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Presentation to

"Firm Productivity and the Current Account: One Country with Two Financial Markets"

Firm Productivity and the Current Account: One Country with Two Financial Markets

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LSE

5 December 2011

Overview

This paper shows

Existence of asymmetric borrowing abilities can generate:

- China's large persistent current account surplus ...
- ... the productivity differential between SOEs and POEs.

Overview

This paper shows

Existence of asymmetric borrowing abilities can generate:

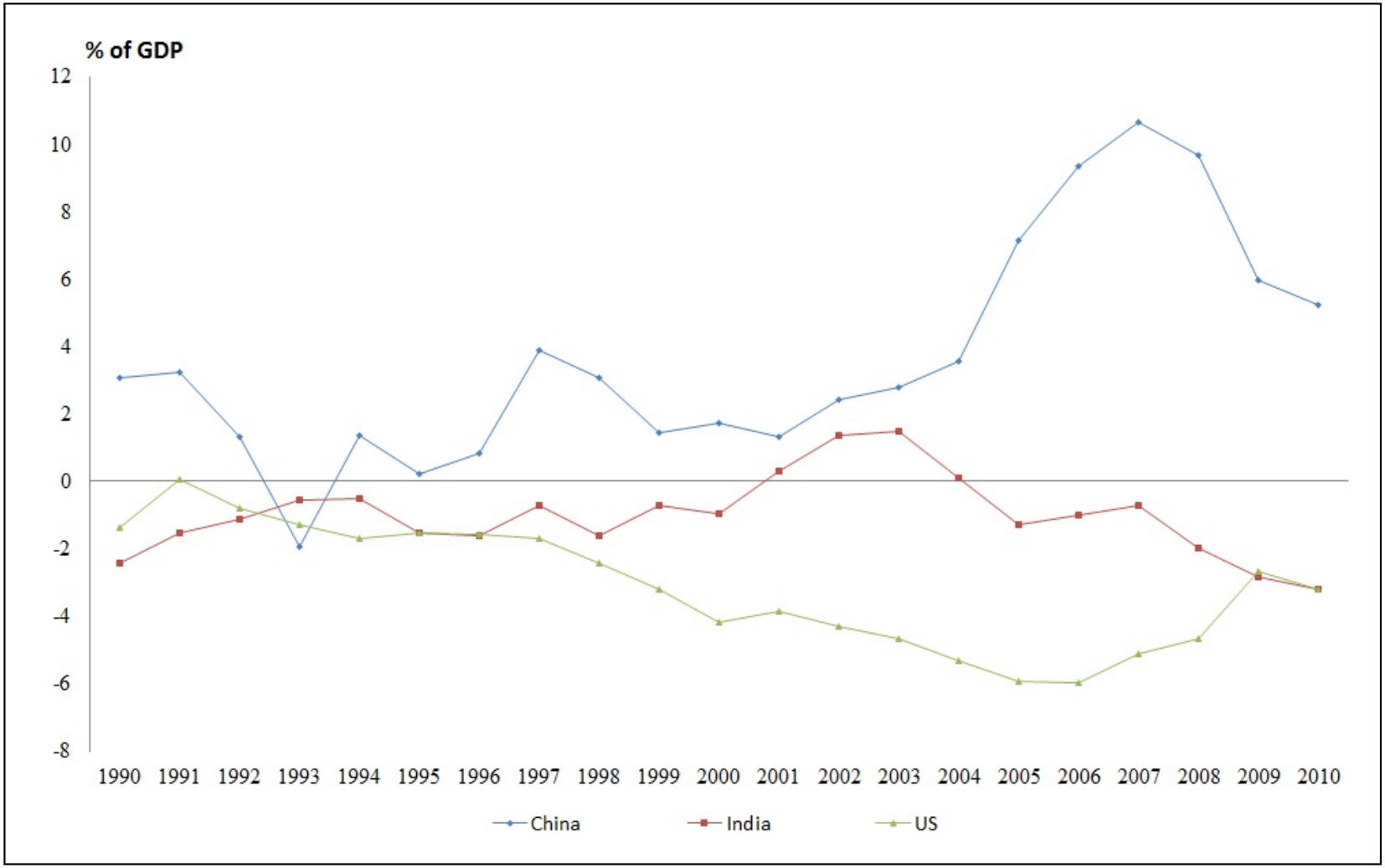
- China's large persistent current account surplus ...
- ... the productivity differential between SOEs and POEs.

Terminology

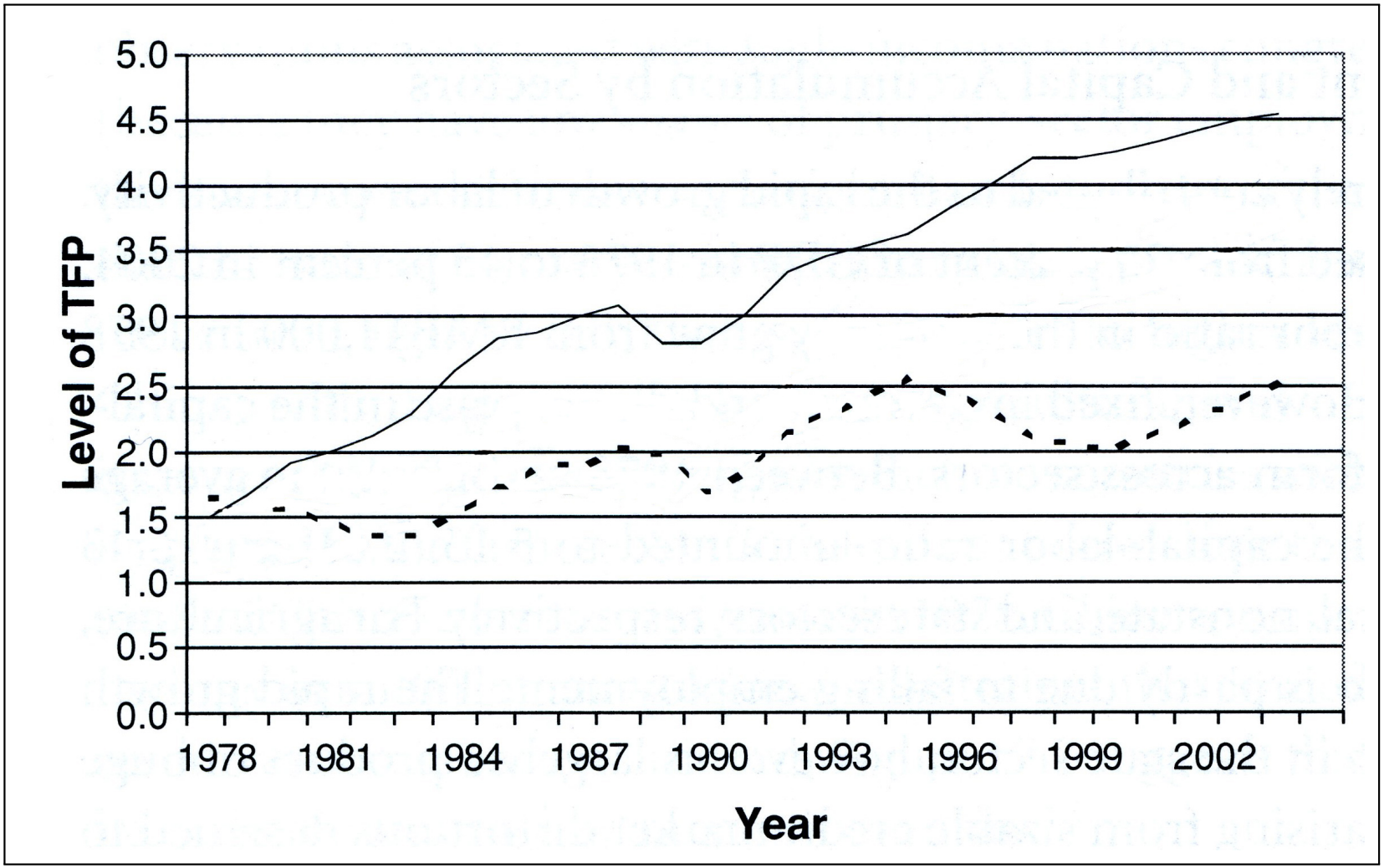
- **Borrowing constraint/ability** = ability to pledge future income at time t
- SOEs and POEs **ONLY** differ in borrowing abilities.

Outline

Current Account



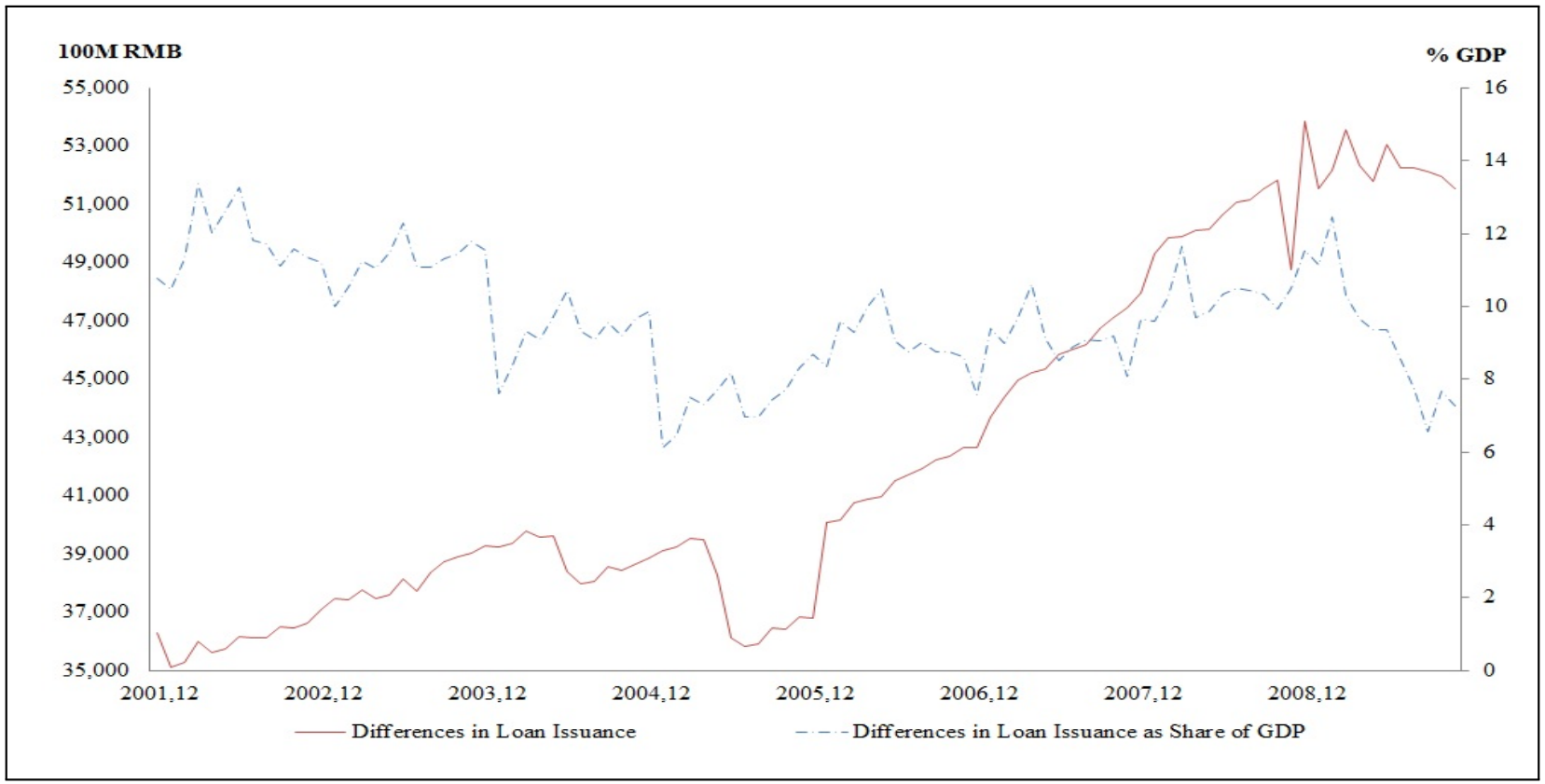
TFP in SOEs and POEs



*Brandt, Hsieh and Zhu(2008)

Asymmetric borrowing constraints?

Difference in loan finance between SOEs and POEs.

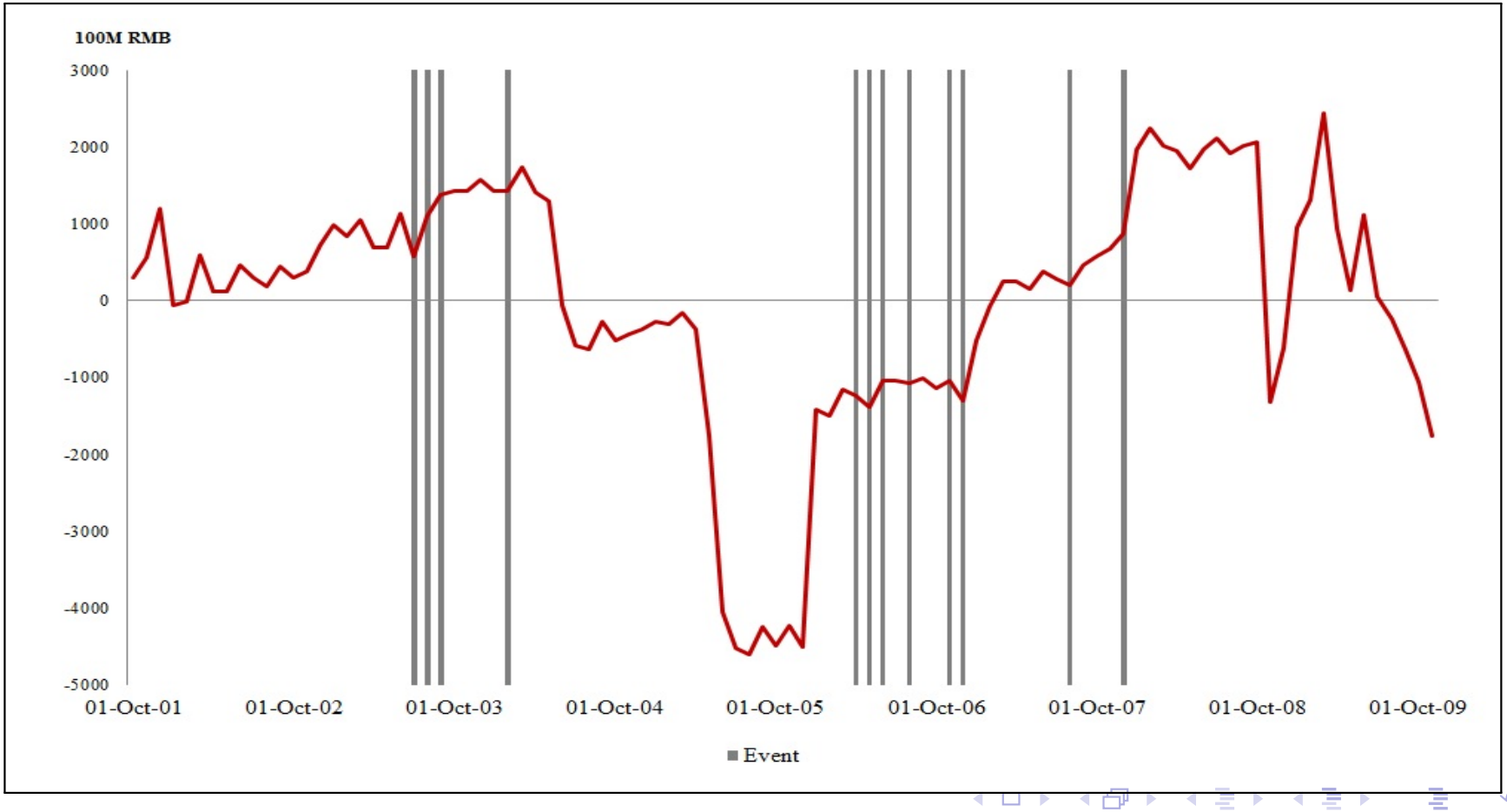


Red $= Loan(SOEs) - Loan(POEs) =$ Ldiff

Blue $= \frac{Loan(SOEs)}{Output(SOEs)} / \frac{Loan(POEs)}{Output(POEs)}$

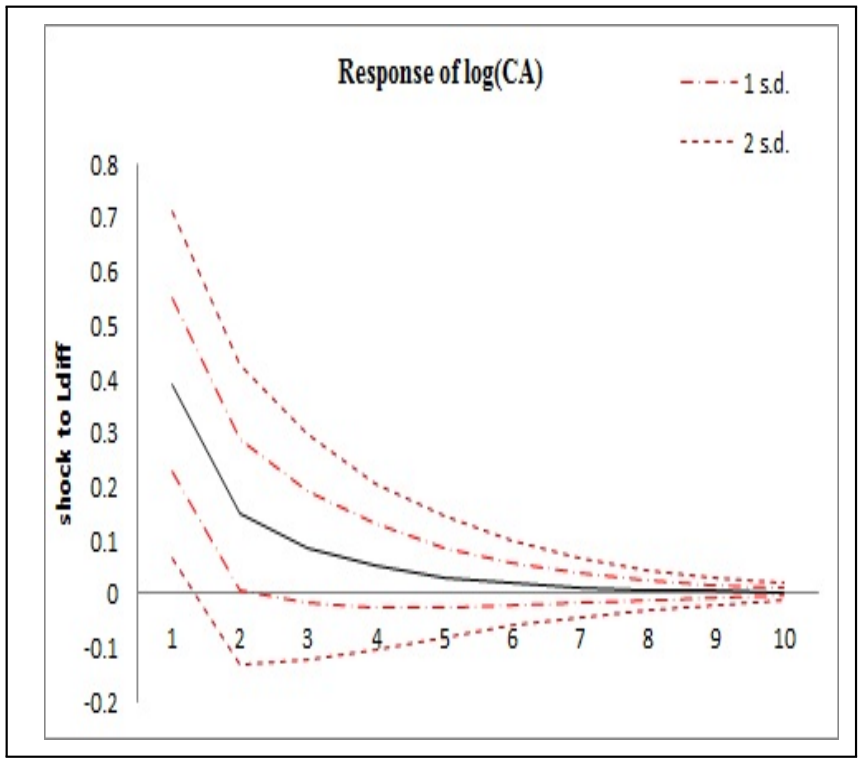
Are asym. borrowing constraints policy driven?

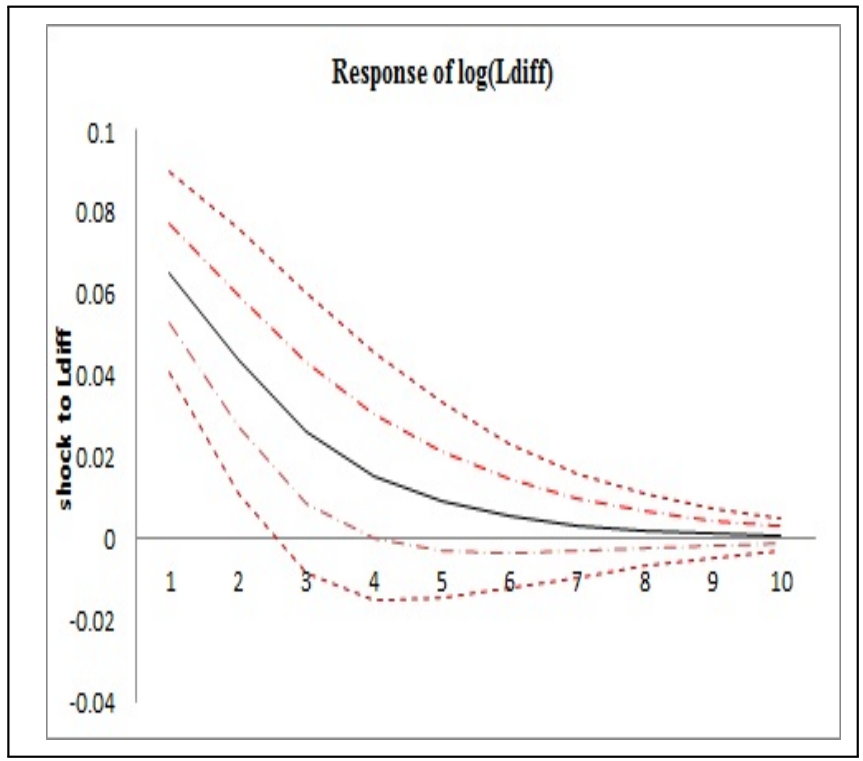
Gap in loan finance between SOEs and POEs **'unexpectedly' increases**, following **"Window Guidance"** instructed by the People's Bank of China.



Do asym. borrowing constraint shocks affect CA?

A simple VAR with log of Chinese CA - log(CA) and difference in loan finance between SOEs and POEs - log(Ldiff).





Identification: I assume policy makers do not observe the contemporaneous current account balance at time they make policy decisions.

In this paper:

- A new explanation of China's current account surplus ...
- ... which rationalizes the productivity differential between SOEs and POEs ...
- ... and the decline in world interest rate.

Model - Set up

1. Household
   - OLG
   - Consume the final good
   - Save by buying corporate bond
2. Final Good Producer
   - Perfect competition
   - Aggregates(CES) intermediate goods
3. Intermediate Good Producers (SOEs, POEs)
   - Fixed cost to start production
   - Need to borrow to finance fixed cost
   - Credit constraint: pledge only a fraction of future incomes

Borrowing ability/constraint and shock

Borrowing ability/constraint

- I model firms as start-ups
  - entry/exit rates are significant, major source of TFP growth, initial fixed cost is large
- who can only enter to production if firm i has sufficient borrowing to finance a initial fixed cost:

$$\begin{aligned} \delta * \pi_\infty &\geqslant F \\ \pi_\infty(i) &= \int_t^\infty \pi_s(i) e^{-\int_t^s (r(\tau)+\rho)d\tau} ds \\ \pi_s(i) &= f(\varphi, \omega) \end{aligned} \tag{1}$$

Shock

$\Longrightarrow \delta^{SOE} \uparrow$ but $\delta^{POE} \downarrow$

Main mechanism

The shock

- After asymmetric shock, "reservation productivity" for POEs increases and vice versa for SOEs
- $\Rightarrow$ SOEs take advantage of better borrowing ability, forcing marginal POEs out of competition
- productivity of averaged POEs is now larger than SOEs

Main mechanism

The shock

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The POEs

- Therefore, POEs' total profit rises (SOEs' falls)
- higher profit level translates into higher saving rate for the households who own POEs
- saving rate rises in China

Main mechanism II

The SOEs

- SOEs have better access to credit and borrow more $\Rightarrow$ issue more investable assets

Main mechanism II

The SOEs

- SOEs have better access to credit and borrow more ⇒ issue more investable assets

Net effect

- Since SOEs' productivity is lower relative to POEs', total savings increases more than total new asset issuance ⇒ **Capital Outflow**

Main mechanism III

Foreign economy - Who gets assets?

- **Substitution effect**: Cheaper goods produced in China $\Rightarrow$ foreign production and savings decrease
- **Income effect**: Higher consumption from China $\Rightarrow$ demand for foreign good and investment (new asset issuance) increase in foreign region
- saving and investment gap in foreign region generates the 'storage' for the excess Chinese savings

Quantitative exercise

I investigate whether:

1. productivity differential between SOEs and POEs
2. sustained China's current account surplus
3. stubborn decline in long run interest rate

are results of asymmetric borrowing constraints co-exist within China.

Three cases:

- $\downarrow \delta^{POEs}, \uparrow \delta^{SOEs}$
  1. $\Delta\delta^h = 0$
  2. $\Delta\delta^h > 0$
  3. $\Delta\delta^h < 0$

Note: aggregate borrowing ability in China
$\delta^h = q * \delta^{SOEs} + (1-q) * \delta^{POEs}$

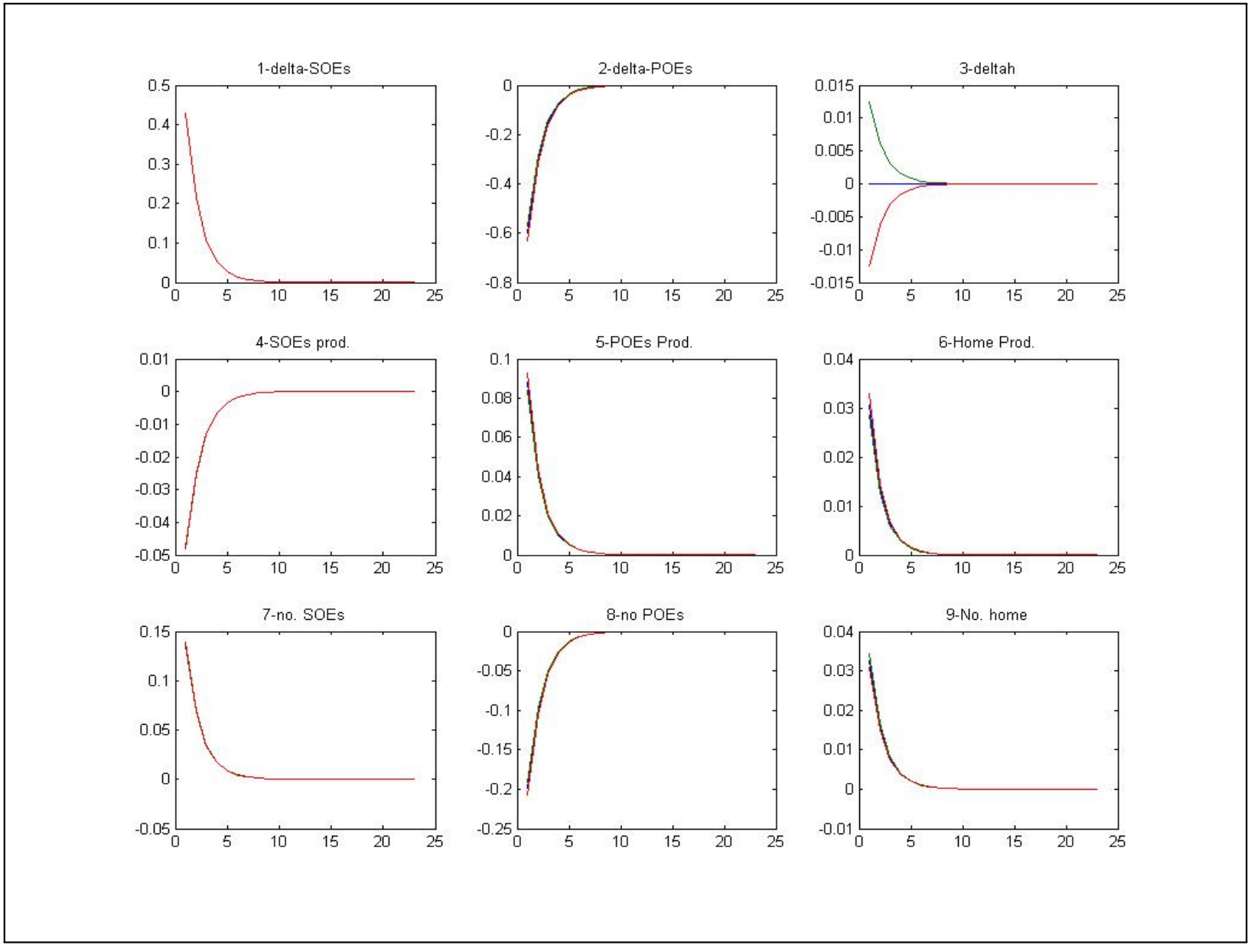
Calibration

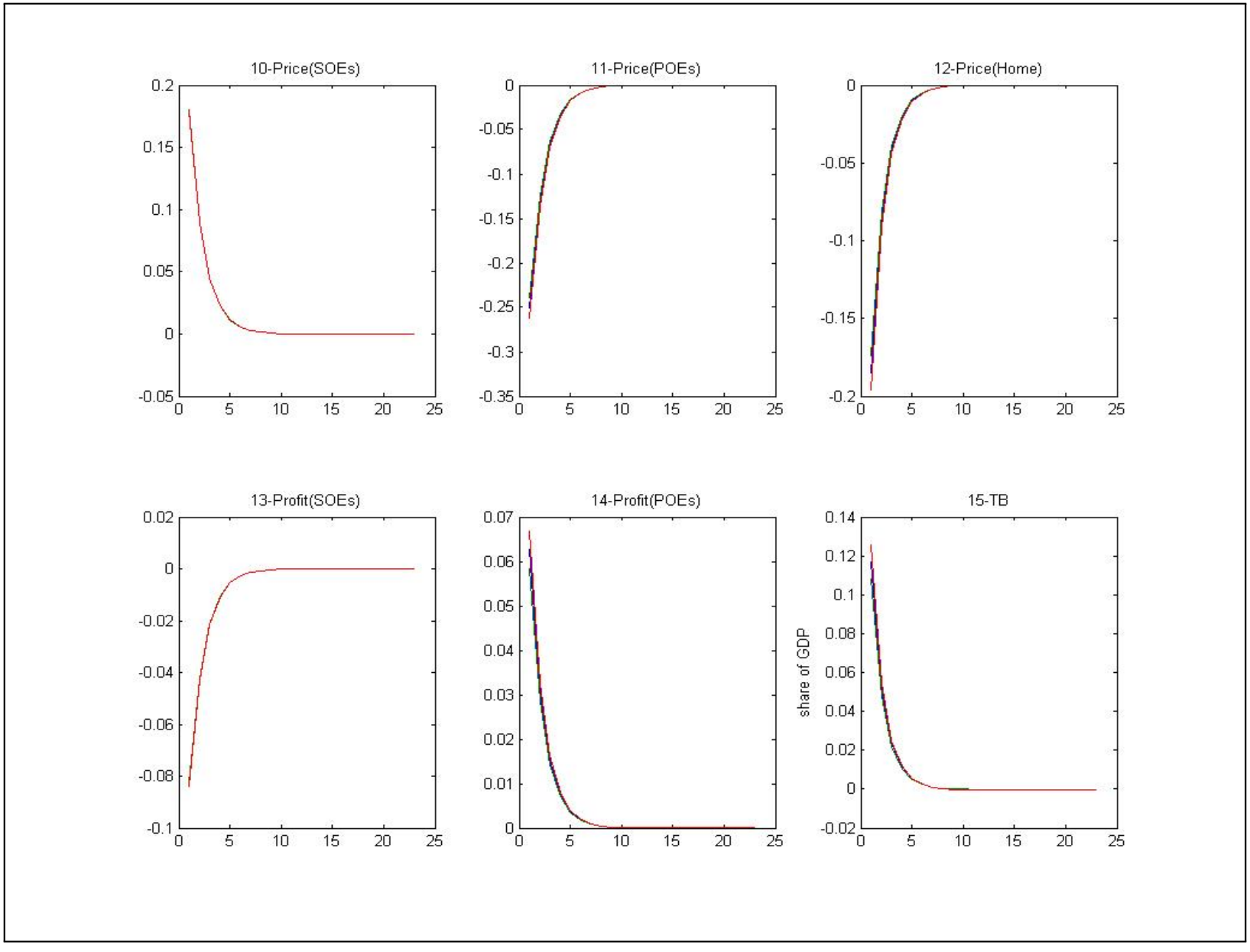
	Parameter	Value
Elasticity of Sub.	θ	2.1
Discounting Factor	τ	0.06
Prod. Distribution	α	2.6[1]
Prod. Distribution	φ_{min}	0.5
Entry/Exit Rate	ρ	0.12[2]
Fixed Entry Cost	F	0.32
Share of SOEs	q	0.5
Shock Persistence	$\rho 2$	0.5
Borrowing Ability - foreign	δ^{f}	0.12
Borrowing Ability - SOEs	δ^{SOEs}	0.14
Borrowing Ability - POEs	δ^{POEs}	0.10

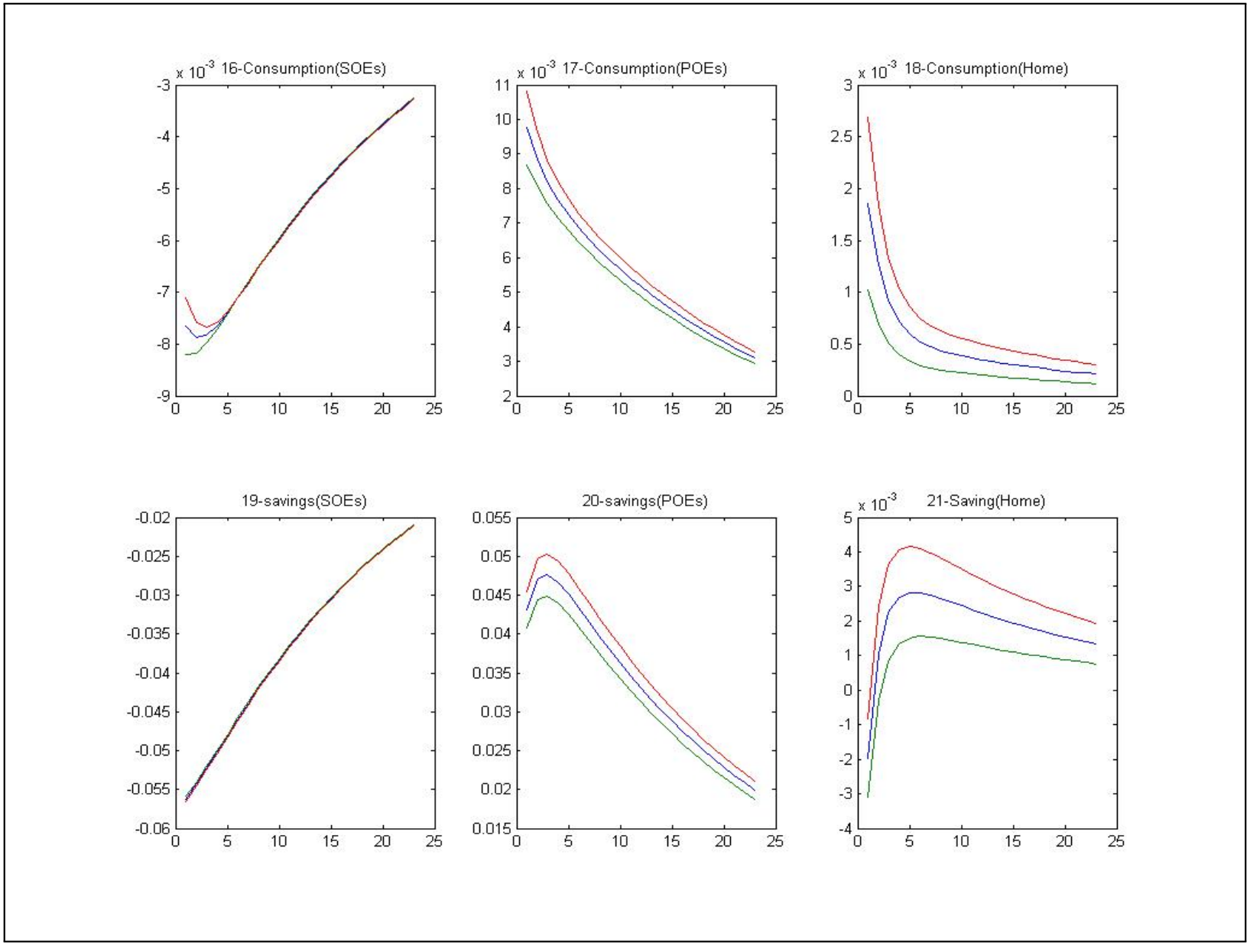
$$\varphi \sim Pareto(\varphi_{min}, \alpha)$$

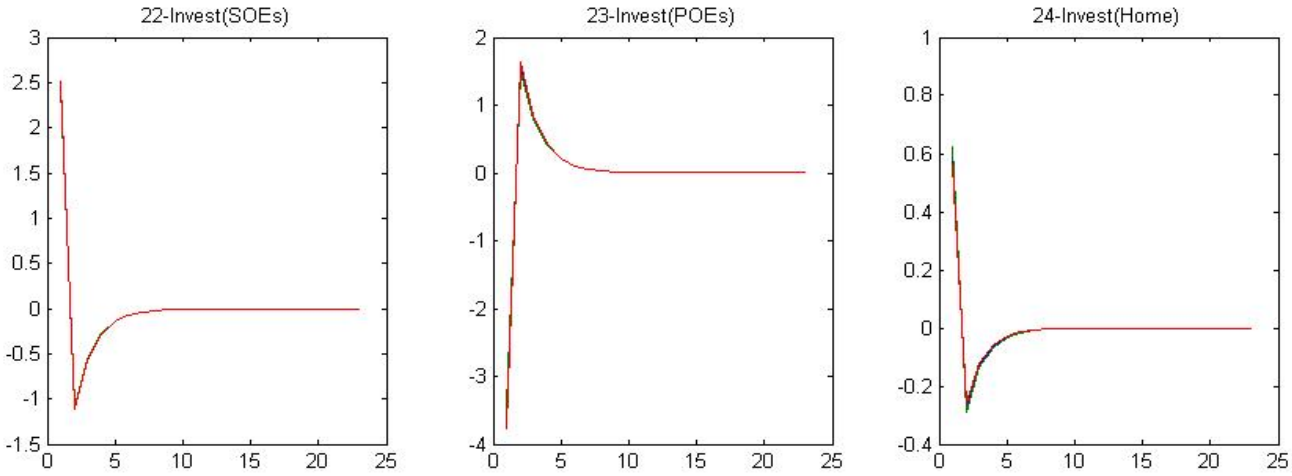
[1] Corcos, Del Gatto, Mion and Ottaviano (2011)

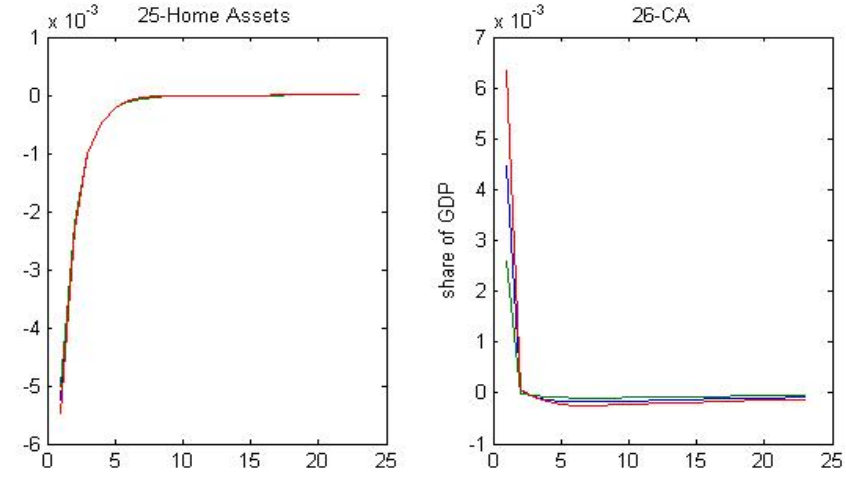
[2] Brandt, Van Biesebroeck and Zhang (2009)

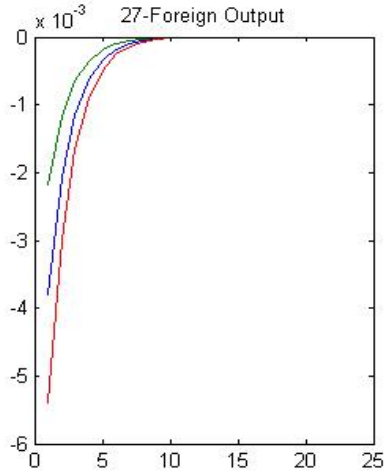

1-delta-SOEs
2-delta-POEs
3-deltah
4-SOEs prod.
5-POEs Prod.
6-Home Prod.
7-no. SOEs
8-no POEs
9-No. home

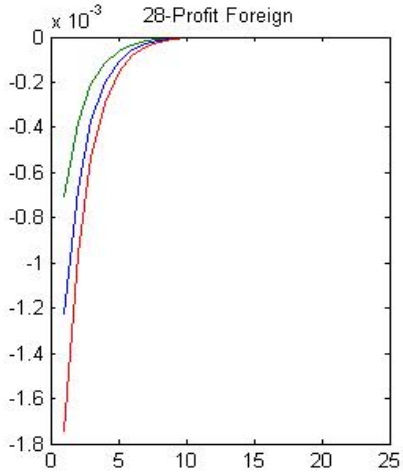

10-Price(SOEs)
11-Price(POEs)
12-Price(Home)
13-Profit(SOEs)
14-Profit(POEs)
15-TB
share of GDP

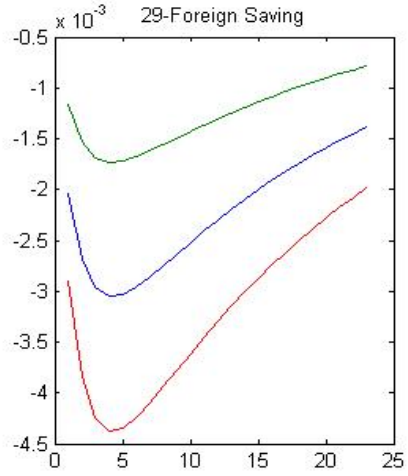

x 10^-3 16-Consumption(SOEs)
x 10^-3 17-Consumption(POEs)
x 10^-3 18-Consumption(Home)
19-savings(SOEs)
20-savings(POEs)
x 10^-3 21-Saving(Home)

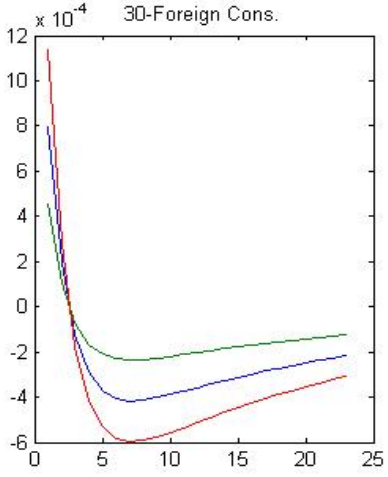

22-Invest(SOEs)
23-Invest(POEs)
24-Invest(Home)

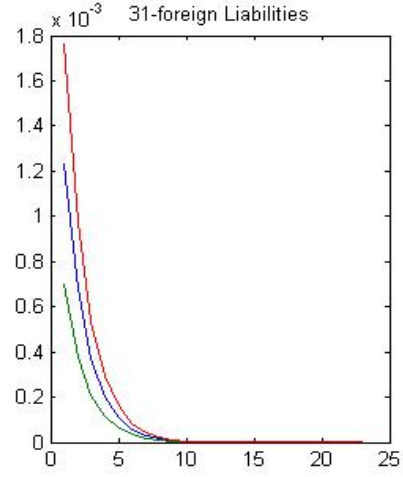

x 10^-3
25-Home Assets
x 10^-3
26-CA
share of GDP

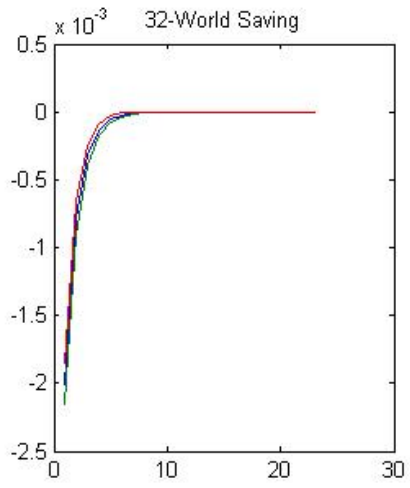

x 10^-3
27-Foreign Output
0
-1
-2
-3
-4
-5
-6
0 5 10 15 20 25

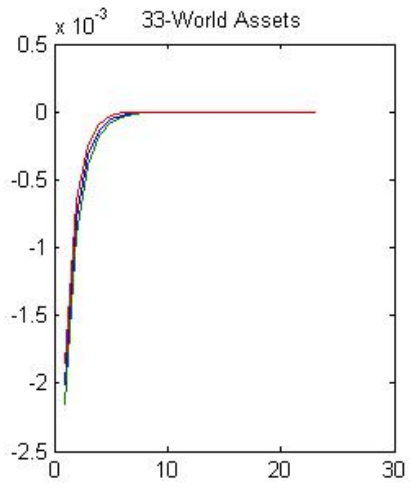

x 10^-3
28-Profit Foreign
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
-1.6
-1.8
0 5 10 15 20 25

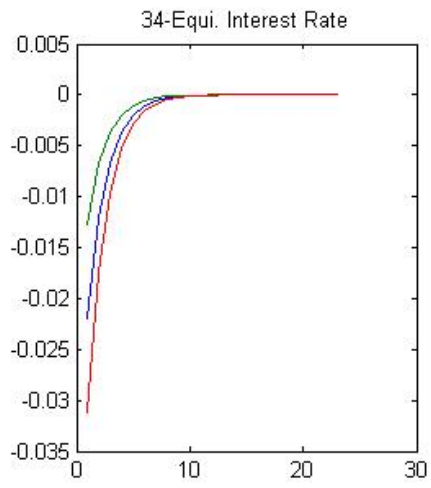

x 10^-3
29-Foreign Saving
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
0 5 10 15 20 25

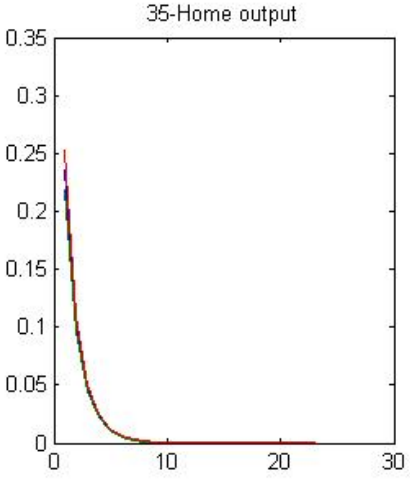

x 10^-4
30-Foreign Cons.
12
10
8
6
4
2
0
-2
-4
-6
0 5 10 15 20 25

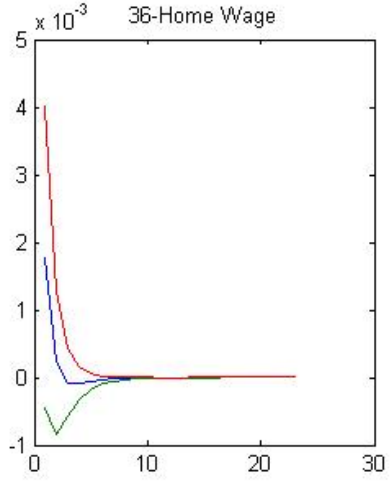

x 10^-3
31-foreign Liabilities
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0 5 10 15 20 25


x 10^-3
32-World Saving
0.5
0
-0.5
-1
-1.5
-2
-2.5
0
10
20
30


x 10^-3
33-World Assets
0.5
0
-0.5
-1
-1.5
-2
-2.5
0
10
20
30


34-Equi. Interest Rate
0.005
0
-0.005
-0.01
-0.015
-0.02
-0.025
-0.03
-0.035
0
10
20
30


35-Home output
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
10
20
30


x 10^-3
36-Home Wage
5
4
3
2
1
0
-1
0
10
20
30

Summary

- This paper provides a simple framework to study the impact of asymmetric borrowing constraints in an open economy.
- It shows that asymmetric borrowing constraints lead to: productivity differentials, CA surplus and decline in world interest rate.
- Suggests financial development might not be the only/most relevant explanation for the CA surplus.

Implications of the paper is consistent with

- Chinese high TFP growth is driven by the new "entrances"
- differences between India and China CA dynamics

Policy implications

To the Chinese policy makers:

- 'stop' state-controlled banks from discriminating the POEs in credit markets
- promote healthy development of public financial market i.e. bond and equity
- Most importantly, develop credit assessment system

To the world policy markers:

- Imbalances can be driven by asymmetries within countries, rather than across.