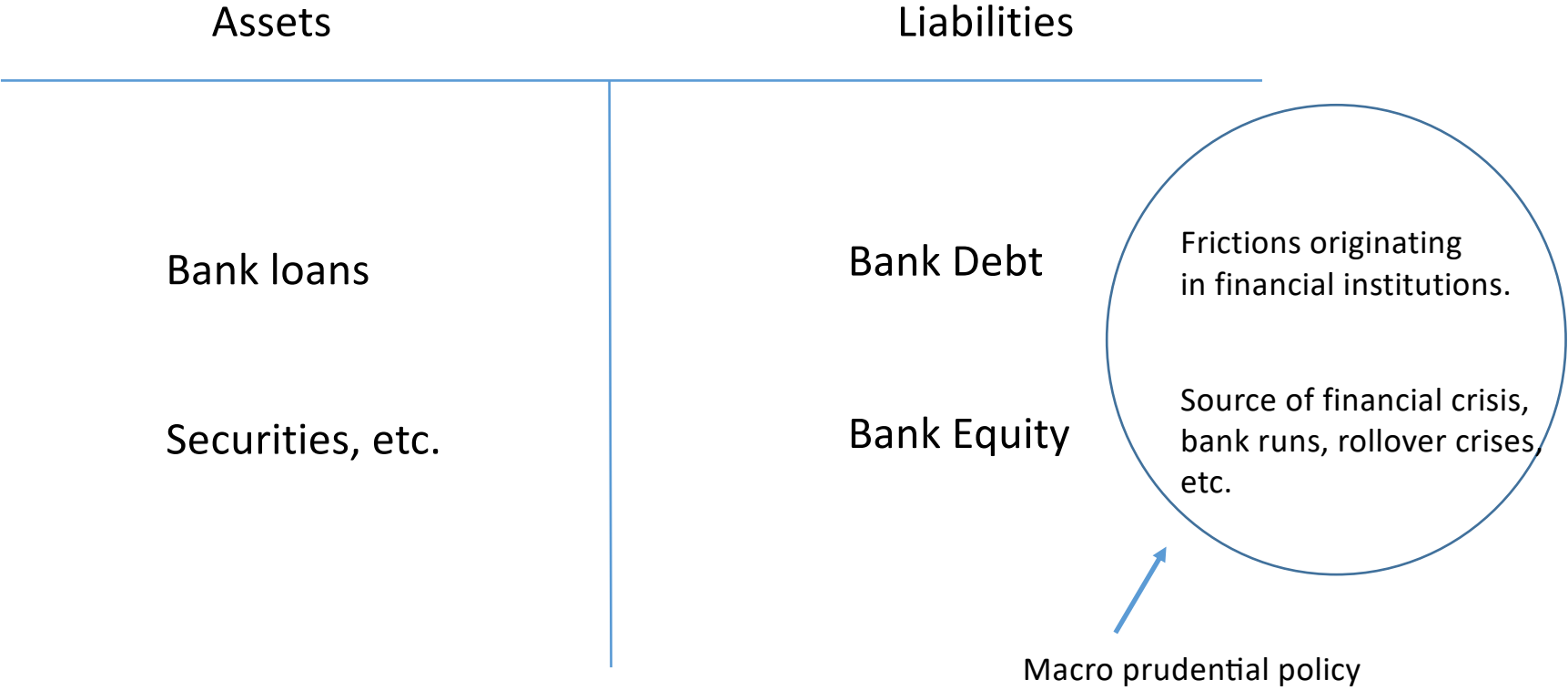


CSV Financial Frictions and
Business Cycles:
Summary of Christiano-Motto-
Rostagno AER2014

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Balance Sheet, Financial System



Balance Sheet, Financial System

Assets

Liabilities

Bank loans	Bank Debt
Securities, etc.	Bank Equity

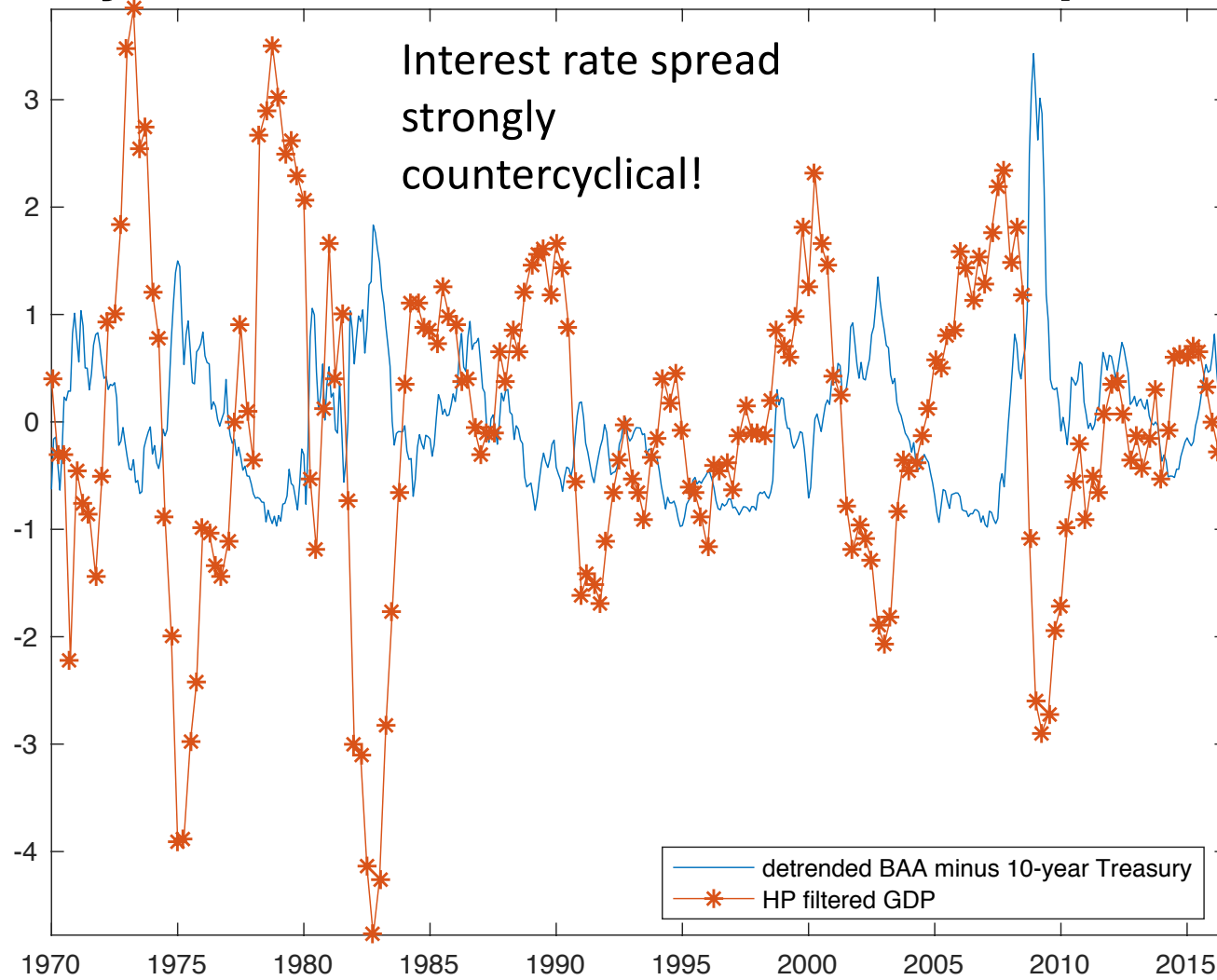
Financial frictions originating in non-financial sector.

Perhaps the primary friction in 'normal times', when macro prudential is under control.

Outline

- Financial frictions originating in non-financial sector.
- Provides a natural interpretation of business cycles when:
 - We adopt a particular model of financial frictions (BGG)
 - Incorporate a particular shock (Risk shock).

Cyclical Behavior of Interest Rate Spread



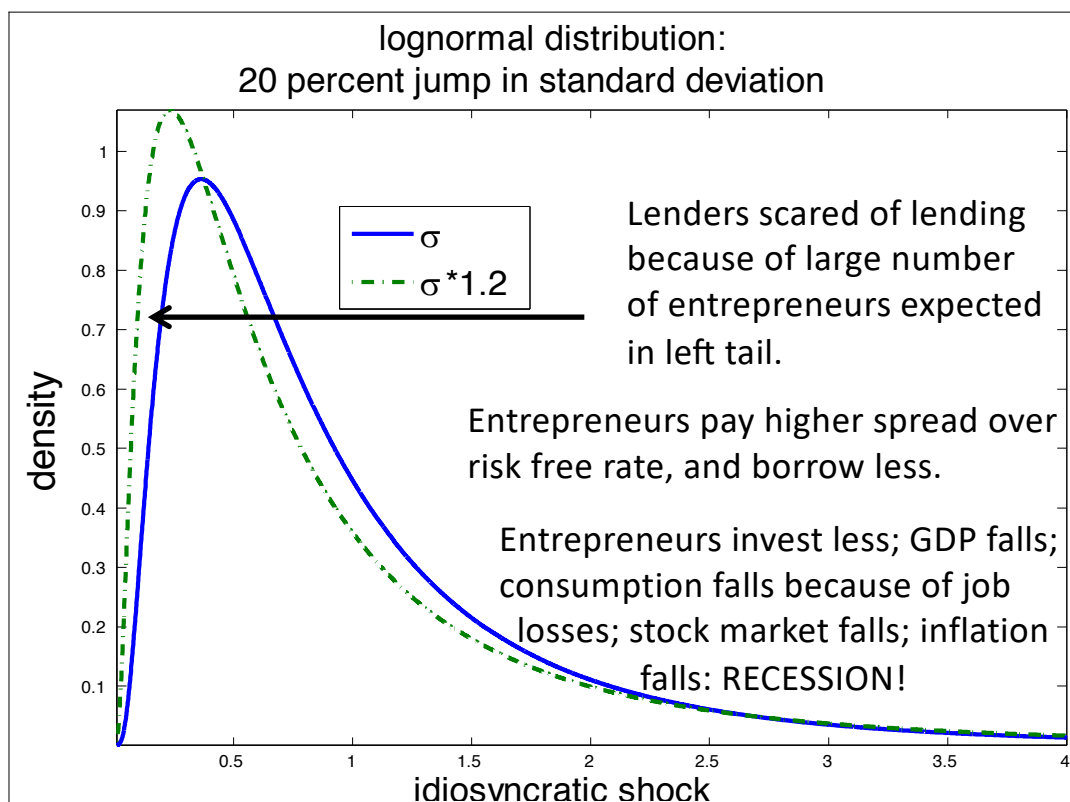
Counter-cyclical of Interest Rate Spread

- Consistent with the idea that rise in riskiness has something to do with recessions.
- Let's see where this idea takes us...
- Bernanke-Gertler-Gilchrist (1999) propose of way of thinking about an economy in which the interest rate spread reflects the riskiness of individual entrepreneurs (idiosyncratic risk).
 - Of course, interest rate spreads reflect other factors too, like liquidity premia....
- Adopt a twist on the BGG Model:
 - the riskiness of entrepreneurs can vary over time.
- Put this whole mechanism in a fully specified, medium sized New Keynesian DSGE model (Christiano-Motto-Rostagno (AER2014))
 - Estimate everything using Bayesian methods.

New Keynesian Model

- Built on top of a real business cycle model in which transactions are conducted in money.
- Model makes the assumption that markets work ‘pretty well’, but not perfectly.
 - Assume that prices and wages are slow to adjust to market conditions.
 - Basic intuition of the model is undergraduate IS-LM model with supply side.
- Will not describe the model in detail here.

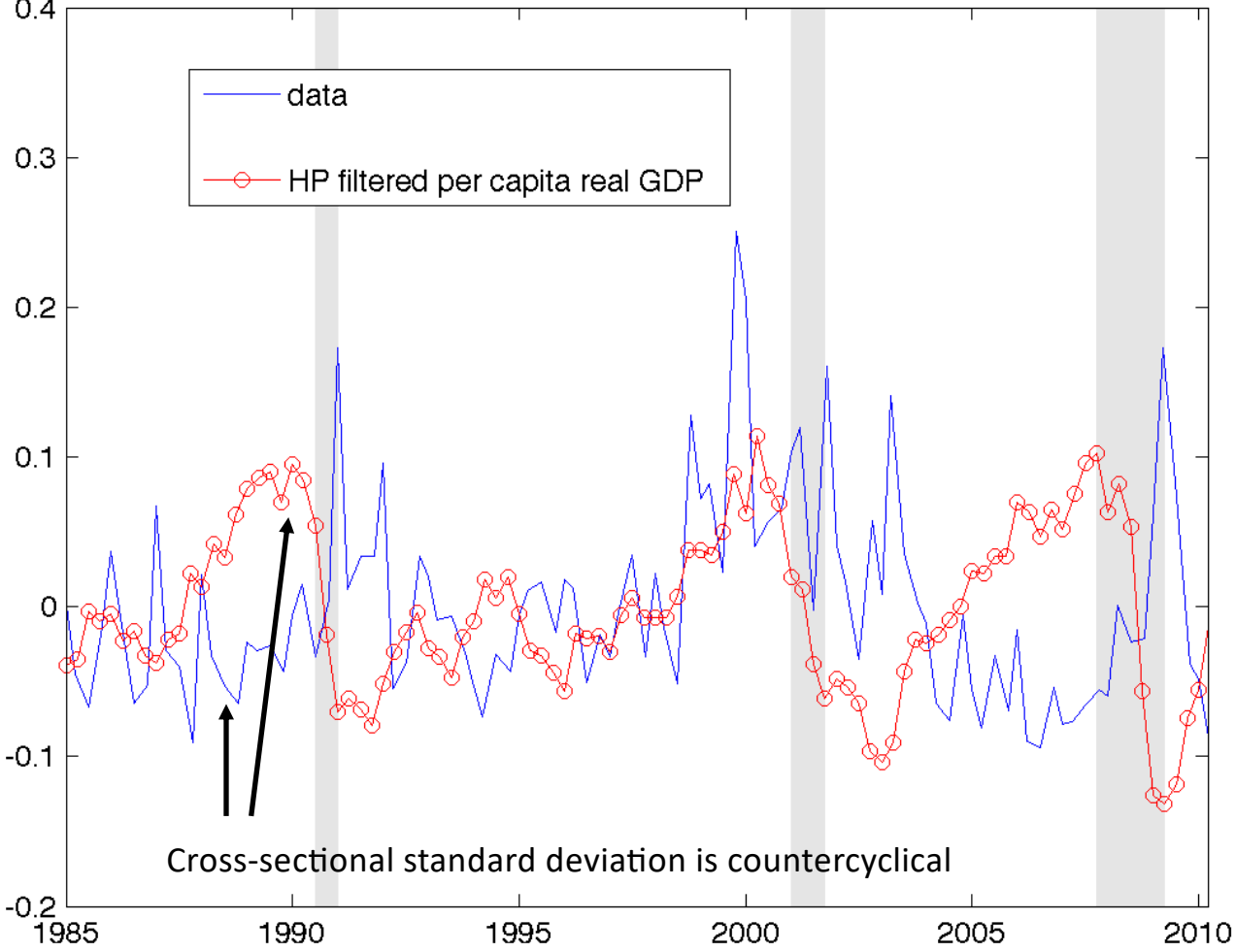
Economic Impact of Risk Shock



Is there direct evidence of greater cross-sectional risk in recessions?

- Yes
- Cross-sectional standard deviation of rate of return on equity.
 - Non-financial firms in Center For Research in Securities Prices (CRSP) data base.
 - Those data do show evidence of counter-cyclical.

Cross-sectional standard deviation, quarterly rate of return on non-financial firm equity, CRSP data



How Much of US Business Cycles Can we Explain with the Risk Alone?

- A surprisingly large amount.
- Estimation delivers:
 - Estimates of the risk shock.
- We ask:
 - What would the data have looked like if ONLY the risk shock had been active?

Estimation

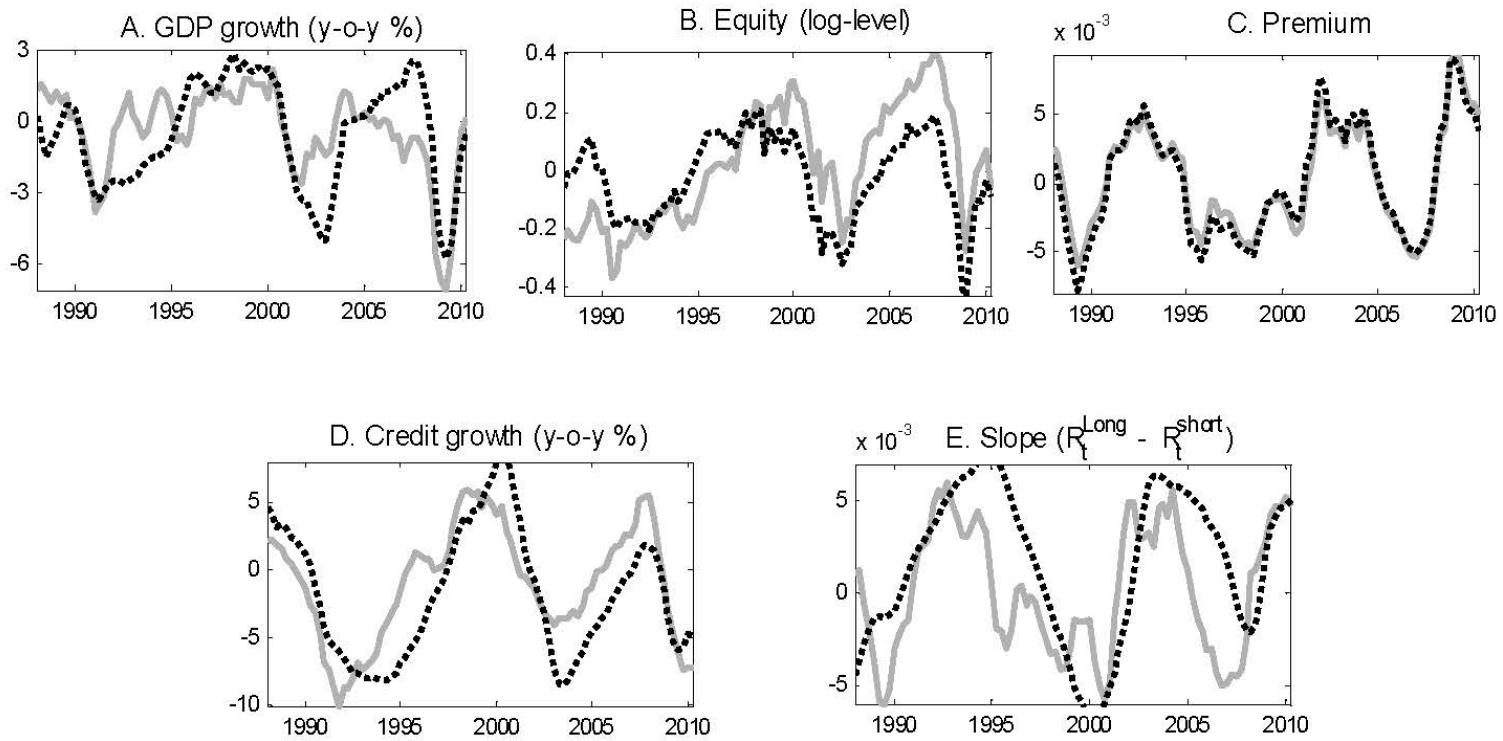
- A DSGE model, after linearization can be written like this:

$$x_t = au_t + bv_t, \quad y_t = cu_t + dv_t ,$$

- where x_t and y_t are endogenous (observed) variables (like GDP and employment) and the other variables are shocks.
- Bayesian estimation delivers estimates of the model parameters, $\hat{a}, \hat{b}, \hat{c}, \hat{d}$, and the variance of the shocks.
- Also, provides historical decomposition of the data into shocks:

$$x_t = \hat{a}\hat{u}_t + \hat{b}\hat{v}_t, \quad y_t = \hat{c}\hat{u}_t + \hat{d}\hat{v}_t .$$

Role of the Risk Shock in Macro and Financial Variables

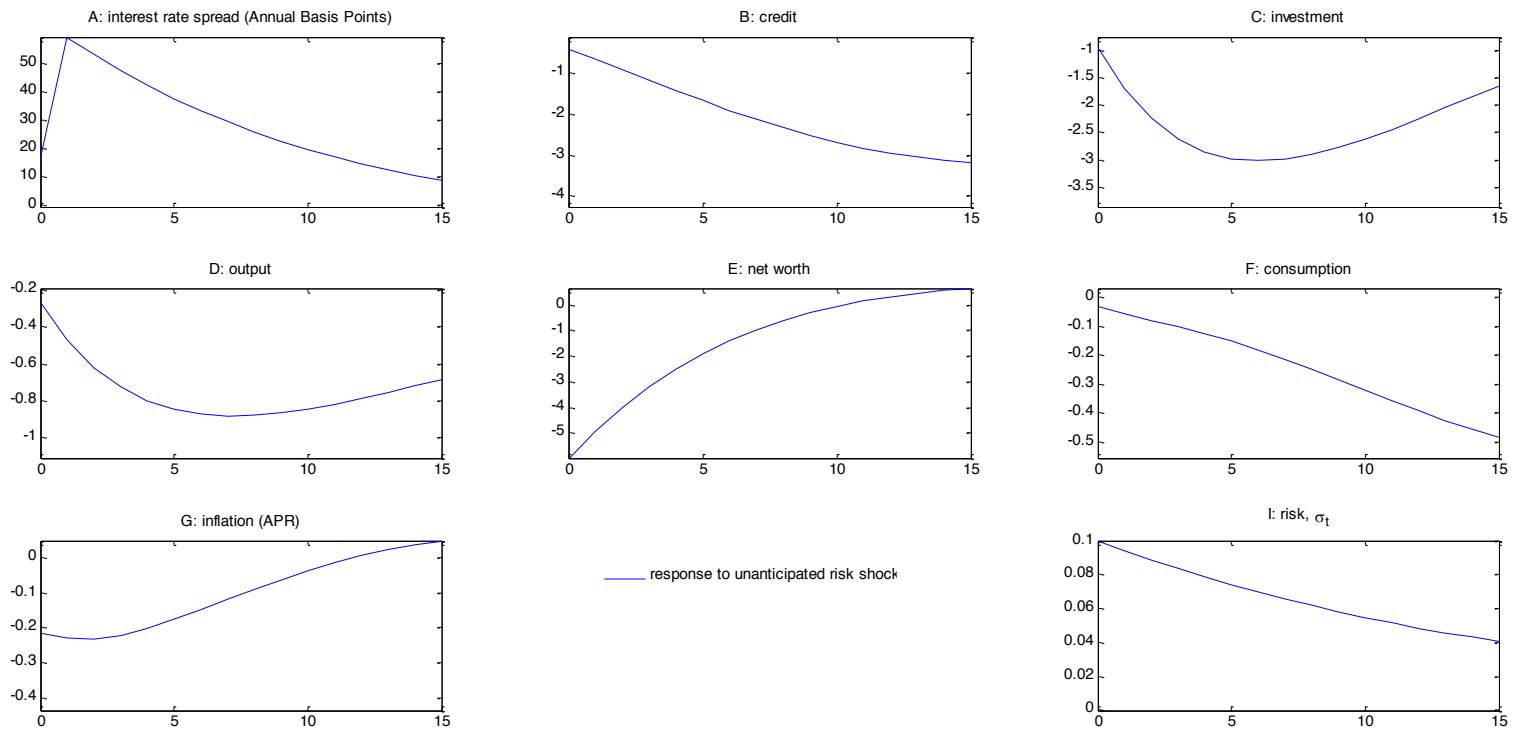


Notes: The grey solid line represents the (two-sided) fitted data. The dotted black line is the model simulations.

Why Does the Econometrics like the Risk Shock So Much?

- In part:
 - risk shock provides a straightforward interpretation of the countercyclical interest rate spread.
- Another reason:
 - The impulse response function to a contractionary risk shock looks a lot like a recession.

Figure 3: Dynamic Responses to Unanticipated and Anticipated Components of Risk Shock



Looks like a business cycle

What's the model good for?

- Can think about how monetary policy should respond to an increase in interest rate spreads (should cut rates).
- Can be used to understand why including credit growth and the stock market in a Taylor rule might be a good idea (see, Christiano, et al, Jackson Hole paper, 2010).
- Open economy version can be used to think about financial dimension of exchange rate depreciation (see Mihai Copaciu and Cristian Bulete, Central Bank of Romania).
 - Depreciation makes domestic goods cheaper and stimulates output.
 - Depreciation imposes capital losses on unhedged borrowers in foreign currency, causing them to cut back spending and reducing output.