

Discussion of Gilchrist and Zakrajšek

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Federal Reserve Board

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Background

Gilchrist and Zakrajšek, AER 2011, decompose credit spreads in two components:

$$GZS = \widehat{GZPS} + EBP$$

where:

- GZS: Credit Spread of US nonfinancial corporations over Treasuries
- GZPS: Credit Spread reflecting default risk (measured using Merton's Distance to Default model)
- EBP: Excess Bond Premium (Residual)

What is the EBP?

- According to GZ, EBP measures changing risk attitudes of the marginal investors pricing corporate bonds.

$$\downarrow K_B \longrightarrow \uparrow \text{Risk_aversion} \longrightarrow \downarrow \text{Credit} \longrightarrow \uparrow \text{EBP}$$

- As their financial capital becomes impaired, they act in a more risk-averse manner. In bad times, reduction in their effective risk-bearing capacity leads to an increase in the excess bond premium and a reduction in the supply of credit available to potential borrowers — both within the corporate cash market and through other sources of external finance.
- GZ show that the excess bond premium fluctuates closely in response to movements in capital and balance sheet conditions of key financial intermediaries. For instance, it correlates negatively with measures of financial sector profitability.

What Does the EBP do?

- GZ show that positive shocks to the EBP lead to a persistent decline in economic activity, a decline in nominal interest rates, price-dividend ratios, output, consumption and investment
- In a variance decomposition sense, these shocks account for about 15 percent of the business cycle fluctuations in GDP

Bank Lending and Credit Supply Shocks

- The follow-up paper digs deeper into the link between lending and EBP
- It shows that a rise in the EBP (from a VAR) leads to a decline in a broad set of loan categories
- Largest effects of an EBP shock occur through a slow decline in loans, and through an immediate (and large) decline in unused commitments
- GZ interpret this result as evidence that the capacity of businesses to borrow from banks is highly sensitive to changes in credit supply conditions.

Overall Comments

Understanding changes in credit conditions from the supply side is important for understanding business cycles. GZ evidence uncovers and documents interesting and fascinating facts.

My main comments center around three points:

- 1 One would like to draw a better distinction between bank and nonbank suppliers of funds (loans vs bonds).
- 2 Evidence from the VARs is open to conflicting interpretations and it will be crucial to think how to draw lessons from it for macroeconomic policy and for business cycle research.
 - 1 Important to quantify contribution of systematic vs random movements in EBP
 - 2 Important to think about nonlinearities
- 3 Focus on commitments and lines of credit requires deeper thinking from a model (both theoretical and econometric) standpoint.

Banks vs NonBanks

- 1 GZ have in mind a world where banks supply bonds and loans at the same time.
In this world, losses for banks \rightarrow less supply of loans and bonds, rise in EBP
- 2 If suppliers of loans and bonds are different, then less supply of loans may imply more demand for bonds. It would be important to touch upon this issue
(it would be also important to think more about cash holdings, which can replace unused commitments are sources of funds)
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High-grade corporate borrowers — meaning those not rated “junk” by the

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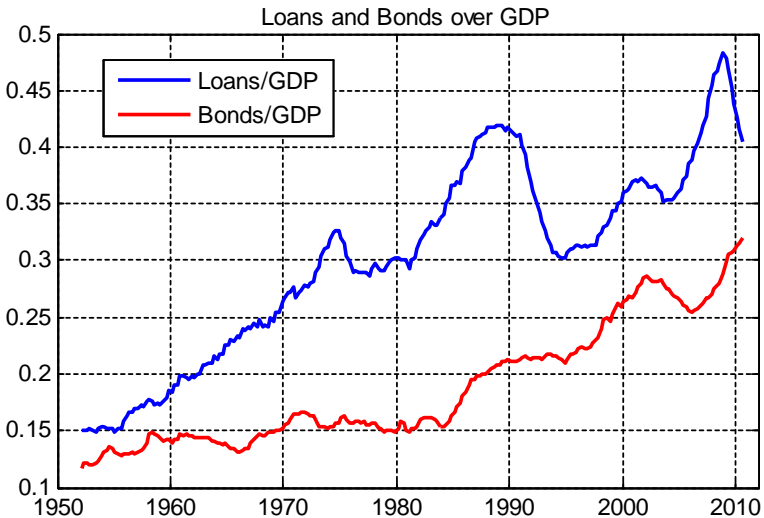
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Anticipated vs Unanticipated Movements in the EBP

- What causes movements in EBP?

As usual, it would be nice to have a structural interpretation for this shock

- Other issues

VAR only captures unanticipated changes in EBP

If GDP falls, and EBP rises because of larger uncertainty in the financial sector, credit supply will fall, and with it GDP, but this effect will not be captured by the shock to the EBP in the first place

A nicer counterfactual would be to see what is the contribution to business cycles of both unanticipated and anticipated movements in EBP – this would give a fuller interpretation of the role of credit (and not just credit shocks) in business fluctuations

VAR and Nonlinearities

- Unused commitments are a complicated object, and their behavior can capture both demand and supply effects
- Consider a simple model of unused commitments

$$\begin{aligned} \max \quad & \sum_{t=0}^{\infty} \beta^t \log c_t \\ \text{s.t. } \quad & c_t = y_t + b_t - Rb_{t-1}, \\ & \log y_t = \rho \log y_{t-1} + \varepsilon_t, \quad \varepsilon_t \sim N(0, \sigma^2) \\ & b_t \leq my_t \end{aligned}$$

- Assume $\beta R < 1$, define unused commitments as

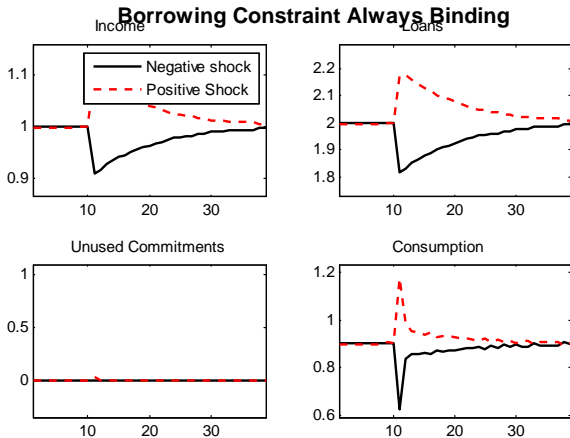
$$UC \equiv \underbrace{my_t}_{\text{credit line/supply}} - \underbrace{b_t}_{\text{drawdown}}$$

- Supply-side effects could be captured by m being procyclical ($m_t = \bar{m}y_t^\varepsilon$)
- Even in this simple model unused commitments can display a complicated pattern that a simple VAR may not capture.

- I consider how unused commitments respond to negative and positive income shocks in such a model
- I distinguish various cases depending on whether β is low or high or whether m is fixed or procyclical.
- I set $m = 2$ in the benchmark case.
- I show responses of y, c, b, UC to such shocks.
- β very low: constraint always binds...
 β high (close to $1/R$): constraint rarely binds

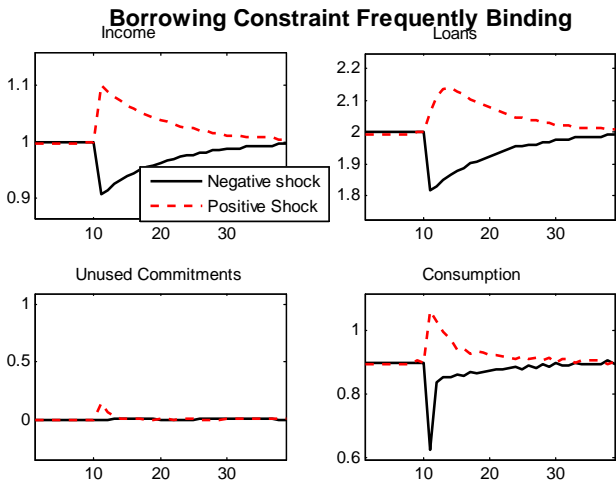
Case 1: Constraint always binds.

Unused commitments=0.



Case 2: Constraint frequently binds.

UC rise in good times, stay close to zero in recession.

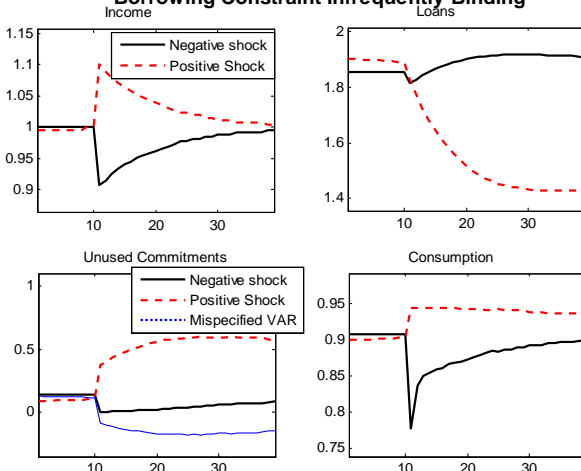


Case 3: Constraint rarely binds.

$UC > 0$ on average, rise a lot in boom, fall in recession.

Linear VAR may exaggerate drop in unused commitments following adverse business cycle shock, because “true” response are not symmetric

Borrowing Constraint Infrequently Binding

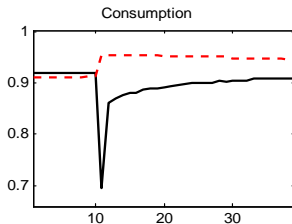
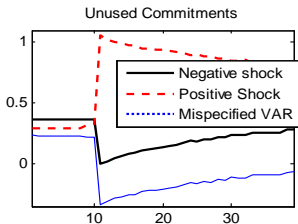
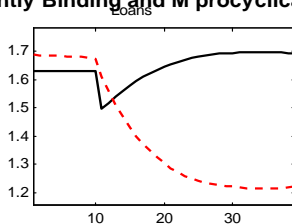
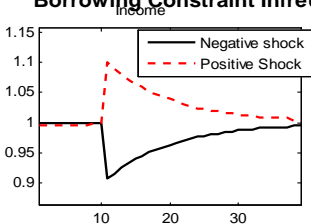


Case 4: Constraint occasionally binds. m procyclical.

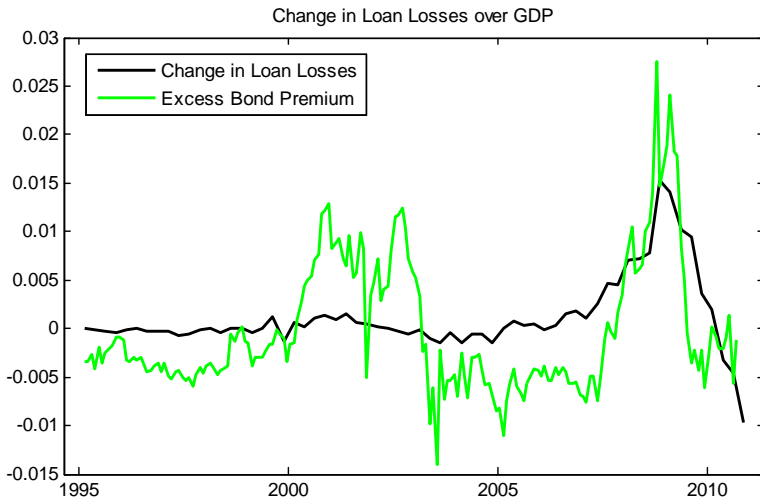
Here UC drop more in bad times. But whether they change a little or a lot relative to some benchmark requires a model.

(They drop a lot also when credit supply does not move, like case 3)

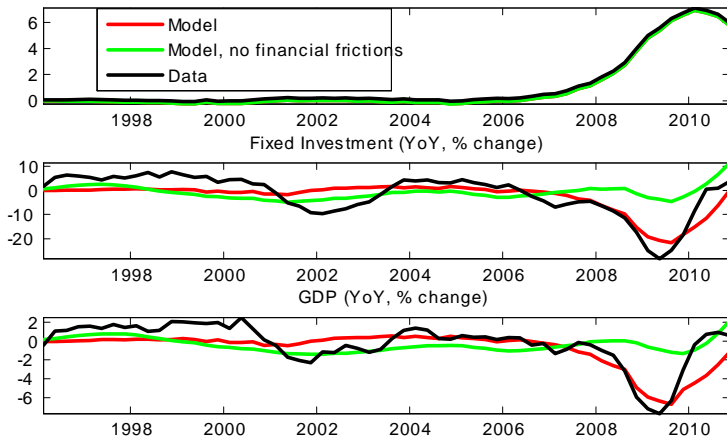
Borrowing Constraint Infrequently Binding and M procyclical



- Several Models are consistent with the idea that unused commitments fall in a recession, not all of them are indications of the fact that credit supply is behind this result.
- Commitments might change because credit limit changes, because drawdowns change.
- Quantifying the effect of credit supply shocks is however important. GZ are barking up a plausible tree.
- In ongoing work (Financial Business Cycles) I try a model-based approach to quantify the effects of credit supply shocks on economic activity.
In that model, loan losses (redistributions of wealth from lenders to borrowers) lead banks to deleverage, loan supply falls, spreads rise, and credit-dependent sectors cut back on spending, thus exacerbating a recession.



Loan Losses on Residential Mortgages, % of GDP



Thanks!