PathIntegral

May 16, 2005
Issue 1, Vol.1

NewsLetter

This is the first installment of an occasional and informal newsletter about the Path Integral trading system. Despite several years of development, we still consider our models to be in their formative stage and so we have much to talk about.

System Overview

You probably already know a bit about how Path Integral works, perhaps from having spoken with us or with the folks at PureLogic Capital, and so we will explain things from a different angle this time.

The Path Integral system operates on five levels. At the basic level, closest to the data, are a very large number of models. Only relatively simple models are used to avoid one of the banes of statistical models: over fitting. This is a situation where a model is fitted so precisely to a set of (past) data that it simply cannot cope with situations that are at all different (going forward). We generate thousands of models.

At the second level, a group of modules weeds out and aggregates models, producing a weighted response. There are several modules, each with its own approach for eliminating and combining models.

At the third level, the results from the modules are combined to generate a signal. If none of the modules indicate a move or if the modules disagree about the direction of the market, there will be no signal. Similar logic can result in doubling up either short or long trades.

The fourth level of the system is a performance override that looks for patterns in the system's own performance, detecting situations in which the system performs poorly. When it finds a pattern, if necessary it over-rides the existing signal and cancels a trade. Situations where a model might perform poorly include Federal Open Market Committee meeting times or contract changeovers.

Finally the system looks at various markets to determine which should be its current focus. At present, the model has been successfully evaluated against light sweet crude oil and NASDAQ 100 futures. While the system will soon be able to evaluate markets automatically, it currently is focused on oil since that market has greater immediate potential. Additional markets will be evaluated soon after automated inter-market evaluations are added.

Recent Changes to Model

In part because our money is on the line as well, we are always trying to improve the system. Our list of potential additions or changes is very large and so we must prioritize. Since launching the system, the following improvements have been incorporated:

- A new fifth module, specializing in producing short signals, was added. As a result, the system now produces more short signals than it did before.
- The performance over-ride was developed and added. It is still somewhat primitive, but extensive testing indicates that it raises the overall performance of the system, largely by keeping it from trading when its ability to understand the market is limited.

Work Currently in Progress

Work is now focused on two areas:

- A sixth module, focused primarily on short signals, has recently been completed and is currently being tested.
- Work on the performance over-ride continues. We are exposing the system to additional situations and analyzing whether the model's trades should be reduced in those situations.

Upcoming Work

In the near future, expect progress in these areas:

- Enabling the system to simultaneously analyze multiple markets.
- Adding at least one market in addition to the NASDAQ 100 and light crude. At present we are considering the pound sterling and treasury bills, largely because they are probably less correlated with our current markets.

Long Run Philosophy

The Path Integral system treats each day as a separate event, making a decision at the end of every day. The back-tested win rate of the system since 1998 is about 55%, established over approximately 1000 simulated trades. The system can be tightened, raising the win rate, although conversely decreasing its trades and potentially its gains.

With the system operating in several markets, tightening its trading criteria permits it to trade in only the most promising situations, but still relatively often. We believe the system should be able to operate in many markets. This is based on the fact that it was very easily adapted to oil after having initially been developed for the NASDAQ 100.

With a multi-market strategy, we believe the win rate will improve without sacrificing the total number of trades, which should increase gains. We hope to eventually restrict the system to playing signals with a 60% or greater probability of winning.

Lessons from The First Month and a Half

The system generated good returns in its very first month out averaging 11% to 17% for our customers depending upon account size and contract traded (full contract vs. e-mini). There are no guarantees this performance will be repeated in every month, and certainly we will have losing months, but we are obviously optimistic. We spent 3 years developing the system before we were ready to let our own money ride on it. While the system will probably never be done, we now feel confident it will, on average, generate a profit.

Now that the system is directing real money, including our own, we have learned some new lessons. We believe that most will result in improved performance. We have also learned that the system truly does help to mitigate emotion. As much as we, as individuals, would like the model to play more frequently, it is doing what it is designed to do – playing when it is comfortable doing so, attempting to produce good returns while minimizing downdrafts.

Closing

Thank you for placing your trust in Path Integral. We will try to be continually worthy of that trust. We also want to publicly thank our partners at PureLogic Capital for all the encouragement they have provided us.

As always, feel free to contact us at infodesk@pathintegral.com or call Mike at 818-631- 6377. We welcome your questions and comments, including anything you might want to see discussed in this newsletter.

Thanks again.

Lee Fischman, Mike Kimel
The Path Integral Team

PathIntegral

Risk Disclosure: There is a substantial risk of loss in trading futures and options. Past performance is not indicative of future results. No system or trading program can guarantee profits or freedom from loss.