

CoPS Internal Seminar

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Studying the impact of foreign capital constraints on Indonesian bank

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** The views presented herein are the author's personal views and are not necessarily reflect those of Bank Indonesia.*

Background

- Why foreign capital is important for Indonesian banks?
 - Cheaper
 - Raises the size of bank balance sheets, thus increases bank lending capacity
 - Increases risk exposures (e.g., foreign exchange risk, capital reversal, and financial crisis)
 - Highly regulated
- 2 questions to answer w.r.t. foreign capital regulations:
 - How do the banks accommodate the change in foreign capital regulation?
 - What are the implications on the economy?

Background

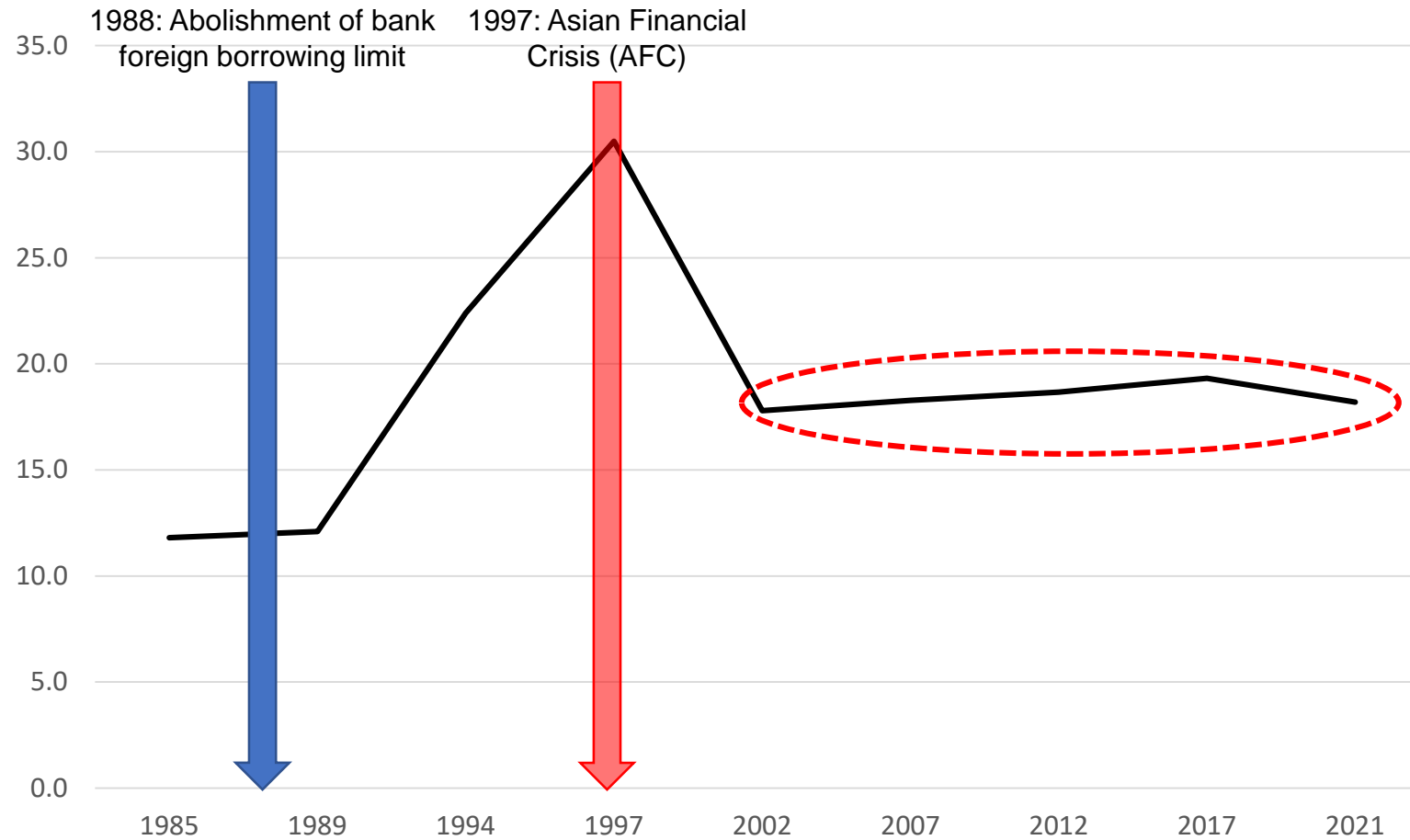


Figure 1: Foreign liability share in Indonesian Banks (%)

Net open position (NOP) Ratio, as a macroprudential policy

$$\uparrow \text{NOP Ratio} = \frac{\uparrow \text{Bank Foreign Liabilities} - \text{Bank Foreign Assets} \downarrow}{\text{Bank Equity}} \quad \text{Eq1}$$

- A 20% NOP ratio means that the banks are required to provide Rp100 capital equity for having Rp20 of net foreign liabilities.
- This simulation studies a 100 basis points increase in NOP (from 20 to 21%).

The Financial Computable General Equilibrium

- This paper uses an Indonesian FCGE model which is composed of 2 parts:
 - i. real-side CGE model following MONASH by Dixon and Maureen (2002);
 - ii. financial-side model uses the theories of FCGE in Dixon et. al. (2015); implemented in Rasyid et al. (2022) for bank CAR sim.

- Financial-side model:

Financial agent (s,d)

1. Industry
2. CB
3. Banks
4. NBFIs
5. Govt
6. HH
7. ROW
8. Housing

Financial instrument (f)

1. GldSDRs
2. Cash
3. DepLoans
4. Debt
5. Equity

Parameterisation of:

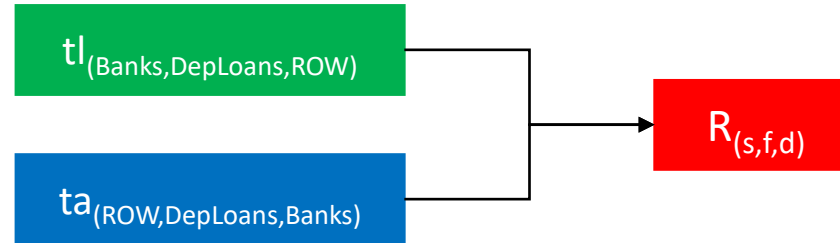
- Stocks $\mathbf{A0}_{(s,f,d)}$
- Flows $\mathbf{F}_{(s,f,d)}$
- Rate of return $\mathbf{R}_{(s,f,d)}$

- Linkages to real-side model:

- i. PBSR is financed by net government liability issuance.
- ii. Real investment is financed by net liability issuance by capital creator agents.
- iii. CAD is financed by net asset purchase by foreigners.
- iv. Aggregate savings are allocated to financial assets.
- v. Financial WACCs are aligned to real rate of return.

NOP implementation and modes of adjustments

- Phantom tax approach by Dixon et al. (2021).

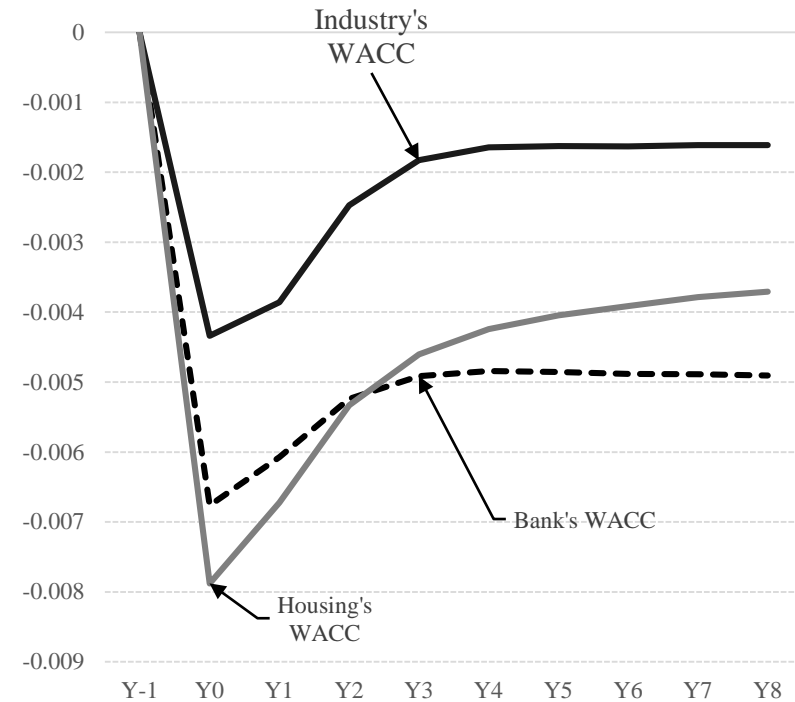


- Modes of adjustments
 - Full-liability adjustment
 - Full-asset adjustment
 - Partial- or symmetric- liability and asset adjustments

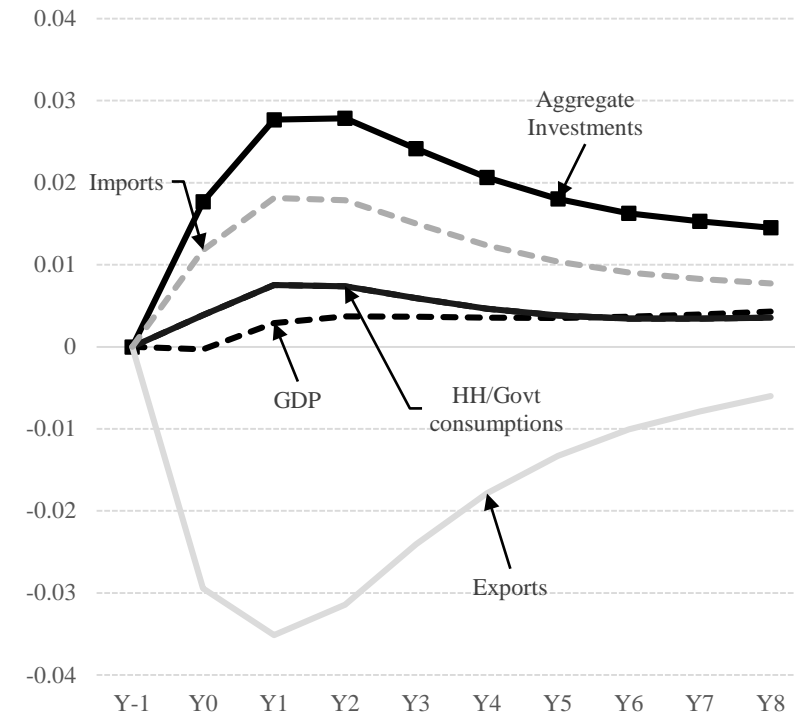
Variable	Baseline	Counterfactuals		
	Common	Full-liability (Sim1)	Full-asset (Sim2)	Symmetric (Sim3)
NOP	X (unshocked)	X (shocked ↑)	X (shocked ↑)	X (shocked ↑)
$tl_{(Banks, Deploans, ROW)}$	N	N	X	N
$ta_{(ROW, Deploans, Banks)}$	N	X	N	N

Table 1 Simulation Arrangements

Results: Sim 1, full liability adjustment (1)



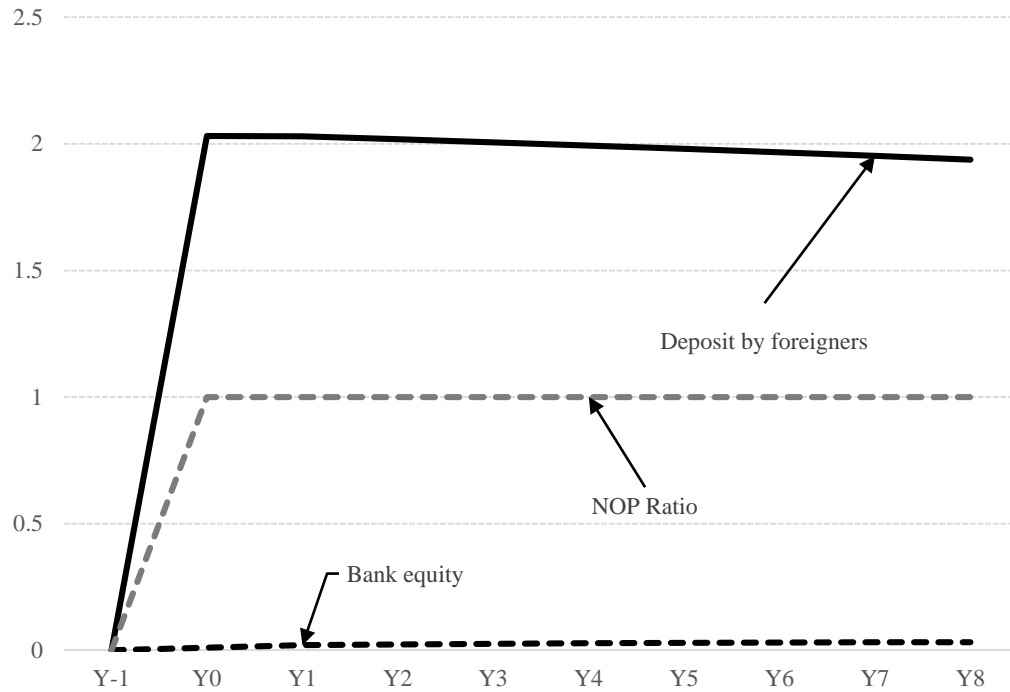
**Figure 2 Weighted Average Cost of Capitals (WACCs)
(Percent deviation from baseline)**



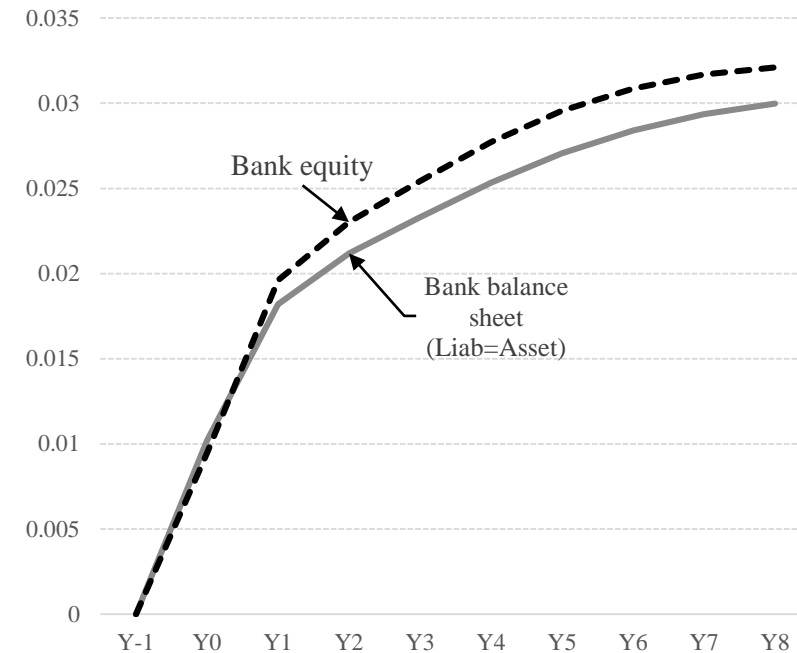
**Figure 3 Expenditure-side of GDP
(Percent deviation from baseline)**

Results: Sim 1, full-liability adjustment (2)

$$\text{NOP Ratio} = \frac{\uparrow \text{Bank Foreign Liabilities} - \text{Bank Foreign Assets}}{\text{Bank Equity}}$$



**Figure 4 NOP Related Variables
(Percent deviation from baseline)**



**Figure 5 Bank Balance Sheet and equity
(Percent deviation from baseline)**

Results: Sim 2, full-asset adjustment (1)

$$\text{NOP Ratio} = \frac{\text{Bank Foreign Liabilities} - \text{Bank Foreign Assets}}{\text{Bank Equity}}$$

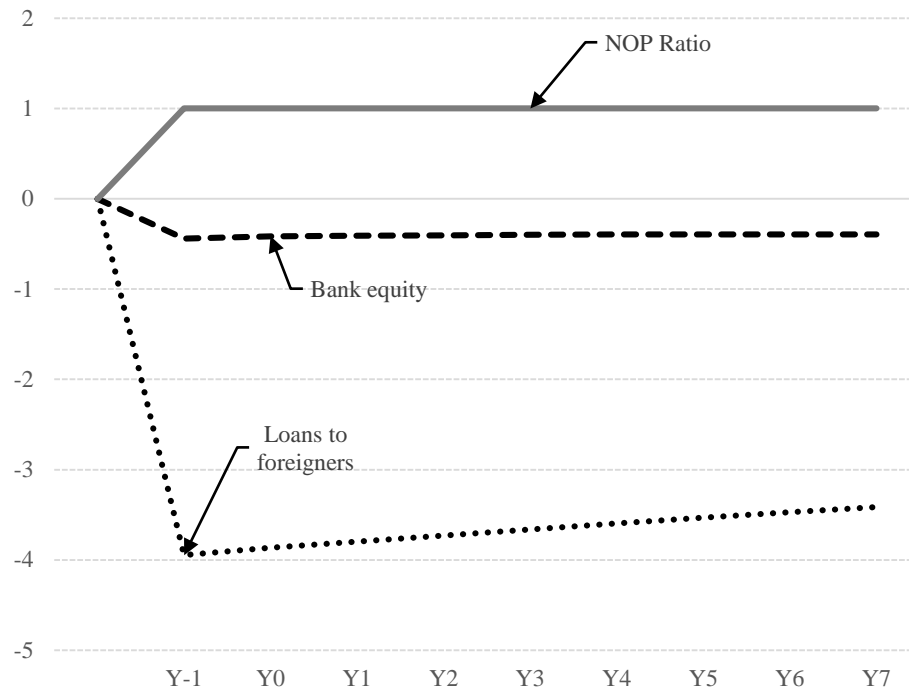


Figure 6 NOP Related Variables
(Percentage deviation from baseline)

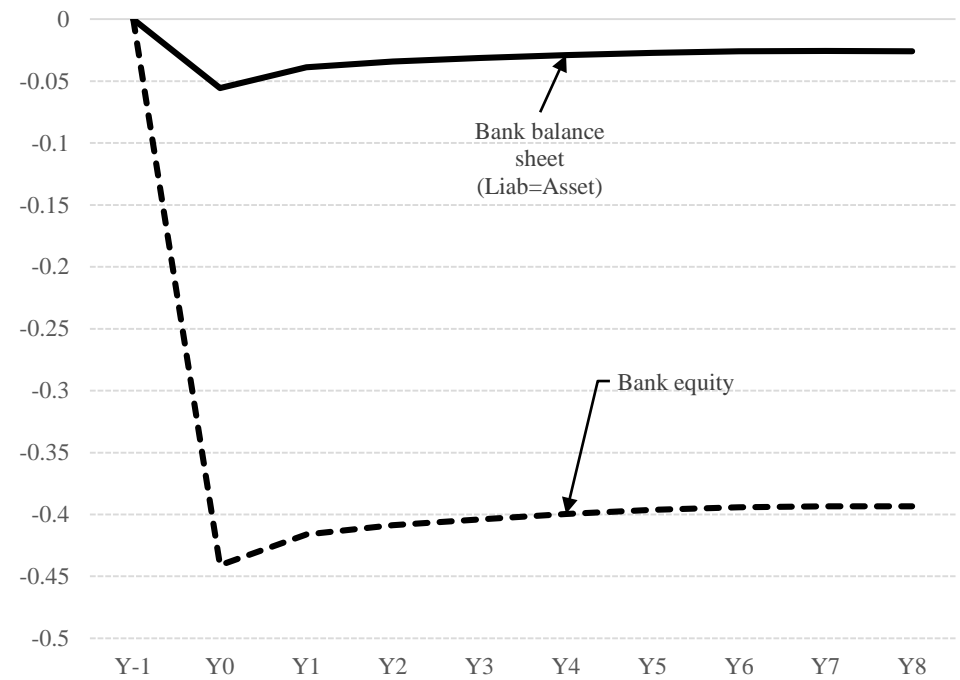


Figure 7 Bank Balance Sheets and Equity
(Percentage deviation from baseline)

Results: Sim 2, full-asset adjustment (2)

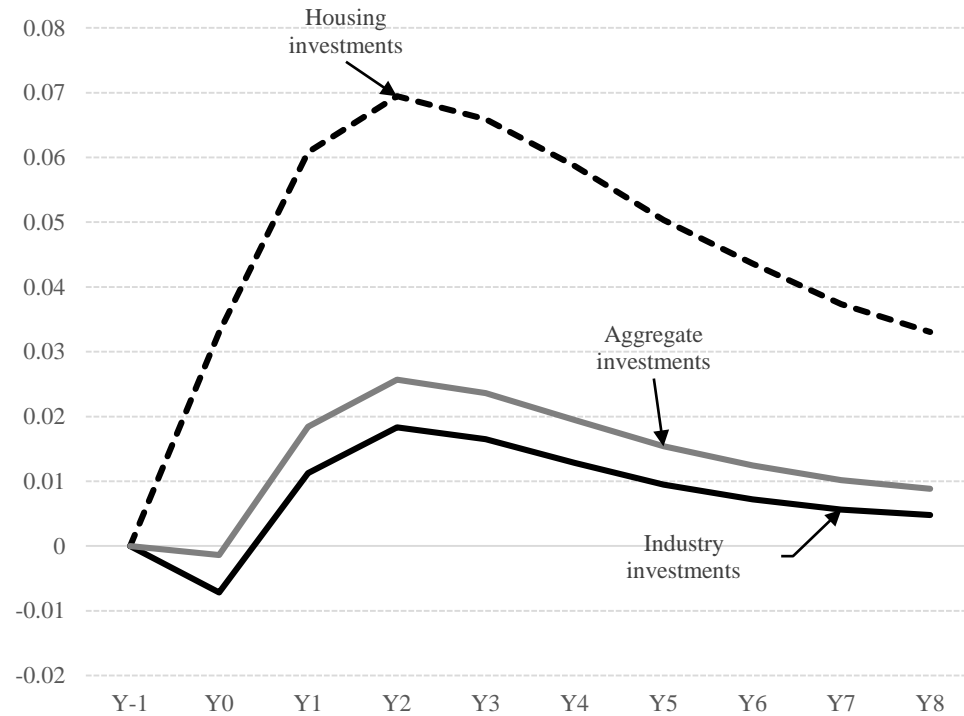


Figure 8 Industry and Housing Investment
(Percentage deviation from baseline)

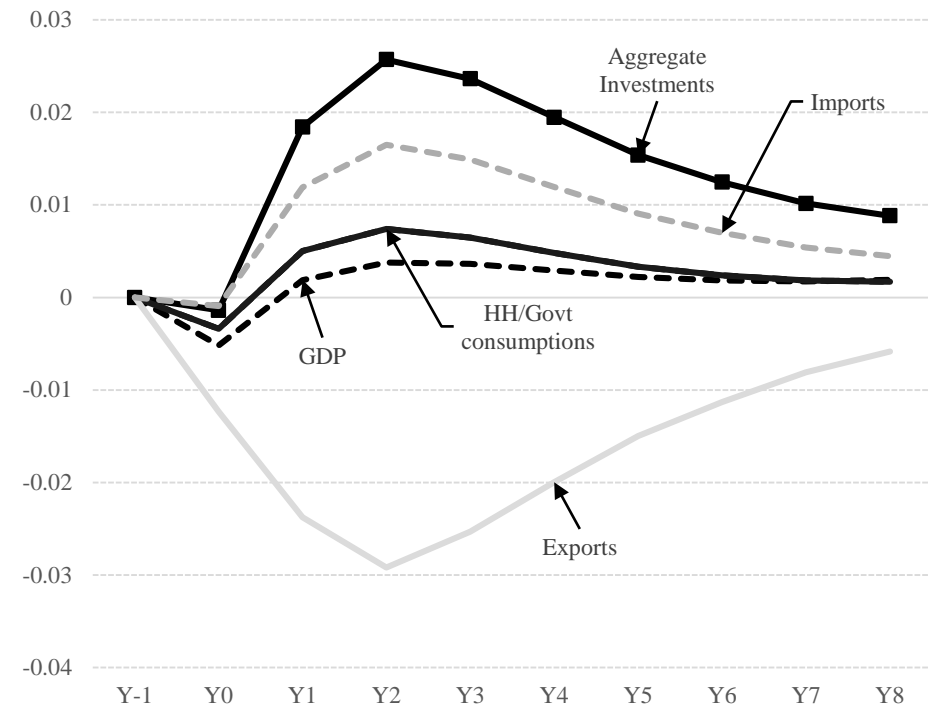


Figure 9 Expenditure-side of GDP
(Percentage deviation from baseline)

Results: Sim 3, partial (asymmetric) adjustment of asset and liability

$$\text{NOP Ratio} = \frac{\uparrow \text{Bank Foreign Liabilities} - \text{Bank Foreign Assets} \downarrow}{\text{Bank Equity}}$$

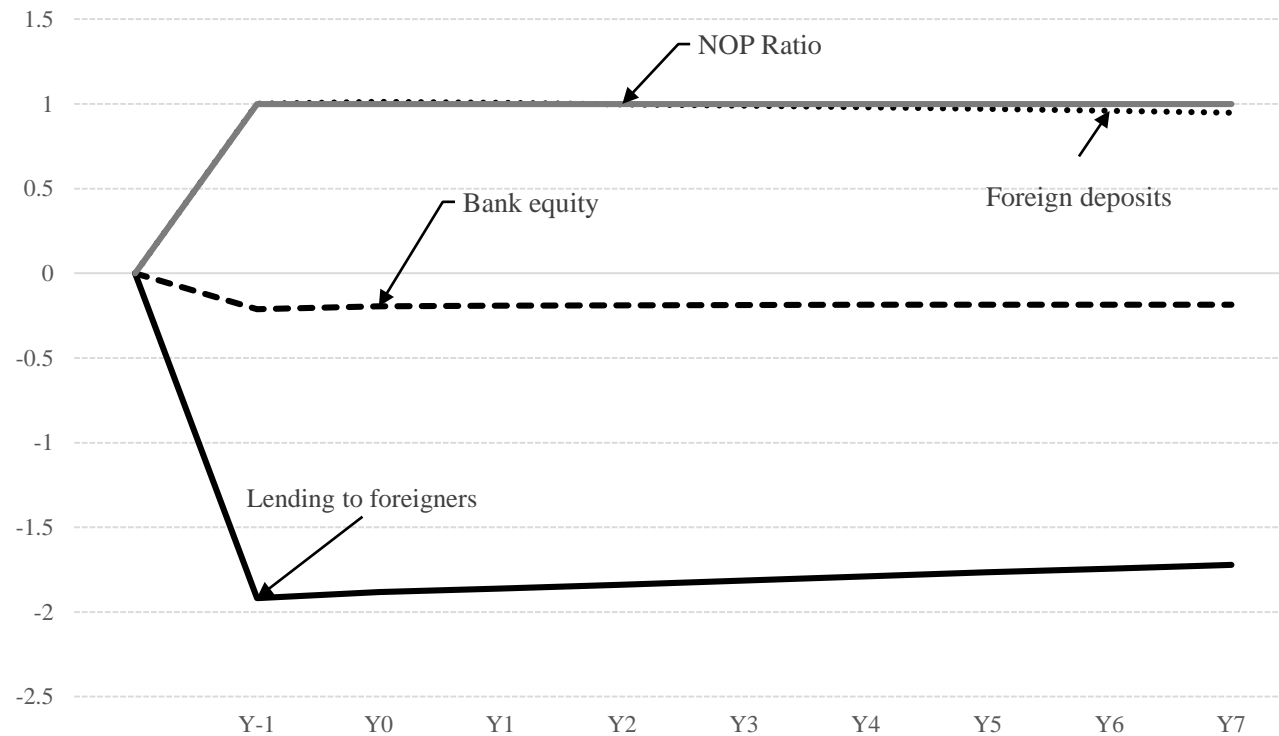


Figure 10 NOP Related Variables

Results: Sim 3 is the mid-point of Sim 1 and 2 (selected variables)

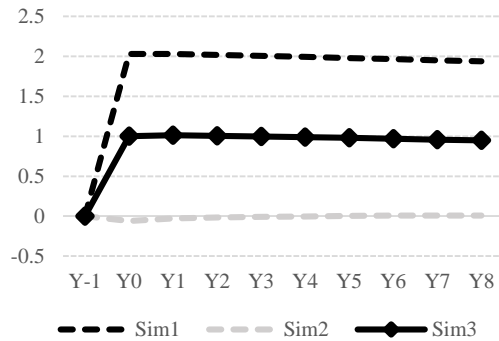


Figure 11 Deposit by foreigners

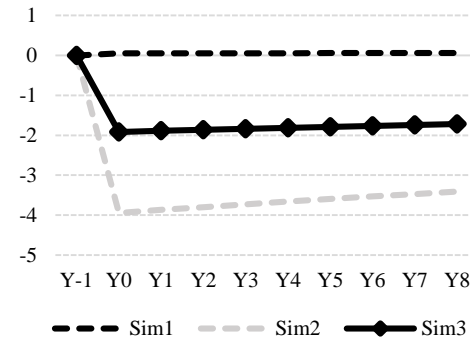


Figure 12 Loans to foreigners

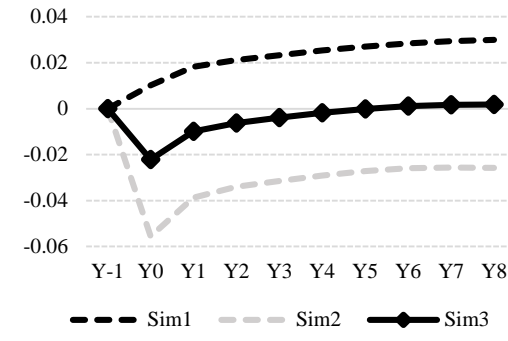


Figure 13 Bank Balance Sheet

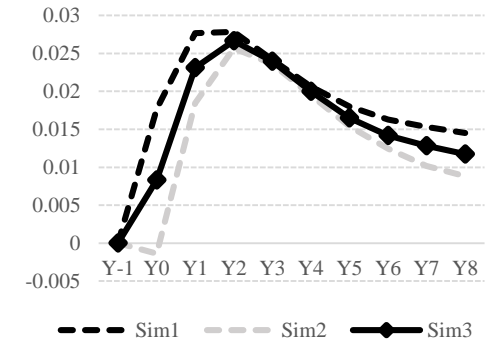


Figure 14 Real Investment

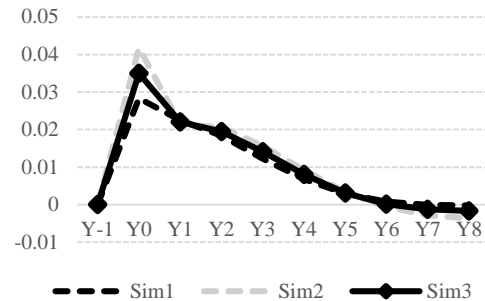


Figure 15 Nominal Exchange Rate

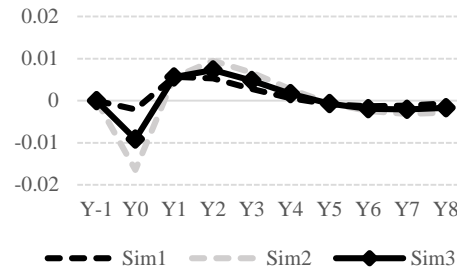


Figure 16 Employment

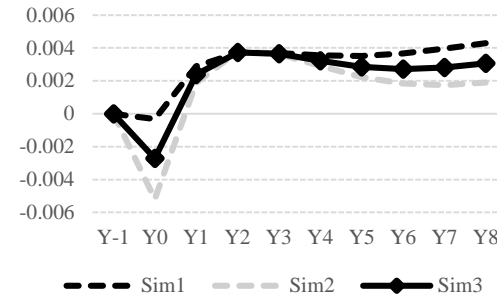


Figure 17 GDP

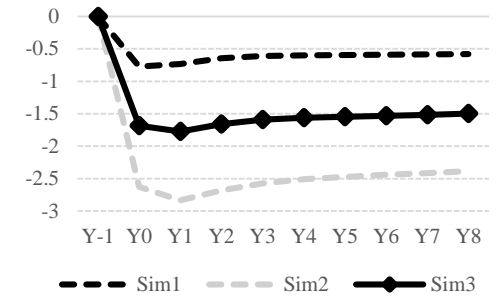


Figure 18 Policy Rate (Cash rate)

Conclusions:

- Rising bank NOP ratio via full-liability adjustment causes an expansion of bank balance sheet.
- Full-asset adjustment causes a contractionary of bank balance sheet.
- Symmetrical adjustment results in a smaller balance sheet contraction.
- For all sims, raising bank NOP stimulates the economy via real investments. The CAD increases, allowing the economy to absorb more capital inflows, and thus reflected in exchange rate appreciation.
- Long-run GDP is positively impacted. Short-run GDP is constrained by rise of CAD. In the short-run, employment declines as nominal appreciation of ER reduce domestic price and producer wage in a nominal rigidity arrangement. Given the fixed capital stock in the short run, the employment must fall by more. Employment returns to baseline in the long-run, along with the rise of capital stock.

Questions?

Income GDP and Labour Market (Sim 1)

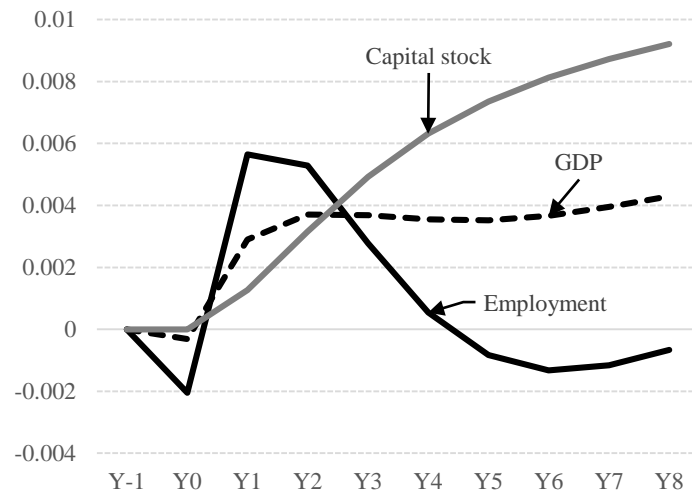


Figure A Income-side components of GDP (Sim 1)
(Percent deviation from baseline)

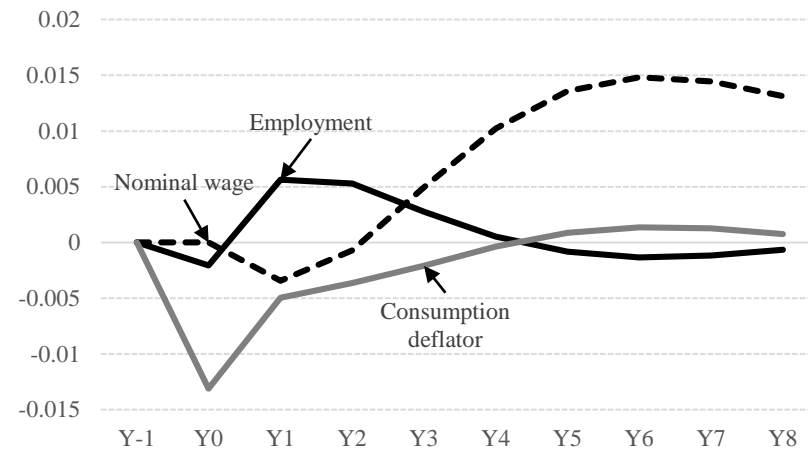


Figure B Labour Market (Sim 1)
(Percent deviation from baseline)