Macroeconomics III - Ph.D.

Credit Market Imperfections: Introduction

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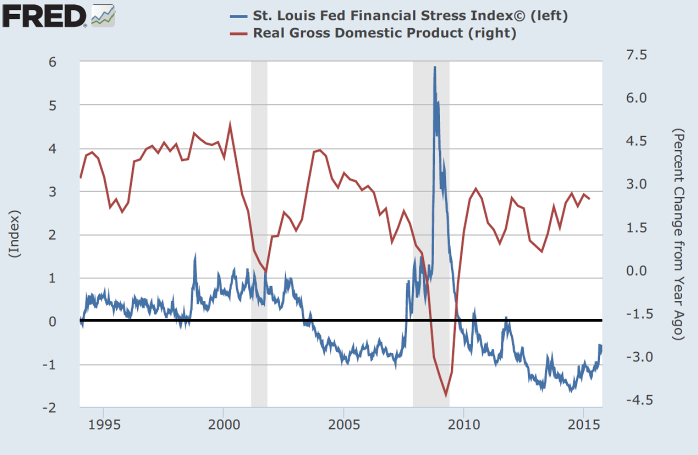
Financial conditions and economic activity



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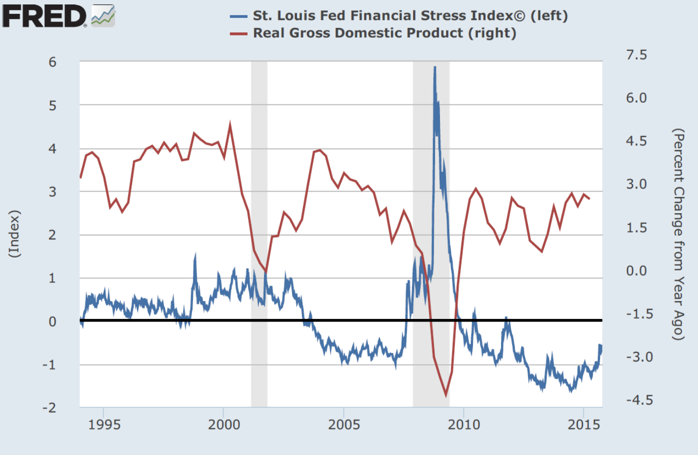

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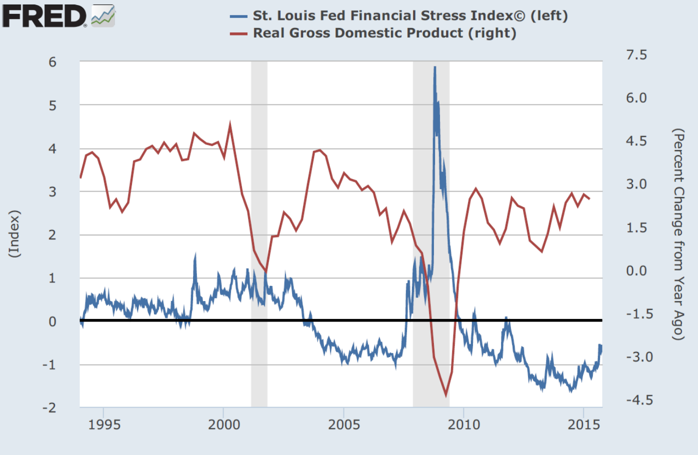

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Or do recessions cause tighter financial conditions?

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- What is the relevance of financial imperfections for macroeconomic fluctuations?
- Great Recession laboratory

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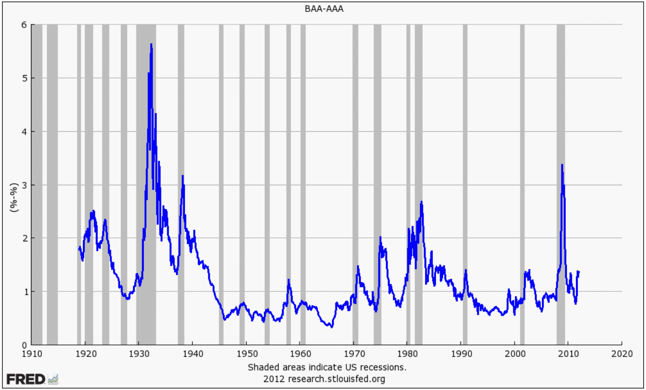
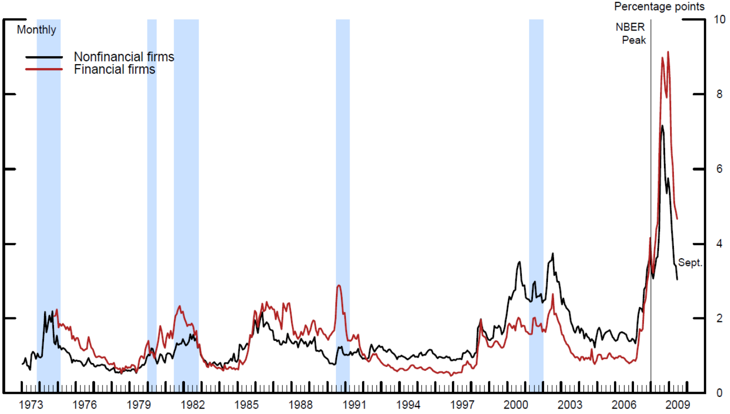
Credit spreads countercyclical

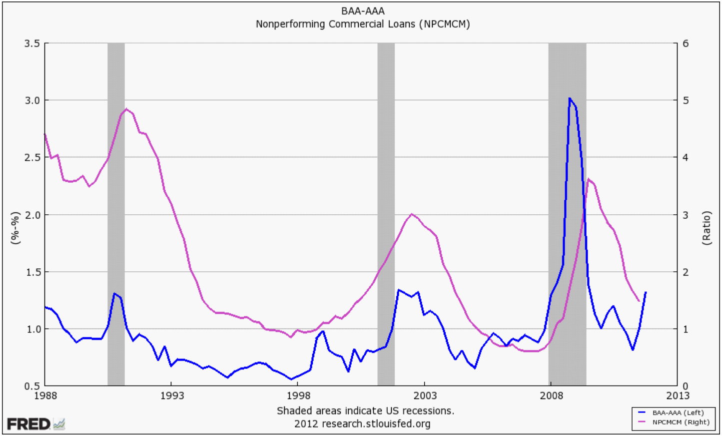


BAA-AAA spread on corporate bonds

Credit spreads on senior unsecured bonds



Deafult rate on loans soars during Great Recession



Standard neoclassical model

- No role for credit market imperfections (**complete** markets)

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2. No friction between consumers and firms

- Production of capital: **homogenous** output converted either into consumption or new capital goods
- **No intrinsic friction** between **firm** (supply output) and **household** (transforming output into K goods)

The (ir)relevence of the financial structure

- Firm has production function $y = F(x)$
- Requires external finance in the form of a **loan L** to buy input x
- Firm has internal wealth W

$$W + L = x$$

Case 1: perfect financial markets

- Firm will choose amount to borrow L:

$$\max \ F(W+L) - (1+r)L$$

- FOC

$$\underbrace{F_L(W+L)}_{\text{marg. cost of capital}} = (1+r) \tag{1}$$

- Amount of investment x (and hence output) depends on interest rate only
- Changes in firm's asset values do not affect ability to invest/produce
- Suppose W falls $\rightarrow$ L adjusts in order to satisfy (1)

Implications of perfect financial markets

1. No role for **credit** (to firms and/or households): distinction borrower/lender immaterial
2. Hence no role for **financial intermediaries**
3. No role for credit **spreads**

Case 2: imperfect financial markets

- Firm is only able to obtain a fully **collateralized** loan
- If firm has **assets** K with a price q:

$$\underbrace{(1+r)L \leq qK}_{\substack{\text{collateral} \\ \text{constraint}}}$$

Case 2: imperfect financial markets

$$\max \; F(W+L) - (1+r)L$$

$$s.t$$

$$(1+r)L \leq qK \tag{2}$$

- Suppose λ is Lagrange multiplier on (2)
- If (2) is **binding** then FOCs are:

$$F_L(W+L) = 1 + r + \lambda$$

$$L = \frac{qK}{(1+r)}$$

$$\lambda > 0$$

Finance premium

$$F_L\left(W + \overbrace{\frac{qK}{(1+r)}}^{L}\right) > 1 + r$$

1. Suppose $\downarrow \overbrace{qK}^{\text{collateral value}} \rightarrow \downarrow L \rightarrow \Uparrow F_L(\cdot) >> (1+r) \rightarrow \uparrow$ **finance premium** (λ)

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2. Suppose $\downarrow W$: since L given from credit constraint $\rightarrow$ $\Uparrow F_L(\cdot) >> (1+r) \rightarrow \Uparrow$finance premium $\rightarrow \downarrow x \rightarrow \downarrow y$

Financial frictions in macroeconomics I: based on informational asymmetry

1. **Costly state verification** (CSV)

- Borrower needs funds from lender to finance project.
- Productivity is **private information** to the borrower.
- Monitoring by the lender is **costly**

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2. **Moral hazard**
3. **Adverse selection**

Financial frictions in macroeconomics II: based on incomplete contracts

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- If borrower does not repay, human capital is inalienable (lender cannot physically "force" borrower to work in order to repay)
- Lender requires **collateral**

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2. Limited **enforcement**

- Borrowers can default on intertemporal contracts.
- If they do so they suffer some (partial) **punishment**

Excellent recent surveys

- Brunnenmeier, Eisenbach and Sannikov (2012)
- Quadrini (2011)
- Christiano and Ikeda (2012)