Discussion of “Monetary Policy and Endogenous Financial Crises” by F. Boissay, F. Collard, J. Galí, and C. Manea

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Roadmap

- Summarize the paper in a single slide.
- Zoom in on the modelling of credit markets.
- Provide comments.

The paper in a single slide

- Research questions:
  1. Through which channels does monetary policy influence financial stability?
  2. Should monetary policy deviate from inflation stabilization to reduce likelihood of disruptions in financial markets?
- Approach → model-based
  - Standard New Keynesian economy (Galí 2015) with endogenous freezes in credit markets (more in next two slides).
- Main results:
  - Monetary policy affects occurrence of market freezes through both aggregate demand (in short term) and capital accumulation (in long term) channels.
  - Strict inflation targeting is not socially optimal. Augmented Taylor rules or “backstop” interest-rate rules attain better outcomes.

Credit markets in the model

- Why is credit useful?
  - Ex ante, firms are identical and have same quantity of productive assets.
  - Ex post, firms differ in productivity because of idiosyncratic shocks.

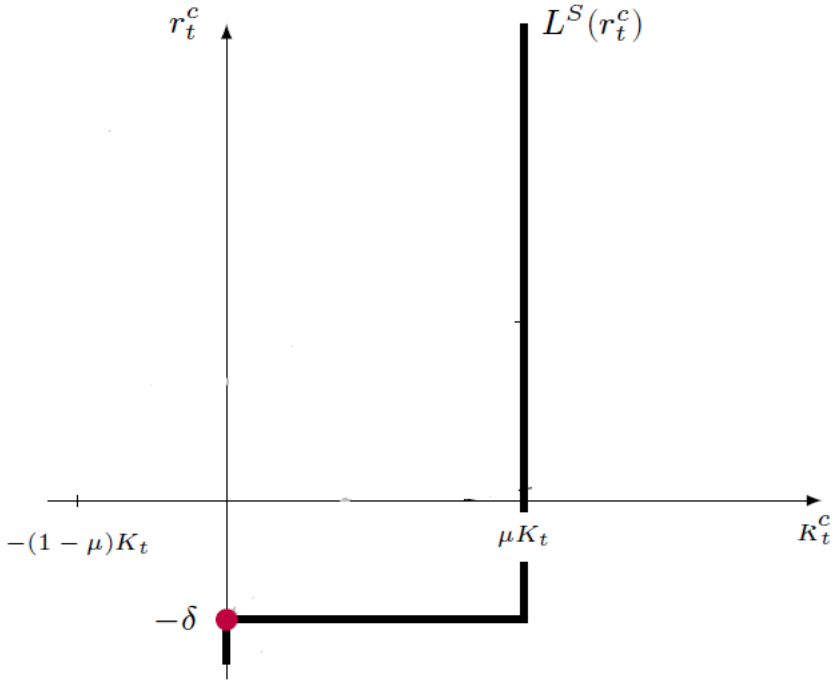
- Why credit may be limited?
  - Because of frictions on leverage.

- Given a monetary policy rule, aggregate quantity of productive assets is key state variable that determines equilibrium in credit markets.

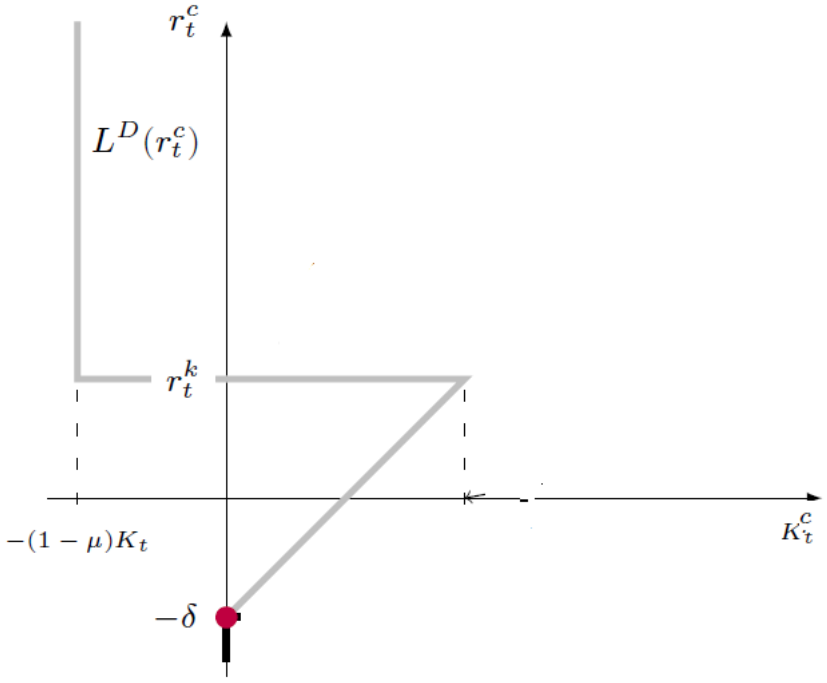
Equilibrium in credit markets (1/3)

State variable: K_t . Unknows: (K_t^c, r_t^c).

Aggregate supply of credit



Aggregate demand of credit



Equilibrium in credit markets (2/3)

Two different equilibrium outcomes depending on value of K_t :

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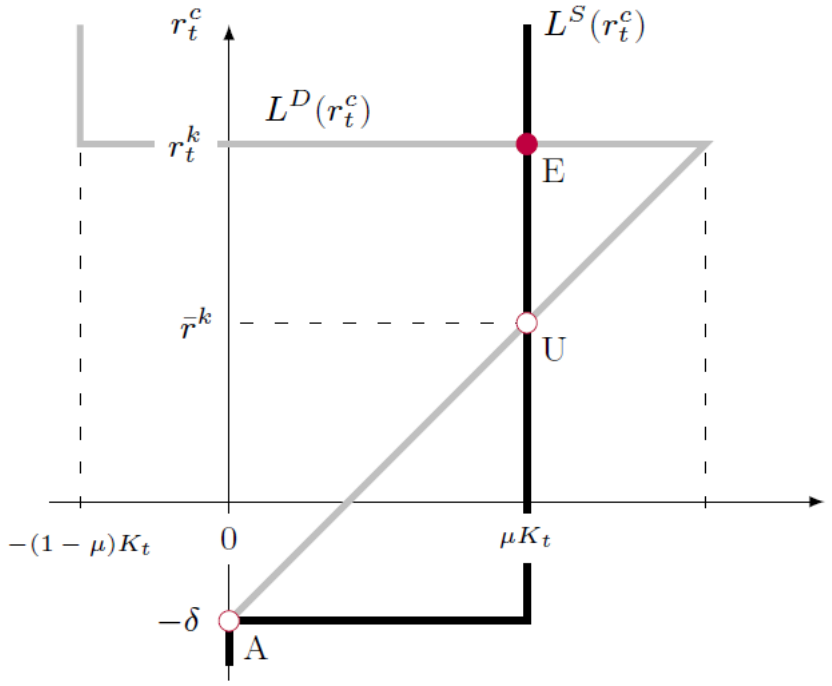
A. Low K_t $\rightarrow$ no market freeze



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Two different equilibrium outcomes depending on value of K_t :

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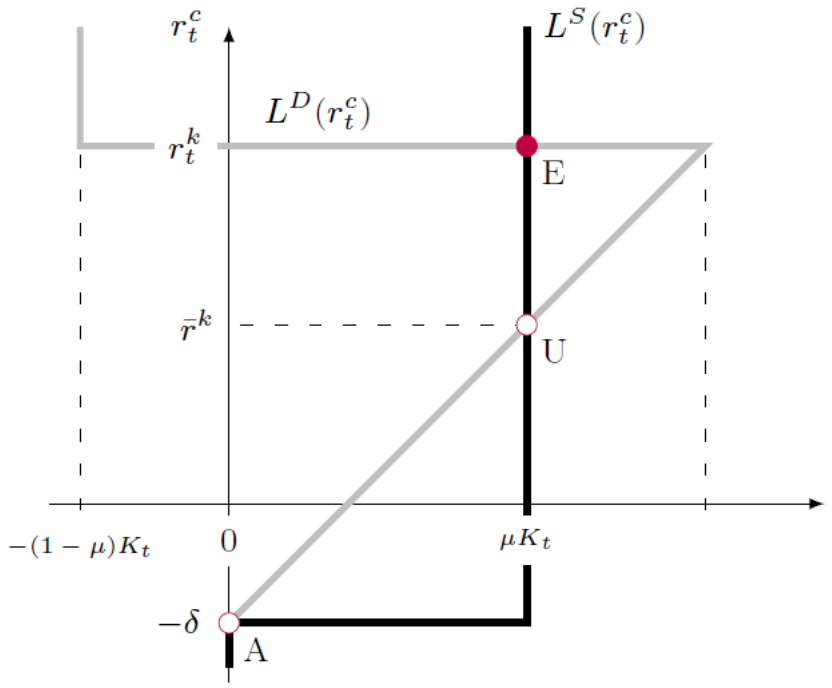
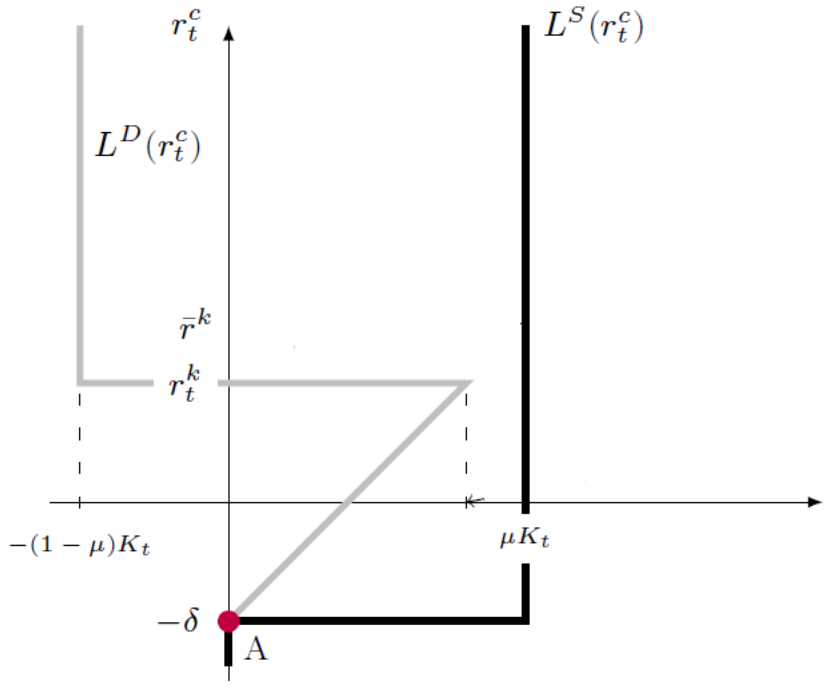


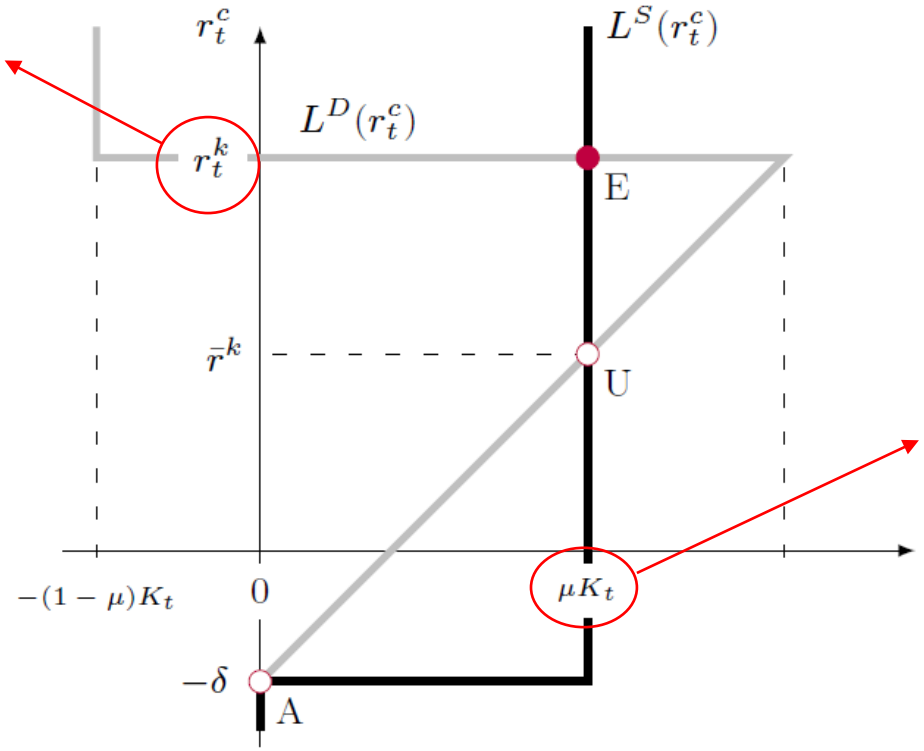
B. High K_t → market freeze



Equilibrium in credit markets (3/3)

Monetary policy indirectly influences the equilibrium outcome:

Aggregate demand channel
(on impact)

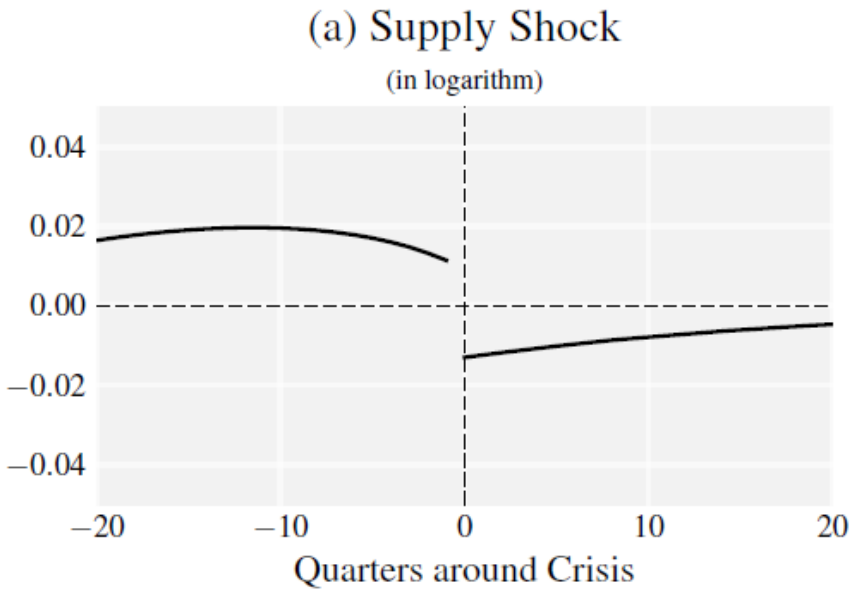


Capital accumulation channel
(requires some time)

Comments

#1.A: Testable predictions

- In model around half of financial crises (i.e., market freezes) are triggered by abrupt declines in aggregate productivity:



Before $t = 0$:

productivity above mean (by around 1 std. dev.)

After $t = 0$:

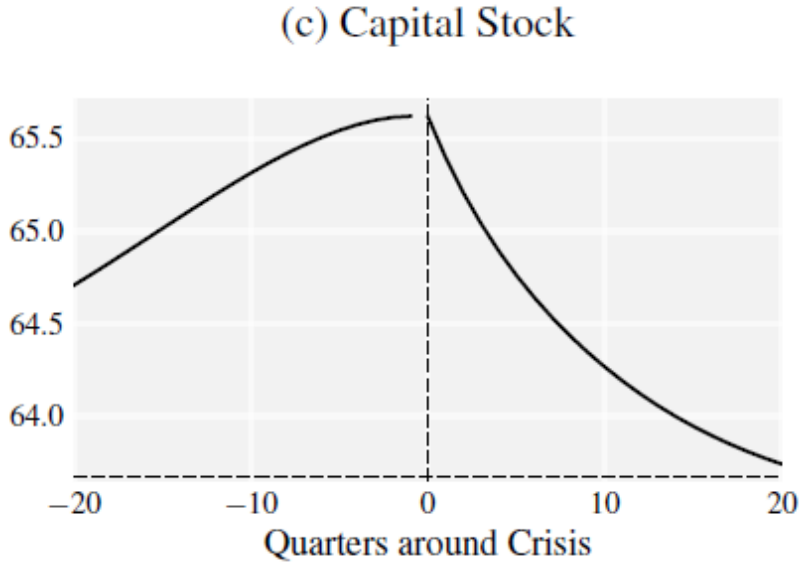
productivity below mean (by around 1 std. dev.)

At $t = 0$: Size of shock $>$ 2 std. dev.

Questions: Are financial crises triggered by such large changes in TFP?
Is this implication consistent with data?

#1.B: Testable predictions

- In model financial crises occur when firm assets / firm equity peak:



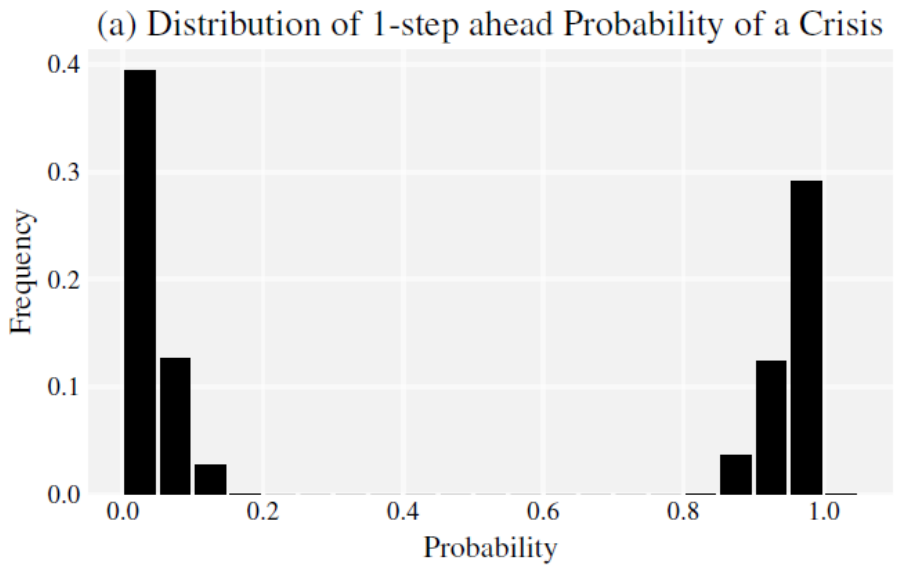
Ex ante: No debt / No leverage

Thus: Productive assets == Firm equity

Questions: Does ratio of firm equity / firm assets to GDP in itself pose threats to financial stability? (Or it is more the debt-to-GDP ratio?)

#1.C: Testable predictions

- Model derives formula for probability of financial crises:



Formula:

$$\mathbb{E}_{t-1}\left(\mathbb{1}\left(\frac{Y_t}{\mathscr{M}_t K_t} < \frac{1-\tau}{\alpha}\left(\frac{(1-\theta)\mu-\delta}{1-\mu}+\delta\right)\right)\right)$$

Question: Is it possible to estimate this probability with data and check whether the estimate behaves in accord with model?

#2.A: Policy interventions

- Model restricts attention to interest-rate policies.

- In positive analysis model identifies two channels through which monetary policy influences financial stability.

Question: Is it possible to determine which channel is more important? (Maybe in an economy with full depreciation of physical capital?)

#2.B: Policy interventions

- In normative analysis model restricts attention to variants of Taylor rules and to backstop interest-rate rules.

Questions:

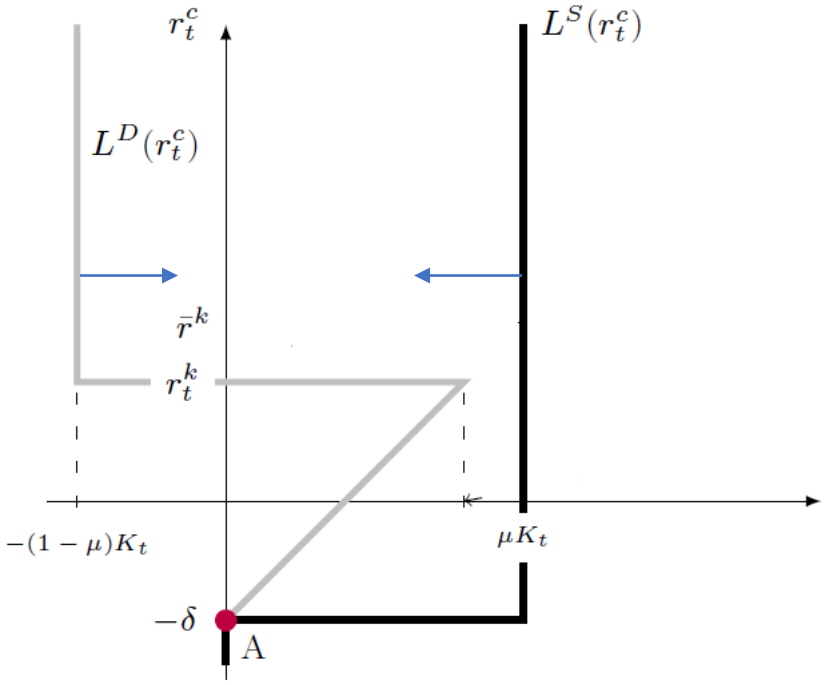
Is it possible to derive the optimal interest-rate policy?

More generally, is it possible to derive the constrained efficient allocation? That allocation can provide more guidance on the type of optimal policy interventions.

In next slides I conjecture on both ex-ante and ex-post socially beneficial interventions.

#2.C: Ex-post policy interventions

Equilibrium outcome with market freezes:



Comment:

Ex post large scale asset purchases (LSAP) can prevent market freezes.

Only a small fraction of asset must be purchased to prevent the freezes.

#2.D: Ex-ante policy interventions

In model tight monetary policy can reduce excessive capital accumulation by temporarily discouraging consumption.

Question:

Can’t macroprudential or fiscal policy attain similar outcomes without necessarily distorting price setting and price stability?

#3: Calibration

- In paper parameter values are calibrated as follows:

Parameter	Target	Value
Preferences		
β	4% annual real interest rate	0.989
σ	Logarithmic utility on consumption	1
φ	Inverse Frish elasticity equals 2	0.5
χ	Steady state hours equal 1	0.81
Technology and price setting		
α	64% labor share	0.36
δ	6% annual capital depreciation rate	0.015
ϱ	Same slope of the Phillips curve as with Calvo price setting	58.22
ϵ	20% markup rate	6
Aggregate TFP (supply) shocks		
ρ_a	Standard persistence	0.95
σ_a	Volatility of inflation and output in normal times (in %)	0.81
Aggregate Demand shocks		
ρ_z	Standard persistence	0.95
σ_z	Volatility of inflation and output in normal times (in %)	0.16
Interest rate rule		
ϕ_π	Response to inflation under TR93	1.5
ϕ_y	Response to output under TR93	0.125
Financial Frictions		
μ	Productivity falls by 1.8% due to financial frictions during a crisis	0.05
θ	The economy spends 10% of the time in a crisis	0.52

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Questions:

Why not setting the highlighted values as follows:

$\beta \rightarrow$ target 2% real interest rate;

$\theta, \mu \rightarrow$ target Prob(y/ys<0.95) $\cong$ 2-4%?

Also, distribution of idiosyncratic productivity not consistent with data:

$\omega_i \sim$ Log Normal (0,0.63);

$\log \omega_i$ follows over time AR(1) with $\rho = 0.8,\ \sigma = 0.5.$

#4: Interpretation of main results

Paper suggests that deviations from strict inflation targeting (SIT) may significantly (my reading) improve financial stability and social welfare:

	Rule parameters			Model with Financial Frictions					Frictionless
	ϕ_π	ϕ_y	ϕ_r	Time in Crisis/Stress (in %)	Length (quarters)	Output Loss (in %)	Std(π_t) (in pp)	Welfare Loss (in %)	Welfare Loss (in %)
Taylor–type Rules									
(1)	1.5	0.125	–	[10]	4.8	6.6	1.2	0.82	0.56
(2)	1.5	0.250	–	7.2	4.0	5.4	1.8	1.48	1.21
(3)	1.5	0.375	–	4.1	3.1	4.4	2.5	3.10	2.07
(4)	2.0	0.125	–	9.7	5.0	7.2	0.6	0.41	0.17
(5)	2.5	0.125	–	9.6	5.1	7.5	0.5	0.31	0.08
SIT									
(6)	$+\infty$	–	–	9.4	5.1	8.1	–	0.23	0.00
Augmented Taylor–type Rules									
(7)	1.5	0.125	5.0	5.4	3.9	5.5	1.16	0.65	–
(8)	5.0	0.125	5.0	8.8	5.0	7.4	0.18	0.22	–
(9)	5.0	0.125	25.0	6.9	4.7	6.6	0.19	0.18	–
(10)	10.0	0.125	75.0	6.3	4.6	6.4	0.09	0.16	–
Backstop Rules									
(11)	1.5	0.125	–	15.5	–	–	1.21	0.56	–
(12)	$+\infty$	–	–	17.1	–	–	0.50	0.10	–

Comment:

Not very large welfare gains.

Interpretation could be:
SIT does not perform so bad.

Conclusion

Great paper! Highly recommended it!

Interesting NK model economy with endogenous market freezes.

Summary of comments:

- Consider also risk shocks to idiosyncratic productivity;
- Derive constrained efficient allocation and more general socially improving policy interventions;
- Adjust calibration.

Many thanks! / Muchas gracias!