Discussion of "Random Risk Aversion and Liquidity: a Model of Asset Pricing and Trade Volumes" by Alvarez and Atkeson

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BP Conference 2017

summary

- important puzzle: what drives massive volume?
- much research on rep agent models: no volume

  heterogeneous agent models with background risk,
  other hedging motives: quantitatively not enough volume

  here: tractable setup for volume implications, connects to valuation
- key mechanism: shocks to individual risk aversion

comments

- implications of 2 fund separation for volume – CAPM
- patterns in volume data – deviations from CAPM
  trading in individual stocks (not index), extensive margin
- alternative mechanisms: hedging demands, shocks to beliefs

tractable setup

- 3-period endowment economy with ex-ante identical households
- households receive shocks to their risk aversion in middle period
- incomplete markets: cannot insure risk aversion shocks
- distribution of risk aversion shocks depends on aggregate state
- gains from trade generate volume in middle period (nice formula!) depends on aggregate state
  average risk aversion affects pricing, also depends on aggr. state
- 2 key assumptions:
  - class of utility functions
  - how distribution of risk aversion shocks depends on aggregate state
- optimal taxation subsidizes trade in middle period

key assumption on utility functions

- Hara class with subsistence level τ, e.g.

$$\log(c+\tau)$$

low τ is high curvature, low risk tolerance

flip signs: risk aversion $1/\tau$ is high

- aggregation of individual behavior is Gorman:

asset prices in middle period depend on average risk aversion
e.g., price of stock index is low if average risk aversion is high

- individual behavior features 2-fund-separation

optimal portfolio has 2 assets: riskfree bond and stock index
weight on stock decreases with individual risk aversion

$\Longrightarrow$ nice formula for volume

$$\text{volume in stock index} = \frac{1}{2}\sum \left| \frac{\tau - \overline{\tau}(z)}{D_1(z)/\gamma + \overline{\tau}(z)} \right| \mu(\tau \mid z)$$

key assumption on risk aversion aversion distribution

conditional on bad times
(captured by aggregate state z in middle period)

- high average risk aversion depresses price of stock index in $t = 1$
- high dispersion in risk aversion increases volume in $t = 1$
- countercyclical mean and standard deviation of risk aversion shocks
- asset prices are low when volume is high $\Longrightarrow$

  econometrician finds: volume is priced factor
- volume predicts high returns

implications of 2 fund separation

- suppose data is generated by this model
- households in middle period only trade riskfree bonds and stock index (claim on aggregate stock market)
- volume should consist of trades in aggregate stock market: share turnover should be the same for all stocks in the index
- weekly data from NYSE and AMEX on individual stock volume
- principle component analysis of volume should find single factor
- empirical evidence in Lo and Wang (2000)
  depends on detrending
  1st principal component explains 60% of turnover growth,
  add 2nd principle component, explain 90%,
  strongly reject 1 factor model

why is 1-factor structure of volume rejected?

massive volume by institutional investors in individual stocks, profitable but not proportional to index

- momentum strategies buy winners (i.e. stocks that appreciated over last 6 months), sell losers
- value strategies buy stocks that are cheap relative to earnings
- much trading is at the extensive margin (Yu 2015)
  large fraction of trades sell all the holdings of a particular stock

volume by individual investors in individual stocks, not profitable

- buy Glamour stocks that are in the news
- familiarity matters: home bias, employees hold stocks of their company,customers of utilities hold their stocks

alternative mechanisms to generate more factors in volume

- hedging demands destroy 2-fund separation, Lo and Wang 2006:

  state variables that move around expected returns on assets
  form hedging portfolios that condition on these state variables

- shocks to beliefs about individual stocks

  distribution of shocks to optimism about individual stocks:
  institutional investors buy Apple today, Google tomorrow
  not proportional to index

- both mechanisms generate more flexible volume patterns