

Discussion of Carlstrom, Fuerst and Paustian's

"Optimal Monetary Policy in a Model with
Agency Costs"

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Excellent paper!

- Features of the model

1. NK core

2. **Two-input** economy: constrained (L) + unconstrained labor (u)

3. **Hold-up constraint** for entrepreneurs

$$w_t L_t \leq \underbrace{e_{t-1}(Q_t + D_t)}_{\text{net worth}}$$

Idea of **hold-up constraint**

- Entrepreneurs add **inalienable** human capital to the production process
- Labor supplier knows that entrepreneur can **hold up** production by choosing not to provide human capital
- Requires collateral to be provided in advance

First order condition on constrained input

$$\underbrace{\left(\frac{U_{L,t}}{U_{C,t}} \right)}_{MRS_t} = w_t = \frac{Z_t}{1 + \phi_t} MPL_t$$

Notice: two **time-varying** wedges

1. Real marginal cost (inverse markup): $Z_t \rightarrow$ Tax analogy (Goodfriend and King, 1997)
2. Shadow value of one unit of (constrained) labor: ϕ_t

$\rightarrow$ Interpretation: "**risk premium**" on a one-period loan

Insights for **optimal** policy

1. Price stickiness and financial distortion may conflict
2. Role for **stabilizing financial premium** (over and above inflation and output gap)

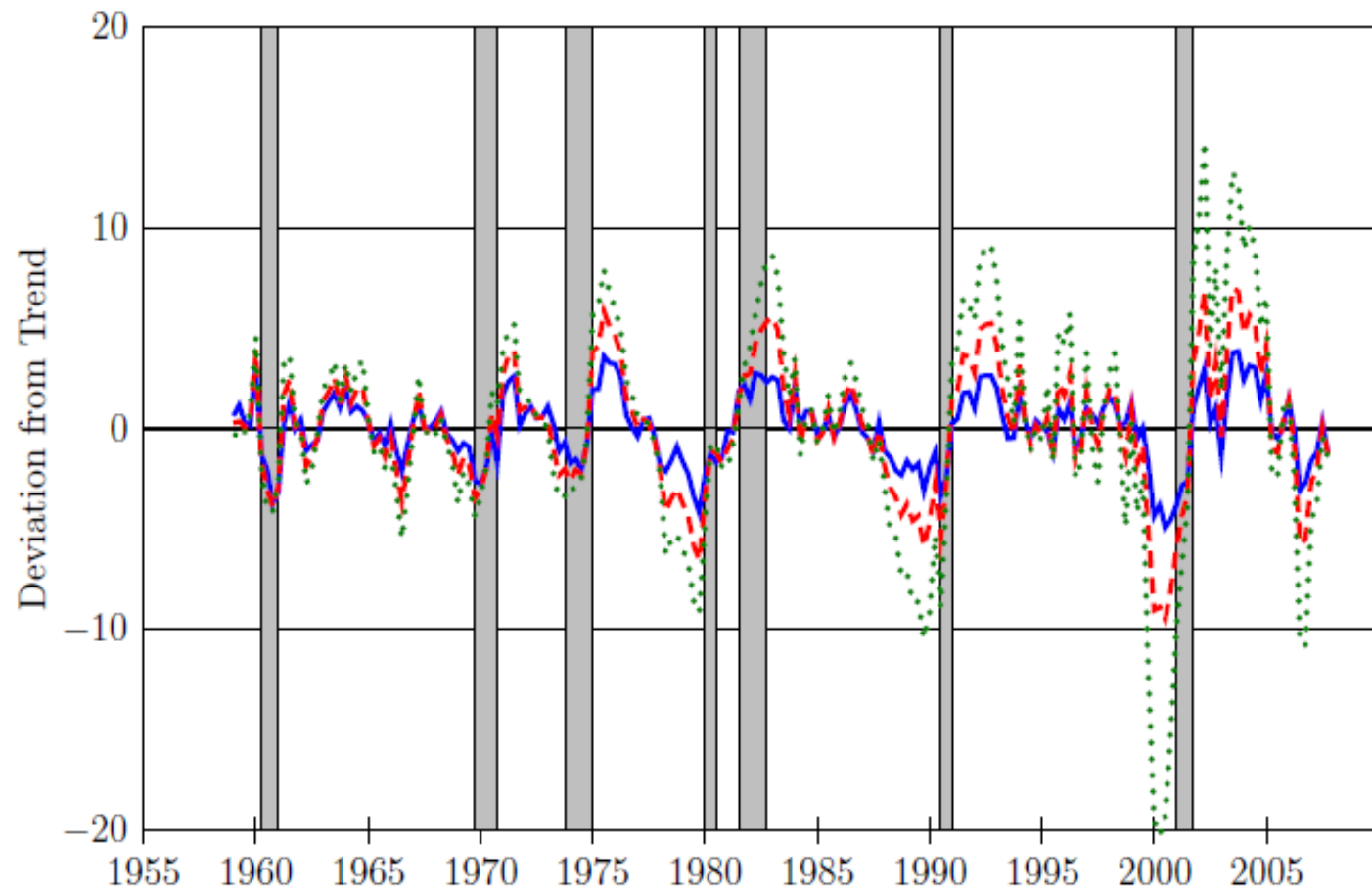
$$L_t = -\frac{1}{2} \left[\left(\frac{\varepsilon - 1}{\lambda} \right) \pi_t^2 + (\sigma + \theta) x_t^2 + \underbrace{\frac{\alpha(1 - \alpha)}{1 + \theta} \phi_t^2}_{\text{finance premium}} \right]$$

Intuition

- Want to get the right **composition** of output
- Analogy with **two-sector** model with differential price stickiness
- Special case: productivity shocks with $\sigma = 1 \rightarrow \phi_t$ constant $\rightarrow$ Flex price equilibrium efficient

Intriguing: financial frictions affect **labor wedge** (Shimer 2009)

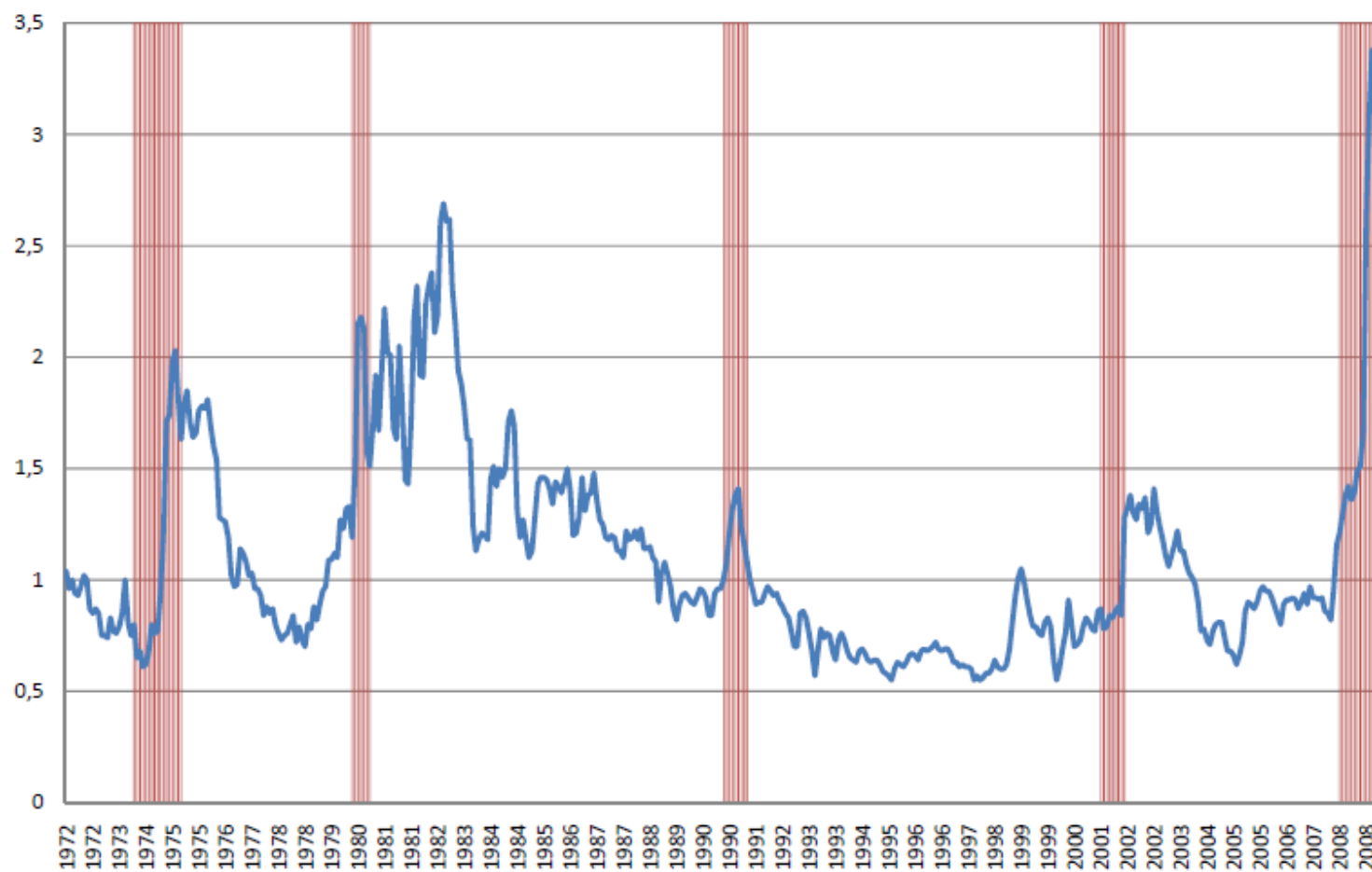
$$L \text{ wedge} \equiv \frac{MPL_t}{MRS_t} = \frac{1 + \phi_t}{Z_t}$$

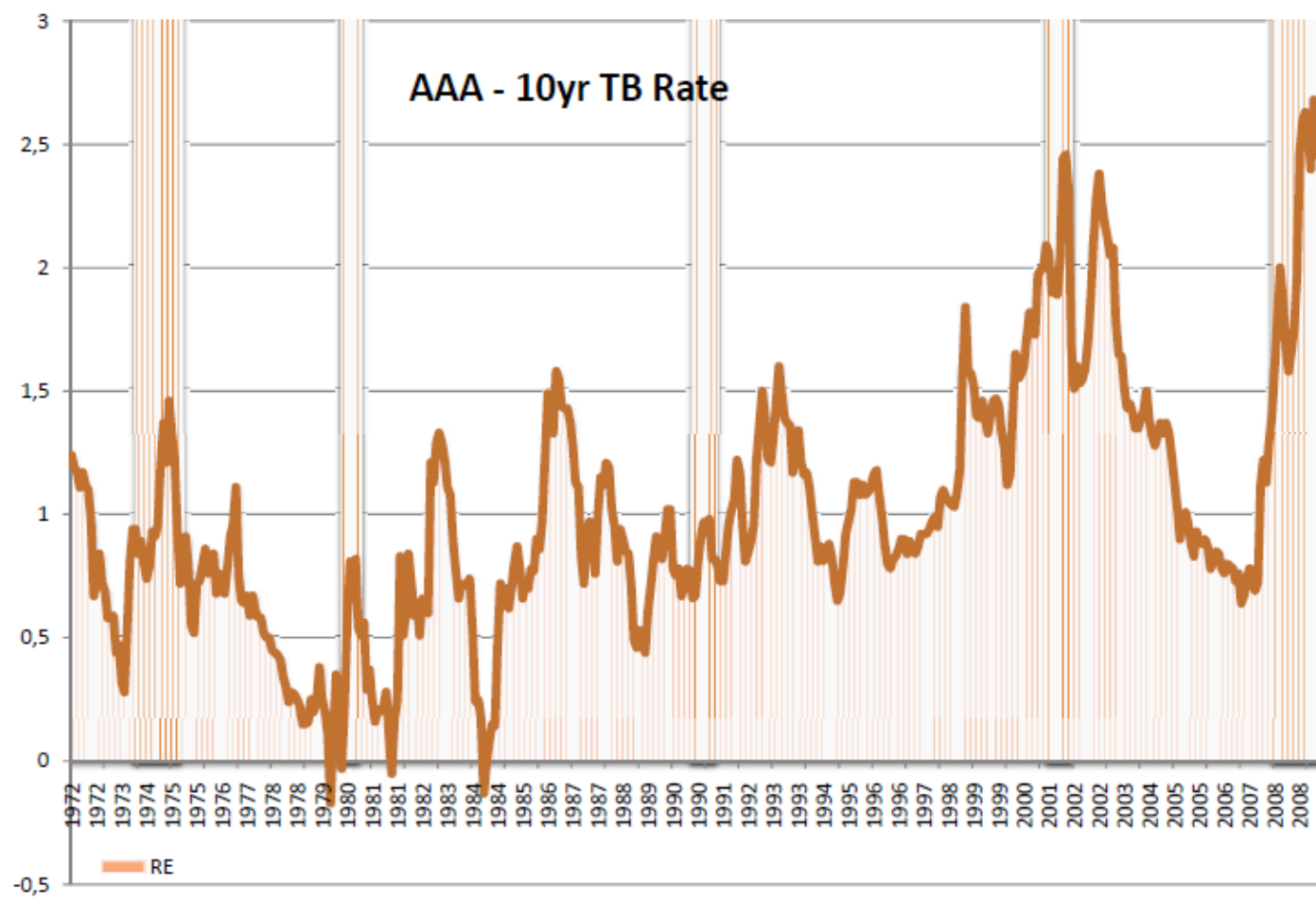


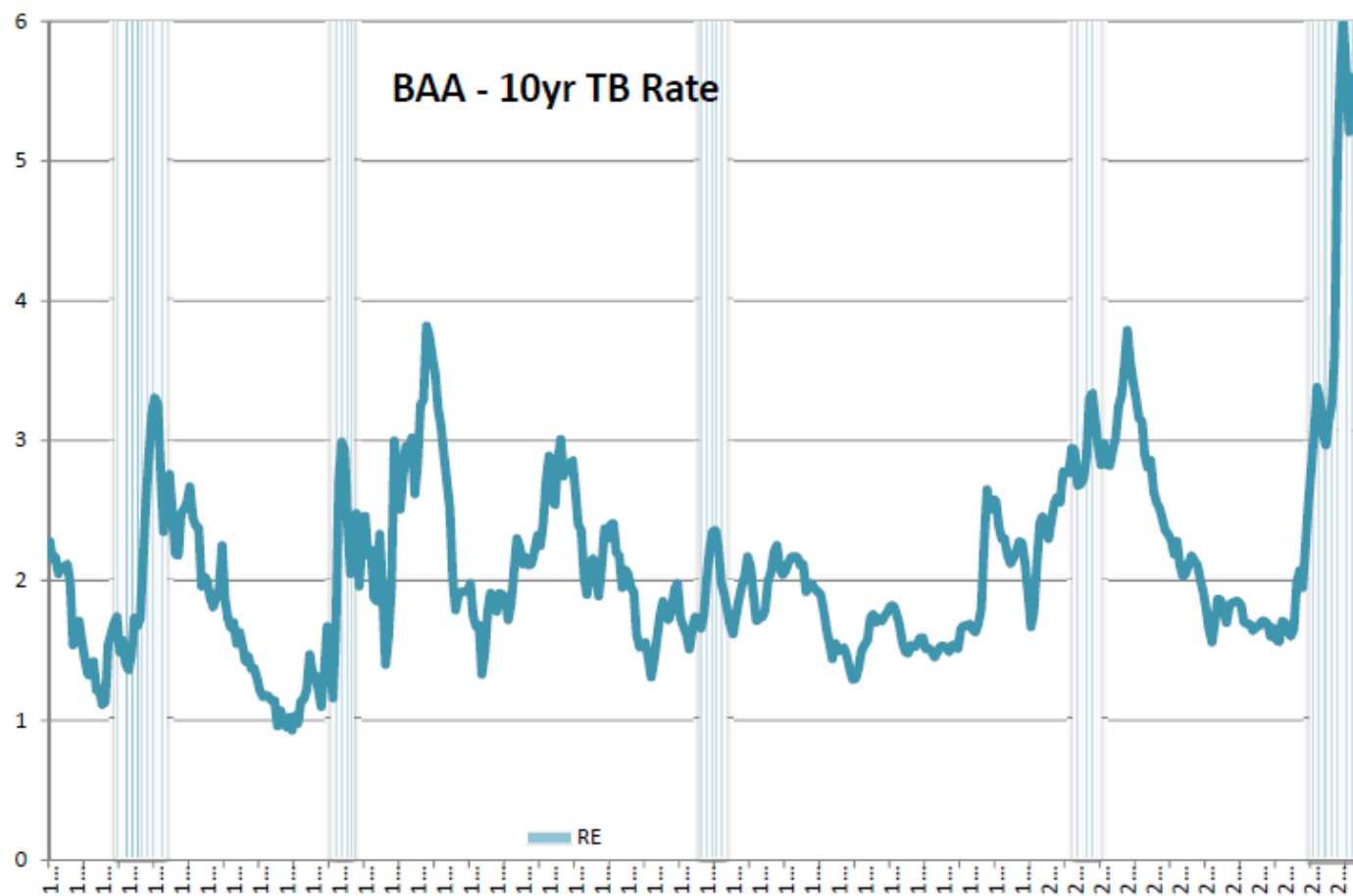
US Labor Wedge - deviations from trend, HP filtered data (source Shimer 09)

- Wedge **countercyclical**
- Need risk premium to **rise** in recessions (plausible)

BAA - AAA Spread

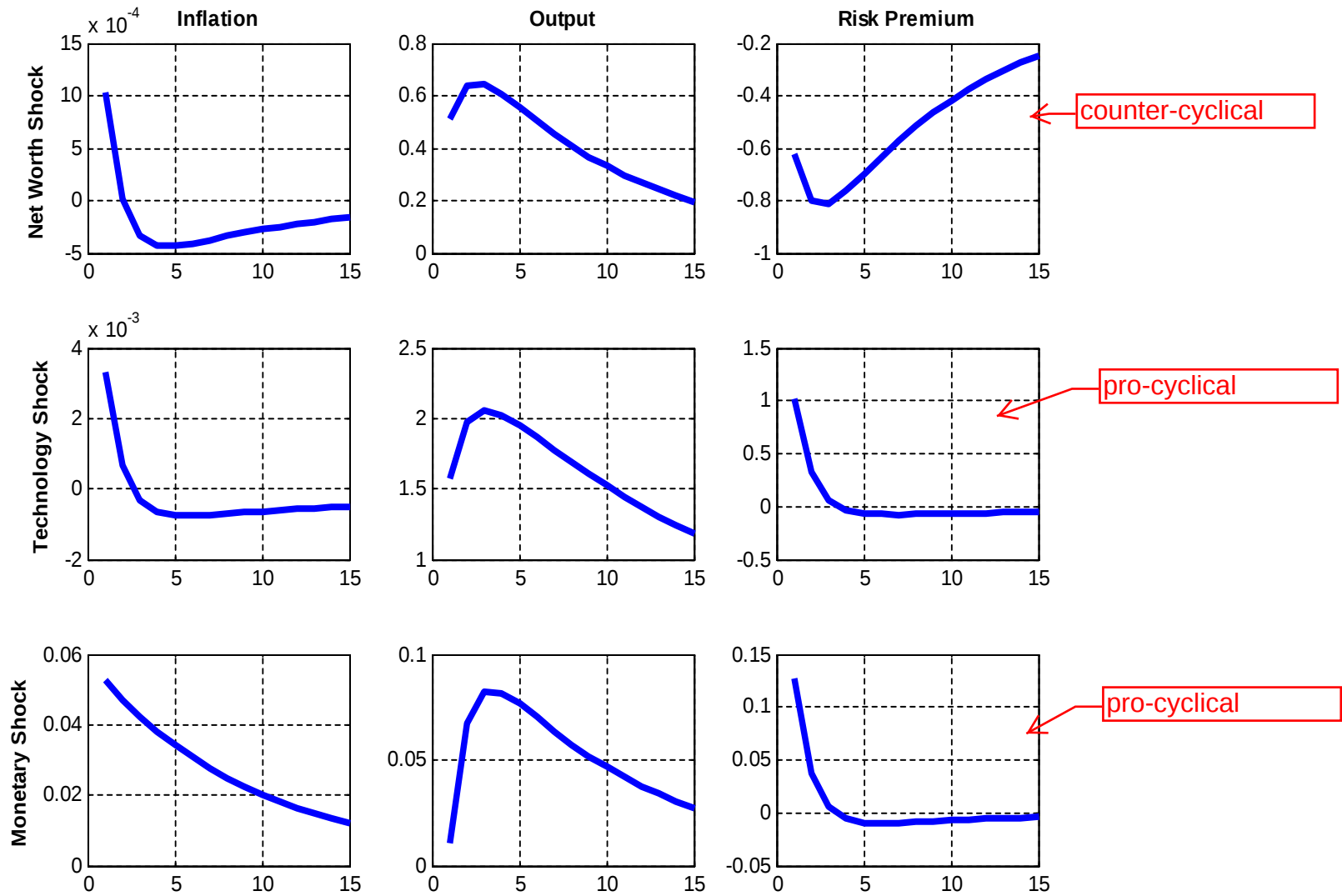






Risk premium in CFP model?

CFP Model



Risk premium in CFP model

1. **Pro**-cyclical conditional to (i) **productivity** and (ii) **monetary** shocks
2. **Counter**-cyclical conditional to **net worth** shocks

- Why "**risk premium**" **rise** in a productivity-driven boom?

↑ productivity → efficient for firms to produce more → ↑ labor demand → ↑ shadow value of additional unit of (constrained) labor

- Typical feature of credit-frictions economies if the financing of **flow** of one **production input** is constrained
- Analogy with **investment** and **Tobin's q** (rises in a productivity boom)

- Can we generate a **counter-cyclical** premium conditional on all shocks?
→ **Alternative model**

1. NK core

2. Heterogenous impatience rates: → borrower/saver

3. Credit

4. "Ability to pay" constraint

Borrower's problem

$$E_0 \sum_{t=0}^{\infty} (\gamma)^t U(C_t, N_t) \quad \underbrace{\gamma < \beta}_{\text{impatience}}$$

$$-\lambda_t [P_t C_t + R_{t-1} B_{t-1} - B_t - W_t N_t - T_t]$$

$$-\lambda_t \Phi_t \underbrace{[R_t B_t - (1 - \chi) E_t \{W_{t+1} N_{t+1}\}]}_{\text{ability to pay constraint.}}$$

→ Pseudo-Euler condition

$$U_{c,t} = \gamma E_t \left\{ U_{c,t+1} \frac{R_t}{\Pi_{t+1}} \right\} + U_{c,t} \Phi_t R_t$$

→ In log-linear terms

$$c_t = \frac{\gamma}{\beta} E_t c_{t+1} - \left\{ \frac{\gamma [1 + \beta - \gamma]}{\beta} \left(r_t - [1 + (\beta - \gamma)]^{-1} E_t \pi_{t+1} \right) + \underbrace{\left(\frac{\beta - \gamma}{\beta} \right) \phi_t}_{\text{finance premium}} \right\}$$

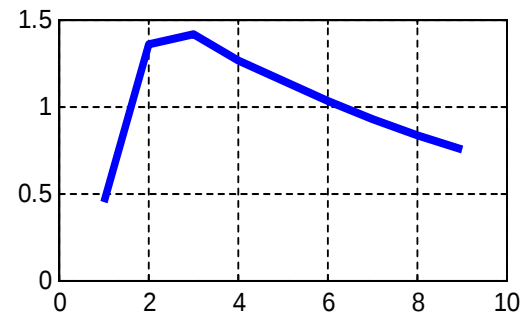
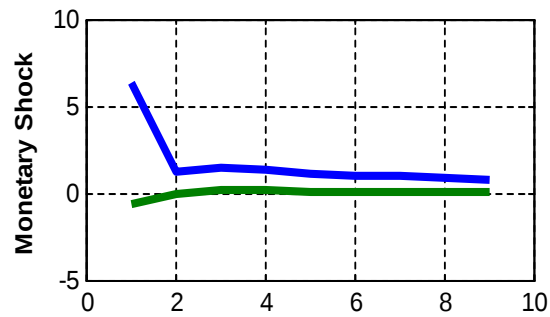
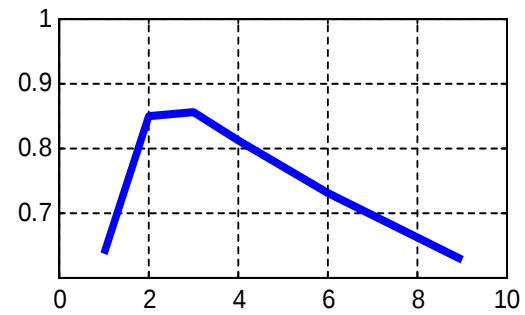
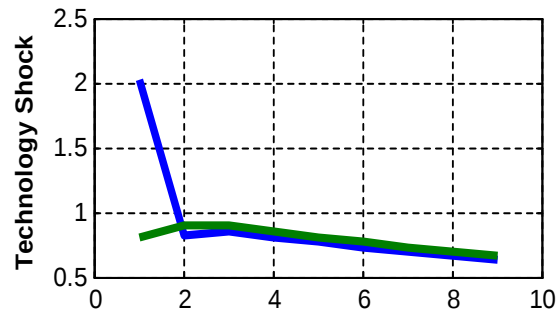
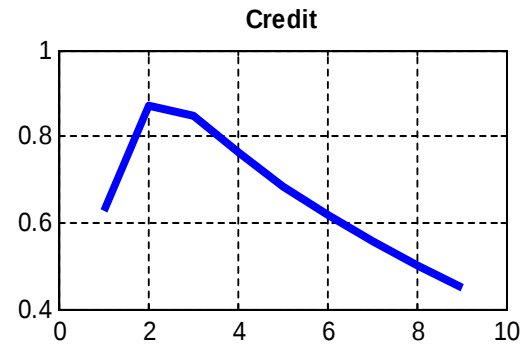
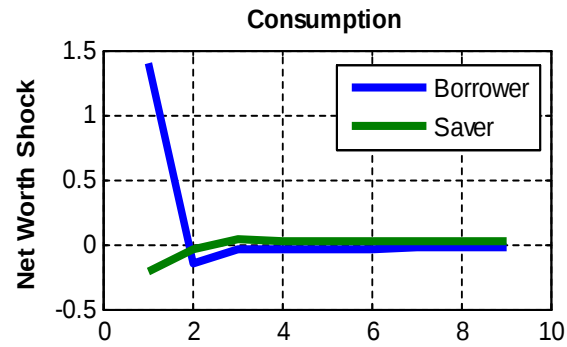
- Finance premium always counter-cyclical

- Additional insights:

1. Acceleration on **consumption**

2. Procyclical **credit**

Ability-to-pay
model



Idea: finance premium is **shadow value** of borrowing

- $\uparrow$ Productivity $\rightarrow$ positive income effect for borrower
- Value of collateral rises $\rightarrow$ Collateral constraint relaxed $\rightarrow$ Finance premium falls
- Different from permanent-income agent: want to **increase** borrowing $\Longleftrightarrow$
Credit **pro-cyclical**

What CFP model does **not** have

1. **Credit / credit spreads** $\rightleftharpoons$ Risk

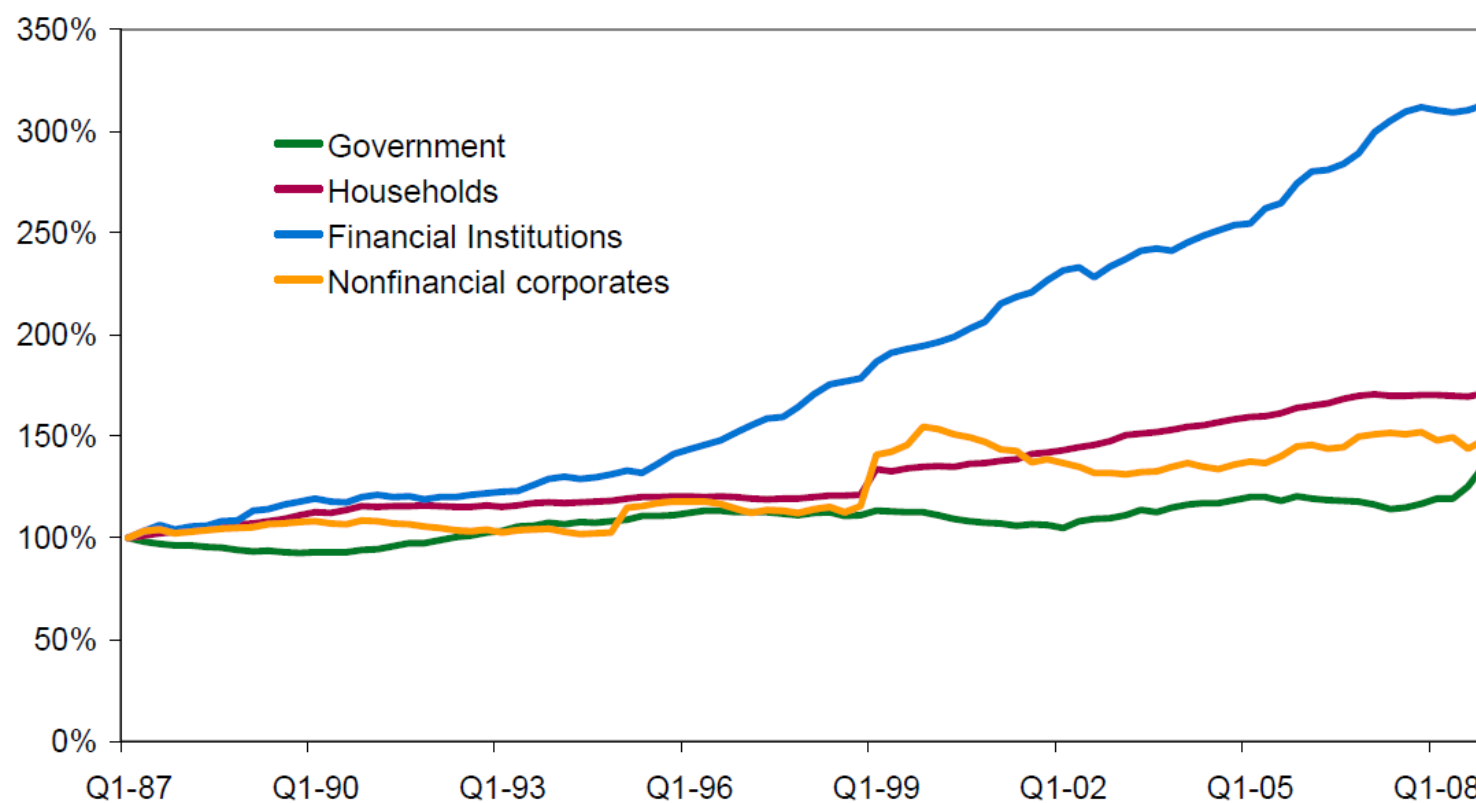
Both elements particularly important in pre and post crisis

- Typically models have no **credit rationing**
- Think about models with **intensive/extensive** margin of credit (analogy with labor search literature)

2. Credit and **financial intermediaries** → Current crisis: key role of **balance-sheets** effects of banks

Figure 1.3. Ratio of Debt to GDP Among Select Advanced Economies

(In percent, GDP-weighted, 1987 = 100)



Key element in the crisis: **liquidity** problem for "new" financial intermediaries

	Assets	Liabilities
traditional banks	long-term loans	deposits
"investment" banks	MBS	short-term debt

- Banks held **long-term** assets (e.g., MBS) financed via **short-term** debt (e.g., commercial paper) → Maturity mismatch

→ When things deteriorate it is the **liquidity** problem that matters

- Bad state

→ Financial conditions deteriorate

→ Lenders reduce exposure → Ask to service debt

→ Banks try to **fire sale** long-term illiquid assets

Hence **liquidity friction** at least as crucial as borrowing friction

1. Excessive borrowing is short-term

2. Is it "fire-sale per se" or is it "fire sale" of long-term illiquid assets"?

→ Requires modelling of:

(i) **Interbank** market

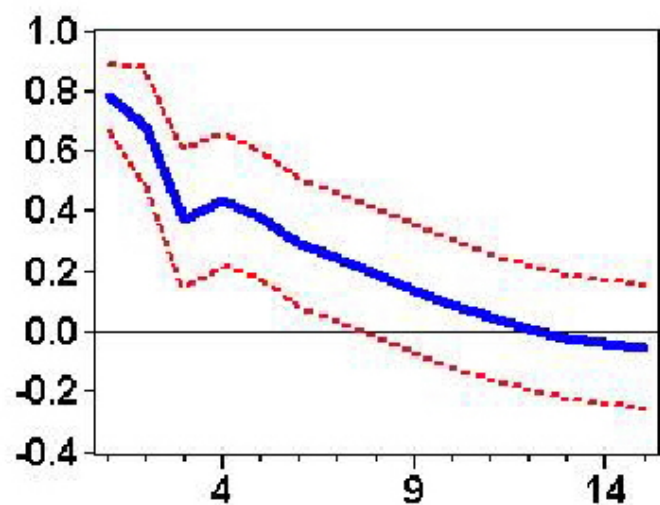
(ii) **Maturity** of assets

3. **Firms** vs. **households**: should we care?

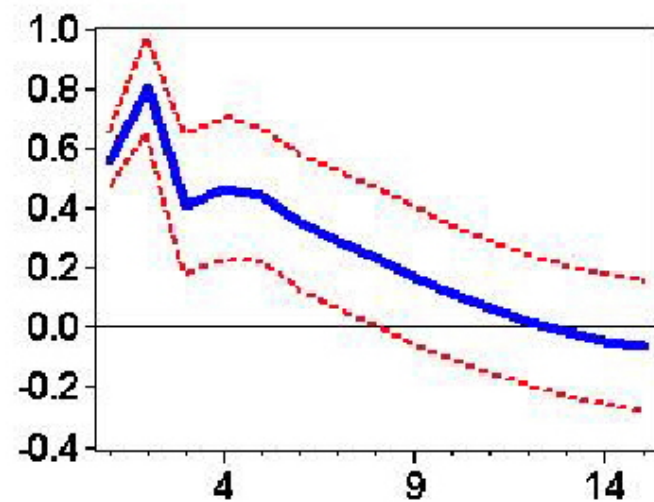
- C&I loans vs. household/mortgage loans
- **Mortgage/consumer** loans' rates significantly smoother than **prime rate** on **business loans**

(ii) Is it a matter of different **maturity/risk premia**?

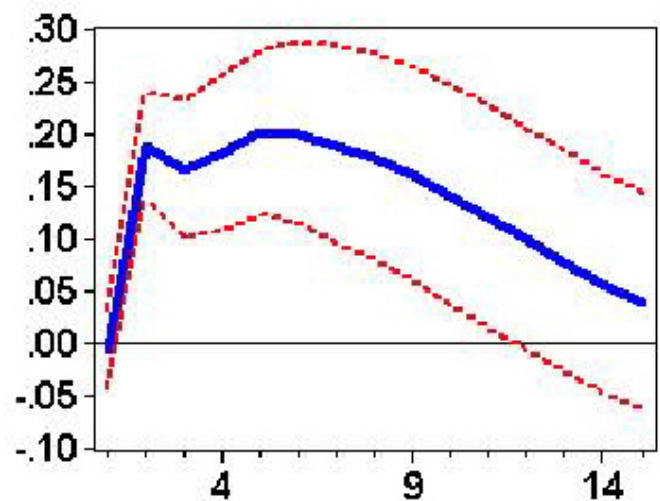
FED Funds Rate



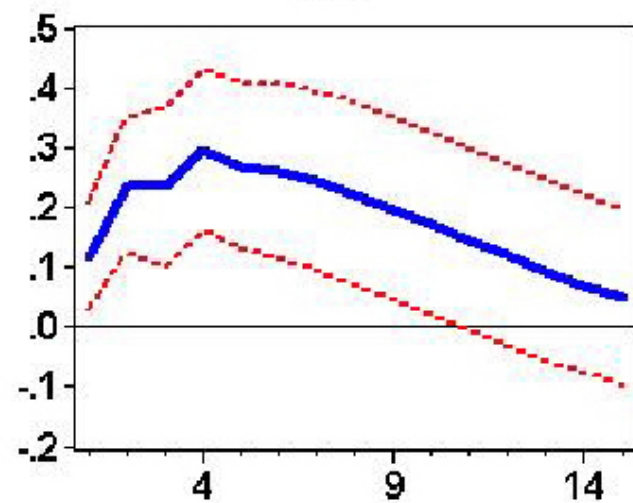
Bank Prime Loan Rate



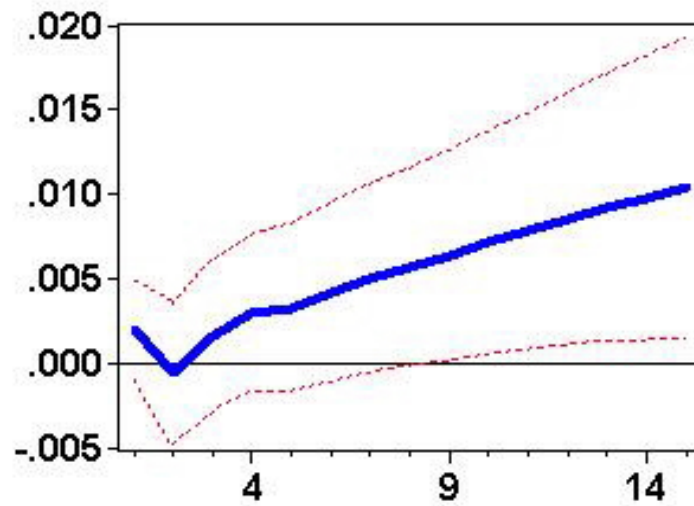
24-Month Personal Credit Rate



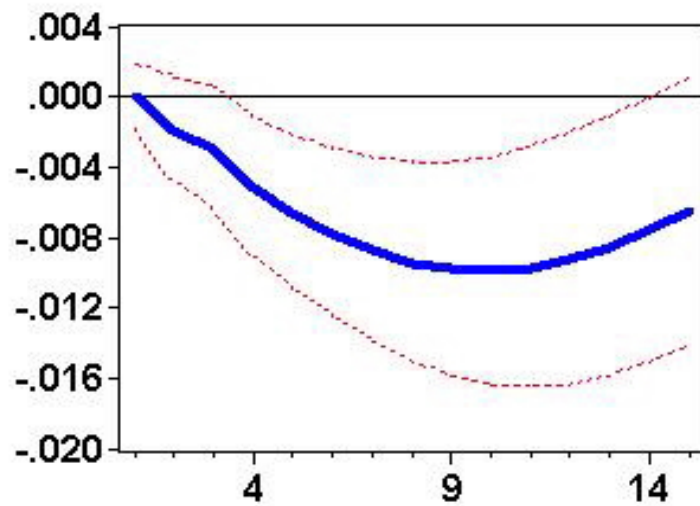
Mortgage Rate



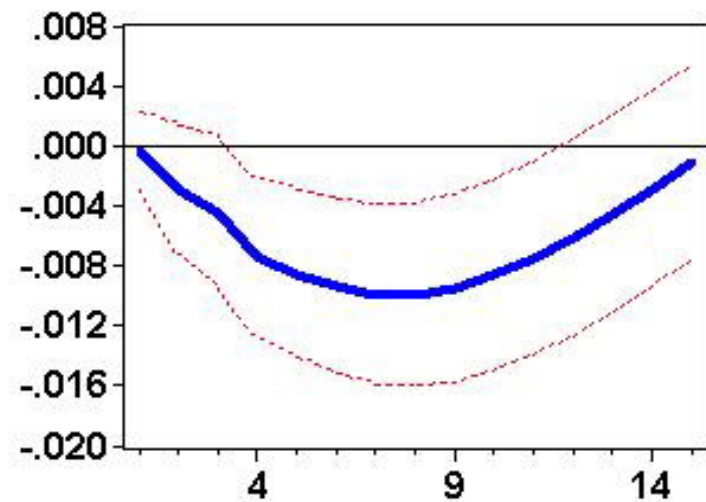
Commercial and Industrial Loans



Real Estate Loans



Consumer Loans



- Why higher (different) sensitivity of **residential/consumer** loans?

(i) **Stickiness** of mortgage/consumer rates

(ii) When interest rates rise → households perceived **more risky**

(iii) ↑ short term rates → banks substitute away from long-term assets (mortgages)

(iv) Households' balance sheets more sensitive to **asset prices**

4. **Default**

5. **Unemployment**: link asset prices → balance sheets → unemployment

(i) Output and unemployment losses more severe with **banking-related** financial stress

(ii) Is this relevant only in exceptional times?

6. **Heterogeneity** → Distributive motive for monetary policy/inflation

7. **Intertemporal** loan

(i) allow balance sheet effects to have intertemporal propagation

(ii) motive for optimal inflation volatility?

8. Constraint **occasionally binding** → exercise on rise of risk premia during crisis a bit heroic