



## Can Andrew Lo Legitimize Technical Analysis?

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When it comes to technical analysis, I am not just skeptical. I flat-out don't believe in it.

Technical analysis rests on the conviction that observing patterns in historical data can produce reliable indicators of when to buy and sell securities — that the past can predict the future. It claims you can profit by identifying patterns such as head-and-shoulders or double bottoms, or by utilizing Kondratiev waves or Fibonacci series.

The rational scientist in me says this in nothing more than alchemy.

So I was stunned to learn that Andrew Lo, the Harris & Harris Group Professor of Finance at MIT, has co-authored a book on the subject. In addition to directing MIT's Laboratory for Financial Engineering, Lo is the founder of the hedge fund AlphaSimplex Group, and he is recognized as an authority on risk management, quantitative analysis and investor behavior.

Andrew Lo's endorsement of technical analysis would be akin to a respected astrophysicist endorsing astrology.

Jasmina Hasanhodzic, Lo's co-author, presented their latest research at a meeting of the Boston chapter of the Quantitative Work Alliance for Applied Finance, Education and Wisdom (QWAFEFW) on January 20. I decided to go with an open mind, to see whether their research could impart a degree of legitimacy to what I consider a pseudoscience.

I was underwhelmed, to put it mildly.

Hasanhodzic began by recounting the background research for their book, which included interviews with 14 leading practitioners of technical analysis and an extensive study of its history. Technical analysis goes back to the Babylonians, who used it to study the prices of a half dozen commodities. Their research shows uses of technical analysis in the middle ages, Renaissance, and 19<sup>th</sup> century, before it was adopted on a more widespread basis for the study of financial markets.

The evolution of technical analysis may be a legitimate topic of historical inquiry, but so were the Salem witch trials. What the QWAFEFW crowd really wanted



to know, as did I, is whether this stuff works. More to the point, is there any evidence than an investor can make money using technical analysis?

To answer this question, Hasanhodzic and Lo took the first steps toward automating technical analysis. They studied the prices of 25 randomly chosen NASD securities over a four-year period. Using pattern recognition technology, they identified when certain signals occurred in the data. These signals — a head-and-shoulders pattern, for instance — were those that were identified in the interviews they conducted, and, in their model, indicated when a security should be bought or sold.

They compared the returns their statistical buy-and-sell cues produced to those of a “buy-and-hold” portfolio — owning all 25 securities over the four year period. They found that there was a statistically significant difference in the distribution of the returns generated through technical analysis compared to the returns of the buy-and-hold portfolio. The data show, according to Hasanhodzic and Lo, that technical analysis produces what the quantitative community calls “information value,” which is a prerequisite for creating a trading strategy from which profits can be derived.

The next step in their research is to develop such a strategy.

But a point raised by a QWAFEFW audience member suggests Lo and Hasanhodzic may be getting ahead of themselves. The comparison of returns from technical analysis to the buy-and-hold strategy is not an apples-to-apples comparison. The buy-and-hold returns were generated over the entire four-year period. But the technical analysis returns were generated only after a signal was recognized – a period less than the entire four years. A meaningful comparison requires that returns be compared over identical time periods.

And even if technical analysis can be shown to produce information value, and this information can be translated to a profitable trading strategy, a big question remains. How long would this inefficiency persist? If the technology to identify these patterns is replicable, wouldn't any theoretical profits be quickly arbitrated away?

Hasanhodzic said she believes technical analysis entails adaptability, and successful practitioners are constantly modifying their approaches — once a particular tactic began to lose its effectiveness, a new tactic would be employed. Such adaptability adds another level of complexity to any attempt to mathematically model a profitable trading strategy, one well beyond the scope of Hasanhodzic's and Lo's current research.



My skepticism was vindicated, but I still wanted to understand how the practitioners they interviewed were able to profit from technical analysis. Hasanhodzic did not attempt to answer this question, but many in the audience offered explanations in the discussion following her talk. No clear answers emerged..

One possible explanation is that technical analysis is really a momentum model. Momentum is an academically accepted component of standard pricing models (such as the Fama French 3-factor model). Technical analysis may merely be capturing this momentum component — in some obscure manner — and extracting whatever small profits it might offer.

Another — and marginally more plausible — explanation stems from the core belief, held by technical analysts, that the signals they see in the data are representative of supply and demand imbalances in the trading of securities. It could be that, based on their knowledge of specific securities' trading patterns, successful technical analysts are able identify when trading profits arise because of excess or insufficient liquidity.

Nearly all of the 14 practitioners interviewed admitted that they do not rely solely on technical analysis for their investing decisions. Most had trouble articulating their exact process for employing technical analysis. So perhaps the simplest explanation for their success is that they rely far more heavily on other information sources (e.g., news or fundamental analysis) than they are willing to admit.

The final explanation ascribes the success of these practitioners to luck. If Hasanhodzic and Lo studied the entire population of technical analysts, I expect the distribution would resemble a bell curve, ranging from miserable failure to the unexplainable success seen in the group they interviewed. But the existence of this group does not imply that they are skillful. It can be dumb luck, masquerading as skill. (For a related discussion, see our article [Luck versus Skill in Active Mutual Funds.](#))

While technical analysis may not generate persistent profits for an investor, it can be very profitable for those who popularize its study. The first of Lo and Hasanhodzic's three planned volumes on technical analysis, *The Heretics of Finance*, which contains the 14 interviews, hit bookstores January 1st. It is available from the link above.

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