Discussion of "Optimal Mix of Monetary, Macroprudential and Fiscal Policies" by Sami Alpanda, Gino Cateau, Tamon Takamura

Javier Bianchi

Minneapolis Fed & University of Wisconsin & NBER

BIS Conference

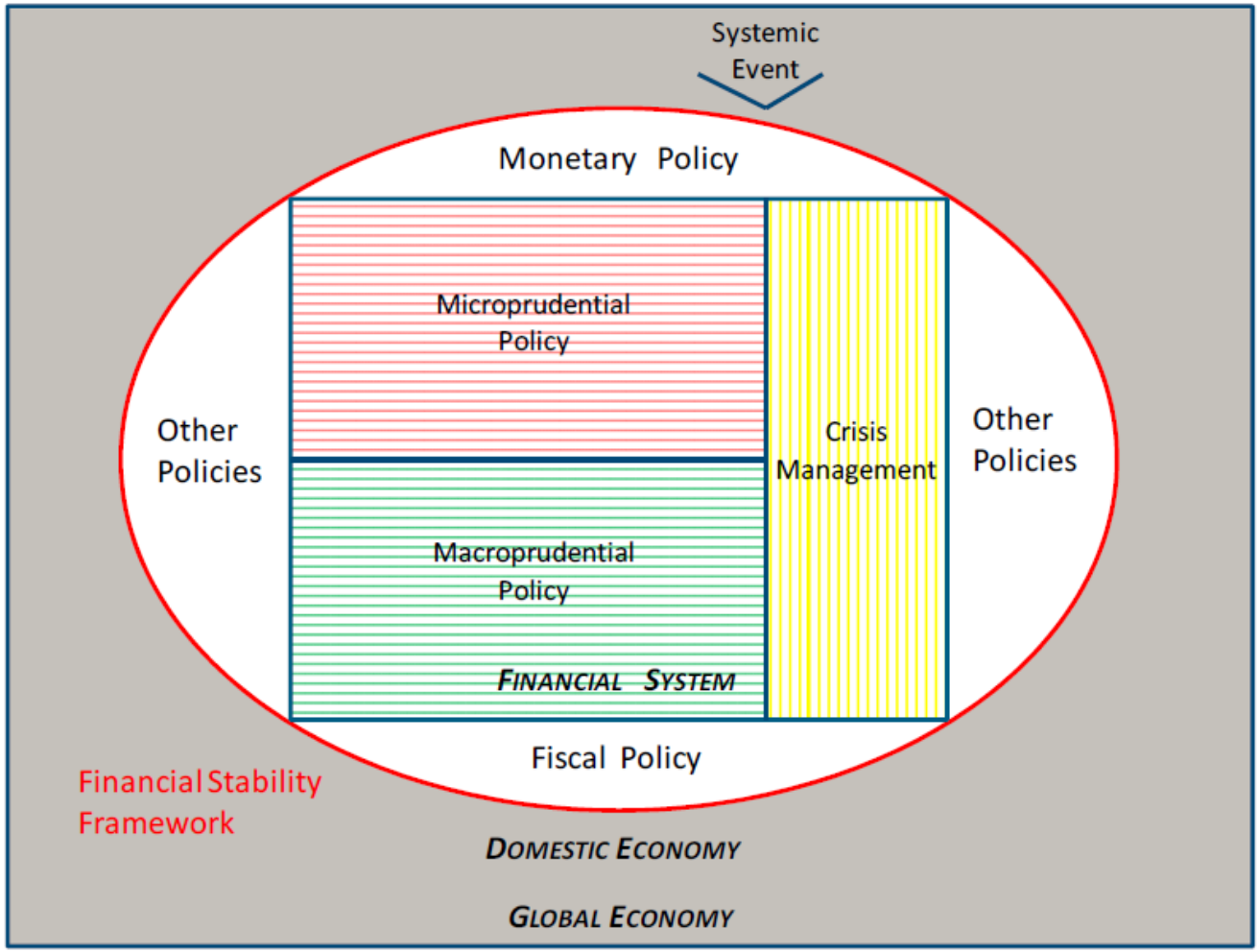
Motivation

- Goal of this project: Study interaction between macroprudential, monetary and fiscal policy within a rich quantitative model

Motivation

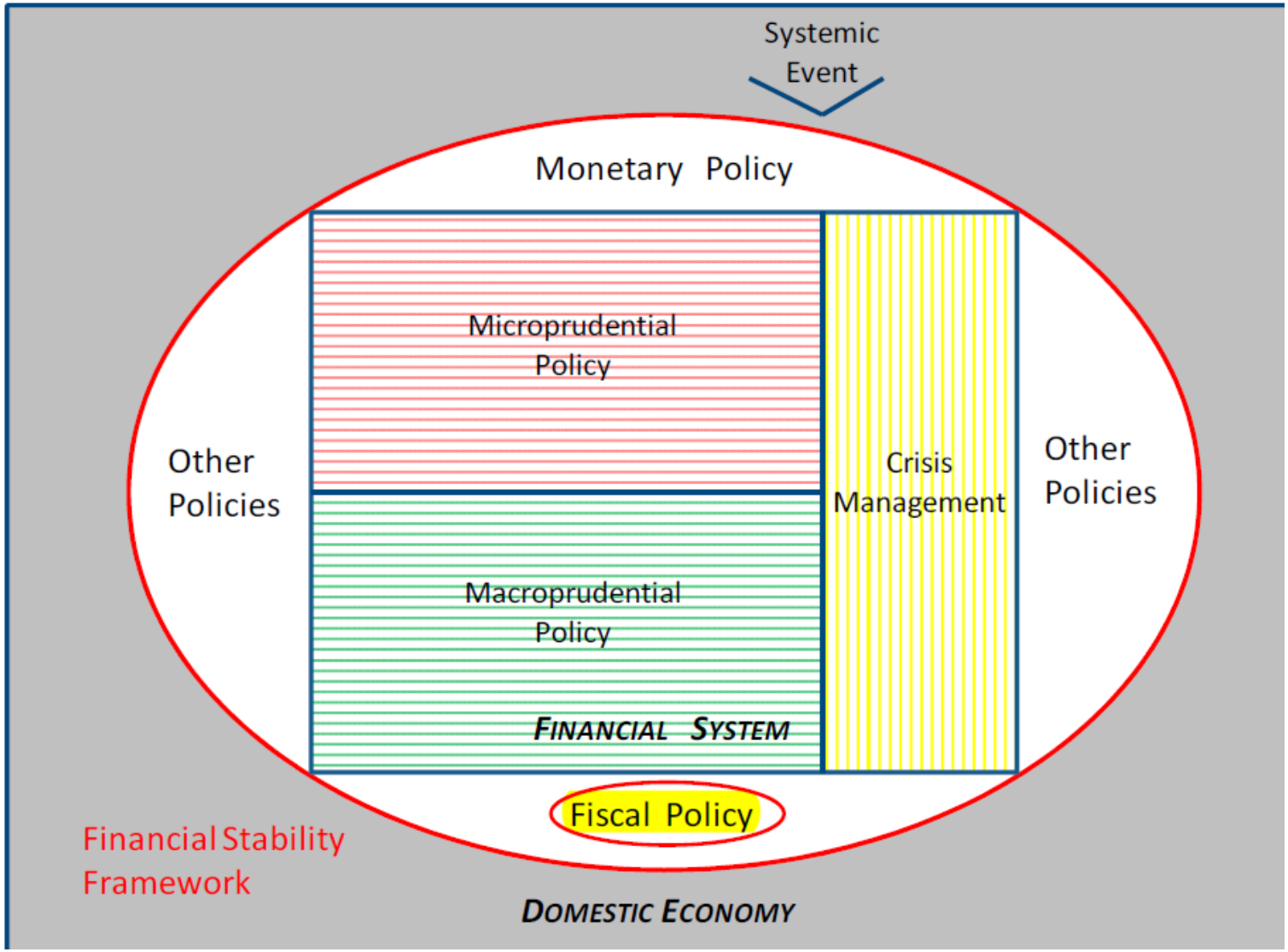
- Goal of this project: Study interaction between macroprudential, monetary and fiscal policy within a rich quantitative model
- Key underlying questions:
  - Should monetary policy be used to target financial stability?
  - How does the use of macroprudential policy affect optimal conduct of monetary policy?
  - Should fiscal policy be used to manage financial stability?

Figure1. Financial Stability Framework and Macroprudential Policy



IMF (2011)

Figure1. Financial Stability Framework and Macroprudential Policy



IMF (2011)

Key Features of the Analysis

- Small open economy with nominal and real rigidities, partial pass-through, deviations from UIP
- Amplification through balance sheets constraints on banks, impatient households, firms
  - Spreads depending on networth of borrowers, which in turn depend on aggregate variables $\Rightarrow$ Pecuniary externalities:
  - Agg. demand extern. (Schmitt-Grohe and Uribe, 2013)
- Various policies: LTV's, capital req., Taylor rule, gov. exp.
- Computationally feasible approach: Loss Function penalizing deviations from output gap and inflation target

My Discussion

- Based on the authors' slides!
- Provide an analytic example of Ramsey optimal fiscal and macroprudential policies (based on Bianchi-Ottonello, 2015)
  - How exactly is fiscal policy useful to deal with financial stability (when government debt is not at the heart of the problem)?
  - Hopefully, illustrates subtle mechanism that might be going on in Alpanda-Cateau-Takamura
- Other comments

Elements of the Model

- Small open economy with a currency peg
- Two sectors: tradable and non-tradable
- Output: $y^N = zh^\alpha, \quad y^T$ endowment
- Exogenous stochastic wage in units of tradables w_t
- Infinite supply of labor $\Rightarrow$ always unemployment if $w_t > 0$
- Credit constraint $b_{t+1} \leq \kappa(p_t^N h_t^\alpha + y_t^T)$
- Government budget constraint $g_t^T + p_t^N g_t^N = T_t$
- **Key results:** Dual role for fiscal policy: output gap & financial stability

Model

Representative household

$$\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t u(C).$$

$$C = [\theta c^{-\phi} + (1-\theta) g^{-\phi}]^{-1/\phi}$$

private consumption c and public consumption g are given by

$$\begin{aligned} c &= [\omega_c (c^T)^{-\mu} + (1-\omega_c)(c^N)^{-\mu}]^{-1/\mu} \\ g &= [\omega_g (g^T)^{-\mu_g} + (1-\omega_g)(g^N)^{-\mu_g}]^{-1/\mu_g} \end{aligned}$$

HH budget constraint:

$$b_{t+1} + c_t^T + p_t^N c_t^N = b_t(1+r) + y_t^T + zh^\alpha - w_t h_t + w_t n_t - T_t,$$

HH credit constraint:

$$b_{t+1} \geq -\kappa(y_t^T + zh^\alpha - w_t h_t + w_t n_t)$$

FOC:

$$\begin{aligned} p_t^N &= \frac{1-\omega}{\omega}\left(\frac{c^T}{c^N}\right)^{\mu+1} \\ z\alpha h^{\alpha-1} &= w \\ u_T(t) &= \beta R_t \mathbb{E}_t u_T(t+1) + \mu_t \end{aligned}$$

Market clearing

$$c_t^N + g_t^N = zh^\alpha$$

Optimal Government's Problem

Policy instruments:

- g^T, g^N for macro-financial stabilization reasons
- Tax on borrowing: to reduce overborrowing

$$V(b,w) = \max_{(p^N,c^T,c^N,b',h)} u(C(c^T, zh^\alpha - g^N), G(g^T, g^N)) + \beta \mathbb{E} V(b', w')$$

$$\begin{aligned} c^T + \frac{b'}{R} &= b + y^T + g^T \\ \alpha p^N z h^{\alpha-1} &\geq w \\ \frac{b'}{R} &\geq -\kappa \left(y^T + p^N z h^\alpha\right) \\ p^N &= \left(\frac{c^T}{zh^\alpha - g^N}\right)^{\mu+1} \end{aligned}$$

Optimal Government's Problem

Policy instruments:

- g^T, g^N for macro-financial stabilization reasons
- Tax on borrowing: to reduce overborrowing

$$V(b,w) = \max_{(p^N,c^T,c^N,b',h)} u(C(c^T, zh^\alpha - g^N), G(g^T, g^N)) + \beta \mathbb{E} V(b', w')$$

$$\begin{aligned} c^T + \frac{b'}{R} &= b + y^T + g^T \\ \alpha p^N z h^{\alpha-1} &\geq w \\ \frac{b'}{R} &\geq -\kappa \left(y^T + p^N z h^\alpha\right) \\ p^N &= \left(\frac{c^T}{zh^\alpha - g^N}\right)^{\mu+1} \end{aligned}$$

Optimal Government's Problem

Policy instruments:

- g^T, g^N for macro-financial stabilization reasons
- Tax on borrowing: to reduce overborrowing

$$V(b,w) = \max_{(p^N,c^T,c^N,b',h)} u(C(c^T, zh^\alpha - g^N), G(g^T, g^N)) + \beta \mathbb{E} V(b', w')$$

$$\begin{aligned}
c^T + \frac{b'}{R} &= b + y^T + g^T \quad (\lambda) \\
\alpha p^N z h^{\alpha-1} &\geq w \quad (\zeta) \\
\frac{b'}{R} &\geq -\kappa \left(y^T + p^N z h^\alpha\right) \quad (\mu) \\
p^N &= \left(\frac{c^T}{zh^\alpha - g^N}\right)^{\mu+1} \quad (\xi)
\end{aligned}$$

Dual Role for Fiscal Policy

$$p^N \quad : \quad : \quad \underbrace{\mu\kappa z h^{\alpha}}_{\text{Higher } p^N \text{ relaxes credit constraint}} + \underbrace{\alpha z h^{\alpha-1}}_{\text{Higher } p^N \text{ reduces unemployment}} = \xi$$

$$g^N \quad : \quad : u_{g^N} + \underbrace{\xi(\mu+1)\left(\frac{c^T}{zh^{\alpha}-g^N}\right)^{\mu+1}\left(zh^{\alpha}-g^N\right)}_{\text{GE benefits of } g^N} = u_{c^N}$$

$$g^T \quad : \quad : u_{g^T} = \lambda$$

$$c^T \quad : \quad : u_{c^T} = \lambda$$

Dual Role for Fiscal Policy

$$p^N \quad : \quad : \quad \underbrace{\mu\kappa z h^{\alpha}}_{\text{Higher } p^N \text{ relaxes credit constraint}} + \underbrace{\alpha z h^{\alpha-1}}_{\text{Higher } p^N \text{ reduces unemployment}} = \xi$$

$$g^N \quad : \quad : u_{g^N} + \underbrace{\xi(\mu+1)\left(\frac{c^T}{zh^{\alpha}-g^N}\right)^{\mu+1}\left(zh^{\alpha}-g^N\right)}_{\text{GE benefits of } g^N} = u_{c^N}$$

$$g^T \quad : \quad : u_{g^T} = \lambda$$

$$c^T \quad : \quad : u_{c^T} = \lambda$$

In Alpanda-Cateau-Takamura spreads depend on networth, which in turn depends on price of non-tradables. Are these effects there?

Comment on Loss Function

- Output gap may not be the correct welfare measure
  - Without nominal rigidities, output gap is zero
  - ..but still scope for policy due to pecuniary externalities and incomplete markets
  - Target credit gap?

Use of Monetary Policy for Financial Stability

- Macroprudential policy seem to be superior than monetary policy to target financial stability
- What in the model calls for the use of monetary policy?
- May be useful to incorporate leakages from macroprudential policy leading to imperfect "passthrough" from macroprudential policy (Bengui and Bianchi 2014)
    - One way would be to model to model stochastic deviations from target LTV.

Channels of Monetary Policy

- Changes in the real interest rates and aggregate demand?
- Changes in real wages, asset prices, exchange rates?
- Redistribution?

Conclusions

- Very relevant policy analysis
- Suggestion: complement analysis with smaller scale model to understand better transmission mechanisms, interaction between policies and welfare analysis