

# Gemini Trading Update #2

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When I made my last [blog post](#) update, I had only used the public Gemini APIs to pull trade history data. Over the past week, I obtained a private API key for Gemini and actually made my first trades!

I started by trading ETH/BTC because this pair is cointegrated, and it can also be directly traded on the Gemini Exchange without going through USD. When making two separate trades, there's annoying edge cases to deal with, like what should you do if one trade goes through, but the other fails for any reason? If the ETH:BTC ratio just barely crossed the threshold and triggered the trade, but dips back down before you make both trades it's not clear whether to back out, stay in the half-way position, or complete the other trade even at a less favorable ratio.

By using the "ethbtc" symbol on Gemini, we avoid all of these edge cases. When the ratio of ETH:BTC is high, we can buy ETH using BTC, and sell ETH for BTC when the ratio goes lower. Although I had confirmed these currencies are cointegrated in the past, I realized I didn't remember over what time period. I found that statsmodels has the [Johansen](#) test for cointegration so I quickly confirmed the time period and computed the rolling mean of the ratio between VWAP(ETH) and VWAP(BTC), and the rolling standard deviation for the same ratio.

Using the most recent standard deviation and rolling mean, I defined the high (mean + std\_dev) and low (mean - std\_dev) thresholds to trigger trades. Means and standard deviations from prior days helped me backtest my strategy and check how it would have behaved if I'd been running it for the past few months.

Right now I am manually running my script to pull data, compute the thresholds, and place appropriate trades using the Gemini API. My next step is to write a new Python script to run these steps for me every day automatically, and set this new script up as a Windows Service that will be automatically started whenever I log into my computer.

With the implementation close to finished for my first pair, the next steps will be much more focused on analysis: Which other assets can I add to my portfolio besides ETH/BTC, and how is the strategy performing?