Entry Determination Exploration

## Average PCR

My old default strategy (originally 12, 6, 3 month windows). Seems to work fairly well. More robust than a lot of options. New dashboard allows the lookback windows to be optimized for stability, making it even better on a walk forward basis. PCR does seem to have some prediction of performance over a long data set. Recent times have shifted this though and it is working less good. I also tried Bi-weekly time updates and these did not perform better than monthly.

## Time Trend

A trend following approach where each time is treated like a unique asset. We use cross-sectional momentum to rank each time relative to each other by PnL and we use time-series momentum to remove any times who's PnL has crossed below its own moving average. This one picks new times each Monday, allowing each day of the week to have its input before making a decision for the next week.

This seems to be a better performer than Average PCR method, is quicker to respond to changing market dynamics, has less random feeling variables (like which months to choose from) that are rolling and self-adapting. And it can even shut off trading if times deteriorate. Overall it fits my trend-following personality better as well.

## ~~Entry Time Rolling PnL~~

Same as Time Trend, but without the SMA trend filter. The idea here is that you stick with the stronger historical times to avoid being whipsawed out of strong times that are doing well over the long term. I never tested this before thinking that the Best Average PCR Times are essentially the same thing. And taking the same rolling window to a singular lookback month duration does in fact select the same times as a single moth best PCR. So I assume that given the potential for overlap in the average PCR selection method, I think I have this idea covered. But it is nice to have fewer variables, so probably worth testing explicitly.

Testing showed much worse performance than Time Trends, so the SMA filter does in fact keep you away from degrading time slots well. Average PCR is actually a bit better as well probably because it is able to smooth the results and use closer averages as part of the result for more adaptive behavior.

## ~~Time Trend (Daily)~~

Same as Time Trend, but new times selected daily. Much worse results, more effort to trade.

## ~~Time Trend (MA Crossover)~~

Same as Time Trend, instead of using the PnL crossing over a moving average, we use a fast and slow moving average to hopefully smooth out the results a bit in terms of time selection churn, maybe avoiding dropping “good times” prematurely.

The lagging nature of this just seemed to reduce the performance, likely not responding as quick to changing time dynamics.

## ~~Time Trend (Weekday)~~

Same as Time Trend, but treats each day as it’s own thing. Results are not nearly as good as just the average time trends. Not worth keeping, but I did add the visualization in the Entry Time Trends tab so you can see each weekday if you want.

## ~~Time Trend (Consecutive Closes)~~

Same as Time Trend, but require two consecutive closes below the moving average to filter away the best times. The goal with this is to prevent an otherwise good time from being whipsawed out of the running for a week due to an unfortunate single close below the moving average. Hopefully this adds some stability for the best times to remain in the lineup. No, results are worse than the standard time trend, suggesting that an earlier exit from poor times is actually a net benefit. This has me questioning my steps of 5 for SMA values. If the optimizer likes 10 and 5 and 10 are 100% apart, there might be some alpha in being more granular here. It looks like 10 was actually a pretty good value, with 11 being slightly more stable and showing up more frequently in the stability results, so going to go with 11. This also allows some more price fluctuations in strong times before crossing the moving average, aligning with the spirit of consecutive closes, so that’s nice.

## ~~Stability adjusted Average PCR~~

A twist on Average PCR that tries to look at the downside standard deviation (Sortino) as a way to rank the times in addition to the Average PCR, trying to highlight those that have more upward momentum or stability vs. ones that go down a lot. This was very close in performance to Average PCR, frequently a little better, sometimes worse, not worth the added complexity to implement it.

## ~~Weighted Metrics~~

Tried using several metrics with weights including win rate, premium, PCR, and a trend factor. This didn’t work better than Average PCR and the weights put more focus on PCR, showing that is a good metric to look at. So rather than added complexity, just decided to focus on PCR.