

Sunday, February 12 2023

Paper Review for FINM Final Project

@mpcs @finm

MeanRevertYieldCurveProfit_Chua

- Presents a set of mean-reverting strategies that exploit the difference between the current yield curve and an unconditional, historical yield curve.
- Types of positions described:
 - Bullet: buy at one maturity. Bets on interest rate
 - Ladder: buy at many maturities. Bets on shape changes.
 - Barbell: buy at two ends of the curve. Bets on shape changes.
- Replicate one or more of the tested reversion strategies.
- A example project plan would be:
 - Construct ZCB curves for a variety of bonds and characterize the shape of the yield curve
 - * I'm less well versed on how we would characterize shape, but I'm sure there are plenty of metrics from the literature.
 - * From this analysis, we'd hope to track one mean-reverting scalar metric that captures some part of the curve.
 - When this "shape metric" deviates significantly, take the appropriate bullet, ladder, or barbell position, anticipating that the "shape metric" will revert to its historical mean.

ConvertibleBondPricing_Anderson

- Presents a pricing model that allows for "parameterization and calibration of convertible bond models to quoted prices of straight debt and equity options".
- A simple project based on this paper would involve:
 1. Gathering a set of convertible bonds that we wish to trade/analyze. They should have liquid debt and/or equity options markets that we plan to trade.
 2. Calibrate the convertible bond pricing model on the last n periods of training data for each bond.
 3. In the testing period, calculate the difference between the estimated and actual quotes for debt & equity options. Buy options that our model determines to be underpriced.

DeepPutsAndCreditRisk_Carr

- "A vertical spread of stock American put options, struck within the default corridor and scaled by the difference in strikes, has the same payoff as a

standardized credit claim paying one dollar at default if this event occurs before the options expire, and paying zero otherwise.”

- In other words, one can replicate the risk portfolio of a standardized credit default swap with a set of deep-OOM puts.
- The authors observed that the deviation between the put spread and CDS is mean-reverting:

We use the value of the American put spread to infer the value of the unit recovery claim and compare it to the value estimated from the credit default swap market. Collecting data from both markets over 186 weeks and for 121 different companies, we show that the unit recovery claim values estimated from the two markets share similar magnitudes and show strong co-movements. When the estimates from the two markets deviate from each other, the deviations predict future movements in both markets due to the future convergence.