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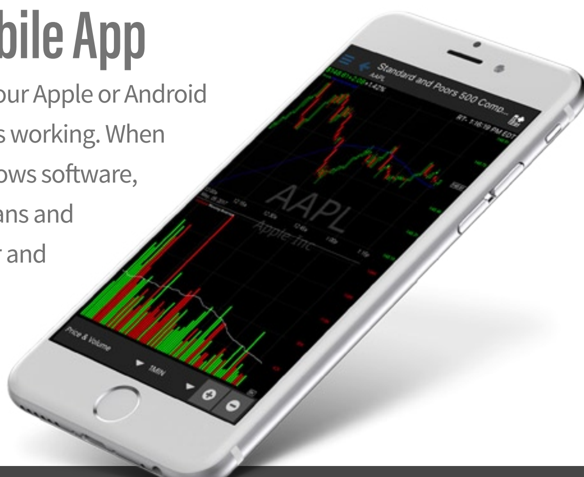

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Which Stock Is #1?

Build Your Own Technical Rating

Yes, it is possible to create a rating system with technical indicators, one that could be as effective as a fundamental analyst’s rating system. Here’s how.

by Domenico D’Errico

Investors have a love–hate relationship with stock ratings. On the one hand, stock ratings are loved because they succinctly convey how an analyst feels about a stock. On the other hand, they are hated because they can often be a manipulative sales tool.

Generally speaking, traders don’t fully trust analysts and prefer to apply their own logic and risk their money on something they can fully understand and trust. On the other hand, technical indicators rarely provide a clear-cut recommendation valid for different markets as a stock rating process does.

What if I replace the analyst with a technical algorithm and build my own technical stock rating process? In this article I will analyze how a technical stock rating system should work and I’ll build a simple one based on common and customizable technical indicators.

How a rating system works

Morningstar offers a popular rating service that assigns star ratings based on analysts’ estimates of fair value. A five-star stock is a good value at its current price; a one-star stock isn’t. Star ratings, which are updated daily, can change for three reasons: when analysts alter their estimate of a stock’s fair value; when a stock’s price changes; or both. In the ratings, two different pieces of information—fair value and current price—are combined.

Fair value is derived from an evaluation of the company’s business and has nothing to do with price. It represents what

DIGITAL GRAPHIC: WHITEMOCCA/MORNINGSTAR: STUDIO BARCELONA/ SHUTTERSTOCK/COLLAGE: CHRISTINE MORRISON analysts think the company's value is. So if the current price is below fair value, the stock's rating will be positive; the lower the price, the higher the rating. If the current price is above fair value, the stock's rating will be negative. The logic is straightforward—if price is below value, you buy, if price is above value, you sell. The same logic is applied to any market analyzed.

The two pieces of information are not updated at the same time. Fair value depends on analysts' fundamental evaluation, which is updated quarterly or anytime there is a key change related to the company's business. The current price, on the other hand, updates in real time.

In order to transfer the same logic to a technical stock rating system, you would need some kind of technical parameters that indicate:

- If a stock is good or bad
- How good or bad it is. In other words, it should allow you to compare any stock against another to eventually rank the stocks.

Rate a stock's trend

Technical traders don't consider fundamental information and have no fair value to compare against price. As a result, they cannot evaluate future price movement but can find, in past data, some predictive information with a high probability of success that can help indicate future price movement.

I evaluated several technical indicators and came up with a combination of the following three technical indicators:

- One-year linear regression slope
- 12-week higher highs
- 12-week higher lows.

These three indicators worked well together.

- The one-year slope is a stable indicator that can analyze trends: a positive slope detects an uptrend, a negative slope detects a negative trend. On the top chart in Figure 1, I transformed the slope into a two-color histogram (if slope is positive, the histogram is green and if slope is negative, the histogram is red). The reason for having a stable trend indicator is that you don't want the indicator to change direction in case of pullbacks. The downside of this is that a slow trend indicator may have a lag in detecting tops and bottoms.

FIGURE 1: ONE-YEAR LINEAR REGRESSION SLOPE, 12-WEEK HIGHER HIGHS, 12-WEEK HIGHER LOWS. On the top chart, the slope is in the form of a two-color histogram (if slope is positive, the histogram is green and if slope is negative, the histogram is red). On the bottom chart, the green/red histograms show when higher highs or higher lows are in place.

- This is where the 12-week higher highs and higher lows indicators come in. On the bottom chart in Figure 1, I applied some green/red histograms to show when higher highs or higher lows are in place.
- When you combine the three indicators—slope, higher highs, and higher lows—you can see why they work well together (Figure 2). While the slope is still positive

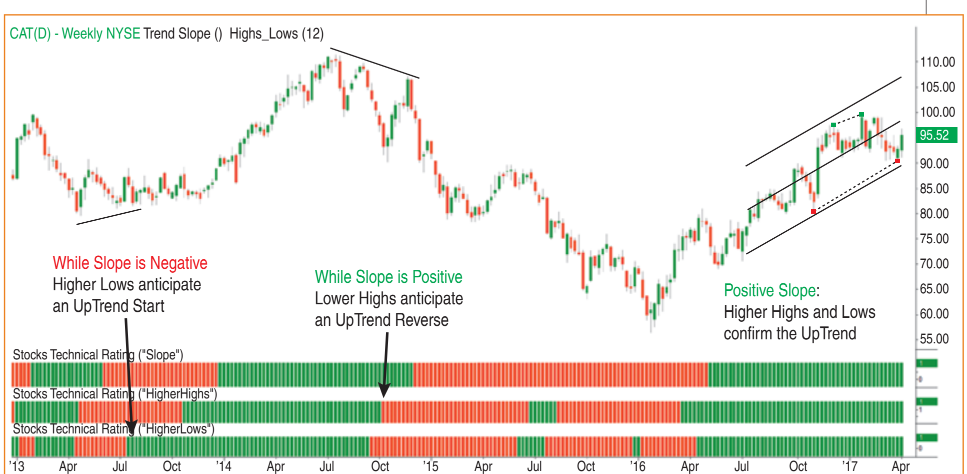


FIGURE 2: THE POWER OF THREE. Here's how these three indicators complement each other: while the slope is still positive (uptrend), lower highs are an early signal of a trend reversal; while the slope is still negative (downtrend), higher lows are an early signal of trend reversal.

Indicator	Condition	Stars
1 Year Slope	Slope > 0	★★
12 Weeks High	Higher Highs	★
12 Weeks Lows	Higher Lows	★★
Maximum Stars		★★★★★

FIGURE 3: A SCORING SYSTEM. Two stars are assigned to slope, one star to highs, and two stars to lows, for a maximum of five stars.

FIGURE 4: STAR RATING. Here you see the three indicators' histograms and the star ratings from 1 to 5.

(uptrend), lower highs are an early signal of a trend reversal; while the slope is still negative (downtrend), higher lows are an early signal of trend reversal.

Assume these technical indicators hit the satisfactory mark. The next step is to transform the three indicators into a star ranking from 1 to 5.

Scoring

I'll start by assigning two stars to *slope*, one star to *highs*, and two stars to *lows*, for a maximum of five stars (Figure 3). I initially assigned a lower number of stars to higher highs because I believe that in the markets, lows are more important than highs. Later on, I will test this assumption to determine if it is correct. In Figure 4 you see the three indicators' histograms and the star ratings from 1 to 5.

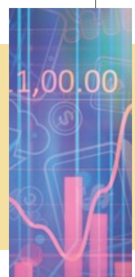
Crunching the numbers

Now it's time to see if such a stock rating system makes sense by running some backtests.

Settings and trading rules

Historical period: Jan 2005–Dec 2016 weekly bars
Symbols list: S&P 100 stocks

It is possible to build a technical stock rating system based on common and customizable technical indicators.



Trading rules: Buy if the stock rating is above 2.5 stars, sell if it's below 2.5
Benchmark: Buy & hold SPY
Trade size: $1,000 per trade

Looking at the table in Figure 5 you can see that the stock rating strategy has about the same profit as the S&P buy & hold strategy, but the drawdown is lower ($19,897 for stock rating versus $76,315 for buy & hold), with a reward/risk ratio of 4.4 versus 1.2, respectively.

	Stocks Rating	Buy & Hold
Total Profit	$87,553	$88,696
Max Portfolio Drawdown	-$19,897	-$76,315
Return On Max Portfolio Drawdown	4.4	1.2
Number Of Trades	707	
Average Trade	$124	
Percent Profitable	58%	

FIGURE 5: STOCK RATING STRATEGY VS. BUY & HOLD. The stock rating strategy has about the same profit as the S&P buy & hold strategy, but the drawdown is lower ($19,897 for the stock rating strategy versus $76,315 for buy & hold), with a reward/risk ratio of 4.4 versus 1.2, respectively.

Indicator	Simulation 1: Underweight Highs	Simulation 2: Underweight Slope	Simulation 3: Underweight Lows
1 Year Slope	★★	★	★★
12 Weeks High	★	★★	★★
12 Weeks Lows	★★	★★	★
Maximum Stars	★★★★★	★★★★★	★★★★★
Total Profit	87553	93570	91791
Max Portfolio Drawdown	-19897	-197291	-20984
Return On Max Portfolio Drawdown	4.4	4.7	4.3
Number Of Trades	707	854	743
Average Trade	123.84	109	123.54
Percent Profitable	58%	57%	57%

FIGURE 6: THREE DIFFERENT SIMULATIONS. In simulation 1, the highs are underweighted; in simulation 2, the slope is underweighted; and in simulation 3, the lows are underweighted. The lows are more important than slope and the highs are equally important as well.

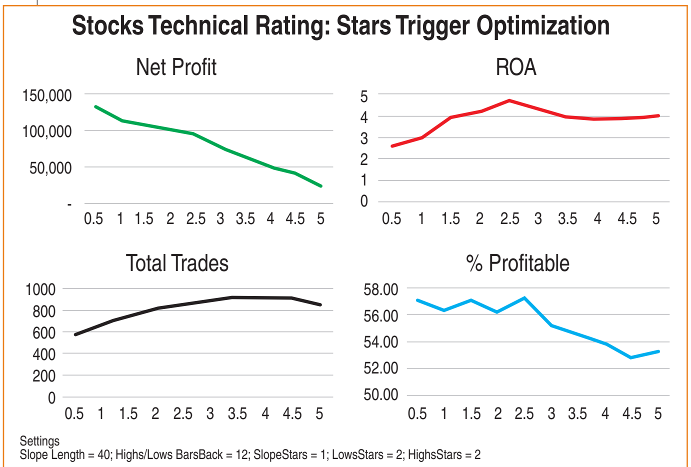


FIGURE 7: NET PROFIT, REWARD–RISK, TOTAL TRADES, AND PERCENT PROFITABLE. Net profit is always positive, but it decreases when the trigger level increases as the number of trades increase. Looking at the reward/risk and %Profitable, it seems that 2.5 is a good parameter.

Dive into more details

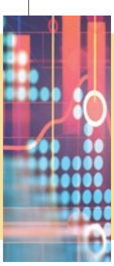
I'll try to answer some more questions about the rating system I built using the portfolio features in MultiCharts. For example, is the stars scoring method correct? Is the slope more or less important than higher lows? How much do each of the three indicators contribute to overall results?

In Figure 6 you see the results of three different simulations. In simulation 1, I underweighted the highs; in simulation 2, I underweighted the slope; and in simulation 3, I underweighted the lows. Here, unlike in my assumption, the lows are more important than slope, but the highs are equally important as well. In fact, the highest reward/risk ratio (4.7) comes from simulation 2, which underweights the slope.

A question that could come up is whether the trigger of 2.5 stars is correct. What happens if the ratings are increased or decreased in steps of 0.5?

In Figure 7 you see how *NetProfit, reward/risk, TotalTrades*, and *%Profitable* change if there's a change in the trigger level. *Net profit* is always positive, but it decreases when the trigger level increases as the number of trades increase. Looking at the *reward/risk* and *%Profitable*, it seems that 2.5 is a good parameter.

Is using one year for the slope and 12 weeks for the highs/lows a reasonable parameter? What if those were changed? Let's see what happens to the reward/risk if the slope is changed from 20 to 60 weeks and the *highs/lows BarsBack* is changed from four to 20 weeks.



Psychological support to pull the trigger can come only from something the trader trusts and is familiar with.

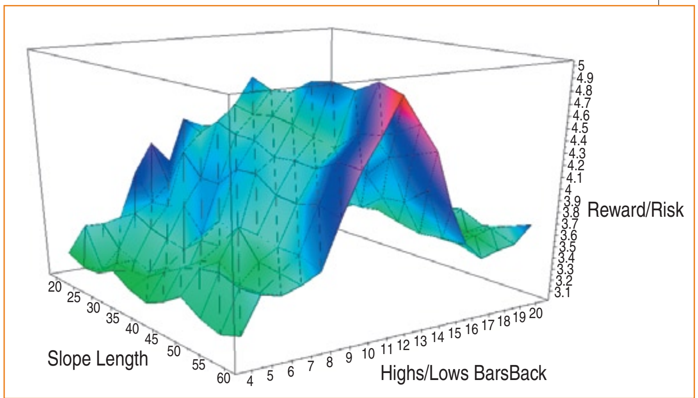


FIGURE 8: MODIFYING PARAMETERS. The higher the slope length, the more the reward/risk means that the one-year (40 weeks) slope is a reasonable parameter. If you increase the slope, the result improves. The highs/lows BarsBack simulation shows a visible peak of the reward/risk around 12 weeks.

In Figure 8 you see a 3D chart with slope length on the left axis, *highs/lows BarsBack* on the right axis, and reward/risk on the vertical axis. For any simulation, the risk–reward is higher than for buy & hold (1.2).

The higher the slope length, the more the reward/risk means that the one-year (40 weeks) slope is a reasonable parameter. If you increase the slope, the result improves. The *highs/lows*

Stocks Technical Rating

Symbol	Slope	Higher Highs	Higher Lows	Rating Score	Stars
AAPL	Y	Y	Y	5.0	*****
AXP	Y	Y	Y	5.0	*****
BA	Y	Y	Y	5.0	*****
DD	Y	Y	Y	5.0	*****
DIS	Y	Y	Y	5.0	*****
GS	Y	Y	Y	5.0	*****
HD	Y	Y	Y	5.0	*****
IBM	Y	Y	Y	5.0	*****
JPM	Y	Y	Y	5.0	*****
MSFT	Y	Y	Y	5.0	*****
TRV	Y	Y	Y	5.0	*****
UNH	Y	Y	Y	5.0	*****
UTX	Y	Y	Y	5.0	*****
CAT	Y	N	Y	4.9	****
INTC	Y	N	Y	4.9	****
MMM	Y	Y	Y	4.8	****
MRK	Y	Y	Y	4.8	****
MCD	Y	Y	Y	4.7	****
V	Y	Y	Y	4.5	****
CSCO	Y	Y	Y	4.3	****
CVX	Y	N	N	4.3	****
PG	Y	Y	Y	4.3	****
NKE	Y	Y	Y	2.9	**
GE	N	N	Y	2.8	**
PFE	N	Y	Y	2.7	**
VZ	N	N	Y	2.5	**
JNJ	Y	Y	Y	2.4	**
KO	N	Y	Y	1.7	*
WMT	N	Y	Y	0.8	
XOM	N	N	N	0.6	

FIGURE 9: A TRACKING SYSTEM. Here you see an example of a TradeStation Radarscreen applied to the 30 stocks in the DJIA. It can easily track up to 1,000 stocks and ETFs. You can rank them and focus on stocks with higher ratings to find entry points.

BarsBack simulation shows a visible peak of the reward/risk around 12 weeks. This makes sense since 12 weeks is exactly a full quarter.

Now that the model passed the statistical tests, it's time to build a reporting system to monitor on a weekly basis.

In Figure 9 you see a TradeStation Radarscreen example applied to the 30 stocks in the Dow Jones Industrial Average. It can easily track up to 1,000 stocks and ETFs. You can rank them and focus on stocks with higher ratings in order to find entry points.

It can be done

Can you build your own technical stock rating process starting from the indicators you are familiar with? Is it possible to get rid of analysts? Is it possible to transform the information provided by a technical indicator into a clear-cut recommendation? In this article, I created a model and tested it from different perspectives to validate it from a statistical point of view. Almost any technical indicator could be put through a similar process.

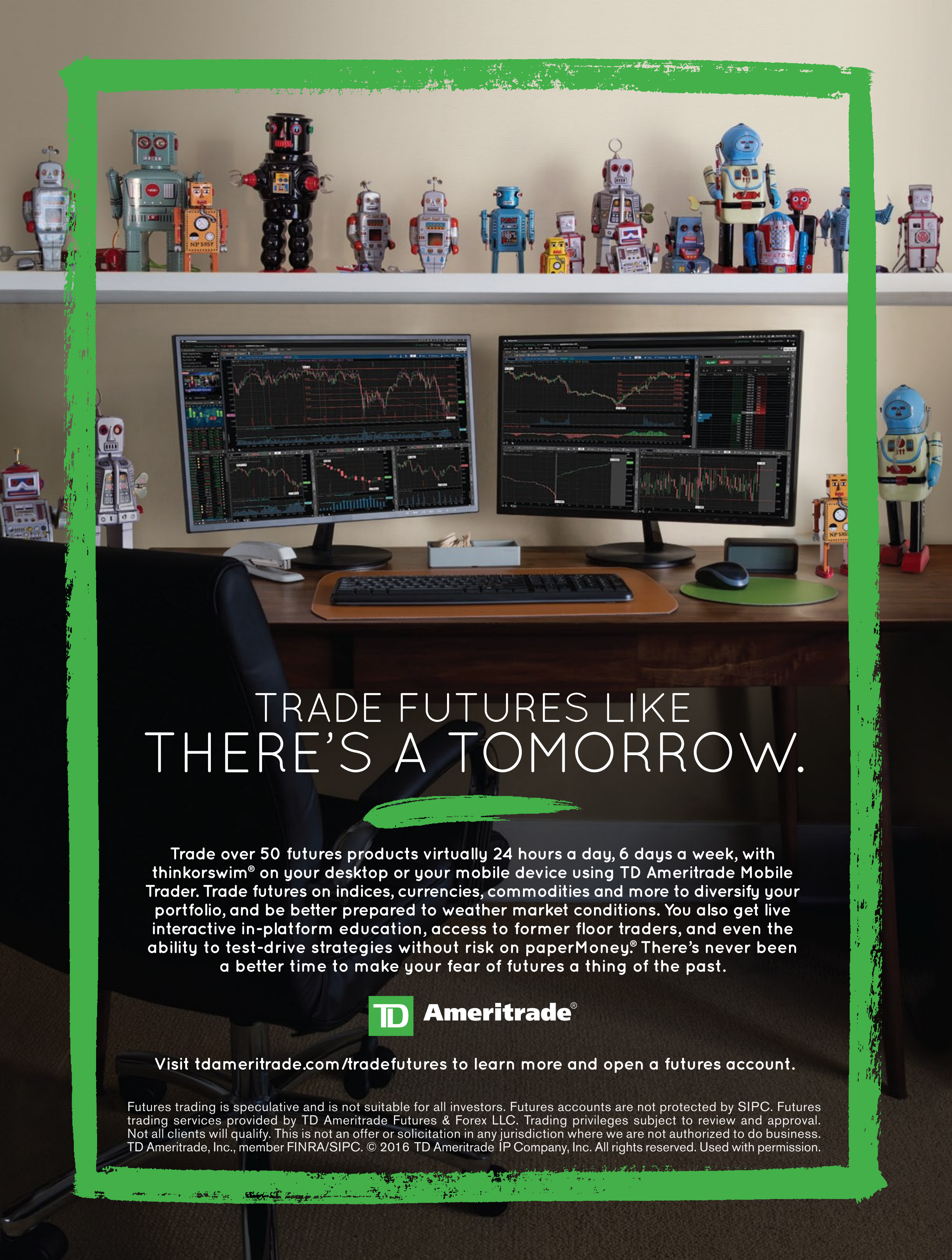
In spite of all the mathematical calculations that can be done and the sophisticated trading platforms available to the trader to make everything easier, traders still need psychological support to pull the trigger. Such support can come only from something the trader trusts and is familiar with.

So forget about stereotypes and don't be stopped by others telling you that your way is not correct. The reality is, nobody knows. I encourage you to build your own lens to look at the markets with, and improve upon it, day by day.

Domenico D'Errico is an independent research & development partner for investment management companies and professional traders. He also runs his own research firm and software house (www.Trading-Algo.com). D'Errico is a TradeStation Open Platform Developer and a two-time winner of the TradeStation developer contest. He is available for advisory and coaching through his website, www.Trading-Algo.com.

‡TradeStation

‡See Editorial Resource Index
‡See Editorial Resource Index†See Traders' Glossary for definition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