Problem set #1

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Download data for Koijen and Yogo (2019, "A Demand System Approach to Asset Pricing", *Journal of Political Economy*) here. The Stata data file Data.dta contains two quarters of data for 2007q4 and 2008q4. You may use any software package for this problem set.

The variables are

- fdate: Date
- mgrname: Manager name
- mgrno: Manager number (mgrno=0 for household sector)
- permno: CRSP stock identifier
- profit: Operating profit to book equity
- Gat: Log asset growth
- divA_be: Ratio of dividends to book equity
- LNprc: Log price
- LNshrout: Log shares outstanding
- LNbe: Log book equity
- LNme: Log market equity
- LNcfac: Log cumulative factor to adjust price
- beta: Market beta
- aum: Assets under management ($ million)
- Nholding: Number of positive holdings in the investment universe
- rweight: Dollar holding divided by dollar outside assets
- LNrweight: Logarithm of rweight
- cons: Mean of LNrweight

- bin: Bin for grouping institutions
- IVme: Instrument for log market equity
- LNretA: Log annual return
- LNretdA: Log dividend return

1. Report at least three facts about institutional portfolios. Explain how each of these facts is or is not surprising from the perspective of standard portfolio theory.

2. Read Section IV of Koijen and Yogo (2019). In 2007q4, estimate demand for the household sector (mgrno=0) and all institutions with at least 1,000 stock holdings (Nholding$\geq 1,000$).

   - Use the following characteristics: LNbe, profit, Gat, divA_be, beta.
   - Use the level estimator that takes the zero holdings into account.
   - Impose the constraint that the coefficient on LNme is smaller than one.

3. A standard calibration of mean-variance portfolio choice implies demand elasticities in excess of 5,000 (e.g., Petajisto 2009). What is the order of magnitude of actual demand elasticities estimated for institutional investors and the household sector?

4. Section II of Koijen and Yogo (2019) derives characteristic-based demand from standard portfolio theory with heterogenous beliefs. How would you reconcile the discrepancy between the theoretical and the actual demand elasticities that you found in the previous part?

5. What are the asset characteristics that households tilt toward relative to institutional investors?

6. Characteristics explain a modest fraction of the variation in portfolio holdings, implying that latent demand is volatile. Understanding the determinants of latent demand (e.g., institutional constraints, differences in beliefs, and additional characteristics) is an important research question. What are some other asset characteristics that you may want to add to the asset demand model?