

# TECHNICAL ANALYSIS OF STOCKS & COMMODITIES™

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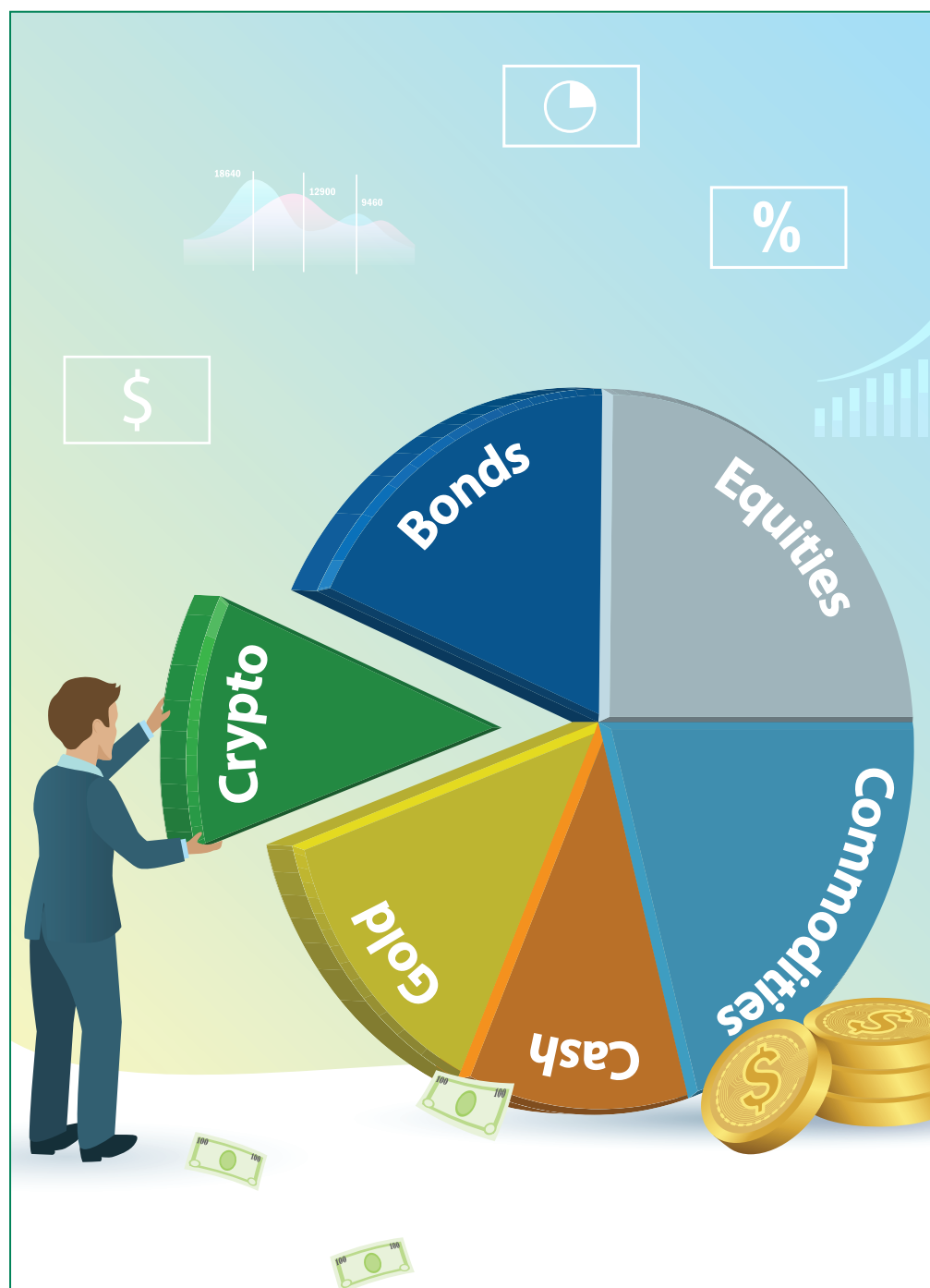
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FEBRUARY 2026

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## ALGORITHMIC TRADING

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



Kevin J. Davey

## ALGO FILTERS

I have no trouble developing entries for my algo strategies, but most take too many sub-optimal trades. Do you have sources or ideas for any good algo filters?

There are really two questions here, and I'll answer both. First, you want ideas for your algo strategies. The r/algotrading category of Reddit gets over 1,000 posts per week, and many of them contain useful ideas and tips. I think it is a handy resource for algo traders.

The second question you had is specifically about filters. I actually came across an interesting tip this week on algo filters, posted by user Prabuddha-Peramuna. It is called the *volatility expansion index*, in the thread "The Signal I Use To Detect Hidden Instability In Markets" ([https://www.reddit.com/r/algotrading/comments/1phv4zz/the\\_](https://www.reddit.com/r/algotrading/comments/1phv4zz/the_)

signal\_i\_use\_to\_detect\_hidden\_instability\_in).

In that thread, which I suggest you read for full context and details, the author offers a *volatility expansion index*:

$$VEI = \frac{\text{AvgTrueRange}(10)}{\text{AvgTrueRange}(50)}$$

The article goes on to only take trades where  $VEI < 1.0$ , where the recent price action is most controlled and stable. (See Figure 1.)

Of course, just because someone says an algo idea is good does not mean it actually is. So I decided to test it.

Here are all the components I used for the test:

- 44 different U.S. futures markets (all sectors)
- 7 bar sizes (60-minute up to 1,440

minutes)

- 2007–2024 walk-forward optimization test period
- 6 different entries long/short
- 3 trend entries (momentum, breakout, moving average cross)
- 3 countertrend entries—same as above, except reverse the signals
- Short, medium, long lookback lengths for the entries

The entries were each tested with 3 different VEI filters:

1. No filter (baseline)
2. Take trades only when:  

$$\frac{\text{AvgTrueRange}(10)}{\text{AvgTrueRange}(50)} < 1$$
3. Take trades only when:  

$$\frac{\text{AvgTrueRange}(10)}{\text{AvgTrueRange}(100)} < 1$$

All told, I ran about 50,000 backtests. I used TradeStation, with MultiWalk—a custom software tool that allows for fast "batch"-type walk-forward backtesting. So running all these backtests only took a few hours.

## RESULTS

Overall net profit and risk adjusted return (Net profit / Avg DD) showed improved performance for both trend and countertrend entries.

Winning percentage and average profit per trade showed improved performance for trend entries, but



**FIGURE 1: VOLATILITY EXPANSION INDEX.** The volatility expansion index (VEI) is displayed in the bottom pane. It could be tested by the trader for possible use as a trade filter in an algo strategy.

*Continued on page 21*

have the ability to jeopardize the stability of the entire portfolio.

In an increasingly interconnected and unpredictable global market, investors who apply these principles are more likely to achieve consistent, risk-adjusted returns—regardless of which asset class leads in the next cycle.

Ultimately, risk and return are inseparable. Higher risk can unlock greater potential returns, but sustainable success depends on aligning your strategy with personal objectives and tolerance for uncertainty.

It's also essential to recognize that all performance metrics and optimizations presented here are based on historical data. While past patterns offer valuable guidance, they do not guarantee future outcomes. Before implementing any of the allocations discussed, investors should carefully assess whether current market conditions or structural shifts could cause future results to diverge from expectations.

I hope you found this article useful. If you have questions or feedback, please feel free to reach out by email—I'd be glad to hear from you.

*Markos Katsanos is the author of Intermarket Trading Strategies published by John Wiley & Sons and is a STOCKS & COMMODITIES contributor. He can be reached at markos.katsanos@gmail.com or through his website at <http://mkatsanos.com>.*

## Asset allocation is not a one-size-fits-all endeavor.



available in the **Article Code** section of our website, [Traders.com](http://Traders.com).

See our **Traders' Tips** section of the magazine beginning on page 54 for implementation of Markos Katsanos' technique in various technical analysis programs and trading platforms. Code found in the Traders' Tips section is also posted to [Traders.com](http://Traders.com).

### FURTHER READING

Brinson, G.P., Hood, L.R., & Beebower, G.L. [1986]. "Determinants Of Portfolio Performance," *Financial Analysts Journal*, 42(4), 39–44.

Ibbotson, R.G., & Kaplan, P.D. [2000]. "Does Asset Allocation Policy Explain 40, 90, or 100 Percent of Performance?" *Financial Analysts Journal*, 56(1), 26–33.

Katsanos, Markos [2025]. "A Sector Rotation Strategy," *Technical Analysis of STOCKS & COMMODITIES*, Volume 43: August.

‡AmiBroker

‡See Editorial Resource Index

*The code and spreadsheet discussed in this article is*

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### DAVEY

*Continued from page 25*

not for countertrend entries.

In some cases the performance improvement was pretty dramatic, whether it was an increased net profit, improved risk-adjusted return, or improvement in other trade metrics. But improvement was not universal; there were times where the filter decreased performance, too.

**Of course, just because someone says an algo idea is good does not mean it actually is.**

Overall, in about 65% of runs, the performance of the strategy improved due to this filter.

On average, the VEI filter also removed roughly 42% of the trade signals, which you stated was a goal in your question.

### CONCLUSION

As with any idea or concept you test, there will be times where something works well and times where it does not. Frankly, I was surprised that this simple filter worked as well as it did across so many markets and bar sizes. Based on my testing, I think the VEI filter can be useful for certain algos.

But with anything in algo trading, the key is to test it for yourself.

Everyone in the trading universe can say something is good or bad, but until you test it for yourself, you do not know for sure.

This "test it for yourself" principle is really important for algo trading. Why? One word: drawdowns. Drawdowns are a normal part of trading, and they eat away at your confidence, causing you to abandon your strategy when times get tough. You'll find that when you test a strategy, concept, filter, etc. for yourself, you gain a tremendous amount of confidence in it. And that confidence will come in handy during those drawdowns, allowing you to weather the inevitable storms.

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