Discussion of

“Banks’ Risk Exposures”
by Juliane Begena, Monika Piazzesi
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Outline

1. Summary of the method in the paper with interpretation
2. Some comments/critiques
3. What would we like to know?
1. Summary of the method

1. Affine bond pricing model. Prices bonds: Equations:
   - Specify assets in replicating portfolio, estimate time series dynamics
     \[ f_{t+1} \sim \mathcal{N} \left( \mu (f_t, t), \sigma_t^2 \right) \]
   - Estimate current risk-free rate as a function of \( f_t \) and expectation and risk price for credit-risky rate
   - Guessing replicating portfolio weights for different horizons, iterate forward through the yield curve
Method

2. Calculate market value of bank assets as reported in the call reports
   – Short term assets, market value ≅ face value
   – Loans, observe binned by maturity, price as if bonds with credit ratings determined by risk weights
   – Securities: use maturity bins, price as if zero coupon bonds with credit ratings determined by risk weights
   – Trading assets: assume average maturity is like the other assets not held for trading
   – Liabilities priced as (short) riskless bonds
   – Interest rate swaps held for trading: netted out, so net value only from (half) bid ask spread, gross value is sum of |fair value|
   – Interest rate swaps held speculation/hedging: priced off average maturity and direction inferred from gross fair value to net notional, model for pricing cash flows, statistical model for likelihood of changes from previous period
Method

3. Plot exposures over time: JP Morgan Chase
2. Some comments/critiques

1. Why replicating bond portfolio?
   - Discipline of affine term structure – similar maturity cash flows have similar payoffs; most assets bonds
   - Some constraints: bonds may not span return on bank assets; method assumes SDF exact
   - Probably better than binomial tree methods

2. Method separated bank behavior, eg. rebalancing
   - Fees etc, cost cutting, debt management etc.
Comments

3. Some of the method is frustratingly indirect because of lack of precise data
   – Solution 1: Bayesian inference
   – Solution 2: Have OFR subpoena the information
4. Normality not so good given interest in crises
   – ZLB surely invalidates late in sample
5. Paper about insolvency not illiquidity
6. First pass: too few factors, but maybe only a small number
3. What would we like to add?

- How or whether a bank will change its position when the state changes
  
  - E.g. how does a bank that looks like it has a significant risk of insolvency in one year without a change in its portfolio change its portfolio?
  
  - This paper is an input that was previously missing
  
  - “Management” in CAMELS

- S in CAMELS, how bank’s positions affect risk exposures of given assets