Discussion of "Are Collateral-Constraint Models Ready for Macroprudential Policy Design?" by Ottonello, Perez and Varraso

2021 NBER IFM

Javier Bianchi[1]

[1]Federal Reserve Bank of Minneapolis

Overview

- Literature has provided a theory of macroprudential policy in the context of collateral constraints linked to current market prices
    - Well-understood role of **current prices**

Overview

- Literature has provided a theory of macroprudential policy in the context of collateral constraints linked to current market prices
    - Well-understood role of **current prices**
        - Few examples exploring macroprudential policy in collateral constraint models w/future prices (Devereux-Young-Yu)

Overview

- Literature has provided a theory of macroprudential policy in the context of collateral constraints linked to current market prices
    - Well-understood role of **current prices**
        - Few examples exploring macroprudential policy in collateral constraint models w/future prices (Devereux-Young-Yu)
- **Contribution:** establish analytically that a model with collateral constraints linked to future prices is constrained efficient

Overview

- Literature has provided a theory of macroprudential policy in the context of collateral constraints linked to current market prices
    - Well-understood role of **current prices**
        - Few examples exploring macroprudential policy in collateral constraint models w/future prices (Devereux-Young-Yu)
- **Contribution:** establish analytically that a model with collateral constraints linked to future prices is constrained efficient
    - Broader point: interesting example where "prices in constraints" are not sufficient to generate constrained inefficiency.

Reviewing the Mechanism: Constrained Planner

$$V(B) = \max_{c^T, B'} u(c^T, y^N) + \beta V(B')$$

$$\text{s.t.} \quad c^T \leq y^T - B(1+r) + B'$$

$$B' \leq \kappa(y^T + \mathcal{P}^N(B, B')y^N) \quad \text{vs.} \quad B' \leq \kappa(y^T + \mathcal{P}^N(B', B'')y^N)$$

$$V'(B) = -u_T(c^T, y^N) + \mu\kappa\frac{\partial \mathcal{P}^N}{\partial B} \quad \text{vs.} \quad V'(B) = -u_T(c^T, y^N)$$

If borrowing constraint is slack: $u_T(c_t^T, y^N) = -\beta R V'(B_{t+1})$

Reviewing the Mechanism: Constrained Planner

$$V(B) = \max_{c^T, B'} u(c^T, y^N) + \beta V(B')$$

$$\text{s.t.} \quad c^T \leq y^T - B(1+r) + B'$$

$$B' \leq \kappa(y^T + \mathcal{P}^N(B, B')y^N) \quad \text{vs.} \quad B' \leq \kappa(y^T + \mathcal{P}^N(B', B'')y^N)$$

$$V'(B) = -u_T(c^T, y^N) + \mu\kappa\frac{\partial \mathcal{P}^N}{\partial B} \quad \text{vs.} \quad V'(B) = -u_T(c^T, y^N)$$

If borrowing constraint is slack: $u_T(c_t^T, y^N) = -\beta R V'(B_{t+1})$

With current prices

$$u_T(c_t^T, y^N) = \beta R u_T(c_{t+1}^T, y^N) - \mu_{t+1}\kappa\frac{\partial \mathcal{P}^N}{\partial B}(t+1)y^N$$

With future prices

$$u_T(c_t^T, y^N) = \beta R u_T(c_{t+1}^T, y^N)$$

Overview (ctd)

Paper also argues that it is difficult to tell apart which timing of constraint is more prevalent (hence the title)

Overview (ctd)

Paper also argues that it is difficult to tell apart which timing of constraint is more prevalent (hence the title)

1. Similar crises dynamics with different timing of collateral constraint
2. Scant empirical evidence about precise timing

Overview (ctd)

Paper also argues that it is difficult to tell apart which timing of constraint is more prevalent (hence the title)

1. Similar crises dynamics with different timing of collateral constraint
2. Scant empirical evidence about precise timing

My discussion comments on these two points

Comment #1: Timing and Crises Dynamics

Collateral models w/future prices can generate crises, akin to those w/current prices, *only with exogenous financial shocks to* κ

No financial amplification with future prices

- When all households reduce consumption today, this raises p^N_{t+1} tomorrow and relaxes borrowing constraint
- Thus, in case of a negative shock to y^T, household borrow more and economy receives *capital inflows*

Apples to apples?

Comment #1: Timing and Crises Dynamics (ctd)

- Take *any model with inefficiencies* (e.g. a New-Keynesian model)
- From Chari-Kehoe-McGrattan's business cycle accounting: we can replicate the inefficient model with some shock in an RBC model (*where allocations are efficient*)
    - E.g. a labor supply shock instead of wage rigidities, or a β shock

That we can generate the same dynamics with an additional shock is not informative about whether a model is "ready" for policy

Comment #2: Empirical Evidence

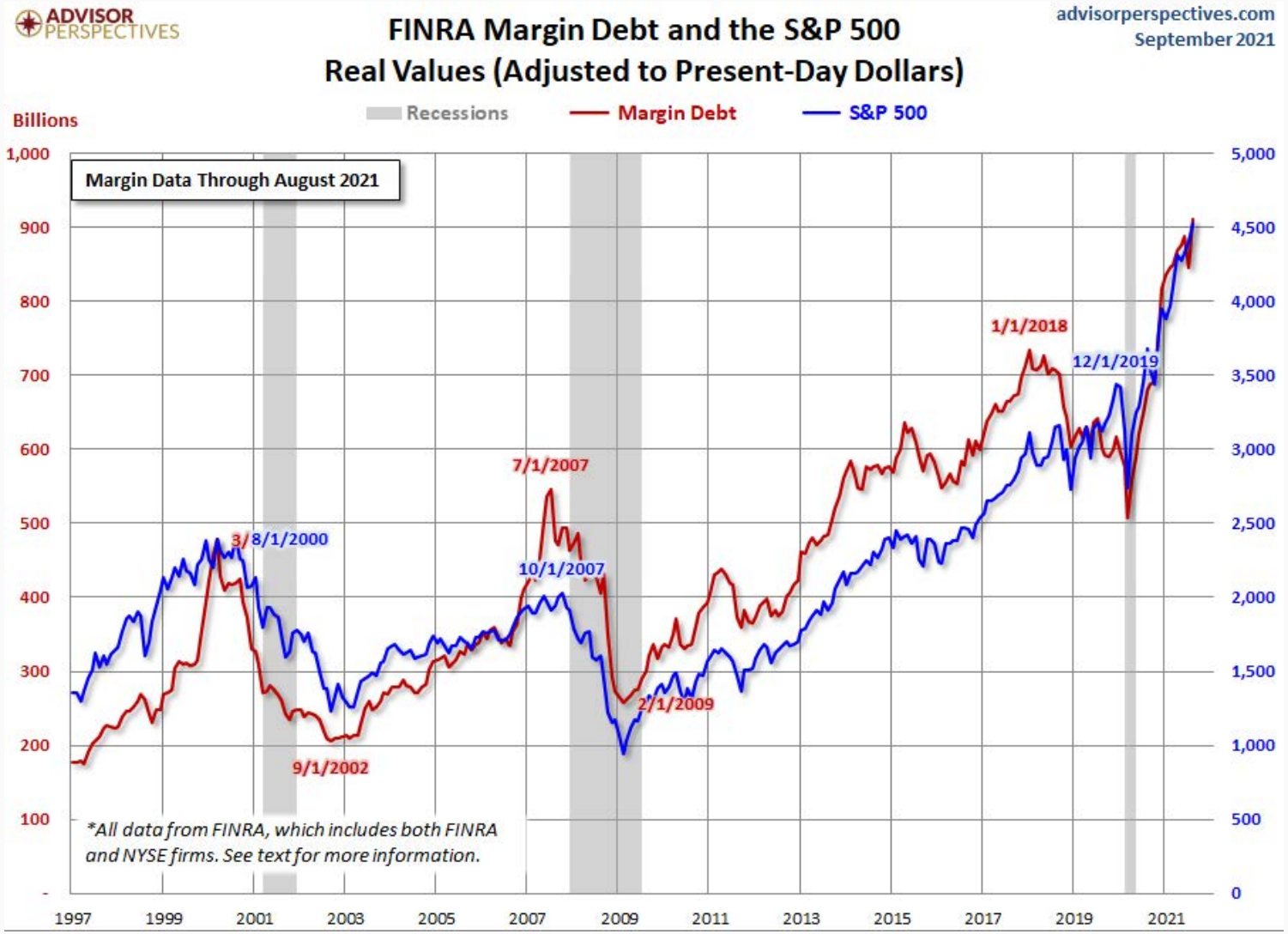
- Some literature documenting importance of current earnings for borrowing constraints

  Jappelli and Pagano (1989); Jappelli (1990); Cox and Jappelli (1993), Del-Rio and Young (2005); Crook (2001); Chen and Chivakul (2008); Lian and Ma (2018); Greenwald(2018); Drechsler (2018); Chodorow-Reich and Falato (2020);

- Increasing use of detailed microfinancial data
  - Consumer credit and mortgages: PTI, LTI, LTV, credit scoring
  - Non-financial firms: covenants, loan-level data
  - Financial firms: margin-based leverage

Glass half empty or half full?

Margin-based Leverage Reached 1 Trillion



Comment #2: Empirical Evidence (ctd)

- Paper argues that prevalence of current-price based constraints may hinge on the fact that they help predict future prices

Comment #2: Empirical Evidence (ctd)

- Paper argues that prevalence of current-price based constraints may hinge on the fact that they help predict future prices
- Under that hypothesis, observed current-price based constraints should vary significantly with future fundamentals
  - However, there is very little variation ▸ Figure Greenwald

Comment #2: Empirical Evidence (ctd)

- Paper argues that prevalence of current-price based constraints may hinge on the fact that they help predict future prices

- Under that hypothesis, observed current-price based constraints should vary significantly with future fundamentals

    - However, there is very little variation ▸ Figure Greenwald

Ideally, need a natural experiment where only current prices change....

Comment #2: Empirical Evidence (ctd)

- Paper argues that prevalence of current-price based constraints may hinge on the fact that they help predict future prices

- Under that hypothesis, observed current-price based constraints should vary significantly with future fundamentals

    - However, there is very little variation ▸ Figure Greenwald

Ideally, need a natural experiment where only current prices change....

- Lian and Ma (QJE, 2018): show how changes in EBITDA calculations have significant effects for firms that face binding current earning based constraints

Lian and Ma (QJE, 2018)

"In practice, given constraints on contractibility, earning-based constraints in debt contracts typically use EBITDA over the past twelve months as a key metric for cash flow value. **In particular, to facilitate enforcement on a regular basis, contracts need a measure that is readily observable and verifiable, and whose value borrowers and lenders do not dispute.** *EBITDA over the past twelve months aims to strike a balance between being informative about firms' cash ow values and satisfying the important contractibility requirements."*

Final Thoughts

- Macroprudential policy analysis requires models where
  - (i) Financial crises that emerge endogenously
  - (ii) Financial contracts that look like those in the data

Final Thoughts

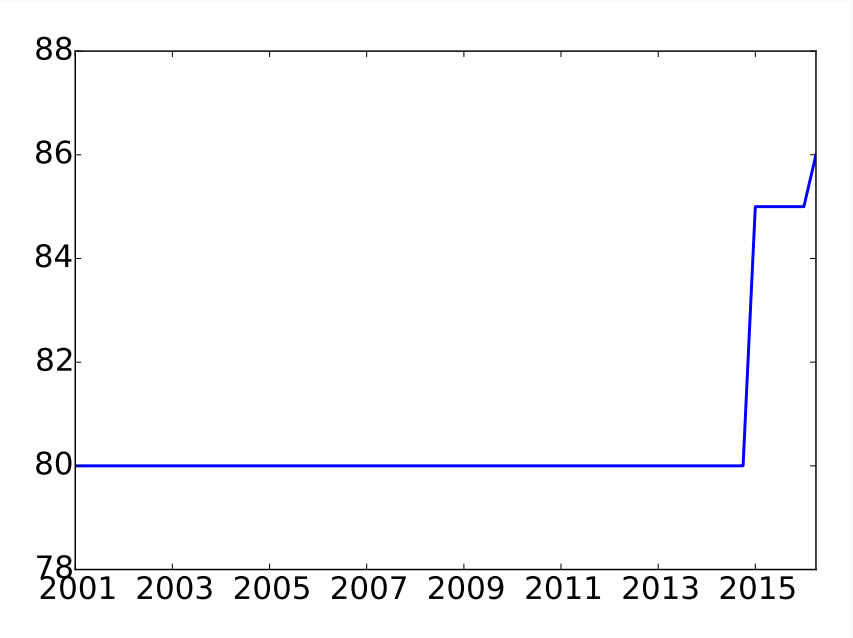
- Macroprudential policy analysis requires models where
  - (i) Financial crises that emerge endogenously
  - (ii) Financial contracts that look like those in the data
- Collateral models w/ current prices satisfy (i)-(ii)
  - However, many challenges because of time inconsistency, complex policies, ineffectiveness of simple rules (Bianchi-Mendoza 2018)

Final Thoughts

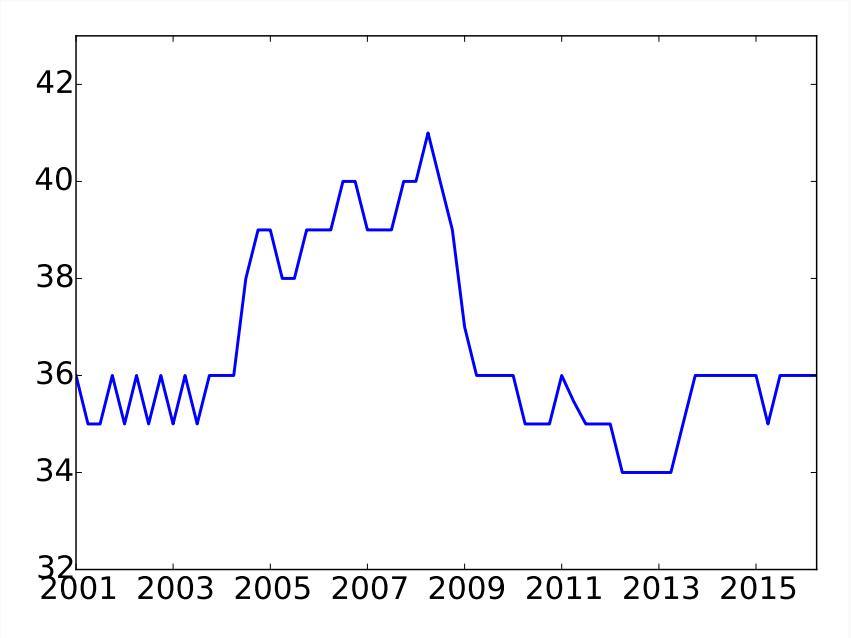
- Macroprudential policy analysis requires models where
  - (i) Financial crises that emerge endogenously
  - (ii) Financial contracts that look like those in the data
- Collateral models w/ current prices satisfy (i)-(ii)
  - However, many challenges because of time inconsistency, complex policies, ineffectiveness of simple rules (Bianchi-Mendoza 2018)

When is a model "ready"?

Greenwald (2018)



(a) CLTV: 50th Percentile



(b) PTI: 50th Percentile

▸ Back