***Forecasting Factor and Smart Beta Returns***

**Background info/ assumptions:**

* Relative valuations predict subsequent returns for factors and smart beta strategies the same way it does for asset allocation and stock selection.
* The prediction of relative valuation is not precise and don’t have short-term efficacy, but it does well enough to add material value
* Investors who select strategies based on wonderful past performance are likely to have disappointing performance going forward
* The paper assumes mean reverting returns given the valuation levels

**Research:**

* Characteristics of a good alpha forecasting models:
  + Forecasts correlate with subsequent alphas
  + Good measure of accuracy (paper uses MSE)
  + Forecast is realistic estimates of expected returns -- (They don’t use this further)
* They build 6 models and compare them:
  + Model 0: Assumes alpha is always 0 (“CAPM” style)
  + Model 1: Uses the most recent 5 years of a factor or strategy to forecast next 5 years return (annualized next 5y ret = annualized past 5y ret)
  + Model 2: Uses inception to date return to predict next 5 years return (annualized next 5 years return = annualized return since inception)
  + Model 3: Valuation dependent model. Fit a log-linear line in the past data between the subsequent 5 years return (y axis) and a value metric (x axis) – the value metric can be P/B or a composite that they define the components, but not the exact weight of them. (subsequent 5 years return = f(valuation metric) – plug valuation metric to estimate future returns)
  + Model 4: Valuation dependent model with shrunk parameters (avoid overfit)
  + Model 5: Valuation dependent model with shrunk parameters using variance reduction techniques
  + Model 6: Valuation dependent using look ahead calibration (they assume we cannot do better than this since it will use future info, not available to any other models)
* Long term returns are better than the most recent 5 years, but it is still bad, and forecasts are negatively correlated to the realized returns (his words: *essentially useless*)
* Using Model 4 it continues the paper forecasting alpha for factors and smart beta strategies. He makes the following interesting considerations:
  + Factors were built essentially because of good past performance, but that does not mean they will continue to have good future returns
  + Trading costs matter – In the end of the paper they adjust the returns to account for trading costs. They estimate trading costs as a linear function of the notional invested/traded

**End Notes:**

* Cheap strategies can continue to get cheaper resulting in poor returns when their model projects high returns.
* Their volatility calculation is weird, using a weight scheme and a half-life exponential decay function to define the weights. The half-life used is 5 years. They explain that the reason for that is to give more weight to recent observations, but they don’t explain why they are using exponential decay.
* The low beta factor is very different from the BAB factor that we studied in class. The end notes mention that the BAB is hard to implement

**Summary:**

* The paper reinforces the importance of relative valuations to forecast alpha in factors and smart beta.