Discussion of Arslan, Guler and Kuruscu "Bank Balance Sheets and Boom-Bust Cycles"

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Ambitious goal: marry two literatures booming after Great Recession

1) Models of **housing markets** with **heterogeneous agents and idiosyncratic risk**

Chambers, Garriga, and Schlagenhauf (2009), Diaz and Luengo-Prado (2010), Jeske, Krueger, and Mitman (2013), Iacoviello and Pavan (2013), Chu (2014), Hatchondo, Martinez, and Sanchez (2014), Arslan, Guler, and Taskin (2015), Chatterjee and Eyigungor (2015), Corbae and Quintin (2015), Mitman (2016), Floetotto, Kirker, and Stroebel (2016), Li et al. (2016), Favilukis, Ludvigson and Van Nieuwerburgh (2017), Garriga and Hedlund (2017), Gete and Zecchetto (2017), Kaplan, Mitman and Violante (2017), Sommer and Sullivan (2018), Garriga and Hedlund (2018), Greenwald (2018), Gete and Zecchetto (2018)...

2) Models of **banks** and **aggregate dynamics**

Gertler and Kiyotaki (2010), Gertler and Karadi (2011), De Fiore, Teles and Tristani (2011), Christiano, Trabandt and Walentin (2011), Gertler, Kiyotaki and Queralto (2012), Andreasen, Ferman and Zabczyk (2013), Angeloni and Faia (2013), Iacoviello (2015), Gertler and Kiyotaki (2015), Ajello (2016), Bocola (2016), Collard et al. (2017), Elenev, Landvoigt, and Van Nieuwerburgh (2016), Gete (2018)...

Household side (rich heterogeneity)

- Incomplete markets, idiosyncratic shocks
- Owners, renters, default
- Long-term mortgages, non-recourse
- Prepayment and refinance
- Endogenous mortgage pricing (need to discuss more)

Financial side (representative agent)

- Bank not exposed to credit risk
  - Ex-ante no aggregate shocks
  - Mortgage idiosyncratic risk perfectly diversified
- Same expected return lending to firms or HH
- SOE assumption:
  - bank not financed by HHs but by foreigners
  - fixed cost of bank's external funds

- Endogenous leverage constraint à la Gertler/Karadi/Kiyotaki
  - Banker can abscond and not pay creditors
  - Bank's net worth determines if constraint binding

What determines bank's net worth?

Letting $L_{t+1} = L_{t+1}^k + L_{t+1}^m$, the bank's problem becomes

$$\Psi_t(N_t) = \max_{B_{t+1}, L_{t+1}, c_t^B} \left\{ \log\left(c_t^B\right) + \beta_L \Psi_{t+1}(N_{t+1}) \right\}$$

s.t.

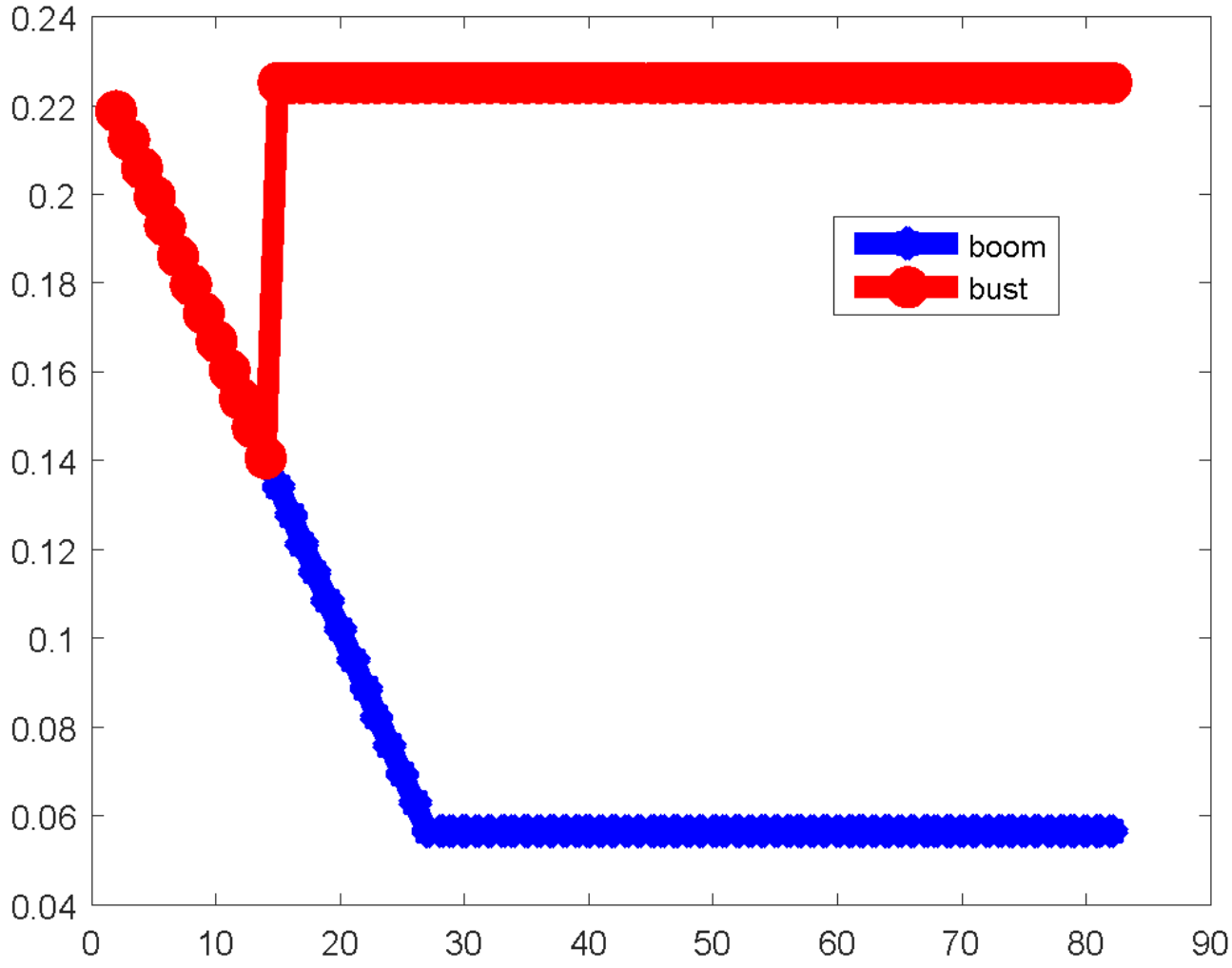
$$\begin{aligned} c_t^B + L_{t+1} &= N_t + B_{t+1} \\ L_{t+1} &\leq \lambda\left(N_t - c_t^B\right) \\ N_{t+1} &= L_{t+1}\left(1 + r_{t+1}^*\right) - B_{t+1}\left(1 + r_{t+1}\right). \end{aligned}$$

- Firms can borrow from banks or households (imperfect substitutes)

$$\max_{K_t,N_t} A_t \left(K_t^H\right)^{\alpha_H} \left(K_t^B\right)^{\alpha_B} N_t^{1-\alpha_H-\alpha_B} - w_t N_t - (\tilde{r}_t + \delta)K_t^H - (r_t^* + \delta)K_t^B$$

- Housing stock owned by HHs and rental firms
- HHs borrow from banks
- Rental firms borrow from HHs

Exercise: shocks to absconding parameter



Comments

- Promising paper, still work in progress
- Big picture suggestions
- Complex mechanisms, some doubts
- Comment for policymakers

Authors should be more ambitious

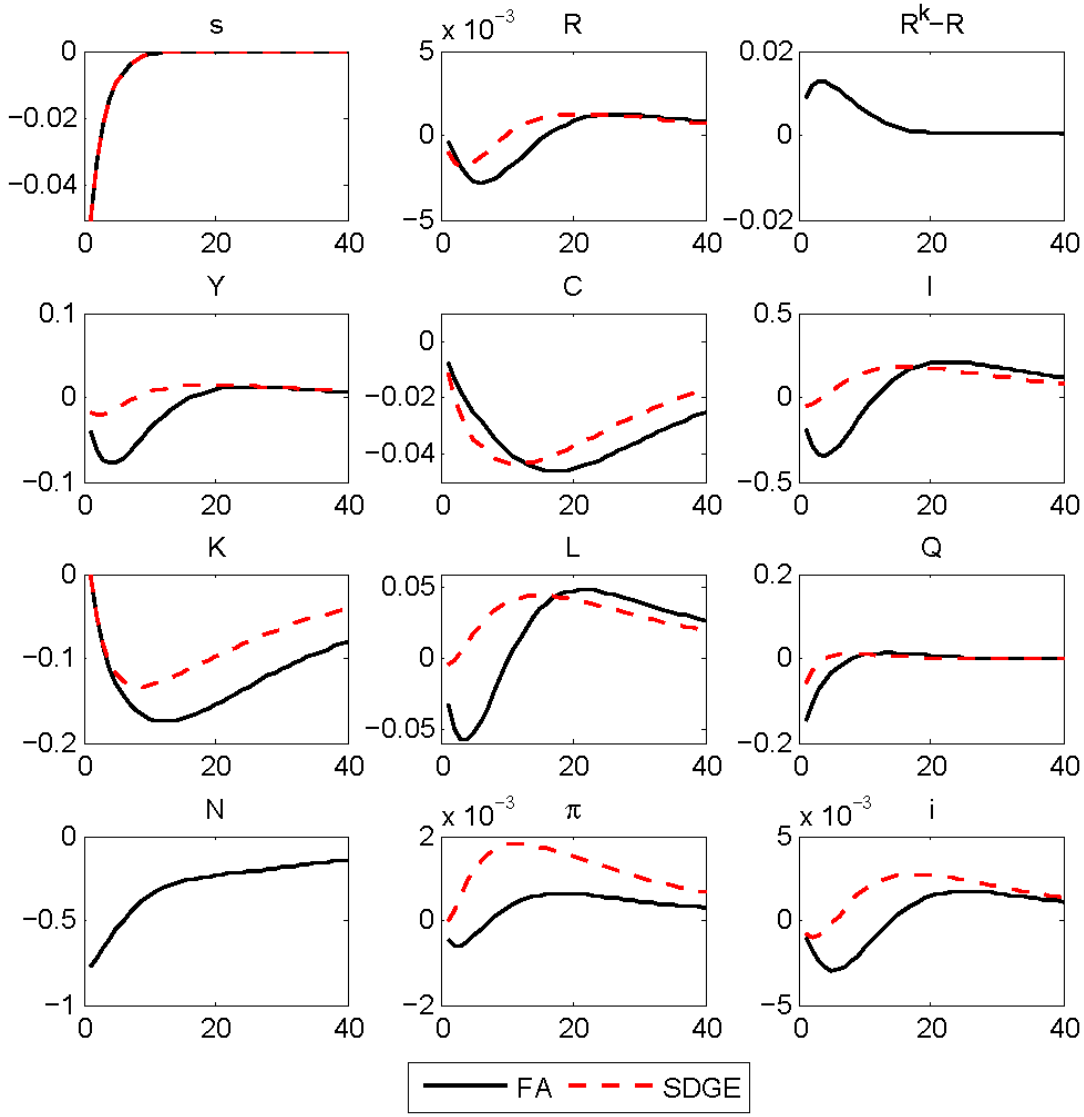
- <<We develop and study a quantitative general equilibrium model that combines a rich heterogeneous agent overlapping-generations structure of households ... and banks ... whose ability to intermediate funds depends on their capital. Using a calibrated version of this framework, **we find that shocks to banks' borrowing and lending capacity, i.e. leverage, may generate quantitatively large fluctuations** in the economy>>.

- Ok... but Gertler/Karadi/Kiyotaki models share same result...

- What do we gain from merging the 2 literatures? Compare transmission channels

Gertler and Karadi (2011)

Figure 2: Responses to a Capital Quality Shock



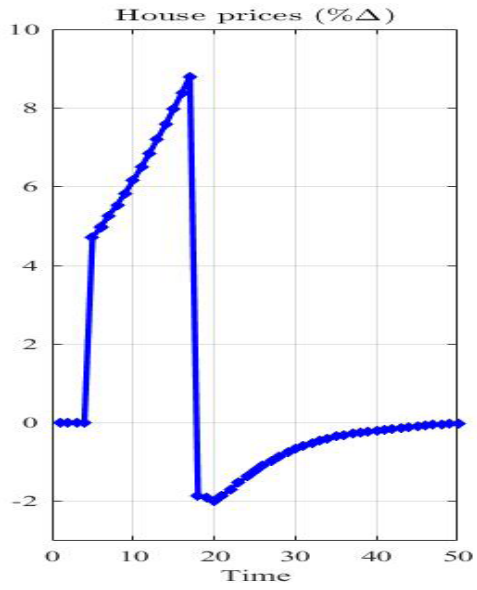
Puzzle in Gertler/Karadi/Kiyotaki models

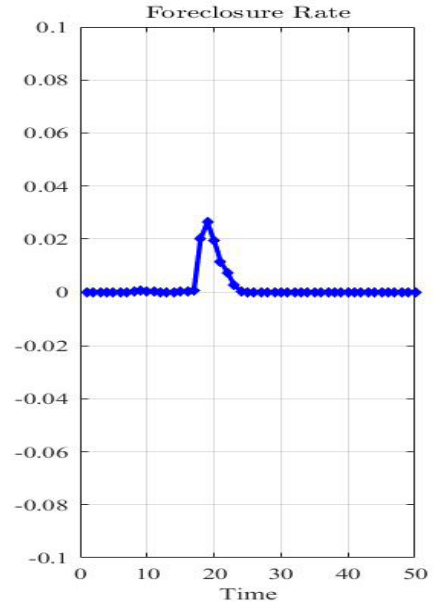
- Pure financial shocks (default, drops in bank equity) have no real effects if labor supply very inelastic
  - Guerrieri et al. (2018), Gete (2018)
- Literature studies banking crises triggered by real shocks (capital quality shocks)
- Can you overcome this puzzle?
- Avoid absconding shocks as benchmark shock

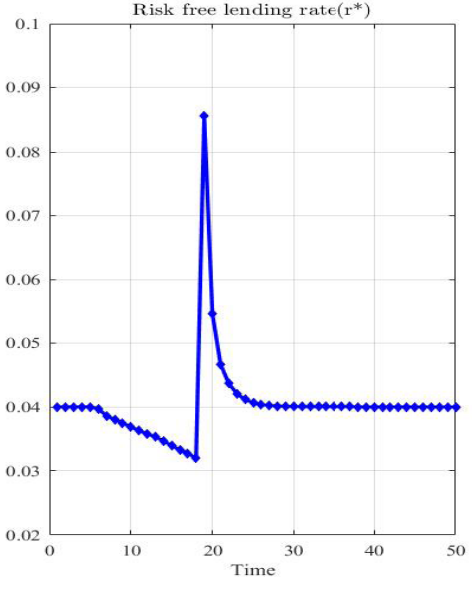
Open questions for housing with heterogeneous agents

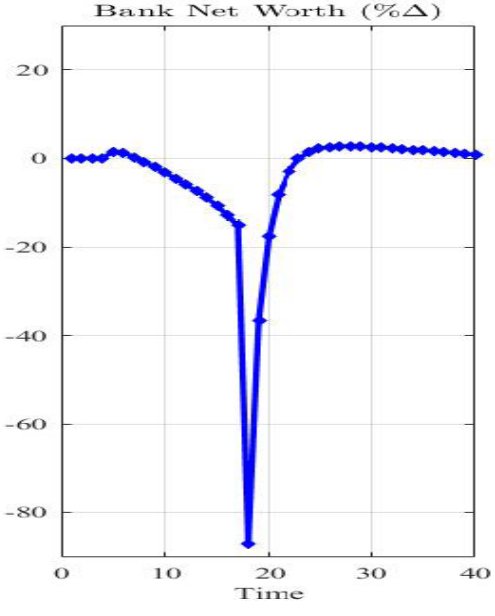
- Most literature focuses on LTV shocks
  - Garriga and Hedlund (2017), Kaplan, Mitman and Violante (2017)
- When do HH credit shocks triggered by shocks to bank's net worth have larger effects than LTV shocks?

Bank net worth puzzle

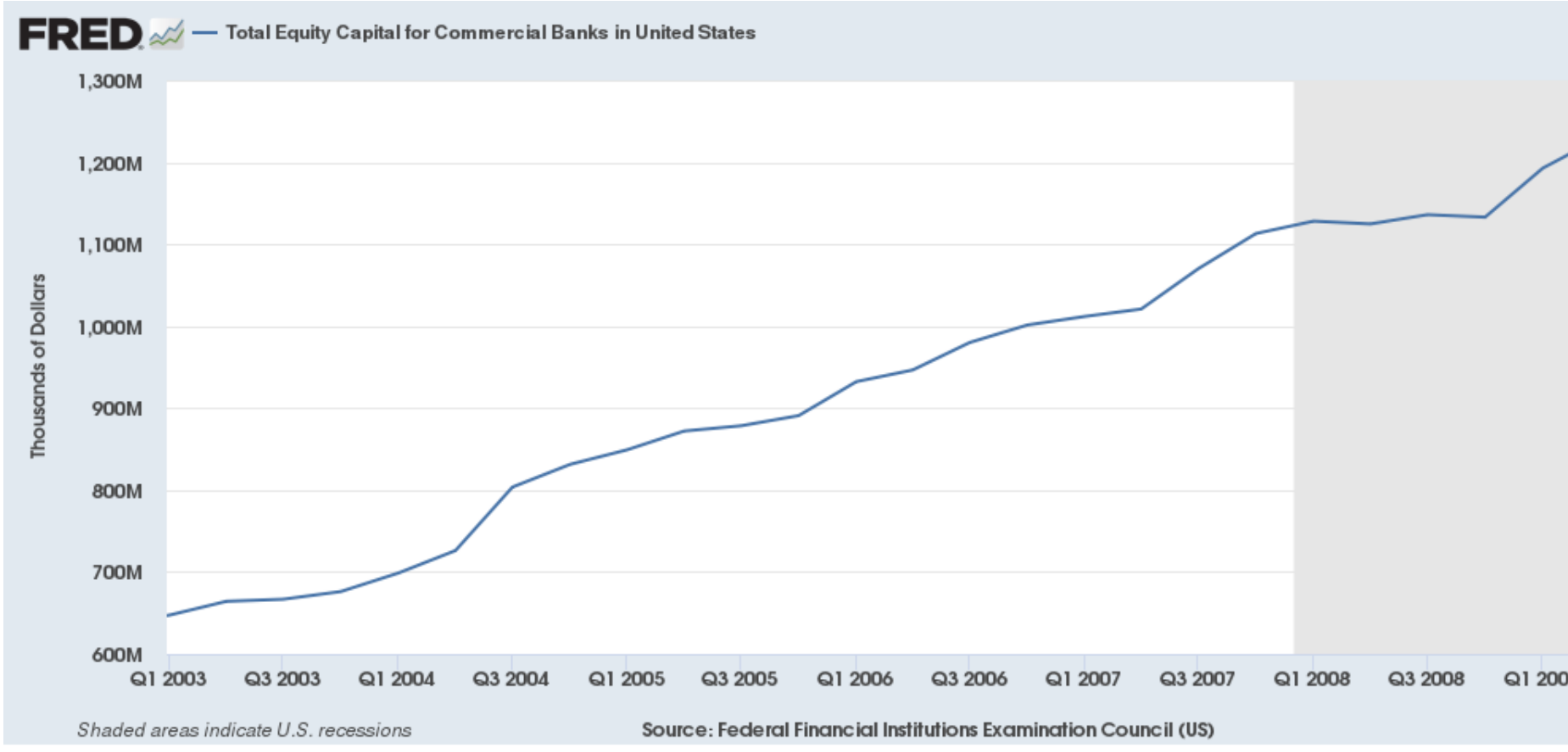








Do banks lose money in housing booms?



Why do banks lose money if lending rate $>$ cost funds?

and the law of motion for net worth is given as

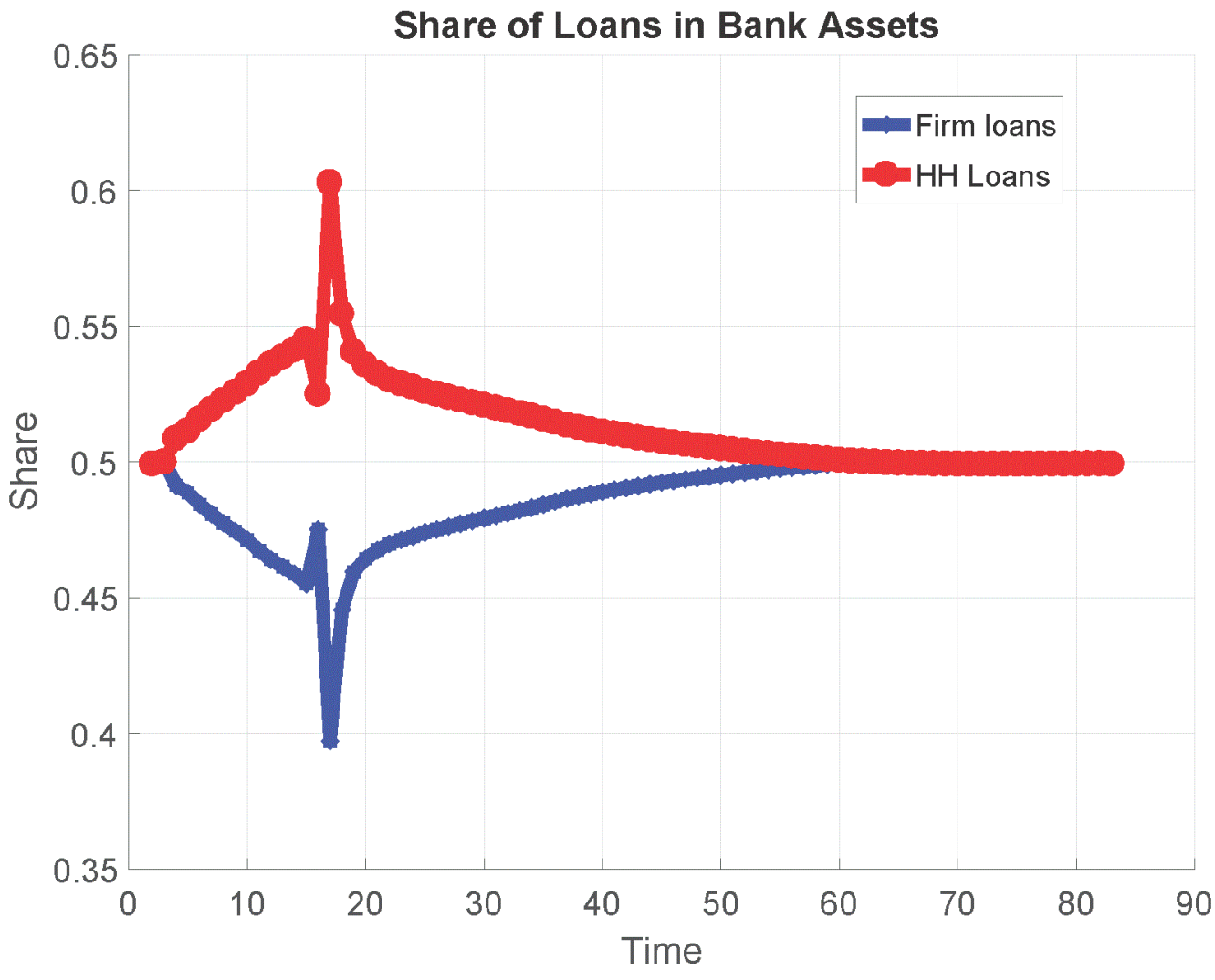
$$N_{t+1} = L_{t+1}\left(1+r^*_{t+1}\right) - B_{t+1}\left(1+r_{t+1}\right).$$

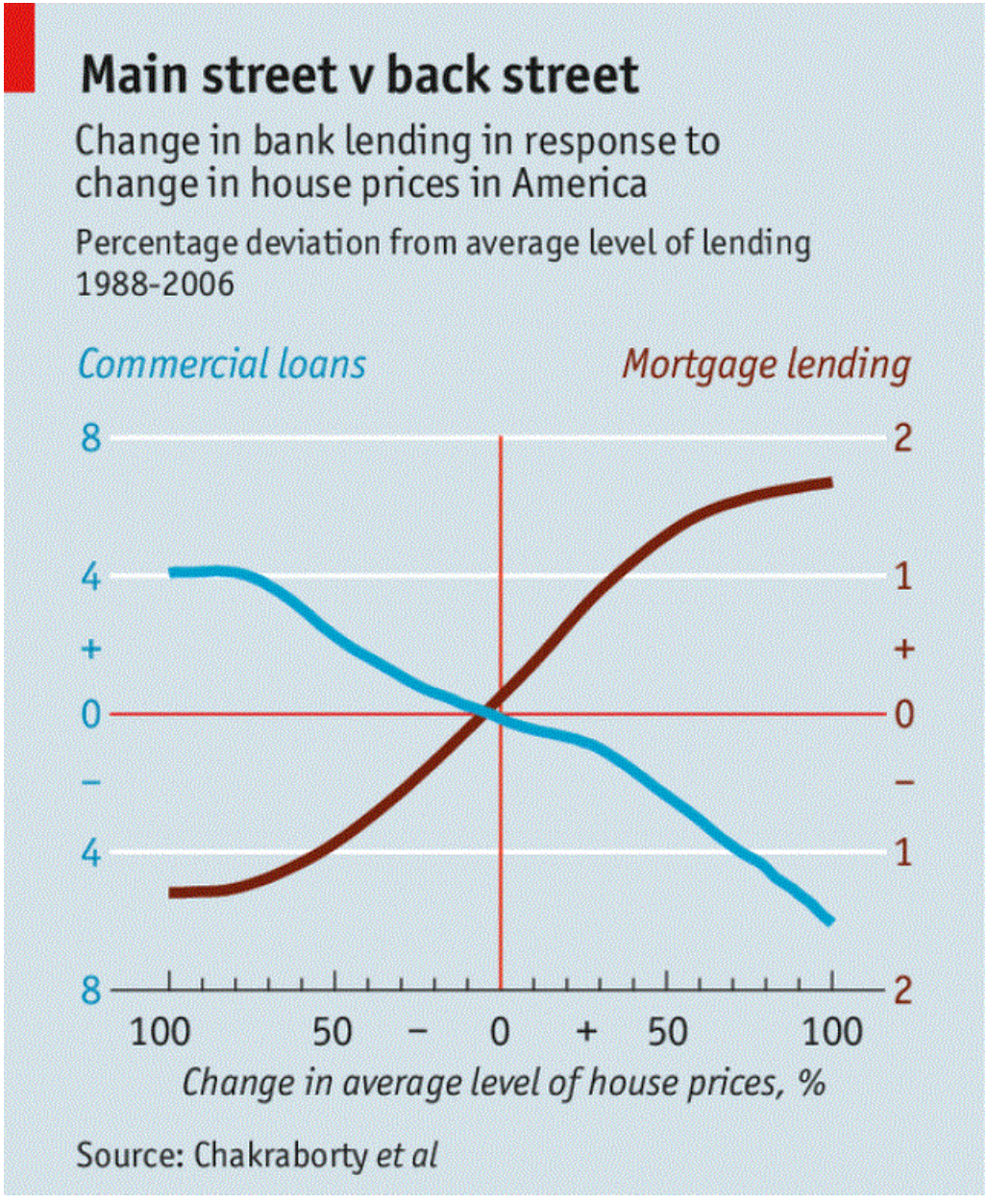
Then, we can obtain the next period's net worth as

$$N_{t+1} = \beta_L\left(\widehat{\lambda}_t\left(1+r^*_{t+1}\right) - \left(\widehat{\lambda}_t - 1\right)\left(1+r_{t+1}\right)\right)N_t$$

Transmission mechanism mostly through corporate lending

- Firm's loans are one period
- Mortgages are long-term
- In bust, bank cuts especially credit to firms
- Thus, output drop and lower wages

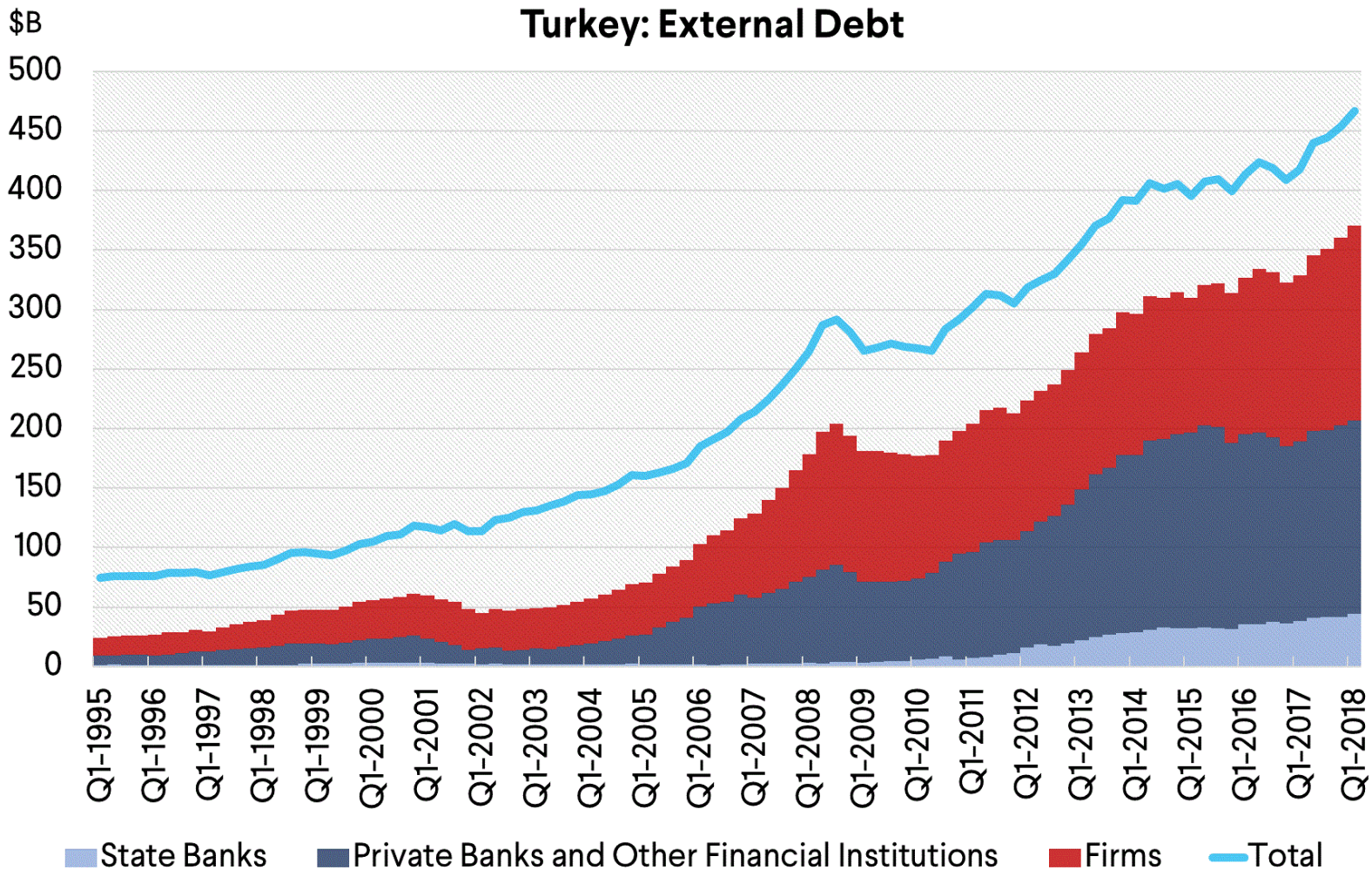

Share of Loans in Bank Assets
Firm loans
HH Loans
Share
Time
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0
10
20
30
40
50
60
70
80
90



- However, Martin, Moral-Benito and Schmitz (2018) find both crowding-in and crowding-out in Spain

Robustness

- Why do firms cannot borrow from foreigners as banks? Do sensitivity analysis



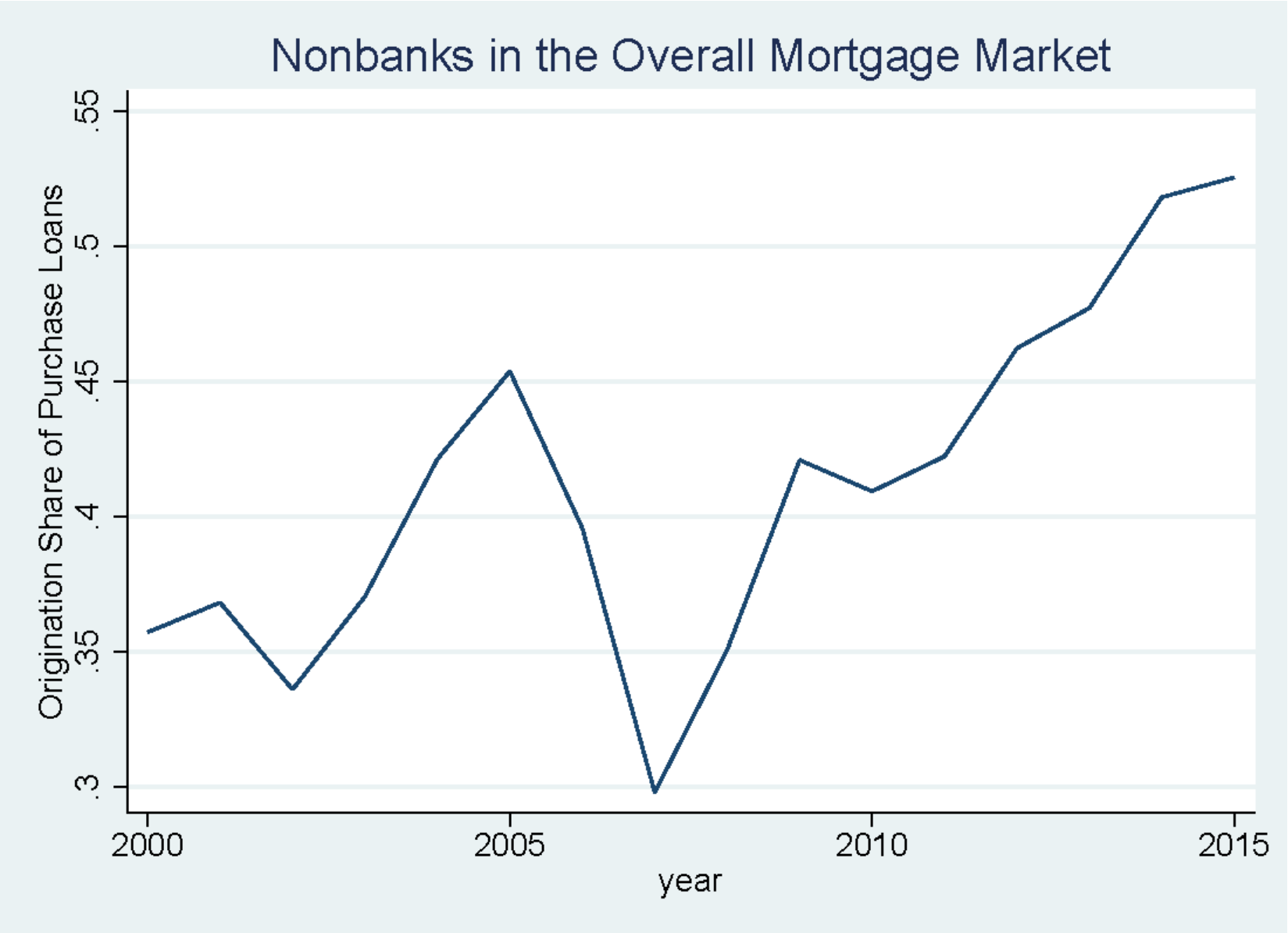
More natural setup

- GEq'm: HHs lend to banks
- No real estate agency, exogenous rents
- Bank lends to HHs and firm
- Firm only has one type of capital
- What results do change?

Comment for policymakers not for the authors

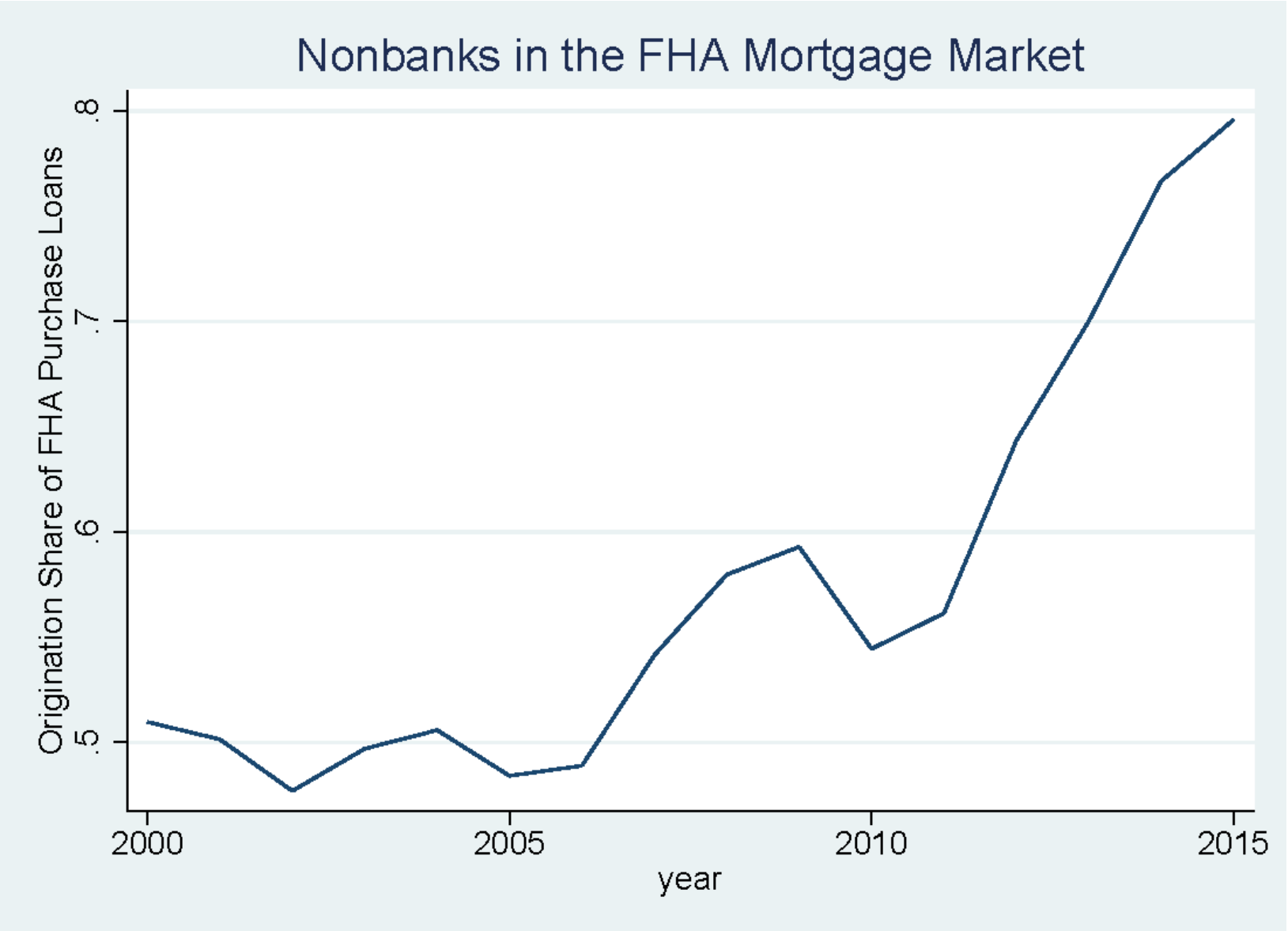
- This model applies to countries where banks play role in mortgage markets
  - E.g. Spain, U.S. pre-crisis
- Mortgage markets have radically changed in some countries...

USA



Source: Gete and Reher (2017)

USA FHA



Source: Gete and Reher (2017)

Sweden

- Axxonen, which focused on developing premium penthouses in Stockholm, was declared bankrupt in May 2018.
- Axxonen had received 20 million Swedish kronor from users of the **crowdfunding platform** Tessin, and an additional SEK50 million in **preferential stocks on the same platform**.

Conclusions

- Very promising paper
- Needs more work:
  - Highlight how marriage of 2 literatures changes transmission channels
  - Check robustness and fix counterfactuals