Discussion of "The Reversal Interest Rate" by Brunnermeier & Koby

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Paper summary

- Proposes theory of a *endogenous, state-dependent nominal interest rate threshold* below which monetary policy reverses its course
- Theory relies on frictions in banking system (financial, market power)
- Two (fairly autonomous) components
  - Stylized PE model establishes existence of reversal interest rate analytically
  - Mechanism is embedded into New Keynesian DSGE model
- Very nice, thought provoking paper! Blends hot topics of past decade in monetary and financial macro in incredibly coherent manner

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- Main ingredient: bank's capital constraint

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$\Rightarrow$ initially expansionary: $i^L \downarrow$ & $L \uparrow$
but interest income on safe assets decline, leading to lower net worth $N \downarrow$

$\Rightarrow$ ultimately (CC) starts to bind, so if cut large enough $i^L \uparrow$ & $L \downarrow$ (reversal)

Main results

- *Reversal interest rate* i^{RR} is level at which reversal takes place:

$$\partial i^L / \partial i > 0 \text{ for } i > i^{RR}$$

$$\partial i^L / \partial i = 0 \text{ for } i = i^{RR}$$

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- i_t^{RR} is time-varying and state-dependent
  - i_t^{RR} can perfectly be above zero
  - weaker bank balance sheets (tighter (CC)) associated to higher i_t^{RR}
  - as capital gain effects get weaker over time as assets mature, i_t^{RR} slopes up

Macro implication

- Consider simplified version of basic NK model with perfectly rigid prices, perfect foresight
- Market clearing ($y_t = c_t$) in Euler equation leads to IS equation

$$y_t = y_{t+1} - \frac{1}{\sigma} \left(i_t - \rho \right)$$

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$$y_t = y_{t+1} - \frac{1}{\sigma}\left(i_t - \rho\right)$$

- One interpretation of Brunnermeier-Koby (BK) friction is to distinguish policy rate i_t from rate relevant for private decisions

$$y_t = y_{t+1} - \frac{1}{\sigma}\left[f\left(i_t, s_t\right) - \rho\right]$$

  - s_t is vector of state variables (bank balance sheet, past policy rates, etc)
  - reversal interest rate: $f_i \gtreqless 0$ for $i_t \gtreqless i_t^{RR}$

Macro implication (cont.)

- Monetary policy transmission non-monotonic:
  - $\partial y_t / \partial i_t < 0$ when i_t is "normal"
  - *but* $\partial y_t / \partial i_t > 0$ when i_t is below i_t^{RR}
- Forward guidance less effective when rates low for long

$$y_t = \sum_{j=0}^{\infty} -\frac{1}{\sigma} \left[f\left(i_{t+j}, s_{t+j}\right) - \rho \right]$$

  - $\partial y_t / \partial i_t < \partial \tilde{y}_t / \partial i_{t+j}$ for $j > 0$ when i_t^{RR} creeps up over time

Insights for open-economy macro

1. Monetary policy spillovers

2. Asymmetric monetary policy transmission in currency unions

1. MP spillovers

- 2 country version, 2 goods (home & foreign), home-bias, unitary elasticities (Cole-Obstfeld), rigid prices
- Flexible exchange rates, producer currency pricing
- Euler equations

$$
\begin{aligned}
c_t &= c_{t+1} - \left[f\left(i_t, s_t\right) - \pi_{t+1} - \rho\right] \\
c_t^* &= c_{t+1}^* - \left[f^*\left(i_t^*, s_t^*\right) - \pi_{t+1}^* - \rho\right]
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- Market clearing (linearized) now given by

$$y_t = 2\alpha\left(1-\alpha\right) e_t + \left(1-\alpha\right) c_t + \alpha c_t^*$$
$$y_t^* = -2\alpha\left(1-\alpha\right) e_t + \left(1-\alpha\right) c_t^* + \alpha c_t$$

(α is degree of openess)

1. MP spillovers (cont.)

- Assuming interest parity, $\Delta e_{t+1} = i_t - i_t^*$, IS equations given by

$$y_t = y_{t+1} - \alpha\left(i_t - i_t^*\right) - \left[(1-\alpha) f\left(i_t, s_t\right) + \alpha f^*\left(i_t^*, s_t^*\right) - \rho\right]$$
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- In absence of BK friction, no MP spillovers

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⇒ Beggar-Thy-Neighbor effects of MP magnified in low interest rates environment or when banking systems under strains

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- In absence of BK friction, symmetric MP transmission

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  - cyclical differences in banking sectors (s_t vs. s_t^*): different levels of net worth, portfolio compositions, cyclical macropru policies

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$\Rightarrow$ Asymmetric macrupru policies all the more important in low interest rate environment or when banking system under strains