Discussion of

Futures Prices as Risk-Adjusted Forecasts of Monetary Policy

Piazzesi and Swanson

Charles L. Evans
Federal Reserve Bank of Chicago

\[ f_t^n = E[r_{t+n}|\Omega_t] \]

\[ f_t^n - r_{t+n} = \alpha + \gamma'X_t + w_{t+n} \]
Markets Expect Accommodation to Continue

Expected federal funds rates from futures markets
(percent)

- 2.25
- 1.75
- 1.25
- 0.75

7/03 9/03 11/03 1/04 3/04 5/04 7/04 9/04 11/04

- 8/1/03 -- prior to “considerable period”
- 9/8/03 -- after add of “considerable period”
- 2/5/04 -- after substitution of “patient”
- 1/15/04 -- prior to “patient”
- 3/1/04 -- more recent
What is $E[r_{t+4}|\Omega_t] - r_{t+4}$?

1. Structural VAR system
   $$GZ_{t+4} = HZ_{t+3} + \varepsilon_{t+4}$$

2. Reduced form VAR system
   $$Z_{t+4} = AZ_{t+3} + C\varepsilon_{t+4}$$

3. Fed Funds equation
   $$r_{t+4} = \delta'AZ_{t+3} + \delta'C\varepsilon_{t+4}$$
   $$= \delta'A^4Z_t + \delta'A^3C\varepsilon_{t+1} + \delta'A^2C\varepsilon_{t+2} +$$
   $$\delta'AC\varepsilon_{t+3} + \delta'C\varepsilon_{t+4}$$

4. Excess Return
   $$E[r_{t+4}|\Omega_t] - r_{t+4} = -\delta'A^3C\varepsilon_{t+1} - \delta'A^2C\varepsilon_{t+2} -$$
   $$\delta'AC\varepsilon_{t+3} - \delta'C\varepsilon_{t+4}$$

5. Empirical estimates
   $$f_t^4 - r_{t+4} = \alpha + \gamma'X_t + w_{t+4}$$
Empirical Results

\[ f_t^4 - r_{t+4} = \alpha + \gamma' X_t + w_{t+4} \]

1. Average excess returns = 57.5 basis points at four months

2. Excess returns are countercyclical (greater risk during recessions?)

3. Predictable components of excess returns:
   - Drop in payroll employment growth associated with positive excess returns
   - Increase in level of futures rate associated with positive excess returns (jointly)

But... Payroll employment data has been revised!
More Empirical Results

\[ f_t^4 - r_{t+4} = \alpha + \gamma' X_t + w_{t+4} \]

1. Real-time employment data also predictive
2. Future data are somewhat more predictive
3. Lots of other real data are predictive:
   - Nondurable consumption — Yes
   - Services consumption — No
   - Durables consumption — Yes
     * Lagged 6 months!
     * Nominal, too!
   - Manufacturing Capacity Utilization — Yes
   - Chicago Fed National Activity Index — Yes!
   - Inflation — No!
4. What about economic fundamentals? Structural shocks?
Candidate Economic Shocks

1. Solow-based measures of technology shock: (e.g., Basu-Fernald-Shapiro (2001))


\[ U(C_t, N_t) = \xi_t \frac{(C_t - bC_{t-1})^{1-\gamma}}{1 - \gamma} - \frac{N^{1+\phi}}{1 + \phi} \]

\[ \ln \xi_t = \rho(L) \ln \xi_{t-1} + \eta_{mrs,t} \]

\[ \frac{\xi_t (C_t - bC_{t-1})^{-\gamma}}{N_t^\phi} = \frac{1}{W_t} \]

\[ \ln \xi_t = \phi \ln N_t - \ln W_t + \gamma \ln [C_t - bC_{t-1}] . \]
More Empirical Results

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