbols using a variety of benchmarks: implied volatility index, historical volatility, a call/put IV ratio and correlation to the S&P 500.

But the fun doesn't stop there. For example, in the implied volatility section, you can select from the following choices: implied volatility as a percentage change from yesterday's implied volatility, implied volatility as absolute change from yesterday's implied volatility, implied volatility as a percentage of 30-day historical volatility or implied volatility as a scaled percentage of the implied volatility high-low range. You can rank stocks from the Nasdaq 100, Dow or S&P 500, or select those with the top-200 options volume or open interest. (You can also set up customized portfolios for analysis.)

So, for example, if you're interested in finding poten-

## IVOLATILITY.COM

In addition to its volatility ranker, the site also features an option calculator.

The screenshot shows the 'Option Calculator' section of the website. It features a 'PREPARE' section with a 'Stock' dropdown set to 'AAPL' and a 'Strike' input of '1250'. Below this, there are fields for 'Expiration Date' (set to '08/08'), 'Current Stock Price' (set to '133.94'), and 'Implied Volatility' (set to '0.57'). On the right side, there are sections for 'Dividends' (with columns for 'Date' and 'Amount'), 'Option Values' (with columns for 'Call' and 'Put'), and 'Greeks' (with columns for 'Delta', 'Gamma', 'Theta', 'Vega', and 'Iv'). At the bottom, there are buttons for 'Calculate' and 'Print'.

tially overvalued tech stock options for a short strangle in anticipation of a drop in volatility, you can rank Nasdaq 100 stocks in terms of the implied volatility-historical volatility ratio and get the following breakdown: implied volatility (last), IV index (change), IV index percent change, 52-week high-low range of IV index, IV index high-low scaled range, 30-day historical volatility and IV index/30D HV (see accompanying screen capture, above). In short, we're talking thorough here.

The site's "calculator" allows you to value options varying the option style, underlying price, strike price, expiration month, days to expiration, volatility and interest rate. (The site uses standard Black-Scholes and Binomial pricing models in its calculations.) Ivolatility.com maintains current stock dividends and current interest rates in its database, and uses them for its pricing models.

The diligent intermediate-level trader can make use of these tools and build knowledge here, but the site is not for beginners — unless sentences such as, "In the case of gamma profits, every rebalance of the delta neutral hedge adds incrementally to the position's profits" qualify as entry level in your book. The site would benefit from more educational material explaining the meaning and importance of the data on the site as well as how to use it. The FAQ provides some information, but the commentary section was somewhat on the under-nourished side. (Admittedly, though, the site only launched in May.)

As of mid-July, the site was free. The developers were planning on adding even more advanced features on a subscription basis. For in-depth online volatility analysis, Ivolatility.com is an undervalued option for serious stock and option traders. 📌

## Mock trading sites

For those interested in trying out new trading strategies or simply learning more about how markets work, several mock trading or investing sites offer the opportunity to take a few warm-up swings before stepping up to the plate.

And even if you're already pleased with your trading results, many mock trading sites allow you to stay on top of the trading "buzz" by serving as gathering spots where traders can exchange ideas and get the latest gossip, rumors and news analysis (solicited or not).

There are plenty of sites to choose from but, as with most other social activities, you are probably better off going where everyone else is going. All of the sites listed here have a good deal of traffic, and all are free.

Virtual Stock Exchange ([www.virtualstockexchange.com](http://www.virtualstockexchange.com)) has made online rumors and "homemade" analysis into a viable trading tool by comprising all site users' forecasts into a proprietary consensus report. Whether you should use it to run with the pack or be a contrarian is your decision.

VSE also features some good educational material. You can learn the basics on everything from technical analysis, derivatives, mutual funds and real estate to retirement planning and tax regulations. There also are plentiful links to other market-related sites.

When you register, you get 500,000 fantasy dollars (f\$) to trade on the VSE. You can place market orders, market on close, market on open, and stop and limit orders. Virtual Stock Exchange also lets you trade on margin, but if you choose not

to, you'll earn interest on the cash in your account.

Round-turn commission is f\$29.95 per transaction. It takes 20 minutes to confirm market orders, but VSE claims orders are executed in real-time. That makes practicing day trading possible, as long as your strategies aren't too short in duration.

For a premium membership fee of \$12 per quarter you can also screen and filter stocks and mutual funds using a wide range of fundamental criteria — something that could come in handy for your real-time trading as well.

Although Hoover's ([www.hoovers.com](http://www.hoovers.com)) is primarily a business site aimed towards the hurried corporate leader, his henchmen and everybody else in the business world who needs to be "on top of things," it still has a stock game and a few interesting features that can help you enhance your trading skills. One is the IPO watch and another is the comprehensive industry and sector analysis list, which can be accessed via the Companies & Industries link at the top of the page.

As far as the stock game goes, your trading account will have f\$200,000 to start, but the trading or investment possibilities are quite rudimentary: You are only allowed to buy at market and fills will be pending for 30 minutes.

Aside from the stock market game, the site also holds information on such diverse topics as corporate gift guides, business travel and career development.

Probably the most "gossipy" site of them all is Yahoo (<http://finance.yahoo.com>). All of Yahoo's chat rooms and

message boards are just a few mouse clicks away, and all of Yahoo's regular analysis tools are within easy reach as well.

You'll have to sign up for a regular Yahoo account (giving you a yahoo.com e-mail address, by the way) to play the Yahoo Investment Challenge. A new Challenge starts every month, and the person who can make the most of the f\$100,000 they get to begin with wins the \$5,000 monthly first prize. You can trade all stocks at the NYSE, Amex and Nasdaq markets, except those on the bulletin board and those valued under \$5. Commissions are f\$10 per trade.


Unfortunately, short selling and margin trading are not allowed, and because your orders will not be executed until 30 minutes after they've been placed (and only market orders are allowed), the site is less suitable to practice day trading. You also can't trade mutual funds.

MainXchange ([www.mainxchange.com](http://www.mainxchange.com)) is a site with many different sub-sites — click on "stock game" from the top of the home page to get to the mock-trading site. It's primarily aimed at kids and adolescents (on the registration form there is a line for parent's e-mail address); as such, it does a pretty good job educating users about market basics while also providing a possibility to chat with and make new friends across the country. The adult trader/investor, however, will quickly feel out of place.

When you (or your kids) set up an account, you'll get f\$100,000 and can select from approximately 300 different stocks subdivided into 12 different market sectors. Before you buy a stock, you can see a small overview of the company together with brief financial statement and a few basic price charts.

There also is a chat room where you can read about (or start) the latest market rumors, but there are no other individual or proprietary analysis capabilities, and you're only allowed to place market orders.

While there are plenty of mock trading sites to choose from, many of them seem to be very similar in scope, layout and technical limitations, and are probably based on the same underlying software platform and database engine. The most sophisticated of the ones we've looked at is the Virtual Stock Exchange — it gives you almost full day-trading capacity and also offers a few very useful proprietary analysis tools.

If you're interested in more sophisticated sites that not only allow you to day trade in real time, but also will provide you with professional broker statements and real-life track records, check out [dir.yahoo.com/Recreation/Gambling/Web\\_Games/Financial\\_Markets/](http://dir.yahoo.com/Recreation/Gambling/Web_Games/Financial_Markets/). Here you'll find plenty of subscription-based sites in addition to sites that let you trade fantasy money but charge you real money commissions. 

## NEW Products

- ▼ **WealthHound, Inc.** is teaming up with **StockTalkLive.com** to provide free Level II streaming quotes powered by Standard & Poor's ComStock and streaming financial broadcast channels to users at [www.wealthhound.com](http://www.wealthhound.com).
- ▼ **MarketScreen.com** is a stock screening and market alert system through which customers can get a customized report on specific stocks generated on demand or delivered to them via e-mail at the close of each business day. MarketScreen.com searches the stock market for price-action events, data patterns and common technical indicators based on user-defined selection criteria. Daily reports include full-featured charts, market summaries, news and educational articles. For more information, visit [www.marketscreen.com](http://www.marketscreen.com).
- ▼ **Tachyon Systems** recently launched FalconEye, a Web site created with technology to analyze Level II data in real-time. FalconEye features include Tracker, a "live map" that identifies breakaway stocks, and Order Optimizer, through which users can analyze limit orders and determine the chances of receiving execution at a range of  $\frac{1}{8}$  below the bid side to  $\frac{1}{8}$  above the offer side. Level II View provides additional tools to interpret data such as how price levels change over a rolling 5-minute period and which market makers have the best sustained buy or sell interest over various time periods. The site also offers more than 120 indicator alerts. Check out [www.falconeye.com](http://www.falconeye.com) for more information.
- ▼ As a result of an agreement with **Comtex News Network Inc., TradeCast** account holders can now receive real-time financial news from Comtex' Public Companies CustomWire, which includes stories from more than 55 global newswires that mention U.S. companies listed for trading on NYSE, AMEX and Nasdaq. In addition to ticker symbols, stories are keyword-encoded, allowing users to search by industry, product or executive appointments to track their portfolios and research public companies.
- ▼ **Suretrade.com** now features a number of investment decision-making tools in the Learning Center of its Web site ([www.suretrade.com](http://www.suretrade.com)) including investing basics for beginners, short-term and strategic investing information for more experienced investors, as well as debt management tools created by SmartMoney.com. Customers can also find work sheets and calculators developed by SmartMoney.com for planning and determining personal finance.
- ▼ Having partnered with **DayTraderTax.com**, an online day-trading tax services provider, **MB Trading** is providing clients with a "Traders Tax Preparation Package." The package includes a survey for traders to determine if they are eligible for professional trader status, as well as extensive guidelines for active traders preparing their own taxes.
- ▼ Customers of **Interactive Brokers LLC (IB)** may now route orders to any options contract listed on the International Securities Exchange (ISE). IB added the direct link to the ISE, the first fully electronic U.S. options exchange, to its system earlier this summer. For more information, go to [www.interactivebrokers.com](http://www.interactivebrokers.com).
- ▼ **World Cup Advisor** ([www.worldcupadvisor.com](http://www.worldcupadvisor.com)) is an educational stock and futures site launched by veteran futures traders and top finishers in the Futures Trading World Cup. Subscribers can access analysis, commentary, and trade recommendations with specific entry and exit points by the WCA advisors, as well as WCA's Online Seminar audio broadcast series. The WCA advisors are Larry Williams, Ryan Jones, Robert Miner, Dennis Minogue, Chuck Hughes, Neil Peplinski, Robert Bloch, Steve Hutson, John Mills and Kurt Sakaeda. The WCA plans to expand its services when top finishers in the World Cup Championship of Stock Trading competitions (taking place Oct.1) join as advisors in January 2001.
- ▼ **DTN Financial Services** has updated its market data service DTN InterQuote, added OTC Bulletin Board stocks to its Nasdaq Level II services and introduced a new resource — InterQuote Trader ([www.InterQuote.com](http://www.InterQuote.com)). InterQuote Trader features real-time streaming quotes on equities, options and futures; historical, intraday and tick charts; time and sales; and integrated trading. In addition, InterQuote Trader subscribers receive Nasdaq Level II quotes, Comtex News including PR Newswire and Business Wire, real-time Most Actives/Gainers & Losers, a real-time and customizable stock screener and 300 additional symbols.
- ▼ **A-T Financial Information, Inc.**, a wholly-owned subsidiary of Primark, has expanded its Primark SpeedFeed market data to include after-hours trading. Data from Island, REDiBook, Archipelago and Market XT is now available for sale in quote or streaming formats to financial institutions and retail traders.

Send your new product information to:

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## Software SCREENING:

# FastTrack investment software

BY NELSON FREEBURG

**F**or short-term traders, finding the strongest stocks starts with finding the leading sector(s). And that's what FastTrack allows you to do.

When FastTrack first appeared 10 years ago, it was a somewhat clunky DOS-based software tool for mutual fund selection. Today a more capable Windows version lets you analyze individual stocks as well as funds. The program isn't the ultimate in sophisticated graphics, but it's still a great program.

### What it does

FastTrack's governing premise is that investment and trading approaches go in and out of fashion. FastTrack's mission is to identify the leading sector, exploit it until it weakens and then switch to the next favored sector. As Paul Charbonnet, FastTrack's founder, is fond of saying, "There's always a bull

### FINDING INFORMATION

FastTrack's specialized Web browser makes it easy to gather trading information on the Net. Here, the browser displays a chart from BigCharts.com.



Source: FastTrack.net

**Product:** FastTrack investment software

**Address:** 12643 Jefferson Highway  
Baton Rouge, LA 70816  
or P.O. Box 77577  
Baton Rouge, LA 70879

**Web address:** [www.fasttrack.net](http://www.fasttrack.net)

**E-mail address:** [suggestions@fasttrack.net](mailto:suggestions@fasttrack.net)

**Phone:** (800) 749-1348, 9 a.m. to 9 p.m.  
Eastern time on market days;  
10 a.m. to 2 p.m. Saturdays  
(except on three-day weekends)

**Required System:** Dial-up modem or Internet access;  
Windows 95/98/2000/NT; 16 MB RAM; 85 MB hard-  
drive space.

**Price:** Free (to download) with \$36/month subscrip-  
tion to one of three end-of-day price data packages. A  
program CD with manual and tutorial can be ordered  
for \$80.

market somewhere."

The market's preference can shift between growth and value stocks, small-cap and large-cap stocks, and domestic and international stocks. From time to time the broad market goes nowhere but traders willfully stampede into a single sector. (Think of the market's past fixation with energy, casino, biotech or computer stocks.) Whatever the market's focus, FastTrack is designed to capture the sector currently in demand.

### How it works

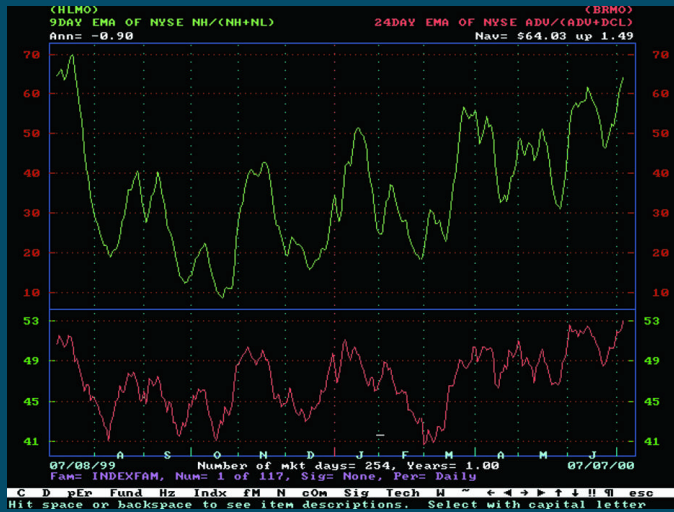
The main FastTrack tool for investment selection is a relative strength indicator called AccuTrack that compares the performance of two instruments and identifies the stronger candidate. It can be used to trade mutual funds, stocks, indices and other trading vehicles. By adjusting AccuTrack's internal smoothing, you can vary the frequency of trading, from very deliberate to very active.

### Pricing, installation and support

Both the Windows and DOS versions of FastTrack are priced attractively: They're free. FastTrack is happy to give away the trading software to anyone who subscribes to the firm's end-of-day data service. The cost is \$36 a month for any of three data packages, one covering mutual funds and two covering stocks. Historical price data back to 1988 is included. While limited in historical depth, this database is intri-

## THIRD PARTY TOOLS

FastTrack also comes with a long array of third-party tools developed by the program's users. This chart shows the NYSE market breath and direction, plus advancing vs. declining issues.



Source: FastTrack.net

cately structured and extensively cross-referenced, making it easy to perform revealing sorts and queries.

One hitch in acquiring the software is the download process, which is agonizingly slow and prone to interruption. It is far easier to install FastTrack from a CD. You can purchase a FastTrack CD, manual and helpful on-line tutorial for \$80.

FastTrack offers excellent technical support. The phone call is toll-free for U.S. residents and support is available 64 hours a week. The staff is knowledgeable and eager to help.

### Operation

FastTrack is not fancy. The program is straightforward and functional, which makes it easy to learn and use. The heart of the program is AccuTrack switching, but the package includes several other technical tools like trendlines, stochastics and MACD.

FastTrack has its weaknesses. Because of its internal date structure, FastTrack cannot process data prior to September 1988. If you want to go back further in time, you have to take

**Whatever the market's focus,**  
FastTrack is designed to  
**capture the sector** currently  
**in demand.**

prices from the earlier period and fuse them with dates starting in 1988. Creating an artificial date sequence is cumbersome.

Another reservation concerns FastTrack's risk calculation. Risk is expressed as the standard deviation of price. Most traders prefer a more intuitive measure of risk like maximum equity drawdown. Unfortunately, FastTrack does not report this important statistic. You can manually plot drawdown, but it takes time and effort.

### Measuring performance

The real question with FastTrack is whether relative strength switching is a reliable and profitable investment strategy. There is no question that FastTrack has fired on all cylinders since its release 10 years ago. Fully half of FastTrack's clients are professional money managers.

But FastTrack has never been tested in a sustained bear market. To address this issue, FastTrack's hypothetical perform-

ance was backtested from 1970 to 1981, a period that includes several bull and bear market cycles. The results suggest FastTrack most likely can survive and even profit in a hostile market. However, interim drawdowns are apt to be punishing.

Another issue is the gap between past and future performance. Research shows that strong gains in one time period do not guarantee strong returns later on. There is no conclusive solution to this problem. All a trader can do is choose strategies that make sense and diversify to spread the risk. (Of course, performance gaps can work in your favor. Future results can also often exceed past performance.)

At this writing, the Dow is just about where it was a year ago. Yet during this time the Nasdaq 100 almost doubled before pulling back. Biotech stocks were up 167 percent at one point. FastTrack is a program that can help you identify the strongest sectors in the overall market at any given time and the strongest stock in a sector — useful information for traders and investors alike. 📍

### SOFTWARE SUMMARY

**Product:** FastTrack

**What it does:** Identifies the strongest sector stocks in the stock market.

**Who the product is for:** Stock, index and mutual fund traders.

**Skill level:** Flexible; can help beginners as well as professional traders.

**Upside:** Easy to use, affordable.

**Downside:** Can only handle limited historical data, risk calculations are not user-friendly.



# CUTTING IN FRONT OF THE "AX"

BY DEWEY BURCHETT

No matter what you believe the trend will be for a specific stock, in the short run it's the big market makers who set the pace.

Here, you'll learn how to identify and make money off their moves.

**Y**ou've just spent several hours reviewing your charts for tomorrow's trading and managed to find a stock that appears to have broken out of its trading range. Not only is it a great looking chart, but you are sold on the fundamentals of the company as well. As the market opens the next day CNBC reports that a major brokerage firm just reiterated a strong buy on the stock with an aggressive price target, validating your bullish convictions.

As the S&P futures continue to climb and your enthusiasm builds, you decide to buy the stock slightly before the market opens. Your only concern at this point is figuring out how many points you will let the stock run before taking some profits. Perhaps you will sell the position off in pieces on the way up, or even hold it overnight in anticipation of an opening gap the next day.

**FIGURE 1** BROADVISION, 1-MINUTE

- A. Stock is making lower highs and lower lows.
  1. 11:12. Time for first Level II screen (see Figure 2).
- B. A brief rally follows.
  2. 11:17. Time for second Level II screen (see Figure 3).
- C. Market moves through support to new lows.
  3. 11:51. Time for third Level II screen (see Figure 4).



Source: QCharts by Quote.com

For now, however, with the stock already selling a half-point above your initial buy level, you decide to buy more on the open. And sure enough, with a broker upgrade, time and sales indicates buying pressure right off the bat as the market opens and the traders start to hit the best offering price. The fact that the same broker that just upgraded the stock is sitting on the best offering price is of little concern, as you conclude this is just

a “head fake” — a case of the broker taking the opposite side of the market to hide its true intentions.

But within five minutes, as the buying pressure subsides, the broker begins lowering the offer, and other day traders start nailing the bid. Before you know it, you find yourself on the wrong side of the market.

What happens next determines whether you are a good trader or a great

trader. A good trader takes the loss and moves on. A great trader realizes the broker is most likely going to be in control of the stock that day and considers going short. Your opinion of whether or not the stock should go up or down based on either technical or fundamental factors is irrelevant. What really matters is where the “big boys” are and what they are doing.

### Identifying the ax

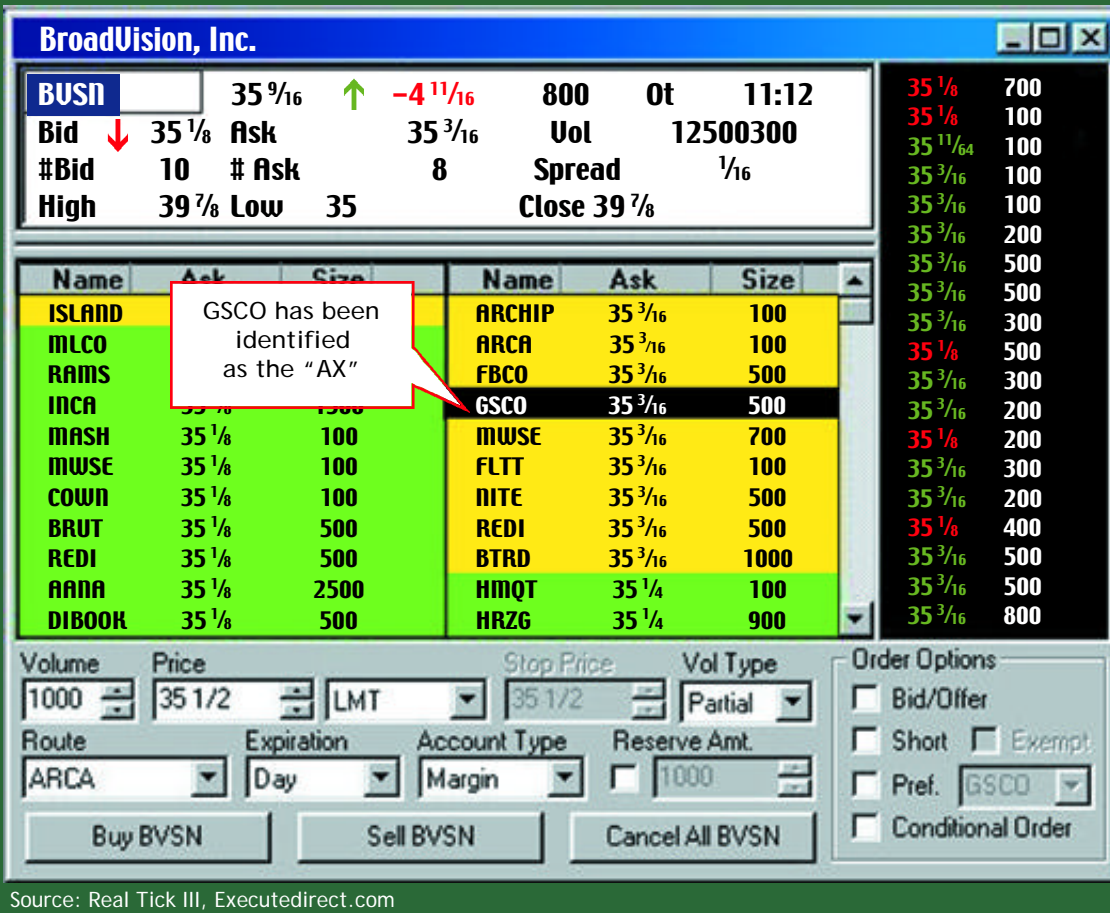
Frequently called the “ax,” a market maker trying to sell large blocks of stock can be a real intraday momentum killer. It really doesn’t matter why they are selling. You could be right about the intermediate or long-term outlook for the stock price, but intraday the only thing that really matters is the order flow. And when you’re trying to identify an ax, the first thing you need to determine is the order flow.

First, no trader can determine the real order flow simply by looking at the

You could be **right about** the **intermediate** or **long-term outlook** for the **stock price**, but intraday the **only thing** that really **matters is order flow**.

**FIGURE 2** LEVEL II, 11:12 a.m.

At 11:12 am, the ax has been identified as Goldman Sachs (GSCO).



Source: Real Tick III, Executedirect.com

number of shares market makers are showing on the Level II screen. Consider it from their perspective: The last thing you would want to do if you were trying to unload a large block of shares is advertise your true intentions. Posting a sell order for 200,000 shares in the open market would be absolute suicide, because other traders would bail out and put further downside pressure on the stock.

Instead, the market maker may, for example, post 100 or 200 shares at a time and keep the remaining shares on reserve. That way, there constantly will be a fresh offer appearing on Level II. (This also feeds hope that the market maker in question has almost completed selling.)

Because you cannot tell from the Level II screen the actual number of shares the ax is attempting to move, you must watch time and sales data. Pay attention to how long the market maker

stays at the best offer with buying pressure (trades that are occurring primarily on the offer side of the market) coming in. You can be pretty sure you have located a real ax in a stock if you can observe the following two things:

1. As buying pressure comes in, the market maker will lift the offer perhaps  $\frac{1}{8}$  to  $\frac{1}{4}$  point after a number of sales have been made. This will continue until the buying pressure subsides.
2. As the buying pressure subsides, the market maker will begin lowering the offer until he starts getting more "hits" on the offer.

Once you are sure these two conditions have been met, and an ax has been identified, you are ready to make your move.

### Avoiding the blade

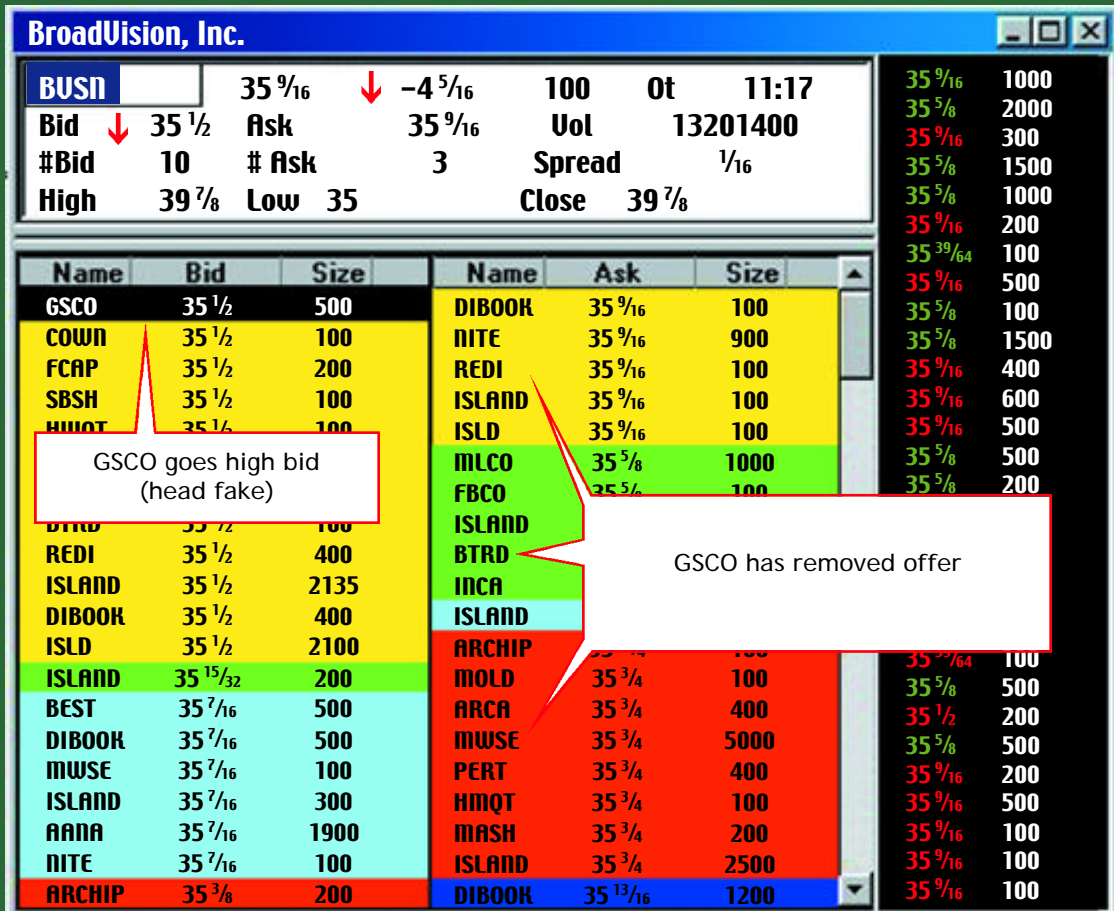
A good example of an ax at work was

the market maker Goldman Sachs in Broadvision (BVSN) following an announcement that the company had lost a large contract with a major airline. The stock had sold off significantly and remained in a downtrend for several days after the announcement.

On July 11 the stock was making a series of intraday lower highs and lower lows, with only brief recovery rallies. Figure 1 shows a one-minute chart of BVSN and Figure 2 shows the Level II screen, with Goldman Sachs (GSCO) highlighted in black. On this particular day, although only showing 500 shares, Goldman was selling much more. That was readily apparent for anyone watching the market action, especially keeping note of the fluctuations in the number of shares announced by the players. Although time and sales data does not reflect which market maker the trades are being cleared with, when you see

**FIGURE 3** LEVEL II, 11:17 a.m.

To fool other traders into believing the selling is over, GSCO has taken away the best offer and is now the best bid. That induces a brief rally in the stock, which helps set up a short position.



Source: Real Tick III, Executedirect.com

one market maker alone on the offer side at a particular price, and time and sales data displays a series of fills at that price, in most cases you can assume it is the ax filling those orders. Identifying the ax is the first step in setting up a short-selling

opportunity.

The next step is to get on the same side of the market as the ax. Part of the strategy will be to take advantage of what market makers invariably do to work their order more effectively.

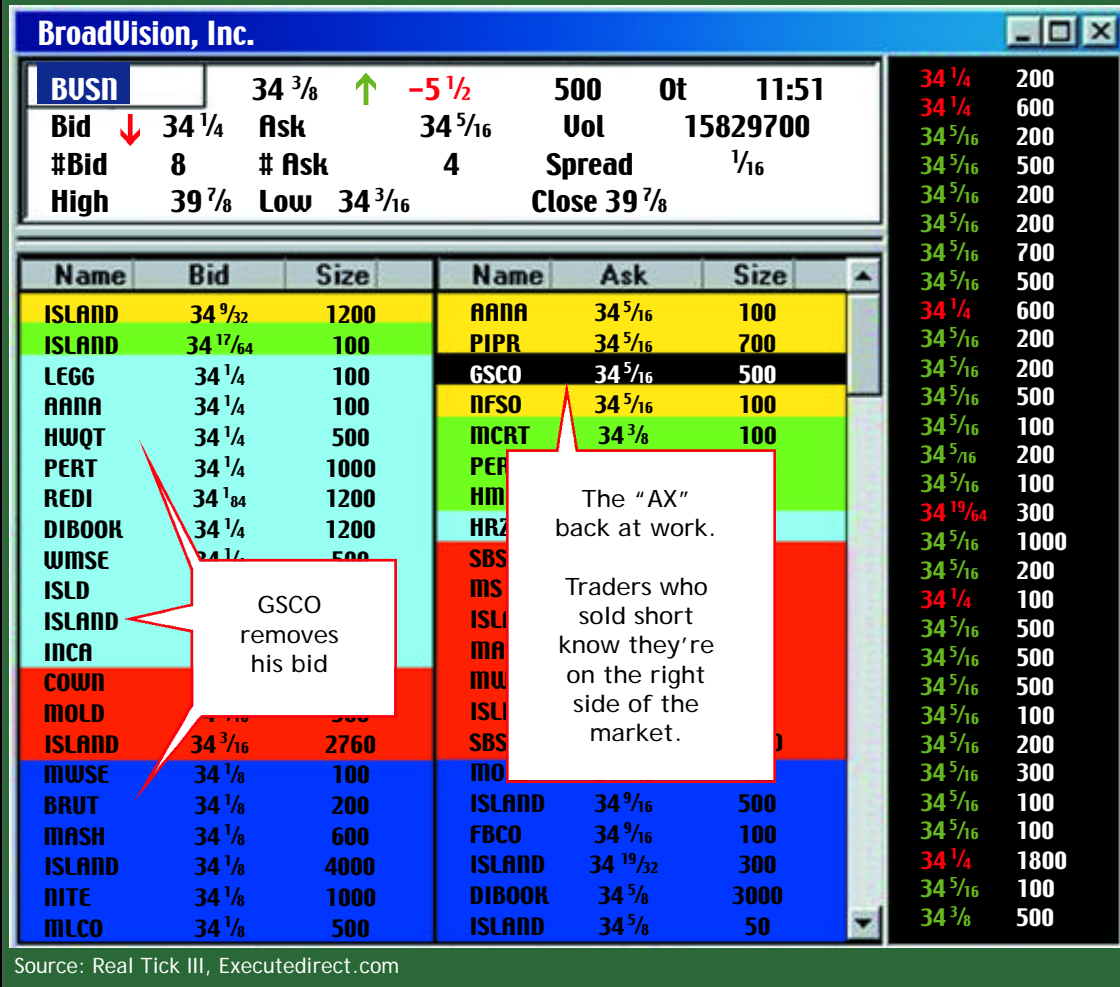
Generally, as the day progresses, the market maker will completely lift away the offer, making it appear as if the selling is over. This will bring in buyers, and without the ax in the picture, the stock will make a run back to higher ground. The market maker may even flip to the bid side to enhance the illusion.

This is where you get your first chance to take the opposite side of the crowd and offer the stock for a short position. If, in fact, you have located a true ax in a stock, in most cases they will soon be back on the offer. Realizing they have been fooled into buying, other traders will bail out, giving you an opportunity to cover the short rather quickly. This scenario will generally occur a number of times throughout the day with the same result.

**Generally, as the day progresses, the market maker will completely lift away the offer, making it appear as if the selling is over.**

**FIGURE 4** LEVEL II, 11:51 a.m.

A few minutes into the brief rally, the ax once again shifts to best offer, getting ready to sell the stock on its way down through support to new lows.



In the case of Broadvision, Figure 3 shows that Goldman Sachs not only took away the offer, but also went high bid at 35 1/2. This created the illusion GSCO was now a buyer, which stimulated buying interest from other traders, enabling the stock to stage a brief rally as shown in Figure 1. When something like this happens, you get a second opportunity to take advantage of the game being played and short the stock. The ax that lifts the offer generally will aid you in setting up the trade, helping you fulfill the uptick rule for a short sell.

**Staying alert**

You now need to make sure the ax only buys a small number of shares and doesn't remain as the highest bidder for very

long, instead removing the bid shortly after the rally commences and returning to the offer side.

That's exactly what happened in this example, and within 30 minutes the stock was down about 1/4 from the short sale price of 35 1/2 (see Figure 1). Notice in Figure 4 that Goldman Sachs now has removed the bid and is back on the offer. Once the volume picks up on the downside, to minimize the risk of being caught on the wrong side in the case of a rally, it is generally best to cover the short position as soon as a new low has been reached.

This is a very effective strategy, but it works best with stocks that you follow regularly. By following 20 or so stocks on a regular basis, you will get a good idea of

who the major players are in particular stocks. Market makers may work an order for a large institution that they are unable to unload with another trading desk over a period of several days or weeks.

During these periods, it is critical to identify which market makers are working the big order flow. One general rule to help minimize risk is to wait 15 to 20 minutes after the market opens before attempting this strategy. By this time, a small trend will have developed and you will have had time to identify any big players. Outside of any of the particular market makers it is not uncommon to see "Instinet" or "INCA" on the offer as the ax, as they generally represent an institution that carries more weight in the market. Ⓢ



Trading should be as simple as possible. The tail pattern is easy to spot and, once mastered, is likely to become your new best friend. Here's how to use it.

# Wagging THE TAILS

BY OLIVER VELEZ

**W**e can never forget the fact that when we enter the market, we trade people, not stocks. The very best traders recognize this and constantly find ways to prof-

itably exploit human weaknesses.

We must come to grips with the fact that people are primarily moved to action by two dominant emotions: fear and greed, and usually in that order. Earnings reports and other noteworthy news items may be the catalysts behind these two forces, but ultimately it is fear and greed that serve as the true wind behind the sails of major price movements.

If you accept the two premises above, then it naturally follows that successfully picking tops and bottoms calls for the ability to find two specific moments in the market: the moment runaway greed stops and fear begins, and the moment runaway fear stops and greed begins. These are the two most critical points in a stock that lead to trading opportunities.

## Defining tails

There are several key items that can signal major tops and bottoms that we need to learn to identify. "Tail" patterns are among the best of them, as they mark where shifts in the balance of power between buyers and sellers have occurred.

A bottoming tail, which indicates a price low, is formed by an initial move to the downside that suddenly gives way to a dramatic rally back to the upside, very much like a key-reversal bar. Its presence indicates that professional buyers have begun accumulating stocks inexpensively.

A topping tail is just the reverse. It indicates a price high and is formed by an initial move to the upside that sud-

**FIGURE 1** BOTTOMING TAIL EXAMPLE

*A bottoming tail in CMVT precedes a rally. Prior peaks are used to establish profit targets.*



Source: Executioner.com



**FIGURE 2 DOUBLE TOPPING TAIL EXAMPLE**

Consecutive topping tails signal increasing selling pressure in NXLK. A sell is triggered when the stock trades below the low of the second topping tail bar.



Source: Executioner.com

denly gives way to a sharp decline. Its presence indicates that professional sellers have begun dumping stocks on the general public.

Figure 1 (left), which shows the daily chart of Converse Technology (CMVT), demonstrates a bottoming tail and how it should be interpreted and traded.

### Sizing up the opportunity

Figure 1 shows an ideal bottoming tail, meeting all the criteria for a stock poised to reverse direction and take off to the upside. Ideally, a bottoming tail should have a greater range than the average daily price range of the prior three bars. The bottoming tail in CMVT certainly satisfies this. Another key characteristic of an ideal tail is that the open and close are usually not too far apart.

It is very important to note that all tails are not created equal. The truly significant bottoming tails, the ones that should command your greatest attention, are those that occur after the stock

has already experienced two or more declining bars. In other words, you should want to see two or more days of fear and pain precede the bottoming tail. This will ensure the bottoming tail has washed out that final lot of die-hard bulls before it reverses.

As soon as they are gone, the stock will often bounce to the upside to close near the high of the day. That is precisely what CMVT did on May 24, dropping sharply at first, only to rocket back to the upside. The long tail left behind is a key sign that CMVT is free to take off now that the shakeout is complete.

When a bottoming tail is spotted, successful traders not only know *what* to do (in this case buy), they also know *when* to do it and *where*. These three W's are crucial ingredients in a proper trading plan, and are the key items that typically separate the haves from the have-nots in the market.

When trading with tails, knowing when to strike is easy. In the case of a

bottoming tail, you simply buy once the stock trades above the high of the bottoming tail. In the case of CMVT, with the high of the bottoming tail at 69%, the next official buy price would be 69%. Placing your entry point slightly above this level should make 70 the highest price you are willing to pay for CMVT.

### Placing the stop

So far, we've spotted the tail, and identified the spot to enter. The easy part is done. The difficult part is defining the protective stop, and deciding where to place it, once you're in. It goes without saying that we don't live in a perfect world. No matter how ideal your bottoming tail or your overall trading strategy is, there will always be times when the trade you put on will simply not work.

As a trader, you must learn to live with this. Drawing a line in the sand, marking the point at which you are willing to cry "uncle," is simply being smart. When trading is based on relatively wide-range bottoming tails, protective stop placement is difficult because, in theory, nothing has gone wrong until the low of the bottoming tail is violated. Unfortunately, this distant point is often too far away to serve as a practical stop. This is where an arbitrary stop based on the potential profit objective and your level of comfort comes in.

Risk no more than one-third of the potential profit derived from your most conservative profit target. In other words, if your most conservative upside profit potential is \$3, place your stop \$1 away. If it is \$6, risk no more than a \$2 loss. This gives you a 3-1 edge, which is more than enough when utilizing a sound trading strategy. In the case of CMVT, the first target was set at 76% — \$7 away from our ideal entry price of 69%.

### Establishing profit objectives

While there are many ways to establish profit objectives, one of the easiest methods is to use prior peaks as an area to sell all or part of your existing position. Also, because it is difficult to accurately determine where the exact top will be in any trade, you are best off using an incremental sell approach. This helps to solve the age-old dilemma that constantly

**FIGURE 3** MULTIPLE TAILS

Successive tails in CNXT mark many of the stock's turning points. As you can see, this pattern is very easy to identify.



Source: Executioner.com

**TABLE 1** WAGGING 101

Spotting and profiting from tails is easy as long as you stick to a set of basic rules and make sure you also use a trailing stop.

Bottoming tail	Topping tail
Reveals where professional buyers are busy at work	Reveals where professional sellers are busy at work
Control has shifted from the sellers to the buyers	Control has shifted from the buyers to the sellers
Most powerful when it occurs after a multi-bar drop	Most powerful when it occurs after a multi-bar rally
Best ones are wider in range than last three bars	Best ones are wider in range than last three bars
The open and close are typically not too far apart	The open and close are typically not too far apart
Look to buy above the high the next day	Look to sell below the low the next day
Look for a three- to five-bar advance	Look for a three- to five-bar decline

nips at every trader's heels when in a profitable trade: "Do I take the gain now or do I go for the gusto?" This approach solves this problem by doing both.

The three target levels marked off in Figure 1 are all prior peaks and therefore potential profit-taking areas. It is important to note that prior peaks point to where some traders entered the stock late, only to get hurt on the subsequent drop. These same traders will be anxious to sell at or near their break-even points. This is what forms overhead price resistance, and always serves as a good place to think about taking something off the table. If, however, the stock breaks through the prior peak with relative ease, the odds are usually good that a rise to the next peak will ensue.

If there is no prior peak nearby, you can revert to the counting method. Tails are typically major reversal signs, so at a minimum, a multi-bar move should occur. With this method, you should look for a two- to five-bar rally (or decline, in the case of a topping tail). Using this approach, your first profit-taking opportunity would be after a two-bar move, the second would be after a three-bar move and the third after a five-bar move.

### Booking the profits

As an active trader you should always look to take half of your existing position off at the first profit objective. For instance, an initial purchase of 2,000 shares of CMVT means selling out of 1,000 shares in the \$76 area. This first sell locks in a profitable trade. After half of the original trade is in the bag, the remaining actions are clear.

If two more nearby peaks linger above, then you should break the remaining position into two potential profit objectives. If only one major peak hovers above, then the strategy calls for selling the remaining lot in its entirety at or near that peak. Figure 1 shows that CMVT had two more clearly defined peaks overhead, calling for the establishment of two more profit objectives.

If the trade starts to go against you, the trailing stop should always be the low of the previous bar. For instance, if today is Friday, then your stop should be under Thursday's low; if today is

Monday, it should be moved up to a price just below Friday's low, and so on. When the prior bar's low is simply too far away, an arbitrary stop, such as \$1.50 or \$2.50, will do. This depends on your comfort level. But with some profits already in the bag, you can take the attitude that the stock owned is now an employee with one simple task: make more money.

### More trade examples

Now that we have covered how to spot a tail and learned how to profitably exploit it, let's look at two more examples. Figure 2 (p. 43) shows a pronounced topping tail in NextLink Comm. (NXLK), which formed after a dramatic upside run. Keep in mind that tails are only significant if and when they occur on the heels of a multi-bar


advance or decline.

This topping tail is further accentuated by the fact that the preceding bar also formed an upside tail (albeit not a perfect one with the open and closing prices somewhat far apart) signaling early selling pressure. Look to sell the stock short once it trades below the low of the last topping tail, as marked in the chart. Note, the subsequent decline lasted five bars, which should have let you get out of the trade at three different levels, as outlined above.

Figure 3 (opposite page, top) shows how tails often signal significant tops and bottoms. Tail 1, an ideal bottoming tail, marked the end of a sharp multi-bar decline. Tail 2 marked the top of a dramatic move. While it's not an ideal topping tail, it still signaled the fact that sellers were starting to get very active.

Bottoming tail 3 put an end to the decline kicked off by topping tail 2, and topping tail 4, an ideal topping tail, kicked off another steady decline. The stock did not put in a significant bottom until bottoming tail 5 developed.

More often than not, you will find the methods that consistently make money are the simplest ones. A study of any group of top-tier traders will reveal that the tools and tactics they use to continuously take money out of the markets are basic and easy to use.

Picking tops and bottoms with tails and using the method described above to profit from them is one of those simple trading methods. But don't mistake its simplicity for lack of power. This single tool, once mastered, is sure to give that old Wall Street axiom, "Buy low, sell high" a brand new meaning. 



# FINDING INTRADA Y TRADES USING YOUR TOP 10 LIST

BY STEVE WENDLANDT

To trade intraday, you have to go where the action is. Here are simple patterns you can use to get the most out of stocks on the top 10 gainers and losers lists.



**A** perfect day for most traders would consist of being long stocks on the top 10 gainers list and being short stocks on the top 10 losers list when the closing bell rings. It sounds simple enough, but how do you know which stocks will end up on those lists?

The answer does not depend on a certain pattern, whether a particular market maker is accumulating a stock or even whether there is earth-shattering news about a stock. It turns out that most stocks on the top 10 lists at the end of the

day were — *are you ready for this?* — on the list at the beginning of the day.

This makes perfect sense. Stocks often establish their intraday highs or lows in the first 30 minutes of trading. The key is not predicting which stocks will be on the top 10 lists at the end of the day, but rather jumping on those issues in the morning — before they make their big moves.

You can do this by using three simple patterns that allow you to clearly define your risk on each trade.

### Trade filters

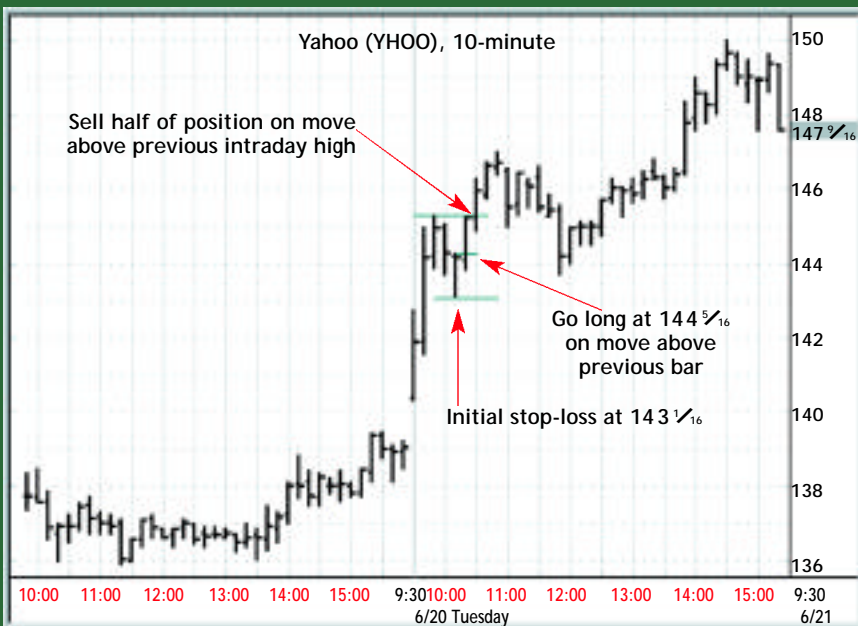
First, you need to use the following filters to avoid trading stocks with limited potential:

1. Only trade in the direction of the S&P 500 and Nasdaq indices.
2. For patterns 1 and 2 (see below), avoid stocks that gap more than eight percent
3. Focus on the top-point gainers/losers rather than the top-percentage gainers/losers.
4. Average daily volume must be at least 500,000 shares.

The first filter keeps you trading in the direction of the current market bias. For example, if the market opens strong and immediately begins to trade higher, focus on the top 10 gainers. The second filter prevents you from trading stocks that probably don't have much left to

**FIGURE 1** INTRADAY PULLBACK: LONG TRADE

Yahoo opened the trading session to the upside, pulled back, then resumed its uptrend.



Source: QCharts by Quote.com.

move. Filter No. 3 keeps you in stocks that are moving enough to generate decent profits. It is much easier for a \$150 stock to move 10 percent than for a \$10 stock to move 10 percent. Finally, making sure the stock has adequate volume guards against getting whipsawed in thinly traded issues.

Now let's look at the patterns.

### Pattern 1: intraday pullback

To identify these patterns, use a 10-minute chart. You can also use a five-minute chart, but you'll eliminate some of the noise by using a slightly longer time frame.

For a long trade, look for a pullback of the initial run-up that does not exceed the low of the trading session. You should begin to search for these trades about 15 minutes after the open. Enter when the stock trades higher than the high of the previous bar. Place an initial stop-loss order one tick below the swing low of the pullback. Reverse these rules for short trades.

In Figure 1, Yahoo (YHOO) had a nice run-up in the first 30 minutes of trading before pulling back in the second half-

hour of the session. A long position was triggered on the sixth bar when price broke above the high of the previous bar at  $144 \frac{5}{16}$ . The initial stop loss was placed at  $143 \frac{1}{16}$ ,  $\frac{1}{16}$  below the low of the pullback.

In Figure 2, a short position was signaled in Macromedia (MACR) at  $110 \frac{1}{16}$  on the pullback after the initial breakdown of the trading session. The initial stop-loss was set at  $112 \frac{1}{16}$ ,  $\frac{1}{16}$  above the swing high of the pullback.

### Managing the trade

A simple but effective money-management approach for trading these patterns is to exit half the position when the stock breaks above the previous intraday high (in the case of a long trade) or below the previous intraday low (in the case of a short trade) and ride the rest of the position until the close (or until your stop is hit). This

ensures you will not take too large a loss even if the trade does not continue its run after making a new high or low. Figures 1 and 2 show where partial profits would have been taken in these trades.

In general, it's a good idea to use a trailing stop to protect profits on an open position. However, because the stocks on the top gainers/losers lists are very volatile, a trailing stop will probably cause you, more times than not, to be stopped out before the real move takes place. You'll do much better by holding the remaining half of your position until the close and not adjusting your initial stop-loss. This will ensure you give the trade enough breathing room to capture large, volatile moves.

### Pattern 2: trendline breakout

Many stocks on the top 10 gainers and losers lists will make their initial moves in the morning before consolidating during lunchtime. This lunchtime lull usual-

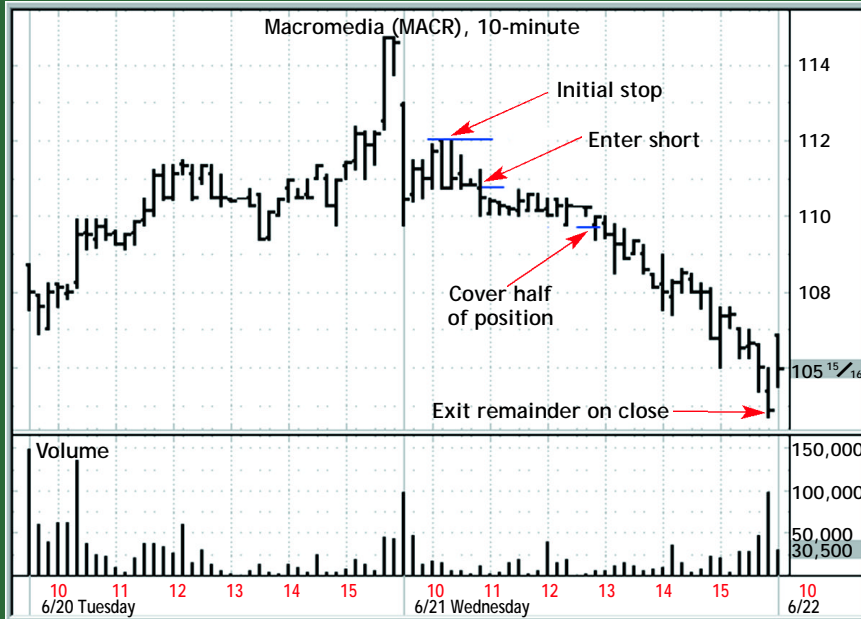
**Stocks often  
establish their  
intraday highs or lows  
in the first 30 minutes  
of trading.**

ly yields some trade setups.

To identify a potential trade, draw a trendline from the high of the day (in the case of a long setup) or the low of the

**FIGURE 2** INTRADAY PULLBACK: SHORT TRADE

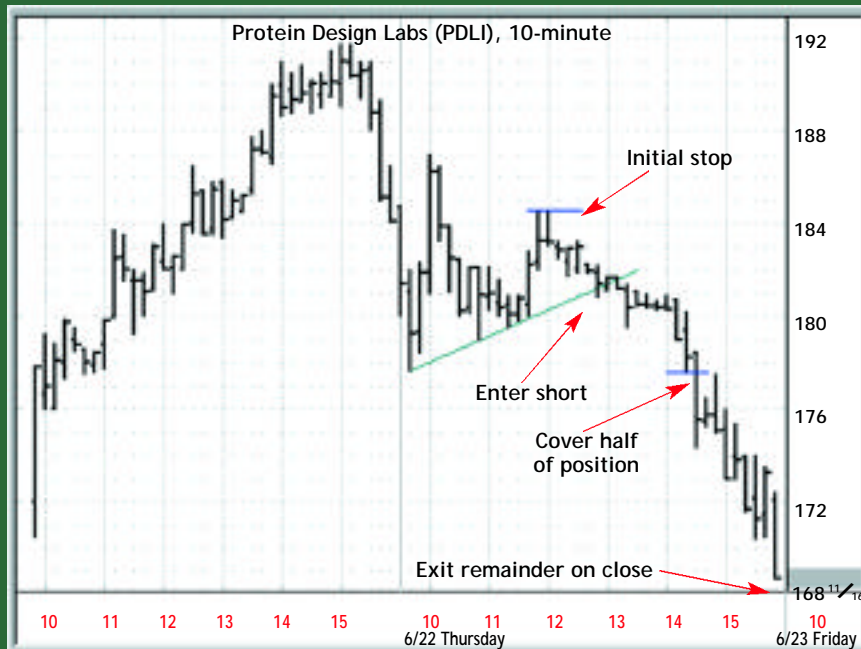
A short trade is triggered as the stock pulls back after the initial drop.



Source: QCharts by Quote.com.

**FIGURE 3** TRENDLINE PENETRATION: SHORT TRADE

A short trade is triggered when the stock penetrates the up trendline drawn from the morning low. The stop is placed just above the swing high immediately preceding the breakout.



Source: QCharts by Quote.com.

day (in the case of a short setup) to at least one other point. The more points you can connect with the trendline, the better. As a general rule of thumb, if a stock tests a trendline at least three times, the stock is likely to break that trend soon.

Enter when the stock breaks through the trendline and place an initial stop-loss just above (below) the last swing high (low) before the breakout. Again, it's a good idea to exit half of your position when the stock breaks out to a new high or low.

In Figure 3, a short position in Protein Design Labs (PDLI) was triggered when the stock penetrated the up trendline at 181 3/4. The initial stop-loss was placed at 184 5/8, 1/8 above the swing high immediately preceding the trendline penetration. Half the short position was covered when the stock made a new intraday low and the remainder of the position was exited on the close.

In Figure 4, a buy signal occurred in Redback Networks (RBAK) at 143 3/4 when the stock broke its down trendline. The initial stop-loss was at 141 15/16, 1/8 below the swing low preceding the trendline penetration. As soon as the stock made a new intraday high, half of the position was sold; the remainder was liquidated on the close.

*A note on taking profits:* The stocks on the top gainers and losers lists often will accelerate into the close (especially the last 15 minutes), so don't be too quick to take profits on the second half of your position. As long as the market indices are moving in the direction of your position, it's advisable to wait until the close to exit the remainder of your trade.

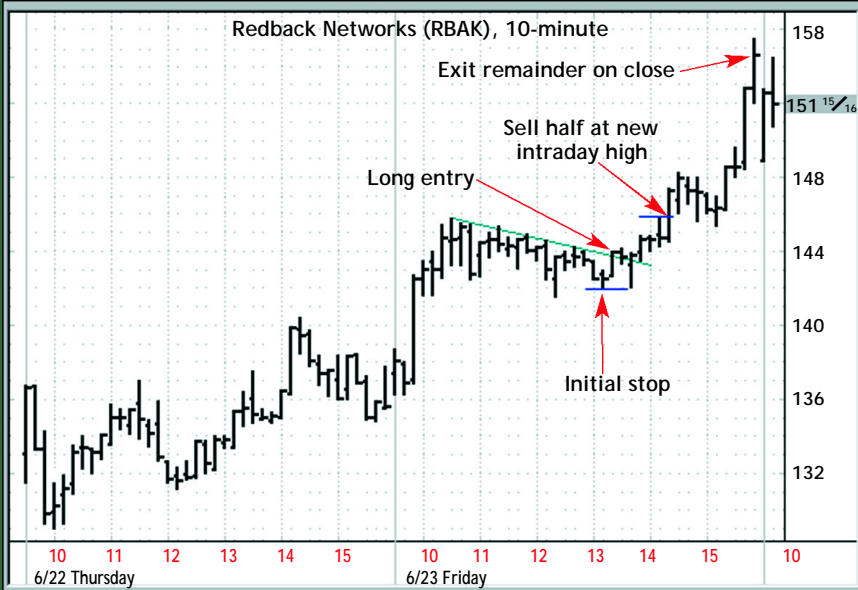
*A note on entering trades early:* It is possible to enter the kind of breakout trade described here before the actual trendline penetration. For more information on early entry, see "Anticipating breakouts and beating slippage," *Active Trader*, August, p. 34.

### Pattern 3: ledge formations

This strategy takes advantage of stocks that make abnormally large opening gaps, usually eight to 10 percent or more. Make note of these gaps early in

**FIGURE 4 TRENDLINE PENETRATION: LONG TRADE**

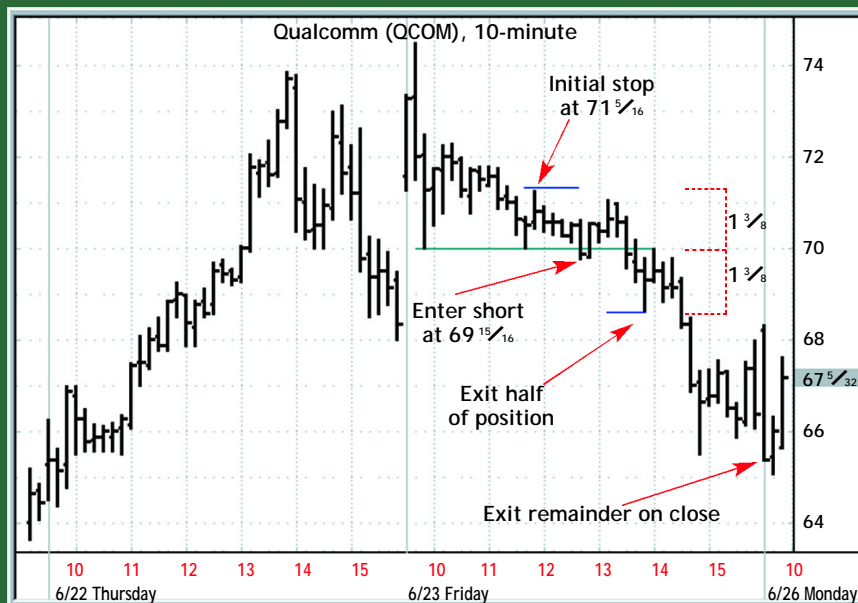
A buy is entered when price moves above the down trendline drawn from the morning high. Profits are taken on half the position when the stock moves above the old intraday high.



Source: QCharts by Quote.com.

**FIGURE 5 LEDGE FORMATION**

When the low or high of the day is very close to the trendline, a good rule is to exit half the position when the profit is equal to the initial risk.



Source: QCharts by Quote.com.

the morning, because these stocks normally fall off the top 10 lists rather quickly. (Sometimes they even migrate from the top 10 gainers list to the top 10 losers list, and vice versa, in the same session.) While ledge patterns are slightly less common than the first two patterns, they can yield significant gains. They are often caused by brokerage upgrades or downgrades.

For example, when Qualcomm (QCOM) announced a deal with Sierra Wireless on June 23, the stock gapped up significantly on the open (see Figure 5). QCOM then stabilized and formed a support level, or “ledge.” As mentioned previously, the stock should bounce off a trendline at least twice — the more times, the better. In this case, once the stock broke through the trendline to the downside, a short position was initiated (at  $69 \frac{15}{16}$ ), with a stop-loss  $\frac{1}{16}$  above the last swing high before the breakout (at  $71 \frac{5}{16}$ ).

In the previous trade examples, half the positions were liquidated when the stocks made new intraday highs or lows. In cases where the low or high of the day is very close to the trendline, you must be a little more subjective about exiting half of the position. A good rule in these cases is to exit half the position when your profit is equal to your initial risk. In this case the initial risk on the trade was  $1 \frac{3}{8}$ , so half the position was liquidated once the trade had a profit equal to that amount (at  $68 \frac{5}{16}$ ). The remainder of the position was exited on the close.

You’ll find these kinds of stocks will often accelerate in the desired direction once they go from trading net positive to net negative on the session and vice versa. Of course, the strategy is reversed for long entries.

The three patterns discussed here are very simple and not at all uncommon — two or three setups per day is not unusual. The advantage of trading patterns from the top 10 lists is you’re focusing on stocks that are on the move today. If you are right on the direction, you’ll get more bang for your buck because you have ready-made liquidity and volatility — the two main ingredients for a promising trade. 📌



# Pivotal TRADING

BY JOHN F. EHLERS

Wouldn't it be great if we could know the next day's trading range ahead of time?

Pivot points provide an easy way to estimate tomorrow's significant price levels, based on today's high, low and close.

**T**o get a feel for where the most important daily support and resistance levels are located it would be ideal to incorporate the volume behind every trade into a set of equations to calculate the daily volume-weighted average price and standard deviation levels. But because it can be difficult to obtain reliable volume data for real-time calculations (and the calculations also can be quite cumbersome), we might be better off concentrating solely on price action.

For years floor traders and market makers have done this by computing a set of "pivot point" support and resistance levels between which price can be expected to fluctuate. In a way, it is not so important that *you* know where these support and resistance levels are, but rather, that you know the floor traders or market makers know where they are.

For example, if the floor traders are gunning for money-management stops, guess what price levels they will test? Clearly, the pivot point support and resistance levels are the prices at which many stops are placed because "everyone" knows where these expected trading limits are.

## Pivot points

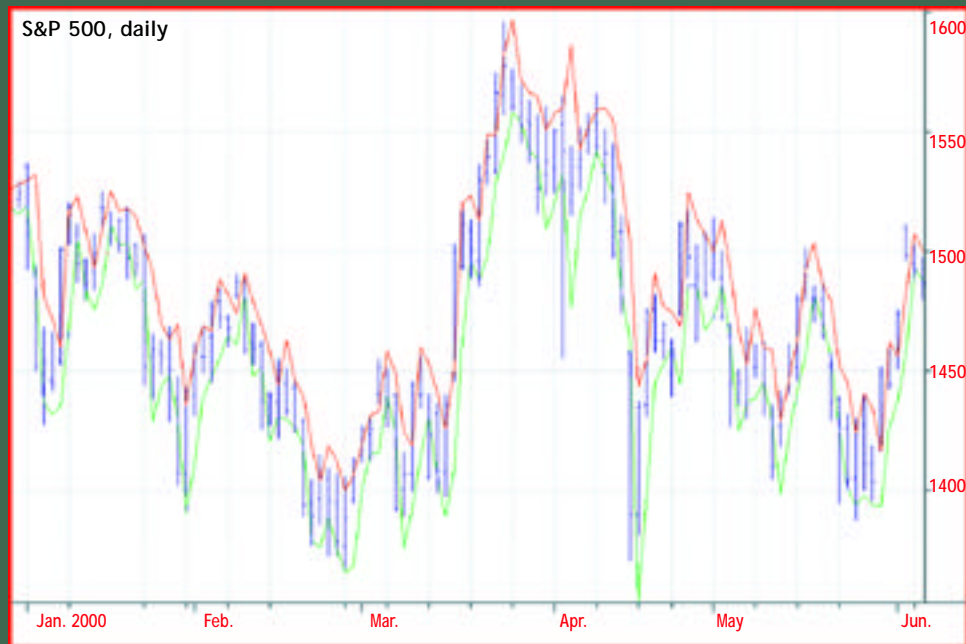
The central pivot point (CPP) is the equilibrium point around which trading is expected to occur. The calculation for tomorrow's CPP is simply the average of today's high, low and close. When prices move away from the CPP there are zones of support and resistance that define the expected value area of the market. Because these zones are known, penetration and market moves beyond these support and resistance levels bring new players into the market who give further momentum to



...in the **cat-and-mouse game of trading**, if the floor traders know where everyone **calculates support and resistance** it doesn't take a **giant mental leap** to figure out they can **pick off all the stops** **snuggled just outside these ranges...**

**FIGURE 1 FIRST SUPPORT AND RESISTANCE PIVOT POINTS**

The first support and resistance levels for the S&P 500 futures contract. Note that when the price breaks through one of the levels, it is likely to follow through and close outside this level as well.



Source: TradeStation, Unfair Advantage

becomes a support level and the second resistance level becomes a new resistance level. In a bearish breakout, the first support level now becomes the resistance level and the second support level is now the new support level.

Figure 1 shows how closely the trading range for the day can follow the support and resistance levels calculated from the previous day's prices. Notice how well most of the trading is contained within the first support and resistance levels, and also how the market's short-term trend tends to follow through when these levels are violated. Note especially that in almost every instance when price penetrates either of the two lines, the following move is rather explosive and that the market, more often than not, closes outside of the previously defined trading range.

the buying or selling pressure.

Where C[1] is yesterday's closing price, H[1] is yesterday's high and L[1] is yesterday's low, the central pivot point for today and its support and resistance levels are defined as:

<b>Central pivot point</b>	$P = (H[1] + L[1] + C[1]) / 3$
<b>First resistance</b>	$R1 = (2 * P) - L[1]$
<b>First support</b>	$S1 = (2 * P) - H[1]$
<b>Second resistance</b>	$R2 = P + (R1 - S1)$
<b>Second support</b>	$S2 = P - (R1 - S1)$

Trading for today will usually remain between the first support and resistance levels as the floor traders and market makers make their markets. The second resistance or support levels come into play only upon failure of the first resistance or support levels to contain price.

If either of the first levels is penetrated, off-floor traders are attracted to the market. In this event, the breakout levels reverse their functions and serve as test points for continued trading. In a bullish breakout, the first resistance level now

It is clear that money-management stops placed within the range between the first support and resistance levels have a high probability of being hit. This is most likely the reason why almost all off-the-floor traders believe with absolute certainty that floor traders are gunning for their stops. To come to grips with this, some traders have used the "four-tick rule" by which a money-management stop is placed four ticks below the first support line or four ticks above the first resistance line.

However, in the cat-and-mouse game of trading, if the floor traders know where everyone calculates support and resistance it doesn't take a giant mental leap to figure out they can pick off all the stops snuggled just outside these ranges as well.

### Trading the levels

The primary value of these support and resistance levels is that they enable you to know what the floor traders and market makers know. As technical trading tools, they should only be used in conjunction with other technical indicators to improve their efficiency.

To do this, we need to apply a little algebra to the support

and resistance calculations to see their implied significance. Consider this expansion for the first resistance level:

$$\begin{aligned}
 R1 &= (2 * P) - L[1] \\
 &= P + (H[1] + L[1] + C[1]) / 3 - L[1] \\
 &= P + (H[1] + L[1] + C[1] - 3 * L[1]) / 3 \\
 &= P + [(H[1] - L[1]) + (C[1] - L[1])] / 3
 \end{aligned}$$

This expansion shows that the first resistance level is a function of the daily range plus the close relative to the low. Similarly, the expansion for the first support level also is a function of the daily range, but also to the relationship of the close relative to the high:

$$\begin{aligned}
 S1 &= 2 * P - H[1] \\
 &= P + (H[1] + L[1] + C[1]) / 3 - H[1] \\
 &= P + (H[1] + L[1] + C[1] - 3 * H[1]) / 3 \\
 &= P - [(H[1] - L[1]) + (H[1] - C[1])] / 3
 \end{aligned}$$

If these calculations look familiar to you, they should, because they are basically the same as the familiar fast stochastic indicator. The definition of the stochastic is the close minus the lowest low over the last  $n$  days, divided by the highest high over the last  $n$  days minus the lowest low over the last  $n$  days.

A common setting for the fast stochastic to isolate short-term tops and bottoms is to use a five-day lookback period for the %K line and a 0.5 smoothing of the %K line for the %D line, and with the oversold-overshooting levels set to 20 and 80, respectively. Combining these stochastic settings with the daily support and resistance pivot point you will be able to first identify the short-term overbought situation using the stochastic indicator and then pinpoint a more precise entry using the pivot points. (For a more thorough discussion of the stochastic indicator, see "Indicator Insight," *Active Trader*, August)

### Market example

Figure 2 shows a series of trades in the S&P500 futures using this approach.

First, there is an overbought condition just before the January 3 support penetration (A), followed by an oversold condition just before the January 7 resistance penetration (B). Next, there is an overbought condition just prior to penetration of support on January 18 (C). At the end of January, there

was an oversold condition, but no breakout followed (D).

Continuing into February, an overbought reading occurred just before the February 9 support penetration (E). Next, there was an oversold condition just before a sequence of resistance penetrations between February 28 and March 1 (F). There was no oversold condition preceding the mid-March run-up (G), but no trading strategy is perfect. Next, an overbought reading was followed by a second sequence of support penetrations between March 28 and March 30 (H).

The overbought condition prior to the April 11 support penetration produced an excellent entry point (I), but the subsequent oversold condition before the resistance penetration produced a trade that was not so good (J). On April 27 the support penetration was preceded by an overbought condition (K).

Moving into May, there was an oversold condition preced-

**FIGURE 2** PIVOTS AND STOCHASTIC

Short-term overbought and oversold readings for the stochastic indicator are often followed by a break of the pivot support/resistance levels, in the direction indicated by the stochastic indicator.



Source: TradeStation, Unfair Advantage

ing the penetration of resistance during the period May 11 to May 16 (L) period, and an overbought condition preceding the penetration of support on May 17 (M). Finally, an oversold condition preceded the resistance penetration on May 30 (N).

### Multiple timeframes

This kind of analysis can be extended to any timeframe. For example, weekly bars could be used to assess the general long-term trend of the market. In the shorter term it is more likely that short-term support and resistance can be applied to intraday bars, such as hourly or 15-minute bars, to get a feeling for where the market is heading within its daily trading range. Ⓢ



# Trader takes TEAM APPROACH

BY ALLEN SYKORA

One of the disadvantages of trading is its solitary nature — it's often just you and the computer. So when Pete Hogan got into trading stocks a little more than two years ago he made sure he surrounded himself with a support group and worked with a tutor.

He figures that helped save him when he went through his first major slump 12 months later.

The retired law-enforcement officer decided to try his hand at trading when he moved from Oregon to Tucson, Ariz., in February of 1998. Just before he moved, he spent a week with a friend in Olympia, Wash., who was trading commodities.

"I thought, 'I can do that,'" recalls Hogan. "My main concern was that I



© Benjamin Kirkby

"I try to avoid the greed factor."

didn't know anybody in Tucson and [my friend] was three states away. That would be a pretty long umbilical cord.

I'm not a Lone Ranger. I'm more of a team player."

Upon moving to Tucson, Hogan was referred to Larry Pesavento, a well-known trader and tutor who lives in the area. Hogan also joined a support group of about 15 traders who meet once a week to review charts and share their trading ideas.

Hogan began his trading career by spending three months studying books about pattern recognition. When his paper trading went well, he began trading real money in July of 1998.

"Initially, it went very well," Hogan says. "It almost went too well."

But all of that changed a year later.

"Every time I turned around, I seemed to do the wrong thing," he says. "I put pressure on myself and felt I had to make even more trades. That gets dangerous. I was shooting from the hip. I wasn't looking at it from the standpoint of a trade, but how quickly I could make

## Trading set-up

**Hardware:** One Gateway 133 MHz, 16MB RAM, with a 19-in. monitor. One custom-built Pentium II 300 MHz, 64MB Ram, with a 19-in. monitor. One Compaq Armada 1700 laptop for backup and travel.

**Internet connection:** ISDN through USWest. Backup ISP is ATT Worldnet. (Also as a backup, maintains a subscription to a satellite feed through E-Signal because of the frequent lightning storms in Tucson during the summer months that occasionally disrupt cable and telephone service.)

**Brokerage:** One full-service (Uhlmann Investments of Chicago) and three online (Schwab, Muriel Siebert and Scottsdale).

**Software:** Qcharts from Quote.com and DTN.IQ for streaming real-time quotes. E-Signal streaming quotes and charts for backup.

up lost money. I got careless and did things I knew I shouldn't do.

"It accelerated into a downward spiral. I started questioning whether trading was right for me."

In addition to meeting with Pesavento, Hogan also met with a trading psychology coach, Mark Douglas, and Dennis O'Shaughnessy, a local trader who seemed to be doing well. Some of the advice, Hogan recalls, was: "Hold it. Count to 10 and take a couple of deep breaths. Come back and start slowly."

Hogan got out of the market completely for two weeks. He didn't even look at a chart.

"I just cleared my mind," he says. "It's not like we didn't have any money set aside to pay the mortgage. So I took their advice and started back slowly."

Meanwhile, the friend in Olympia asked Hogan when he had last gone to his trading support group meetings. "About three months ago," Hogan replied.

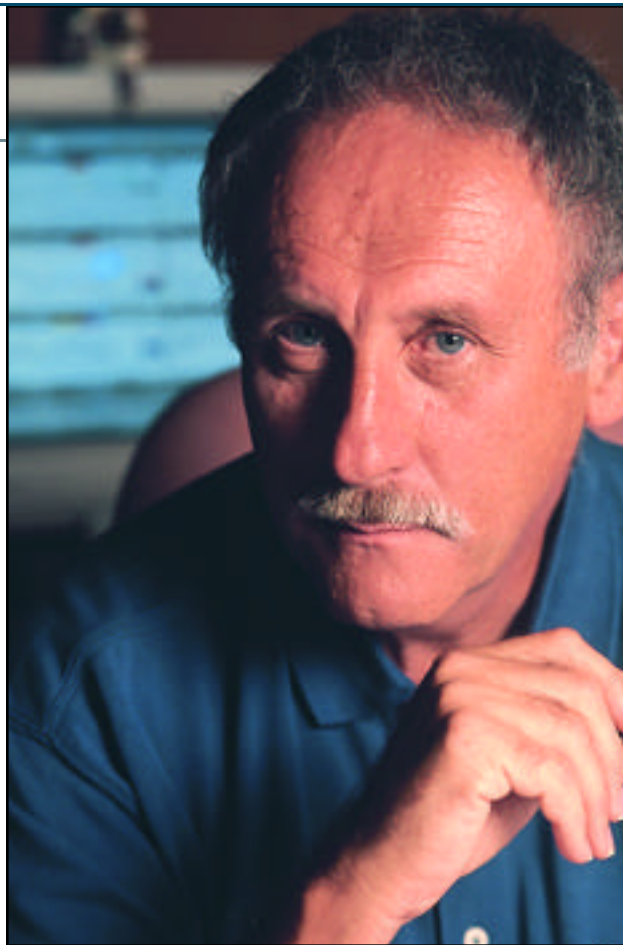
The friend prodded Hogan to begin attending again, which he did.

"I started listening and seeing other people's viewpoints," Hogan says. "I would say, 'I can see what he's talking about.' Soon I was contributing. It was real helpful to go someplace and talk about these things with others.

"It's nice to know it's not an individual thing — that other people go through the same things that I go through. It's nice to know my network is nearby."

Hogan went back to studying the trading guidelines he had been using and tried to get more disciplined and focused. He worked at shaking off the "me-vs.-the-markets" mentality he had developed.

His trading improved. In fact, in five of the first six months of this year, Hogan posted a winning percentage of 60 percent or better on his trades. His best months were 78 percent in March and 80



**"If the market is very choppy and going sideways in a trading range, I'll risk less."**

percent in February.

In a typical month, Hogan puts on somewhere between 60 and 70 trades. He figures he is in roughly half of his positions for less than a day and in the other half for a day to perhaps a week.

Generally, he won't trade at the very beginning or end of a trading day. He believes that during the first half-hour, the market is often choppy while it searches for direction. During the last

hour, the market again becomes hard to read when other short-term traders are squaring up positions and taking profits.

Hogan trades mostly higher-volatility tech stocks with volume of at least 100,000 shares. Hogan says he is content to capture small profits while he has them rather than waiting for a stock to rise some more and risking a reversal.

"I try to avoid getting into that greed factor, because it could just as easily drop as go up," he says. "Is it worth the

risk of losing the profit that I already have?"

Hogan always places protective stops when he enters a trade, but he uses discretion when deciding exactly where to set them.

"It depends on how much money I want to risk," he says. "If the market is very choppy and going sideways in a trading range, I may look at it and say, 'I don't want to risk a lot. Maybe I'll risk a point.' A lot of this is based upon my feeling of where I think the market is."

Trading for Hogan is a matter of exploiting repetitive patterns. He points out that often experts might say a certain geographic area is due for an earthquake or major hurricane because their studies of the last few hundred years indicate that such events occur with a certain frequency in the area.

"They can look back and see patterns happening over and over again," Hogan says. "They see cycles develop. I'm doing basically the same thing with the stock market." 🕒



# Inside the trading lab:

# COURTNEY SMITH

© Rick Falco, Black Star

*"Good trading is about self-discipline, and the more short-term you trade, the more important discipline is. You can't wait for the market to bail you out of mistakes."*

# I

t's interesting. When asked about the keys to market success, top traders usually don't talk too much about what many people might expect them to: namely, techniques for spotting high-probability trade entries.

Instead, conversation often revolves around techniques for limiting drawdowns, deciding how large a position to put on and the importance of sticking with a particular game plan. So it's only fitting that trader Courtney Smith focuses on discipline, objectivity and risk control when talking about his lengthy run as a trader.



Smith, 48, started trading while still in high school in the 1960s and continued to trade his own account while working as a journalist and photojournalist through the early 1970s. Since then, he has compiled a long track record in the markets, ranging from individual futures trader to money manager, market commentator and author.

Smith is indeed an active trader — in every sense. His businesses range from hedge funds to hotlines, from long-term investing to short-term trading, from stocks to futures. He is a regular commentator on CNBC, CNN, Bloomberg and Fox News.

He is president and chief investment officer of Courtney Smith & Co. (<http://courtneysmithco.com>) and of Pinnacle Capital Strategies Inc., which manages hedge funds. The flagship Macro Fund has an average compound annual return of 23 percent over the last five years. Smith, who also manages individual accounts, is editor of Courtney Smith's Wall Street Winners

([www.wallstreetwinners.net](http://www.wallstreetwinners.net)), an investment advisory service, as well as another site for very active short-term traders called Courtney Smith's Hot List ([www.courtneyhotlist.com](http://www.courtneyhotlist.com)). Smith also is owner and editor-in-chief of Commodity Traders Consumer Report (CTCR), a tracking service for futures traders.

His past positions include stints as chief investment strategist of Orbitex Management Inc., which managed more than \$6 billion in mutual funds and portfolios, and president and CEO of Quantum Financial Services Inc., a \$100 million futures and stock brokerage firm.

When asked what initially attracted him to the markets, Smith gives an interesting response.

"To me, trading was very fascinating because it's applied psychology," he says. "I realized that when you look at the markets you're seeing a very clear, concrete indication of people's needs and desires. It's a true laboratory for human behavior."

Smith practiced in this "lab" as an individual trader until the mid-1970s, when he began his money-management career. His basic approach has remained fairly constant. For the most part he uses an intermediate-term time horizon (for futures, approximately three weeks; for stocks, six to 12 months), "using a combination of fundamentals and technicals, which I find is superior to using one or the other exclusively."

Smith describes the approach used for the Hot List trades as "an extension of a fund I managed several years ago where we used very aggressive trading techniques. This is a far more active and far more technically driven product because we're now talking about a time horizon ranging from a few days to three weeks."

He described the roles fundamental and technical analysis play in his trading. On a certain level, there's a great deal of overlap between his shorter-term and longer-term approaches because he uses the same underlying selection criteria for all his trades.

AT: What approach do you use for the Hot List stocks?

CS: First of all, I only buy stocks with bullish fundamentals. Then I use technicals to determine entry and exit points. But since we're looking at very short-term trades — under three weeks — the technical side is typically far more dominant than the fundamental side for the Hot List trades. Basically, I'm not going to look at valuations, because I'm not going to hold them long enough for that to matter. For the Hot List, I'll buy a stock that is skyrocketing, but is now overvalued in my opinion, because I may only be looking to hold it for a week.

AT: What are the "bullish fundamentals" you refer to?

CS: When you look at techniques that are proven to cause stocks to go up or outperform the market, you have to start out with earnings momentum and earnings surprises. We've seen a tremendous amount of clear evidence that companies with strong earnings momentum — accelerating earnings momentum — and earnings surprises will continue to have that in the future. And those stocks will continually outperform the market. So a very strong criteria for me is strong earnings momentum and surprises. Technically, I really look at the cash flow, but those numbers are more difficult to find and analyze, so earnings will generally be good enough.

We very rarely will buy a stock that is not outperforming consensus earnings estimates. My analysts come up with their own earnings projections, but we also rely on the commonly accepted sources like Value Line, as well as the Internet, to get consensus earnings. Sites like Yahoo Finance (<http://finance.yahoo.com>) show earnings surprises on a quarterly basis — that's very useful information. One thing I do not do is pay much attention to Wall Street analysts. I only pay attention to independent research and analysis.

AT: What is the technical side of your trading equation?

CS: I'm a breakout trader. For example, on the long side, if there's significant resistance at a particular point — say a stock has rallied to a particular point and faded several times — I'll look to buy that stock. Or I'll use a classic flag formation in a bull market.

The first thing I look for is that a stock must be in a bull market, and second, I want confirmation that the market is moving into a bull mode again — such as a breakout of a bull flag or a breakout from some kind of resistance level.

It's relative strength. I want to buy those stocks that are leading the market, not lagging it. Even in a bear market, if I have stocks that are holding up well, they're going to be the leaders coming out of the bear market.

AT: Do you short stocks?

CS: Yes, I'll short stocks. I'm not doing much shorting right now, but in my hedge funds that's been a fairly common thing

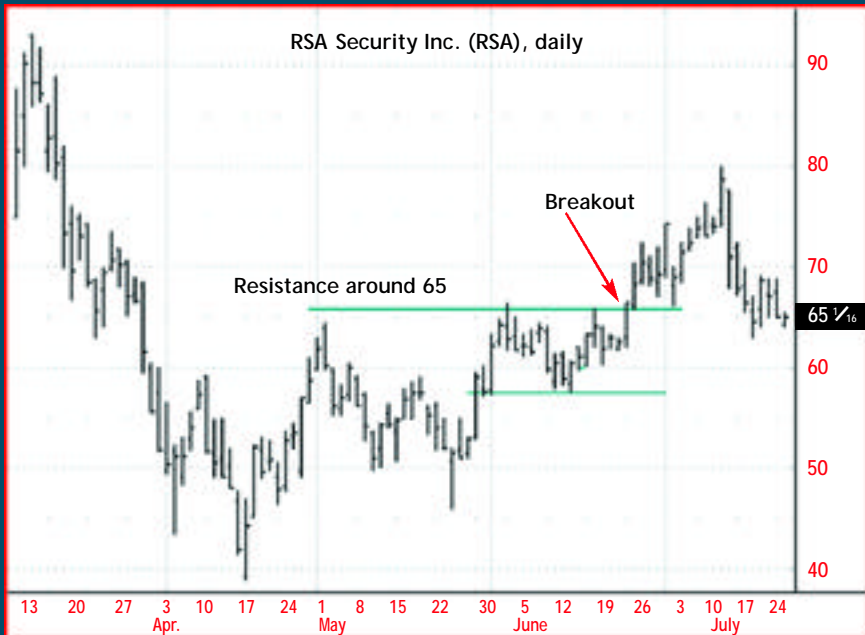
AT: What was your most difficult period as a trader?

CS: I've really only had one bad year, 1990, on the futures side. Other than that, I've been profitable. To me, the key

*“There's a tremendous amount of evidence that companies with strong earnings momentum and earnings surprises will continually outperform the market.”*

FIGURE 1 PENETRATING RESISTANCE

*“We bought RSAS (RSA Security Inc.) on a breakout above 65 in late June. It had started to turn higher, but there was a lot of resistance around 65. We bought the breakout above those highs. There's not a lot of risk in a trade like that.”*



Source: QCharts by Quote.com

to trading is self-discipline, and I've always been a pretty disciplined guy — except in 1990.

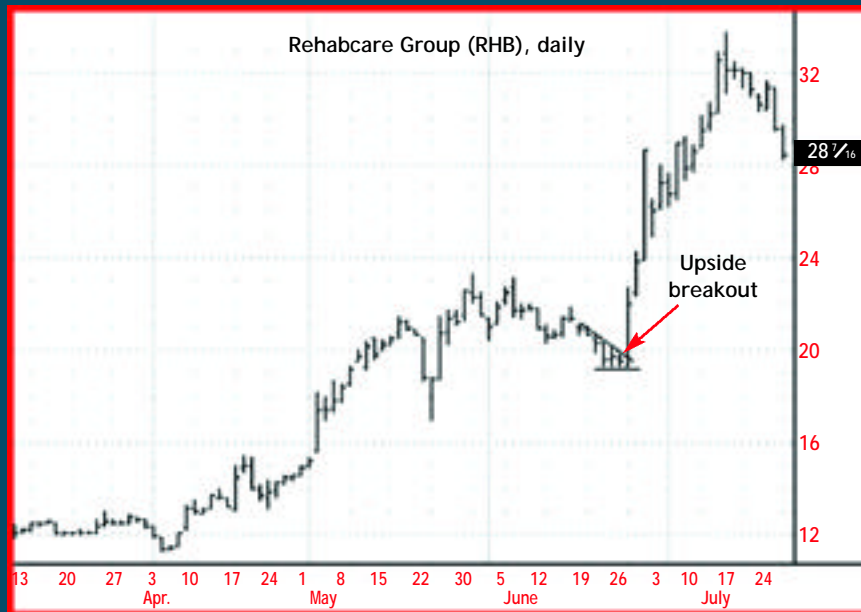
AT: How does that discipline manifest itself in your trading?

AT: I've never cared about taking a loss;

it's never bothered me. Well ... every so often (laughs). Let's put it this way: There are smart mistakes and dumb mistakes. I'll feel bad if I lose money because of a dumb mistake, but if I lose money because of a smart mistake, that's OK — it's because I'm executing what

**FIGURE 2 BUYING THE BREAKOUT**

*"This is a Hot List trade that we're in right now: The stock was moving very strongly up for the last year, then formed a flag, or wedge. We bought the breakout [on June 26]."*



I'm supposed to be executing.

The more active you are as a trader, and the more short-term you trade, the more important discipline is. You can't wait for the market to bail you out of mistakes.

*AT: What are the most common mistakes you see?*

*CS: The biggest thing is traders getting married to a position. They get emotionally involved in a trade and they think that it's important to be right. Ned Davis wrote a tremendous book called *Being Right or Making Money*. They key to making money is to not care if you're wrong. Just take the loss — what difference does it make? Unfortunately people think, 'Well, if I sell it out I'm taking a loss.' But I can tell you right now there's no difference between a 'paper' loss or profit and a 'real' one. If you buy a stock at 50 and it's at 45, you've already lost the money.*

I look at every position every day and ask myself, 'Do I want to own this or not?' If I'm here to make money, I have to be willing to admit I'm wrong — a lot — and not care. The object is to make money, not to be right.

*AT: Do you use trading systems to help you make those decisions?*

*CS: Right now my trading is discre-*

*tionary, but I have a number of techniques I use very systematically, and I believe very strongly that systematic trading is a good idea. But right now, I'm using what I'd call 'objective' subjective techniques, such as flag formations, that I can define objectively 95 percent of the time.*

*AT: What trading tools or techniques would you advise traders to use?*

*CS: I think the key is to look at breakouts, because if you use breakouts, by definition, the trend is your friend. For the most part, buying dips is a completely bogus concept, and it will only lead to failure, or under-performance.*

As an active, short-term trader, you only want to be buying stocks that are breaking out to new highs, because that means you're making money right away. As a short-term trader, you have to have that edge all the time. If you're buying dips, you're immediately in a losing position 85 to 90 percent of the time, because you're not going to buy a bottom tick.

I know some people say, 'Yeah, but if you buy on a breakout to the upside, you've got slippage...' I love slippage! Because it means I'm really right. If I have a 50 stop and I'm filled at 55, my god, something incredibly bullish just

*"The key to making money is to not care if you're wrong."*

happened. Slippage is not a problem as far as I'm concerned.

By contrast, traders buying dips have a real problem. They're immediately in a loss, which means they're psychologically beaten up right away.

My job as a trader is to make money every day if I can — not to be right. So if I buy a breakout, I'm making money right away. I'm getting positively rewarded by the market for doing the correct thing.

*AT: Do you think it would be better for most people to try to use some kind of straight Donchian breakout system (an approach that goes long on an n-day high and flat or short on an n-day low), rather than trying to analyze individual patterns?*

*CS: Yes. We've done a lot of testing. Even using a straight four-week rule is a good thing, or using a Turtle modification and making it four weeks in, two weeks out. For a longer-term system, 40 days in, 20 days out works very well.*

*AT: Do these techniques work well on shorter time frames, say on intraday data?*

*CS: The problem there is that on a very short time frame, you do want to be a market maker — buying dips and selling rallies — because the bid-ask spread becomes a huge percentage of your potential profits. If the market is 40 bid and 40 1/2 offer, I have a problem if I'm trying to buy a breakout on a short-term basis and I'm giving up an eighth or a quarter when I'm only trying to take a point out of the trade.*

Once you get into really short-term intraday trading, you definitely have to buy dips and sell rallies, because a lot of your profitability is going to be taking the bid-ask spread.

*AT: But you don't think that's the case*



*if you're swing trading?*

**CS:** Once you go to a daily bar, you've got to be trading breakouts.

**AT:** *What techniques do you use to control risk?*

**CS:** I use stops extensively, both to enter and exit positions. I also prefer trading listed stocks simply because I can leave in resting stop orders. And I'll use contingency stops with my broker. For example, 'Buy XYZ on a 50 stop; if filled, put in a protective stop at 40, good-till-cancelled.' It gives me the opportunity to spend a lot less time staring at a screen.



**AT:** *How do you determine stop placement?*

**CS:** Each trade is different. Very simplistically, I want to know at what point I'm wrong. Usually it's the previous swing low on a daily bar chart. That can be anywhere from 3 to 30 percent away from the entry point for stocks. Realistically, it's probably around 10 to 15 percent most of the time.

**AT:** *How do you manage positions?*

**CS:** I don't really use profit targets, per se, but typically I will have some short-term objective of where I think the market should move over the short run. When it does, I move the stop up. I want to raise the stop up to break even as soon as I can — I want to get to a no-risk position as soon as possible.

**AT:** *How much of your equity do you risk on a trade?*

**CS:** I keep it at 1 percent or less, because then I know I can live forever even with a lot of losers.

**AT:** *In terms of the stocks you actively trade, do you pay much attention to correlation?*

**CS:** Yes, but what generally happens is a particular sector is hot, and I'm going to be over-weighted in that sector. So, I wouldn't own trucking companies right now, for instance. I want to buy the best stocks in the best sector in the market.

What that means is you might have five semiconductor capital equipment stocks, five semiconductor companies and five other stocks in a portfolio of 15 stocks. That's a very high-risk thing to do, but that's why I put in stop-loss orders. I might lose 15 percent on my equity statement, but hopefully I've been making 30, 40 or 50 percent over the

understanding of markets and their technical skills. You only have around 30 instruments to trade, so that means you can really concentrate on the futures side and get greater diversification.

But the problem with the futures side is that the futures markets are far more efficient — there's a lot of trading talent focused on a small group of markets. On the equity side you've got 12,000 stocks, of which there's only analyst coverage of the top 500 or 1,000. That means there's a lot of stocks out there that are incredibly inefficient and mispriced. With the exception of the S&P 100, maybe the S&P500, most stocks are very inefficient. And then you have the benefit of secular drift of the market. So I think stocks are far easier to trade.

The main thing in trading is that you have to have discipline. You have to set a stop-loss, you have to have a point

*“I love slippage!  
It means I'm really right.”*

short-term before I lose that 15 percent.

**AT:** *Do you have any kind of shutdown point?*

**CS:** On the futures side I do. I won't risk more than 5 percent of my total equity in one day. On the equities side I don't do that because, in effect, everything is positively correlated. Offhand, gold stocks might be the only group that is negatively correlated with the broader market. So you can't quite diversify in the stock market as well as you can in the futures market.

**AT:** *Since you have experience in both the futures and stock sides of the business, what are the differences between the two markets? What do you think stock traders can learn from futures traders?*

**CS:** First of all, for futures traders, the bid-ask spread is not as big a problem because of lower transaction costs. That's a big advantage. Second, the best research and the brightest minds are in the futures side — they're light years ahead of the stock guys as far as their

where you can say 'I'm wrong,' and you have to be willing to admit you're wrong and have no problems with that.

I follow a saying: When in doubt, stay out. Because if you have a doubt about a position and you get out, now your mind is clear. You're not married to the position, and you can think about what you want to do.

The second important thing is money management. The least important thing is entry and exit techniques.

**AT:** *How do you convince people of that?*

**CS:** After they've lost money, they'll see.

**AT:** *So what did you do wrong in 1990?*

**CS:** I had just set up my new company and I wanted to go out and show the world that I was the King Kong of traders. So I basically abandoned the self-discipline that had gotten me to that point. Suddenly I was trying too hard.

I was down 30 to 35 percent after six months. I went back and I did an analysis of every trade I did, and I realized if I'd just followed my normal techniques, I'd have made money over that period. ☺



# Trading the EQUITY CURVE

Not all trading strategies work all of the time. One way to decide which strategy to use is to paper trade them all and choose those that show the most promise based on their equity curves.

BY JOE KRUTSINGER

**B**e honest. Do you believe enough in your current trading strategy that you'd stick to it come rain or come shine? Say you have four or five losers in a row — will you continue to trade exactly the same way as before, or will you start bending your rules or perhaps even discard the particular approach completely?

The truth is that most traders abandon a strategy after three or four consecutive losing trades, thinking it no longer works. In reality though, no approach will work well all the time. A trend-following strategy simply will not work in a choppy market, just as a top- and bottom-picking strategy is very unlikely to work in a trending market. It isn't the strategy's fault the market isn't behaving in a way most suitable to its

underlying logic.

The questions you need to ask yourself are “When should I stop trading — or re-optimize — a strategy that obviously is not in tune with current market conditions?” and “How do I know when to start trading the same strategy again?” Alternatively, if you trade the same markets using several strategies, how do you know which strategies currently are the best to use?

Another side of the same dilemma occurs when you dig up that age-old strategy you once abandoned because it didn't seem to be working, only to discover several years later that it would have worked like a charm had you just been patient enough and given it some time. But there are tools that can

help you determine when a trading approach is in sync with the market and when you'd be better off not trading it.

### System monitoring tools

A trader who lost more than \$1 million trading pork belly futures was asked why he kept on trading the same strategy in the same market despite the obvious fact it wasn't working. His response: "This is the only thing I know how to do." The trader truly believed that he had just been a little unlucky lately and that the only way to come back was to continue trading pork bellies using the same strategy he always had, until his luck turned around once again.

It never occurred to the pork belly trader that it doesn't matter which markets he trades or what strategy he uses, as long as he makes money. He should have cut his losses by changing either the market he was trading, his strategy, or both, and not fall back on the original market-strategy combination until the elements showed some solid proof of being in sync with each other again.

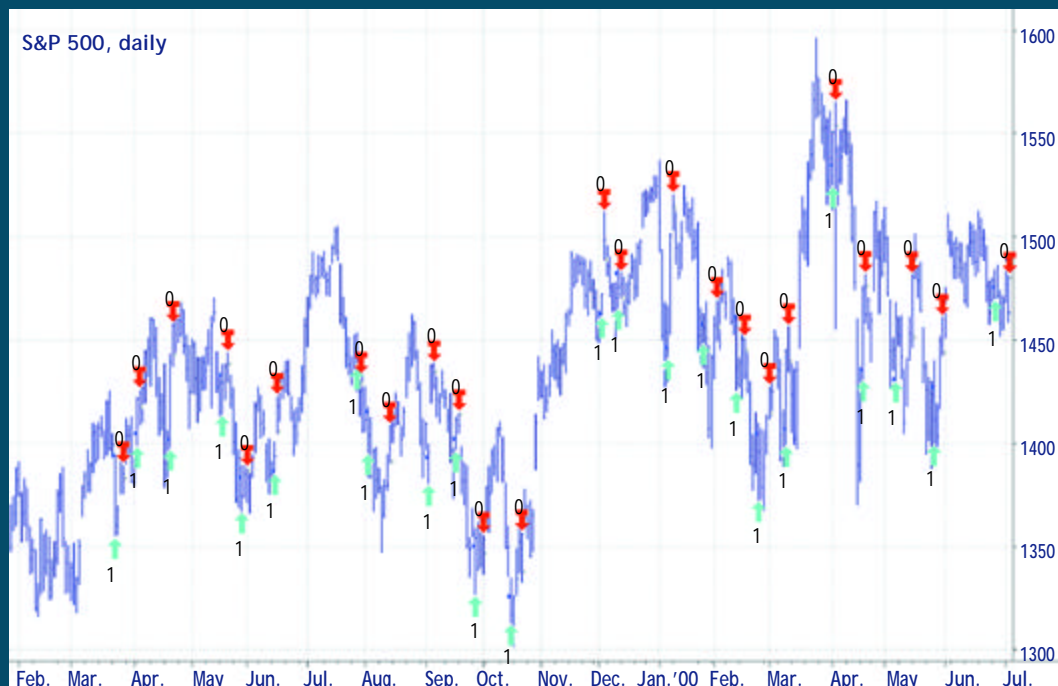
To avoid making the same mistake as the pork belly trader, you need to use a filter technique that will monitor your strategy's performance from the inside, so to speak, and tell you when to trade or not trade a particular model on a particular market.

The JoeKrut Diff (JKD) and JoeKrut Measure (JKM) indicators are tools that enable you to monitor (but not trade) a system during its drawdown periods so that you can begin to trade it as soon as it shows signs of starting to perform well again. Paired together with any type of trading strategy, these two indicators can increase overall performance and strengthen your bottom line.

The JKM indicator is a 30-day moving average of your strategy's equity curve. The idea is to only trade a strategy when the continuously paper-traded JKM is rising. For easier and

**FIGURE 1** A SHORT-TERM SYSTEM

*The trade results of a short-term oscillator-based strategy that uses a bar-by-bar comparison to pinpoint the exact entry points.*



Source: TradeStation, Unfair Advantage

quicker interpretations, the JKD indicator measures the difference in the JKM indicator from one day to the next. When the JKD is negative, the JKM is declining and, consequently, the strategy should not be traded in real-time.

### A basic strategy

To illustrate how these tools work, we'll show how a trading system called JK-Call Buyer performs with and without them. The strategy we'll look at has been tested over the full history of the NYSE futures, S&P 500 futures and the E-Mini futures with no changes made to the rules or the logic. So far, it has been more than 75 percent correct in all three markets.

The strategy works on end-of-day data and gives all trade signals as market orders the night prior to execution. Here it's illustrated with the S&P500 futures, but it can be used on individual stocks as well as at-the-money call options. The strategy exits all trades after 10 days regardless of any other factors. The rules are as follows:

When you have no current position, enter long tomorrow at the market if:

- today's five-day relative strength index (RSI) is greater than yesterday's five-day RSI;

- today's close is below the close of five days ago; and
- today's close is less than or equal to the average of the last five days' closes.

Exit tomorrow at the market if:

- today's close is higher than the average of the last five days' closes, or
- you have been in the trade 10 days.

For those of you who use Omega Research's TradeStation, the EasyLanguage code is:

```
Condition1=RSI(C, 5) > RSI(C, 5)[1];
```

```
If MarketPosition <> 1 and C < C[5] and C <= Average(C, 5) and Condition Then
```

Buy ("Buy Calls") tomorrow at Market;

```
If MarketPosition = 1 and BarsSinceEntry >= (10) Then ExitLong ("Exit Calls Time") at Market;
```

```
If MarketPosition = 1 and C > Average(C, 5) Then ExitLong ("Exit Calls Price") at Market;
```

Figure 1 (opposite page) shows the trade signals generated by applying this strategy on the S&P 500 futures from April 1999 through June 2000. Table 1 (below) shows the strategy's performance statistics.

As you can see, there wasn't much of a trend during this time period — a long-term trend-following strategy likely would have lost money. However, the strategy had more than 70 percent profitable trades for a total profit of more than \$75,000 and a maximum of two losing trades in a row.

But this strategy, like any other, will under-perform from time to time. The next step is to see how the JKM and JKD indicators can improve the performance of this basic system.

### Combining strategy and filters

By applying the JKD and JKM filters described earlier, you can avoid trading the strategy when it is out of sync with the current market action.

Figure 2 (p. 64) shows the same strategy and market as Figure 1, but with the addition of the JKM indicator (the green line in the middle of the chart) and the JKD indicator (the red line at the bottom of the chart). Without changing the rules of the system, do this: When the green line in the middle chart is rising, trade the strategy; when the green line is falling, exit all real-time trades but continue to paper trade the strategy and track the hypothetical equity curve until it starts to move back up again, at which point you resume the real-time trading.

For easier interpretation, you can look at the red line in the bottom chart, which will move into negative territory as soon as your strategy starts to under-perform and the JKM indicator starts to sink. In the case of this strategy, you can see that over the last two and a half years there have been three major drawdown periods — one that started immediately at inception of this test period, another that

**TABLE 1** PERFORMANCE SUMMARY

*The number of trades in this example aren't enough to come to any solid conclusions, but the relatively high number of profitable trades and the high profit factor should warrant some further testing.*

Total net profit	\$75,550.00	Open position P/L	\$0.00
Gross profit	\$96,237.50	Gross loss	(\$20,687.50)
Total number of trades	24	Percent profitable	70.83%
Number of winning trades	17	Number of losing trades	7
Largest winning trade	\$16,925.00	Largest losing trade	(\$6,137.50)
Average winning trade	\$5,661.03	Average losing trade	(\$2,955.36)
Ratio average win/average loss	1.92	Average trade (win and loss)	\$3,147.92
Maximum consecutive winners	7	Maximum consecutive losers	2
Average number bars in winners	2	Average number bars in losers	3
Maximum intraday drawdown	(\$20,575.00)		
Profit factor	4.65	Maximum number contracts held	1

Source: TradeStation, Unfair Advantage

**FIGURE 2** TRACKING EQUITY

*Tracking the equity of your trading strategies will alert you to how they are holding up in the current market environment.*

started when the equity had reached a total of \$17,560 and a third that started when the total equity was \$42,145.

The number at the bottom of each equity trough shows at what hypothetical equity level you would have resumed your real-time trading. Avoiding these three equity troughs would have improved your equity by \$10,161. That is, instead of making \$75,550 you would have made \$85,711, while, in this case, shortening many of the losing trade sequences to one trade only. Admittedly, the time period covered and number of trades generated are not enough

to generate statistically significant results, but the simplicity of the strategy should work as an insurance against it breaking apart when applied to future, unseen data.

If you're using several different strategies on the exact same

market and the exact same timeframe, you could simply look at the JKD indicator for each strategy and trade the one that has the highest value, which should be the one where the market and the strategy are the most in tune with each other. 🔄



Source: TradeStation, Unfair Advantage



# Sizing YOUR TRADES



So you know what to trade and when to trade it, but do you know how much to trade?

Here we show how you can make the most out of your strategy and avoid turning a winning approach into a losing one.

BY THOMAS STRIDSMAN

**H**ave you noticed that while many market gurus have no problem letting you know which stocks to buy, they very rarely let you know how many shares you should buy to maximize the risk-reward relationship of your portfolio over the long haul?

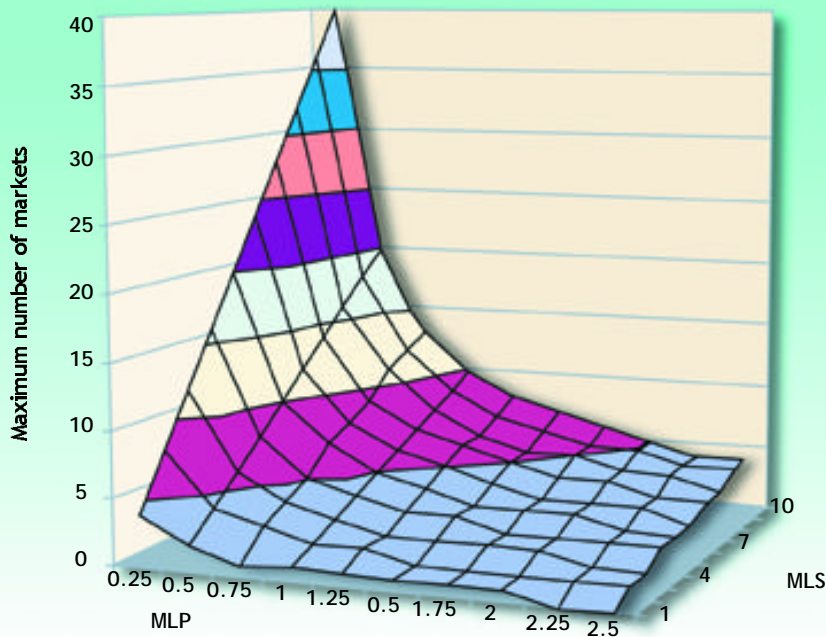
This aspect of trading is very important, however, because not only is it possible to trade too conservatively in an effort to minimize risk, it also is fully possible to trade too aggressively in an effort to maximize the reward.

In his book *The Mathematics of Money Management*, Ralph Vince illustrated this with an example of a betting game. There was a 50 percent chance of winning, with the winners being twice as big as the losers. If you win \$2 for each win and lose \$1 for each loss, the expected outcome (or “mathematical expectation”) of each bet in this game would be 50 cents  $[(\$2*0.5)-(\$1*0.5)]$ . With a positive expected outcome for a trading strategy, it is easy to believe that we should invest as much as we can on every trade. Unfortunately, things aren’t that simple.

The truth is that depending on the probabilities of the strategy and the ratio between the dollar values of the winners

**FIGURE 1 OPEN POSITIONS**

*The more you're willing to let the stock move against you, but the less capital you're willing to lose per trade, the more positions you can trade at the same time.*



		Number of possible open positions at one time									
		Maximum loss for portfolio (MLP)									
		0.25	0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5
Maximum loss per stock (MLS)	1	4	2	1	1	1	1	1	1	0	0
	2	8	4	3	2	2	1	1	1	1	1
	3	12	6	4	3	2	2	2	2	1	1
	4	16	8	5	4	3	3	2	2	2	2
	5	20	10	7	5	4	3	3	3	2	2
	6	24	12	8	6	5	4	3	3	3	2
	7	28	14	9	7	6	5	4	4	3	3
	8	32	16	11	8	6	5	5	4	4	3
	9	36	18	12	9	7	6	5	5	4	4
	10	40	20	13	10	8	7	6	5	4	4

and the losers (more often referred to as the profit factor), there is an optimal value or fraction (f) of your total equity you should risk at each bet. This value can be calculated using a calculation called the Kelly formula:

$$f = [(PF + 1) * P - 1] / PF,$$

where

PF = Profit Factor  
(Gross profit / Gross loss)

P = Probability of winning bet

Plugging in the values from our sim-

ple game, we find the most optimal fraction of our total equity to bet is 0.25 —  $[(2+1)*.5-1]/2$  — or 25 percent. That is, if we bet any less than this we will not maximize our potential return, but if we bet any more we will only increase risk without increasing return, and will actually end up with less money than we would using the optimal trade size.

Twisting the Kelly formula around a little bit can prove this. Instead of solving for the optimal fraction to invest, we can set it to a fixed value, such as 0.5 (or 50 percent) and solve for the profit fac-

tor. If the profit factor turns out to be lower than 2 we know we are betting too aggressively, compared to the results we get when betting only 25 percent. If the profit factor also turns out to be lower than 1, we are losing money. Thus, by betting too aggressively it's possible to take a winning strategy and turn it into a losing one, which happens to be a key reason why so many inexperienced traders fail before they even get out of the starting blocks. Conversely, the lower the profit factor, the less you can risk in each trade.

### Stock market applications

For the stock market, the situation becomes a little more complex because there are now two variables that measure risk. The first measures how much we are prepared to let the price of a stock, future, option or currency move against us on a percentage basis; the second is how much of our total account equity we're willing to risk as a consequence of the market moving against us. To get a better feel for how this works, consider the following two examples.

In the first, you have an initial equity balance of \$200,000 and are considering buying a stock trading at \$100. You are willing to let the market move against you 10 percent before you take a loss, which at the current market price would be \$10 per share (0.1\*100). The total amount of capital you're willing to lose on this trade is 0.75 percent of your total equity, which equals \$1,500 (0.0075\*200,000). To limit your loss to \$10 per share for a total of \$1,500 you will need to buy 150 shares, which means you need to commit a total of \$15,000 to the entire position  $[(1,500/10)*100]$ . Dividing the initial account balance with the amount committed to the position tells you that you can have 13 similar trades at the same time (200,000/15,000).

In the second example, you have an initial equity balance of \$100,000 and are considering buying a stock trading at \$150. Because in this example you have less initial capital, you decide you're now only willing to take a 5 percent move against you at the market for a loss of 0.25 percent of your total capital. This comes out to \$7.5 (0.05\*150) per share traded and \$250 (0.0025\*100,000) for the entire portfolio. To peg your expected worst-case scenario to \$7.5 per share for a total of \$250, you will need to buy 33

shares, which in turn means you have to commit a total of \$5,000 [(250/7.5)\*150]. If you again divide the account balance going into the trade with the amount you need to commit to it, you now find you can have 20 similar positions going at the same time (100,000/5,000).

Now, how can it be that we can have more trades going at the same time even though the stock prices are higher and the initial portfolio balance is lower? Well, the answer can be found in the interplay between the maximum amount that we are willing to risk per stock and the total amount that we're willing to risk for the strategy as a whole. As it turns out, the stock price and the account balance have nothing to do with it. Instead, both mathematical operations can be simplified into the following mathematical expression:

Maximum Markets  
to Trade (MMT) = MLS/MLP,

where

MLS = maximum loss per stock in  
percent of initial stock price

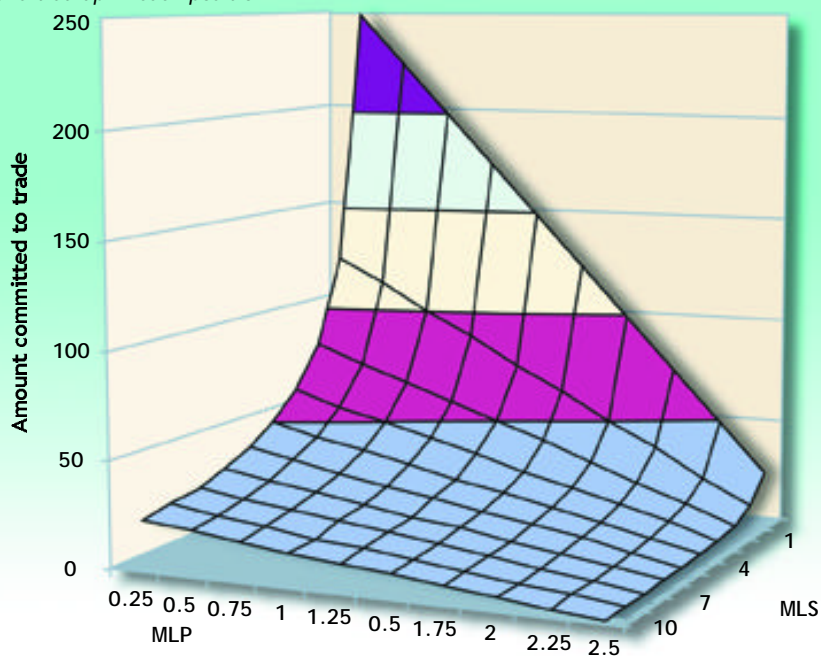
MLP = maximum loss for portfolio  
in percent of initial account  
balance

For example, it does not matter if you can stomach market moves against you of 1, 4 or 8 percent if these moves correspond to portfolio risk of 0.25, 1 and 2 percent, respectively, because in all instances the MMT (the number of positions you can trade at the same time) will be 4. If, on the other hand, you have no problem weathering a 10 percent move against you resulting in a 0.25 percent total loss of equity, you can trade 40 positions at the same time. But if you think you can only take a 1 percent move against you for a 1 percent total loss of equity, you can only trade one position at a time.

Figure 1 shows the relationship between market moves against you and the amount of equity you are willing to lose. The numbers within the matrix, which show how many positions you can have on at the same time, are simply calculated as MLS divided by MLP, as shown in the previous formula. As you can see, the more risk you're willing to take per stock traded, while assuming less risk for your total equity, the more markets you can trade. The highlighted rows and columns give you an idea how

**FIGURE 2 CAPITAL COMMITMENT**

The less you're willing to let the stock move against your position and the more capital you're willing to lose per trade, the larger chunk of your money you will have tied up in each position.



		Percent of total capital committed to one position									
		Maximum loss for portfolio (MLP)									
		0.25	0.5	0.75	1	1.25	1.5	1.75	2	2.25	2.5
Maximum loss per stock (MLS)	1	25	50	75	100	125	150	175	200	225	250
	2	13	25	38	50	63	75	88	100	113	125
	3	8	17	25	33	42	50	58	67	75	83
	4	6	13	19	25	31	38	44	50	56	63
	5	5	10	15	20	25	30	35	40	45	50
	6	4	8	13	17	21	25	29	33	38	42
	7	4	7	11	14	<b>18</b>	<b>21</b>	25	29	32	36
	8	3	6	9	13	<b>16</b>	<b>19</b>	22	25	28	31
	9	3	6	8	11	14	17	19	22	25	28
	10	3	5	8	10	13	15	18	20	23	25

much risk you'd have to assume for your entire equity if you like to follow the guidelines of *Investors Business Daily*.

According to *IBD*, you should not let the market move against you more than 8 percent (the bolded rows) and not be positioned in more than six stocks at a time (the intersection between the bolded rows and the bolded columns), no matter how much trading or investment capital you might have. In order to achieve this you will have to risk between 1.25 percent and 1.5 percent of your total equity per trade.

Note that the amount of total equity you are prepared to risk is not the same as the amount you will have to commit to the trade. To understand how much money you will have tied up in each position, simply reverse the formula above. That is:

Capital Committed  
per Trade in percent of total equity  
(CCT) = MLP/MLS

where

MLP = maximum loss for portfolio  
in percent of initial account



balance

MLS = maximum loss per stock in percent of initial stock price

Figure 2 shows what this would look like using the same numbers as in Figure 1. Continuing on the IBD example you can see that a 1.25 percent to 1.5 percent risk of total equity per trade means you must have between 16 percent and 21 percent of your total capital committed to each position.

However, while the IBD guidelines are good as basic rules or starting points, they don't necessarily represent the most optimal solution for your strategy's profit factor and winning percentage. In short, they might be fine for some trading strategies, but totally off the wall for others.

### The optimal solution

To determine the proper trade size, you also need to consider your investment or trading style and examine it for criteria such as the estimated average profit per trade, your estimated average and largest losers, and the dispersion of the individual trades (the standard deviation of outcomes — how consistent your trades are).

Further, because you will be buying

these numbers.

From the initial example from *The Mathematics of Money Management*, we came to the conclusion that given the same statistical traits of two trading models, a trader that risks more of his trading capital doesn't necessarily make more money in the end. Instead, that trader actually runs a greater risk of going completely broke. The trick then is to find the value that optimizes returns given the more complex environment of trading.

But before we can do that, there are a few other things to understand. The most important is that the day-to-day (or hour-to-hour) activity in the markets is as close to random as something possibly can be. A successful technical trader knows it is not completely random, even if for the longest time the majority of analysts and researchers insisted this was the case. The reason was simply because there were no statistical tests or computers powerful enough around to prove them wrong. Today, even the most bullheaded researchers have had to admit there is something the academics now call "random walk with a drift." That is, markets do trend, and the trends are persistent in nature.

period of time, happens to be positive. That is, the more certain you can be that each individual trade has a random outcome, provided your strategy has a long-term positive expectation, the more certain you can be you've been able to squeeze out all available information.

Note that (for a trading strategy) by randomness we mean that we have no way of knowing if the outcome of the next trade will be above or below the outcome of our average trade (with the average trade, of course, being positive and large enough to warrant trading in the first place).

Also, even if you know your strategy isn't random, you are better off assuming it is, because assuming a non-random model also would assume you should vary your bet size in accordance with the outcome of your last (few) trade(s). This might be the best way to go in the short run, but when conditions change you run the risk of betting more on your losing trades and less on your winning trades and, hence, not making as much money and experiencing longer and more severe drawdowns than you should have.

### The essential rules of trading

This leaves us with the following essential rule of trading: No matter if you believe the markets or your strategy to be random, you are better off assuming randomness and, consequently, sticking to risking the exact same percentage of money on each trade.

To do that you can use the following formula to calculate how many shares you can buy at each transaction:

Total Amount Committed *in dollars*

(TAC) = NST \* SP,

where

NST = Number of Stocks to Trade = (MLP \* IAB) / (MLS \* SP)

MLP = Maximum Loss for Portfolio in percent of initial account balance

IAB = Initial Account Balance

MLS = Maximum Loss per Stock in percent of initial stock price

SP = Stock Price

In Excel the formula will result in something like Table 1, where cell D3 holds the formula, =C2\*C3, cell D5 holds the formula =C4\*C5, cell D6 holds the formula =D3/D5 and cell D7 holds the

TABLE 1 STOCK CALCULATOR

To calculate the number of stocks you can trade and how much of your trading capital you will have tied up in a specific position, you will need to decide how much you're willing to risk both as a percentage of the stock price and your initial account balance.

	B	C	D
1 Stock calculator			
2 Initial account balance:		\$100,000.00	
3 Maximum loss (portfolio):		1.50%	\$1,500.00
4 Stock price:		\$100.00	
5 Maximum loss (stock):		8.00%	\$8.00
6 Number of shares to trade:			188
7 Total amount committed:			\$18,800.00

and selling different stocks trading at completely different levels, it is paramount to use nothing but percentage-based calculations. This should not be a problem if you're a purely systematic or rule-based trader. It is slightly more difficult for discretionary traders, but as long as you have your paperwork in order you should still be able to calculate

Nonetheless, there's one major reason why it's better to assume randomness when trading with an optimized money management strategy: For a thoroughly researched and correctly designed trading strategy the outcome of each individual trade should be random, even if the expectancy for the strategy, traded on several different markets over a longer

**TABLE 2 "OPTIMIZE IT"**

Everything else equal, you can "optimize" the amount of your total equity to risk at each trade in order to maximize your returns. But you have to be careful. If you over "optimize" it is possible to take a winning strategy and turn it into a losing one.

B	C	D	E	F	G	H	I	
<b>1 Portfolio optimizer A</b>								
2	Date	Entry price	Stop loss	Stop loss	Profit/stock	Stocks traded	Total profit	Account balance
3	01/01/00	\$100.00	8.00%	\$8.00	(\$8.00)	188	(\$1,504.00)	\$98,496.00
4	02/02/00	\$94.00	8.00%	\$7.52	\$12.50	196	\$2,450.00	\$100,946.00
5	03/03/00	\$112.00	8.00%	\$8.96	\$18.00	169	\$3,042.00	\$103,988.00
6	04/04/00	\$140.00	8.00%	\$11.20	(\$11.20)	139	(\$1,556.00)	\$102,431.20
7	05/05/00	\$128.00	8.00%	\$10.24	(\$10.24)	150	(\$1,536.00)	\$100,895.20
8	Sum profits:				\$1.06		\$895.20	
9								
<b>10 Initial (changeable) parameters</b>								
11	Initial account balance: \$100,000.00							
12	Maximum loss (portfolio):		1.50%					
<i>Italicized values are calculated</i>								
B	C	D	E	F	G	H	I	
<b>1 Portfolio optimizer B</b>								
2	Date	Entry price	Stop loss	Stop loss	Profit/stock	Stocks traded	Total profit	Account balance
3	01/01/00	\$100.00	8.00%	\$8.00	(\$8.00)	875	(\$7,000.00)	\$93,000.00
4	02/02/00	\$94.00	8.00%	\$7.52	\$12.50	866	\$10,825.00	\$103,825.00
5	03/03/00	\$112.00	8.00%	\$8.96	\$18.00	811	\$14,598.00	\$118,423.00
6	04/04/00	\$140.00	8.00%	\$11.20	(\$11.20)	740	(\$8,288.00)	\$110,135.00
7	05/05/00	\$128.00	8.00%	\$10.24	(\$10.24)	753	(\$7,710.72)	\$102,424.28
8	Sum profits:				\$1.06		\$2,424.28	
9								
<b>10 Initial (changeable) parameters</b>								
11	Initial account balance: \$100,000.00							
12	Maximum loss (portfolio):		7.00%					
<i>Italicized values are calculated</i>								
B	C	D	E	F	G	H	I	
<b>1 Portfolio optimizer C</b>								
2	Date	Entry price	Stop loss	Stop loss	Profit/stock	Stocks traded	Total profit	Account balance
3	01/01/00	\$100.00	8.00%	\$8.00	(\$8.00)	1,875	(\$15,000.00)	\$85,000.00
4	02/02/00	\$94.00	8.00%	\$7.52	\$12.50	1,695	\$21,187.50	\$106,187.50
5	03/03/00	\$112.00	8.00%	\$8.96	\$18.00	1,778	\$32,004.00	\$138,191.50
6	04/04/00	\$140.00	8.00%	\$11.20	(\$11.20)	1,851	(\$20,731.20)	\$117,460.30
7	05/05/00	\$128.00	8.00%	\$10.24	(\$10.24)	1,721	(\$17,623.04)	\$99,837.26
8	Sum profits:				\$1.06		(\$162.74)	
9								
<b>10 Initial (changeable) parameters</b>								
11	Initial account balance: \$100,000.00							
12	Maximum loss (portfolio):		15.00%					
<i>Italicized values are calculated</i>								

formula =D6\*C4.

However, even with this formula we still have to decide what the optimal values are for the MLP and MLS. For the MLS it's somewhat arbitrary and you could go either with what was the largest historical loss ever experienced by the system, the average historical loss or a theoretical value based on some type of statistical measure such as the standard deviation of historical outcomes. The important thing is that it is a value that makes sense according to the rules of your trading strategy.

Remember though, there is a tradeoff here: The smaller the value, the more money you will have tied up in each individual position and the fewer markets you will be able to trade; the fewer markets you can trade, the less diversified you will be and consequently, the more sensitive your overall trading results will be to the individual markets traded and how you manage to handle them.

### The next level

To calculate the optimal risk to assume for the portfolio as a whole, things become a little more complicated. First, you need to assume a specific percentage level of risk — let's say 1.5 percent per trade. Then you need to calculate what your total, theoretical profit would have been had you been able to take on this risk for all your historical trades. This is done easiest with the help of a spread-

sheet program, such as Excel.

First set up a chronological list of all your trades, including the entry price, the stop-loss level and the outcome of the trade. Tables 2A-C show what this can look like in a five-trade example. Table 2A shows the total profit after five trades, using a maximum tolerated loss for the portfolio of 1.5 percent, is \$895, while with a maximum tolerated loss of 7 percent it's \$2,424.

From just viewing these two examples it seems — because our strategy is a good one — the more we're willing to risk the more we will make in the end. But watch what happens when we increase the maximum tolerated loss to 15 percent (see Table 2C.) Suddenly, we're actually losing money. This is because the combined risk (both from the percentage risked per stock and the percentage of total equity risked) we're taking now is too large to be offset by the percentage gains per stock in each trade, which we obviously cannot change. In fact, in this particular case, the 7 percent of total equity risked turned out to be the most optimal solution with the best risk-reward ratio, given the 8 percent risked per stock. In this case, all other solutions will be sub-optimal. (Note: risking 7 percent of your total equity is a lot and this value is likely to come down with an increasing number of trades.)

Referring to Tables 2A-C to calculate the most optimal fraction of your portfo-

lio to risk per trade, you can use the following formulas:

1. In cell E3 type =C3\*D3 and then drag it down to fill the entire column.
2. In cell G3 type =Round(D11\*D\$12/ABS(E3),0)
3. In cell G4 type =Round(I3\*D\$12/ABS(E4),0) and then drag it down to fill the entire column.
4. In cell H3 type in =G3\*F3 and then drag it down to fill the entire column.
5. In cell I3 type in =D11+H3
6. In cell I4 type in =I3+H4 and then drag it down to fill the entire column.

The procedures we've outlined here give you a way to determine how many shares to buy to optimize the risk-reward ratio for both an individual strategy and your portfolio as a whole. However, note that in this case our portfolio only consists of one stock, which means all trades can be organized in one sequence. In future articles, we will look at how we can fine-tune our essential rule of trading by incorporating the current market volatility into the equation, and optimize a portfolio consisting of several different markets traded at the same time. 📌



# Support and resistance

Here's the groundwork you can use to build your skill in understanding these elements of price behavior.

**S**upport and resistance are key technical concepts that underpin much of the price-based analysis used by stock and futures traders.

Support is a price level that acts as a "floor," preventing prices from dropping below that level. Resistance is the opposite: a price level that acts as a "ceiling," a barrier that prevents prices from rising higher.

Support and resistance levels are a natural outgrowth of the interaction of supply and demand in any market. For example, increased demand for a stock will cause its price to rise, creating an uptrend. But when price has risen to a certain level, traders and investors will take profits and short sellers will come into the market, creating "resistance" to further price increases. Price may retreat from and advance to this resistance level many times, sometimes eventually breaking through it and continuing the previous trend, other times reversing completely.

Figure 1 shows various support and resistance levels in IBM (IBM). In early 1999 the stock formed a trading range (a period of sideways price movement) with support (the lower boundary of the range) around 80 and resistance (the upper boundary of the range) around 96. In April price broke out of this range and rallied to a new high in July, creating a new resistance level the stock challenged (but did not surpass) in September. The stock then declined before establishing another broad trading range with resistance around 122 and support around 100.

That IBM traded above and below 100

**FIGURE 1** SUPPORT AND RESISTANCE: BIG PICTURE

*A long-term chart highlights how former resistance becomes future support (and vice versa), and how markets tend to gravitate toward even numbers.*



for extended periods also highlights the interesting phenomenon of markets tending to consolidate near (or repeatedly test) even numbers, such as \$100 and \$200 for stocks and 1,000-point increments for stock indices. The same phenomenon is apparent in Figure 5 (p. 88), which shows the last one-and-a-half years of price action in Amazon.com (AMZN).

The principles of support and resistance are constant across all time frames. Figure 1 is a weekly chart. Figure 2 is an hourly chart of IBM that highlights an extended trading range. When the stock broke through the resistance level of the range, a strong up move ensued. Figure 3 shows resistance and support levels on a five-minute chart of the Nasdaq 100

tracking stock (QQQ).

While the terms support and resistance can be used to describe dynamic or diagonal price levels, such as those defined by trendlines and moving averages, we will discuss support and resistance in terms of the kinds of horizontal price levels shown in Figures 1 through 3.

## Key points

Support and resistance should be thought of more as general price levels rather than precise prices. For example, if a stock makes a low of 52 1/2, rallies slightly, then declines again to 52 1/2, then rallies again, a subsequent move down to 52 does not violate the "support level" of 52 1/2. In this case, the fact that the stock retraced once to the exact price level it

had established before is more of a coincidence than anything else.

As a result, it's necessary to wait for price to move through a support or resistance level by a significant amount, or stay above or below one for a significant amount of time (or both) before the level can be considered violated. What constitutes a "significant" move will depend on the market's volatility or how defined the support or resistance level is.

For example, if a stock has twice penetrated a resistance level by a full point and then moved back below the level, a third move, 1 1/2 points above the level, is not necessarily a definitive breakout because this move is of the same magnitude as the previous moves. A new, higher, resistance level may be forming in this case.

One way to define a valid break of a resistance or support line is to look for a certain number of consecutive closes (i.e., two or three) above or below the level in question.

You also can look for short-term valid breakouts by looking at the next higher timeframe. For example, if the market breaks through and closes above resistance on a weekly chart, you can use that level as support for short-term trading based on daily or intraday bars. Of course, if the market fails to break through such resistance, the level's

**FIGURE 2** HOURLY TRADING RANGE



importance is validated further.

An important aspect of support and resistance is that former resistance often becomes future support, and vice versa. For example, in Figure 2 the resistance defined by the top of the trading range became support after the stock broke out of the trading range. In Figure 4, the top of the wide trading range (resistance)

that began in early 2000 later became support when the stock entered an extended sideways period. Also note that the lower boundary (support) of the much narrower trading range that formed in January and February 2000 acted as a more precise support level for the April and May lows.

Significant past highs and lows (as well as congestion areas like trading ranges), often become future support and resistance areas. The July 1999 high in Figure 1 became a significant resistance level; the stock approached it, but failed to rally past it, in September. The early 1999 trading range became a support area when the stock declined in the fall. The first two major highs in Figure 5 represented two levels of upside resistance in AMZN.

**Trading with support and resistance**

Once a support level is formed, long positions can be established in anticipation of a bounce off support. Similarly, the same holds true for short positions and resistance levels.

For example, in Figure 1, long positions could have been established as the stock approached the support levels of either trading range, in anticipation of the stock rallying off these levels. The same is true of the support level in Figure

**FIGURE 3** INTRADAY SUPPORT AND RESISTANCE



**FIGURE 4** MULTIPLE SUPPORT AND RESISTANCE LEVELS

Support and resistance defined by two trading ranges combine to form support for later corrections.



Source: QCharts by Quote.com

2. Similarly, a short trade could have been initiated in Figure 1 in September when IBM approached the resistance level defined by the previous high.

Once established, support and resistance levels offer clearly defined points for placing stops. When trading tests of support or resistance, stops can be placed on the opposite side of the support or resistance level. The logic is that if the level is penetrated, the reason behind the trade is no longer justified and the position should be liquidated.

The other way to trade support and resistance levels is to buy upside “breakouts” of resistance and downside “breakdowns” of support. When price finally pushes above a resistance level or below a support level, it is often doing so because of a significant development that can take price much higher or lower. After such breakouts, trends often develop as increasing numbers of traders jump into a stock.

Again, the support and resistance levels can be used to determine stop-loss levels. For example, if price falls back below a resistance level by a significant amount after pushing above it (a “false breakout”), the trade is no longer valid and should be exited. Just remember to place the stop at the farthest end of the zone so you don’t get stopped out pre-

maturely. If the picture gets too cluttered, don’t try to force your interpretation on the market. Take a break and move on to a different stock.

Support and resistance levels can also be used to set price targets. For example, if a market has twice rallied to 60 and pulled

back to around 40 in the last few months, a trader with a long position might consider taking profits on all (or at least part) of his or her position when the stock approaches 60 again. (Of course, there is no guarantee the stock will not rise further; the resistance level simply offers a logical place at which to take profits.)

### Bottom line

Identifying support and resistance on different time frames is an essential part of technical analysis and understanding market dynamics. Chart patterns like flags, pennants, and head-and-shoulder patterns are actually just specific forms of support and resistance.

The examples used here illustrate that defining support and resistance is unavoidably subjective. Price will frequently penetrate these levels to one degree or another, or come close but not quite touch them. As a result, it’s practical to think of support and resistance as general price zones rather than specific price levels. New highs and new lows will redefine support and resistance as time passes.

For more advanced information on trading support and resistance levels, see “Anticipating breakouts and beating slippage” (*Active Trader*, August) and “Trading the Wyckoff way: buying springs and selling upthrusts” (*Active Trader*, August). 📖

**FIGURE 5** SUPPORT AND RESISTANCE AT SIGNIFICANT PAST HIGH AND LOWS

Significant past highs and lows become future support and resistance on this daily chart.



Source: QCharts by Quote.com



# Added value

In the final installment of our three-part series on structuring a trading business, we look at the specific tax strategies that can increase your tax deductions and reduce your taxable income as a trader.

BY TED TESSER, CPA

**P**reviously, our discussions have focused on two issues: the various types of entities through which a trading business can be conducted, and the considerations that go into selecting the appropriate one (see “The Business of Trading,” *Active Trader* July and August). This month, we’ll look at the tax ramifications of choosing the proper entity and ways to keep the tax bug from taking too big a bite.

While the right business plan can result in significant income tax savings (50 percent or more), such benefits do not happen automatically. Numerous provisions of the tax code were designed to benefit business owners, but the tax savings you receive depend largely on your ability to avail yourself of those stipulations. Without question, business ownership remains one of the greatest portals to tax savings in America today.

Once you have selected the business structure most suitable to your needs, the next step is to implement various strategies to achieve the desired tax savings. Not all strategies are available to all forms of business; in many cases the desirability of the strategies themselves



*This is the final installment of a three-part series:*

- I To Inc. or not to Inc. —**  
*Look at the different options traders have for establishing a trading business.*
- II Practical decisions —**  
*Weighing the factors involved in forming an entity.*
- III Added value —**  
***Specific tax advantages of entity structuring and programs available through such setups.***

will determine which entity to select.

There are essentially only two categories of tax strategies: those geared toward *increasing tax deductions* and those aimed at *reducing taxable income*. We will address both of these in detail.

### Increasing tax deductions

There are certain expenses that are fully tax deductible no matter what form of business you select. Among these are expenses directly related to trading — e.g., computers (under Section 179), trading seminars, data feeds, etc.

Other expenses, however, are usually paid for with after-tax dollars — the most expensive and least desirable method of paying for anything. Who wants to pay retail if they can buy wholesale? Transforming personal living expenses into tax-deductible business expenses allows you to buy wholesale, with the government picking up part of the tab.

If, for example, you don't have employer-provided medical insurance, you would have to obtain an individual policy. If your premiums are \$600 monthly and you are in a 40 percent tax bracket, you would have to make \$1,000 a month to pay for this policy. On the other hand, if you ran your trading business through a C-corporation, you might be able to obtain a group plan for \$450 per month, and that amount would be tax-deductible to the corporation. Thus, you would only need to make \$450 to provide this benefit for your family — a 55 percent savings.

The tax code is chock-full of provisions to help you significantly reduce your cost of living without reducing your standard of living. With proper entity structuring, everything from childcare to life insurance, educational expenses to physical fitness equipment, even vacations (er, *business trips*) can be paid for with pre-tax dollars (see "Entity structuring benefits," previous page).

Virtually all of the expenses discussed above, both trading related and living expenses, are "inelastic" — that is, no matter how much your trading profits increase, your expenses (i.e., deductions) remain the same. Thus, at a relatively low level of profitability, traders exhaust their ability to avoid further taxes through transforming ordinary expenses into tax-deductible

## Entity structuring benefits

*Here is a small sampling of the tax-reduction benefits available through appropriate entity structuring and tax planning. This list is by no means exhaustive; it is intended to provide an overview.*

**Group term life insurance:** Internal Revenue Code (IRC) Sec. 79 allows employers to provide up to \$50,000 in coverage, and the premium is not included in gross income. The expense is 100 percent deductible to the corporation and non-taxable to the employee. Other code sections permit higher levels of insurance, including universal and whole life, to be provided in a tax-advantaged manner.

**Medical/dental reimbursement plan:** Under IRC Sec. 105, medical and dental reimbursement plans can be established whereby the corporation can reimburse you for any uncovered medical expenses paid out of pocket. Any reimbursements actually paid to you are deductible to the corporation and are not considered income to you. This may include reimbursement for premiums being paid on any private plans currently in effect.

**Dependent care:** Sec. 129 allows a corporation to establish a plan to provide you with up to \$5,000 per year for childcare. This sum is deductible to the Corporation and it is not part of your gross income.

**Educational assistance:** There are several code sections that allow for educational expenses to be paid by a corporation. Seminars and conferences related to your business are deductible under IRC Secs. 162 and 212. The company can hire your children, who can be eligible for up to \$5,250 annually in college expenses under IRC Sec. 127.

**Physical fitness facility:** You can have a physical fitness facility on the premises totally paid for by the corporation. The cost of the facility is 100 percent tax deductible to the corporation under Sec. 132. If your plan is properly structured, a facilities manager/trainer can also be paid for, and the cost deducted by the company.

**Entertainment/meals/lodging & travel:** Under various Code sections, all of these can be deductible business expenses. In many circumstances, they are 100 percent deductible to the corporation.

**Hiring your spouse and children:** Children over the age of 7 (and in some cases younger) can be employed. The child can receive a salary up to \$4,300 per year, tax-free and will only be taxed at a 15 percent rate for wages above that amount (up to a certain level). The wages paid are deductible to the corporation. This is an excellent way to pay your child's allowance with tax-deductible dollars. Establishing an IRA, simple IRA or educational IRA can further reduce the child's actual tax liability.

**Reduced taxation on dividends:** If you place dividend-paying investments (stocks, mutual funds, etc.) into a corporation, you will benefit from reduced tax rates. For example, if as an individual you receive \$10,000 in dividends and are in the 39.6 percent tax bracket, your tax liability on the dividends would be \$3,960. If, however, you transferred the stocks to a corporation, 80 percent of the dividends could be received tax-free and the remaining \$2,000 might only be taxed at a 15 percent rate. This would result in a \$300 tax bill and a savings of \$3,360 — an 85 percent reduction in taxes!

**Shift income to lower tax brackets:** Through the use of a Family Limited Partnership, partnership interests can be gifted to children older than 14 with gains taxed at their reduced tax rate. You can still retain control of your portfolio and receive income from the gains while cutting your tax liability by 50 percent or more. Furthermore, there is a discount in valuation for estate tax purposes, and you may be able to gift twice as much as would be allowable in the absence of an FLP.



business expenses. At this point, it is necessary for them to change their objective to that of wealth creation and preservation.

### Reducing taxable income

You're trading profitably, you have deducted all of your trading expenses and transformed as many of your personal expenses into tax-deductible expenses as possible, and you have drawn enough money out of your trading account to pay your non-deductible personal living expenses. Where do you go from here?

You have two options: Hand over a large chunk of your profits to the government in taxes and continue to trade whatever is left, or find a means to avoid, defer or, at a minimum, reduce the taxation on your profits.

Assuming you have properly structured your trading business, there are a number of qualified and non-qualified retirement plans at your disposal. These plans allow you and your company, or both, to make tax-deductible contribu-

Without question,  
business ownership  
remains one of the  
greatest portals  
to tax savings in  
America today.

tions that can grow on a tax-deferred basis. Remember: If you are a sole proprietor who reports trading activity on an individual tax return, you have certain limitations. You cannot contribute to any of these plans because you are not eligible for self-employment income. You must be an "employee" of an entity to take advantage of these plans.

There are several plans your company can establish (see "Retirement plan options," below left). While these differ

with regard to complexity, contribution limits, and costs of establishment and administration, they have similarities that may reduce their benefit. First, the maximum contribution is cumulative to a qualified plan. No matter how many qualified plans you have established, the most you can contribute in calendar year 2000 is \$32,000. Second, some of the plans are mutually exclusive — if you contribute to one, you can't contribute to the other. Additionally, all of the plans are income dependent, which may result in higher self-employment taxes.

One last factor is quite significant: To make the maximum yearly contribution of \$24,000 to a Simplified Employee Plan (SEP), you would need wages of \$160,000. Wages at this level would be subject to approximately \$13,642 in social security tax. This is akin to paying \$13,642 in taxes for the "privilege" of making a \$24,000 SEP contribution. While many traders focus on the high contribution limits of SEPs, the ease of establishment and the flexibility of control, few consider the self-employment tax penalty.

For traders who have achieved a level of profitability beyond meeting basic needs, it is essential they begin thinking outside of the box of traditional strategies. There are two planning strategies truly designed for tax-advantaged wealth accumulation. Allow me to introduce you to Charitable Remainder Trusts (CRTs) and the Voluntary Employee Benefit Association (VEBA).

### Charitable Remainder Trusts

The basic concept of a Charitable Remainder Trust is that an appreciated asset (e.g., stock, real estate, business) is donated to the trust prior to selling. If the asset was sold in your name, you would be required to pay a capital gains tax. However, by contributing the asset to the trust, not only do you avoid the capital gains tax, you also receive a sizeable tax deduction for the donation. Once inside the trust, the asset is sold. Since the trust is a tax-free entity, no capital gains tax is due. Thus, the full value of the asset is available for re-investment.

By designating yourself as trustee, you have full control of the assets for investment purposes, and all gains from investments within the trust remain tax-free. The trust can pay an annual income to the donor and the donor's spouse for

## Retirement plan options

**401(k):** Contributions can be up to \$10,000 per year (or as limited by salary), which the corporation can match, up to 25 percent of salary.

**SEP (Simplified Employee Plan):** Permits contributions of up to \$24,000 or 15 percent of pay, whichever is less.

**KEOGH:** There are two types:

- A.** In a Profit Sharing Plan, you can contribute up to \$32,000 or 15 percent of pay, whichever is less.
- B.** In a Money Purchase Plan, you can contribute up to \$32,000 or 25 percent of pay, whichever is less.

**Defined benefit plan:** Has the advantage of allowing an unlimited contribution depending upon actuarial assumptions, the age of the participants and the amount desired per year at retirement. This plan usually works best for those who do not have other significant retirement savings and are at least 45 years old. The older the person, the better the benefits.

**Simple IRA:** Allows contributions up to \$6,000 per year (pre-tax), which is matched by the employer at a rate of 1 to 3 percent of gross wages. This plan is dependent on a minimum income of \$6,000.

**Roth IRA:** You can contribute up to \$2,000 annually, or as limited by salary. This amount may be limited and/or phased out, depending upon income level and participation in certain other plans. Contributions are not tax deductible but are not taxable when withdrawn.

**IRA:** A standard IRA plan can be established into which you may contribute \$2,000 annually, or as limited by salary. This amount may be limited and/or phased out depending upon income level and participation in certain other plans. Contributions are tax deductible but are taxable when withdrawn.

the remainder of their lives. Contributions to the trust are irrevocable, and upon the death of both donors what's left in the trust goes to a designated charity or Family Foundation.

With the tax savings from establishing the trust, an insurance policy can be obtained for your heirs. In this manner, your heirs will not lose the value associated with your charitable contribution. This strategy produces tax savings in several ways: A tax deduction is received, capital gains are avoided, growth is tax-free, income is received at a lower tax rate and your heirs are fully provided for. A win-win situation all around.

### **VEBA and 419 plans: The crown jewels of tax strategies**

Perhaps one of the greatest advantages of corporate structuring is the ability to save tremendous amounts of money through the establishment of a VEBA (Voluntary Employee Benefit Association trust) and its cousin, the Section 419 Plan. (We'll discuss the differences between the two in detail in future articles.) A significant advantage of these plans is the ability to pass on a great deal of your wealth to the estate of your heirs, tax-free and with tax-deductible dollars. The VEBA or Section 419 Plan must be established by "employers" and thus must be set up through a corporation, partnership or limited liability company.

Under this program, contributions become 100 percent tax deductible and the cash buildup inside the plan is 100 percent tax deferred, thus providing both a great investment vehicle as well as a tax-free death benefit. Also, VEBAs may be funded in addition to your current pension plan. This is a phenomenal strategy for a trader who has had an above-average year. It will also allow you to transfer retirement plans to your heirs tax-free and increase your current tax deductions.

Essentially, a trader's business entity can contribute an unlimited amount of money to a VEBA and totally avoid income tax through the deduction of the contribution. Within the VEBA, a variable universal life insurance policy is purchased on the trader. Because the amount contributed to the VEBA is in excess of the amount necessary to pay the premium on the policy, the excess essentially is invested in the financial

markets. Through proper planning, strategies can be implemented that will allow you to access the funds in the VEBA at any time after the first year, at reduced tax rates. These funds can be used for a variety of reasons, such as to fund a child's college education, buy a house, buy a car, or any number of employee benefits for the ultimate employee — you. This is true even if you are younger than 59½.

To illustrate the importance of proper planning for profitable traders, consider the following possibilities. We will look at a trader who has \$160,000 in profits beyond his immediate needs and is evaluating his long-term options. He is in a 39.6 percent tax bracket and has sufficient gains to allow him to fully fund a SEP.

**Option 1:** If the taxpayer does no planning, the \$160,000 in gains would be subject to \$63,360 in income tax. If he were to reinvest the \$96,640 in a taxable account, in 15 years (assuming a 25 percent annual rate of return) he would have a net worth of \$5,432,746. This would be his true yield, as the earnings would be taxed annually.

**Option 2:** He can contribute \$24,000 annually for 15 years to a SEP, which can thereafter be invested on a tax-deferred basis. He will pay approximately \$13,642 in FICA and another \$53,570 in income taxes on the remaining income, leaving \$68,788 he can invest in a taxable account. Assuming a 25 percent annual return, his SEP would be worth \$2,002,021 in 15 years. The taxable account would yield \$4,634,418. His resulting net worth would be \$5,869,030.

**Option 3:** He could contribute \$160,000 annually to a VEBA. Since the contributions are tax-deductible, he will not pay any taxes. Assuming this same amount is contributed annually for 15 years with a 25 percent annualized return, his resulting net worth would be \$22,097,368!

After deciding to properly structure your trading, the next step is to make the structure work for you. This requires full awareness and utilization of the advantages provided by the Internal Revenue Code. Far too often, traders get near-sighted and focus only on profit. They painstakingly try to squeeze that extra ¼ out of a trade without taking the time to

## **VEBA/419 plan benefits:**

- ▼ Avoid current tax through huge tax deductions.
- ▼ Save an unlimited amount for retirement.
- ▼ Grow it tax-free in addition to getting an up-front tax deduction.
- ▼ Pass the wealth down to your heirs, estate tax-free.
- ▼ Allow assets to accumulate on a tax-deferred basis forever.
- ▼ Have the full blessing of the IRS and Congress — in other words, this strategy is pre-approved.
- ▼ Have no vesting for employees who terminate prematurely.
- ▼ Make annual contributions in any amount.
- ▼ Allow large contributions in peak years.
- ▼ Allow distributions prior to age 59 or beyond age 70, without penalty.
- ▼ Provide favorable tax relief for business owners (i.e., traders).
- ▼ Provide full safety of investment.
- ▼ Provide the ability to grow funds in conjunction with market growth.
- ▼ Acquire tax-deductible life insurance.
- ▼ Provide funds to pay estate taxes.
- ▼ Protect funds from creditors.
- ▼ Inexpensive to set up and administer.
- ▼ Access the funds at reduced tax rates.

consider what will be left after Uncle Sam takes his cut. In conducting your trading business, always keep in mind: It's not what you make, it's what you keep that counts!

*For more information on the VEBA/419, the CRT/Wealth Replacement Trust and how these tax-saving strategies may be applied to your trading business, e-mail [tedtesser@tax-trader.com](mailto:tedtesser@tax-trader.com), visit [www.TaxTrader.com](http://www.TaxTrader.com) or call (800) 556-9829. 📞*

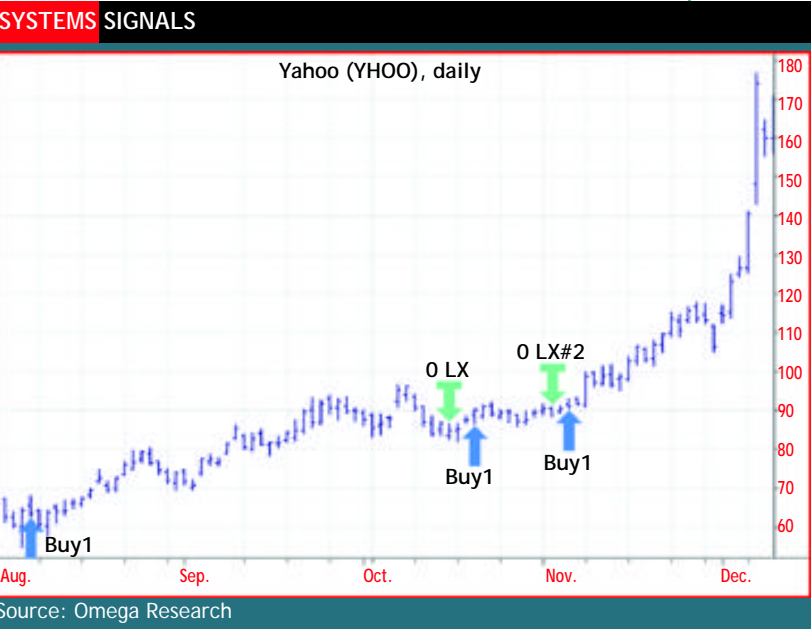


# Hybrid system No. 1

**Markets:** Stocks, stock index futures and index shares (SPDRs, DIAs, QQQs)

**System logic:** This is a short-term hybrid system that falls somewhere between a bottom-picking strategy and a trend-following breakout strategy. The system waits for a retracement to occur, then enters when the market reverses by an amount equal to half the retracement. For example, if a stock rallied to a new high at 80, then retraced to 70, the system would go long when the stock moved back above 75 (halfway between the high and the retracement low).

As a bottom-picking strategy, it requires that the bottom be confirmed by a move retracing half the previous decline. As a breakout system, it tries to anticipate the breakout by going long at the halfway point between the most recent highs and lows.



**Rules:**

1. Enter long with a stop order after the market has made a nine-day low and then retraced half the move from that low to the highest high of the last nine days.
2. Risk 0.5 percent of available equity per trade. At the time of entry, calculate the number of stocks per trade as 0.005 multiplied by available equity, divided by the dollar value of the distance between the entry price and the lowest low of the last nine days.

3. a. Exit with a trailing stop if the market falls below the lowest low of the last nine days.  
b. Exit with a loss if the market is below the entry price after nine days.

**Test period:** Jan. 1, 1990, to July 12, 2000

**Test data:** Daily stock prices for the 25 most-traded stocks on the Nasdaq 100 list, excluding those stocks that also can be found in other indices, such as Microsoft and Intel in the Dow Jones Industrial Average and S&P 500 index.

**Starting equity:** \$100,000 (nominal)

**System drawbacks:**

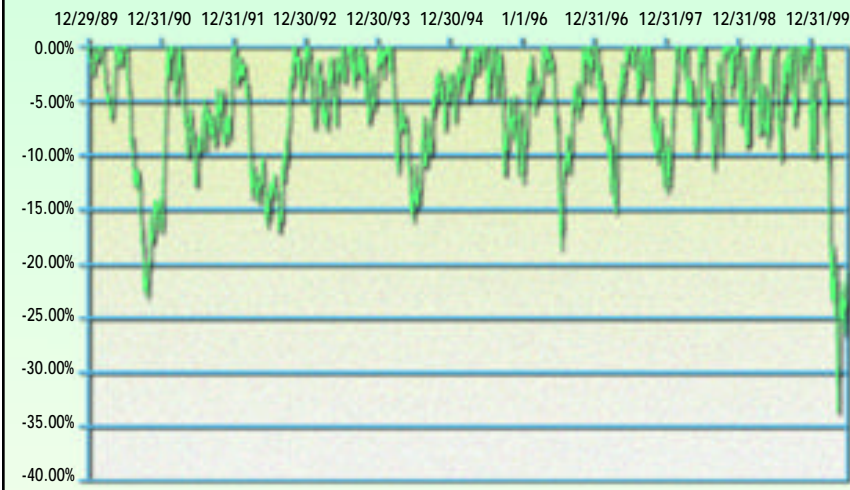
The long-only, trend-following nature of the system makes it vulnerable to market corrections, which explains the rather extensive drawdowns over the last few months. The system probably would benefit with the addition of a trend filter (such as a long-term moving average) that would only allow trades in the direction of the prevailing trend.

Other enhancements include only trading those stocks that show the highest relative strength compared to the market as a whole (i.e., the underlying index), or including some sort of volume confirmation, such as an increasing on balance volume (OBV) value.

**Other observations:**

Although this system does better than buy-and-hold for both the Dow and S&P 500, it doesn't manage to keep up with the Nasdaq 100. Note, however, that the system only risks 0.5 percent of avail-

## DRAWDOWN CURVE



able equity per trade, which translates into a risk-reward ratio of 21.8 (total return divided by max drawdown). For a buy-and-hold strategy for the Nasdaq 100 the same ratio is 40.9. However, a buy-and-hold strategy is in the market all the time, which also adds to the risk, albeit on a more subjective level.

Risking 1 percent per trade produced a return and drawdown of 1,514 percent and 52.89 percent, respectively, for a risk-reward ratio of 28.6. Still not as good as a buy-and-hold, but some of the 25 stocks in the test portfolio were not listed until very recently (such as Amazon.com, which didn't start contributing to the portfolio equity until August 1997). During the first year of trading, only 14 of our 25 stocks were tradable.

## STRATEGY SUMMARY

Profitability		Trade statistics	
End equity (\$):	836,423	No. trades:	2,597
Total return (%):	736	Avg. trade (\$):	970
Profit factor:	1.74	Largest loss (\$):	4,056
Avg. tied cap (%):	53.81	Win. trades(%):	32.73
Win. months (%):	61.11	Avg. days:	15.20
<b>Drawdown</b>		TIM (%): 99.89* 57.44**	
Max DD (%):	33.73	Tr./Mark./Year:	9.89
Longest flat (m):	11.77	Tr./Month:	20.61

\*For the entire portfolio. \*\*Average per market.

Source: CSI, Unfair Advantage

LEGEND: End equity (\$): equity at the end of test period • Total return (%): total percentage return over test period • Profit factor: gross profit/gross loss • Avg. tied cap (%): average percent of total capital tied up in open positions • Win. months (%): percentage profitable months over test period • Max DD (%): maximum drop in equity • Longest flat: longest period, in months, spent between two equity highs • No. trades: number of trades • Avg. trade (\$): amount won or lost by the average trade • Largest loss (\$): largest losing trade • Win. trades (%): percent winning trades • Avg. days: average trade length • TIM (%): amount of time there is at least one open position for entire portfolio, respectively on average per market • Tr./Mark./Year: trades per market per year • Tr./Month: trades per month for all markets

Disclaimer: The Trading System Lab is intended for educational purposes only to provide a perspective on different market concepts. It is not meant to recommend or promote any trading system or approach. Traders are advised to do their own research and testing to determine the validity of a trading idea. Past performance does not guarantee future results; historical testing may not reflect a system's behavior in real-time trading.

## Send Active Trader your systems

If you have a trading system or idea you'd like to see tested in the Trading System Lab, send it to us. We'll test it on a portfolio of stocks or futures (for now, maximum 30 markets, using daily data starting January 1, 1980), using true portfolio analysis/optimization.

Most system testing software only allows you to test one market at a time. Our system testing technique lets all markets share the same account and is based on the interaction within the portfolio as a whole.

E-mail your system logic and a short description to [tstridsman@activetradermag.com](mailto:tstridsman@activetradermag.com), and we'll get back to you.

## Buy-and-hold stats:

	Total return	Max DD	Longest flat
DJIA	292%	22%	13 months
S&P 500	327%	22%	13 months
Nasdaq 100	1,637%	40%	11 months

## TIME WINDOW RETURN ANALYSIS

Cumulative	12 months	24 months	36 months	48 months	60 months
Most recent:	34.62%	133.14%	225.44%	294.17%	352.98%
Average:	25.81%	56.56%	89.57%	123.69%	170.32%
Best:	108.30%	240.11%	328.11%	405.00%	520.82%
Worst:	-7.31%	-0.07%	26.28%	31.72%	54.83%
St. dev:	24.62%	52.83%	75.46%	93.87%	122.40%
Annualized	12 months	24 months	36 months	48 months	60 months
Most recent:	34.62%	52.69%	48.19%	40.90%	35.27%
Average:	25.81%	25.13%	23.76%	22.30%	22.00%
Best:	108.30%	84.42%	62.38%	49.91%	44.08%
Worst:	-7.31%	-0.04%	8.09%	7.13%	9.14%
St. dev:	24.62%	23.63%	20.61%	18.00%	17.33%

LEGEND: Cumulative — Most recent: most recent return from start to end of the respective periods • Average: the average of all cumulative returns from start to end of the respective periods • Best: the best of all cumulative returns from start to end of the respective periods • Worst: the worst of all cumulative returns from start to end of the respective periods • St. dev: the standard deviation of all cumulative returns from start to end of the respective periods

Annualized — The ending equity as a result of the cumulative returns, raised by 1/n, where n is the respective period in number of years