Financial Conditions Targeting in a Multi-Asset Open Economy

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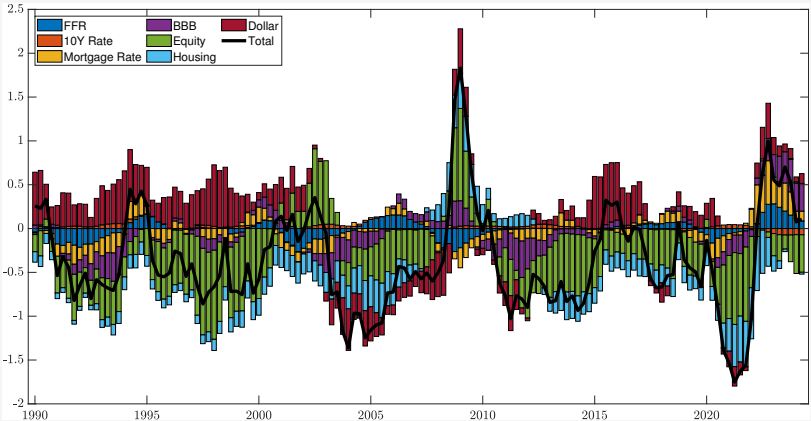
What are Financial Conditions Indices?

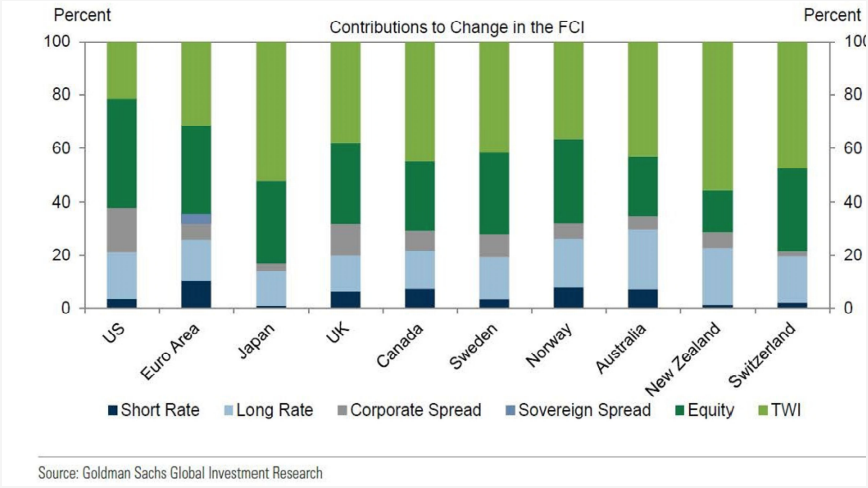
FCIs weight interest rates and asset prices according to their **impact on aggregate demand**.



Source: Ajello et al. (2024).

FCI Composition (G10)

Equity and FX dominate FCI fluctuations, because they are much more volatile than bonds (MPC$\times$Vol).



"Noise" drives asset prices

Finance: Asset prices are affected by noise due to limits to arbitrage

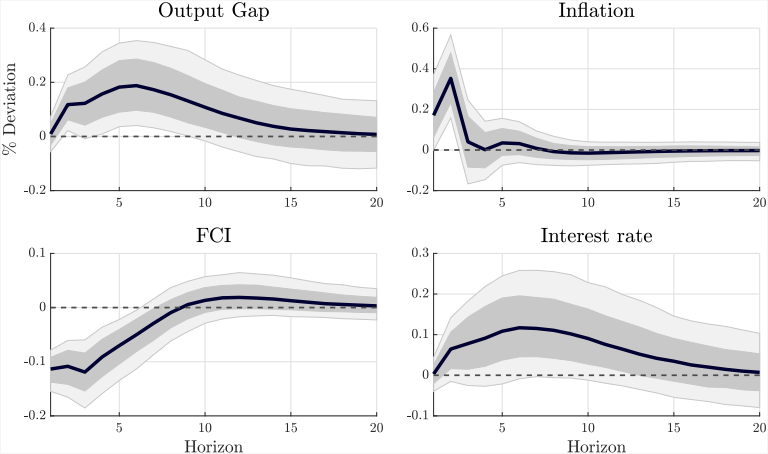
- Classic view: asset prices move with **non-fundamental noise** because arbitrageurs face **risk and constraints**.
- **Financial noise**: non-fundamental asset demand or supply.
- **Limits to arbitrage**: **risks** & constraints of sophisticated investors.

Evidence: noisy flows move markets

- Gabaix & Koijen (2021): noisy flows have large and persistent effects on the stock market.
- Similar literature for FX:
  Evans & Lyons (2002), Love & Payne (2008), ...

“Noise” drives business cycles

Caballero, Caravello, and Simsek (2025) use GK noise measure as an IV for FCI shocks



What should MP do in this noisy context?

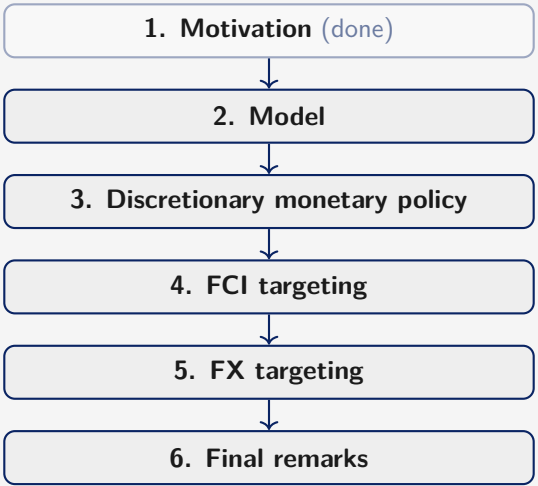
CCS (closed economy, one noisy asset)

- Optimal to **commit** to a soft FCI target.
- **Mechanism**: recruitment effect — lower volatility encourages arbitrageurs to trade against noise and implement CB objectives.
- Caballero–Simsek (2025): with disagreements, optimal to **communicate** in terms of expected FCIs rather than rates (same recruitment logic, no commitment needed).

This paper (open economy, two noisy assets)

- Open economy with two (segmented) risky assets (FX and equity).
- Optimal again to **commit** to a soft **FCI target**.
- **Mechanisms**:
  - *Recruitment effect* as in CCS
  - *Diversification effect*: MP partially "repairs" segmentation
- **In contrast**, FX targeting can backfire:
  - × Anti-recruitment in equity markets
  - × Requires more policy activism

Presentation road map



Model: Core

NK model with segmented and noisy equity and fx markets. Assume $\beta \approx 1$; everything in logs

$$y_t \;=\; f_t \;=\; \phi\, e_t + (1-\phi)\, p_t \;\neq\; f_t^*$$

$$e_t = E_t[e_{t+1}] - \left(r_t^f + \tfrac{1}{2}\sigma_e^2\right) + \mu_t^e\, \frac{\sigma_e^2}{\alpha}$$

$$p_t = E_t[p_{t+1}] - \left(r_t^f + \tfrac{1}{2}\sigma_p^2\right) + \mu_t^p\, \frac{\sigma_p^2}{\alpha}$$

σ_e^2, σ_p^2: **endogenous volatility** — higher volatility $\Rightarrow$ larger price impact of noise.

$$G_t = \tilde{y}_t^2 + \frac{1}{\theta}\left(r_t^f - \mathbb{E}_{t-1}[r_t^f]\right)^2 + \beta\tilde{\mathbb{E}}_t[G_{t+1}] \quad \text{where } \tilde{y}_t = y_t - y_t^*$$

Volatility Feedback Mechanism (Limit case 1: $\theta \to 0$)

$$r_t^f = \bar{r}^f;$$

$$e_t = e_t^* + \mu_t^e \frac{\sigma_e^2}{\alpha}; \qquad p_t = p_t^* + \mu_t^p \frac{\sigma_p^2}{\alpha}$$

$$y_t = y_t^* + \phi\, \mu_t^e \frac{\sigma_e^2}{\alpha} + (1-\phi)\, \mu_t^p \frac{\sigma_p^2}{\alpha}$$

$$\sigma_j^2 = \sigma_{z_j}^2 + \sigma_{\mu_j}^2 \left(\frac{\sigma_j^2}{\alpha} \right)^2$$

- Higher $\sigma_j^2 \Rightarrow$ larger price impact of noise $\Rightarrow$ higher σ_j^2.
- With $\theta \to 0$ and segmented markets, each market absorbs its own noise.

Volatility Feedback Mechanism and Diversification Effect (Limit case 2: $\theta \to \infty$)

Assumption (S). $\phi = \frac{1}{2}$, variances satisfy $\sigma^2_{z,e} = \sigma^2_{z,p} \equiv \sigma^2_z$ and $\sigma^2_{\mu,e} = \sigma^2_{\mu,p} \equiv \sigma^2_\mu$.

$$y_t = y_t^*; \qquad f_t = f_t^*; \qquad r_t^f = -\frac{\sigma^2}{2} + \frac{\mu_t^e + \mu_t^p}{2}\frac{\sigma^2}{\alpha}$$

$$e_t = e_t^* + \frac{\mu_t^e - \mu_t^p}{2}\frac{\sigma^2}{\alpha}; \qquad p_t = p_t^* + \frac{\mu_t^p - \mu_t^e}{2}\frac{\sigma^2}{\alpha}$$

$$\sigma^2 = \sigma_z^2 + \frac{\sigma_\mu^2}{2}\left(\frac{\sigma^2}{\alpha}\right)^2$$

Diversification effect of monetary policy and recruitment: Less exposed to own market's noise, more exposed to other market's noise. Both markets become more elastic **("recruitment" effect)**

FCI Targeting: Modified Policy Problem

Realistic discretionary policy: $0 < \theta < \infty \;\Rightarrow\; r_t^f \;=\; \mathbb{E}_{t-1}[r_t^f] + \theta\, \tilde{y}_t$

- Less reactive policy rate implies that noise partially leaks into output.
- Less diversification (than with $\theta \to \infty$); hence higher σ.

Can we do better? I.e., improve diversification and recruitment without substantially increasing interest rate volatility?

In addition to the policy rate, the central bank also pre-announces an FCI target:

$$\boxed{\bar{f}_{t+1} \;=\; \mathbb{E}_t[f^{\star}_{t+1}]}$$

$$\boxed{r_t^f = \mathbb{E}_{t-1}\left[r_t^f\right] + \theta \tilde{y}_t + \psi\left(\mathbf{f_t} - \mathbb{E}_{\mathbf{t-1}}[\mathbf{f_t^{\star}}]\right)}$$

Volatility fixed point and the output gap (with FCI targeting)

$$\tilde{y}_t = -\frac{\psi}{1+\theta+\psi}\,\frac{z_t^p + z_t^e}{2} + \frac{1}{1+\theta+\psi}\,\frac{\mu_t^e + \mu_t^p}{2}\,\frac{\sigma^2(\psi)}{\alpha}$$

$$\sigma^2(\psi) = \nu_z(\psi) + \nu_\mu(\psi)\left(\frac{\sigma^2(\psi)}{\alpha}\right)^2, \qquad \nu_z'(\psi) < 0, \quad \nu_\mu'(\psi) < 0$$

Recruitment effect: Increasing ψ lowers both ν_z and ν_μ, which reduces $\sigma^2(\psi)$ through the volatility fixed point. This makes FCI less sensitive to market noise and weakens the noise term in $\tilde{y}_t$.

Social cost of policy and its decomposition

Social cost:

$$G_t^e \equiv E[G_t] = E\left[\sum_{\ell=0}^{\infty} \beta^\ell \left(\tilde{y}_{t+\ell}^2 + \frac{1}{\theta}\left(r_{t+\ell}^f - E_{t+\ell-1}[r_{t+\ell}^f]\right)^2\right)\right]$$

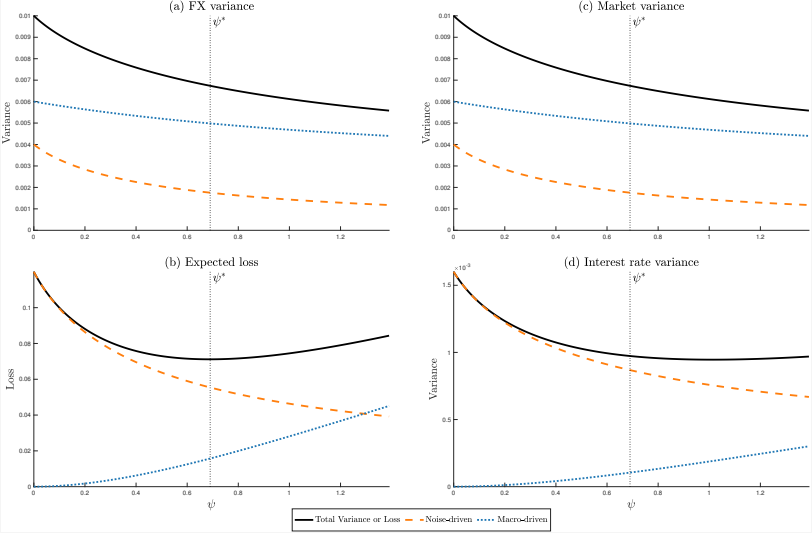
Output and interest rate gaps are driven by fundamentals and noise. So is the social cost:

$$G^e(\psi) = G_z^e(\psi) + G_\mu^e(\psi)$$

Proposition:

- Starting from $\psi = 0$, it is always optimal to do some FCI-T.
- Reason: $G_z'^e(0) = 0$ while $G_\mu'^e(0) < 0$ (due to recruitment effect).

FCI-targeting reduces volatility and policy loss



Can we approximate FCI-targeting by FX-targeting?

What if the central bank targets the exchange rate instead of FCI?

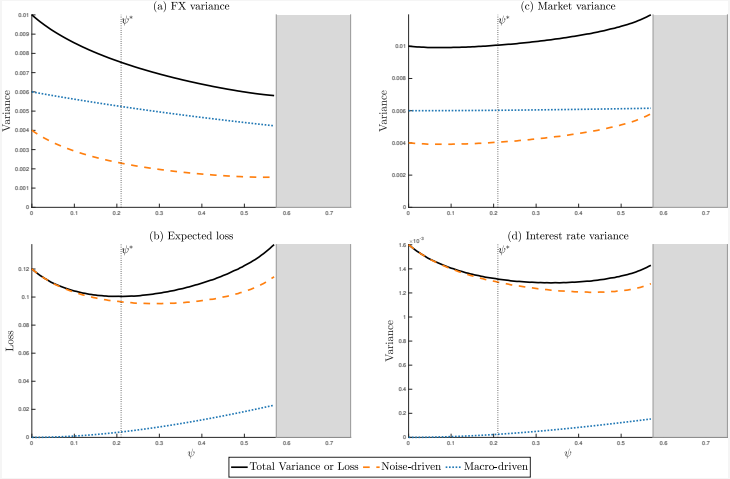
In addition to the policy rate, the central bank also pre-announces an FX target:

$$\bar{e}_{t+1} \;=\; \mathbb{E}_t[e^{\star}_{t+1}]$$

$$r^f_t \;=\; \mathbb{E}_{t-1}[r^f_t] \;+\; \theta\,\tilde{y}_t \;+\; \psi(\mathbf{e_t} - \mathbb{E}_{\mathbf{t-1}}[\mathbf{e^{\star}_t}])$$

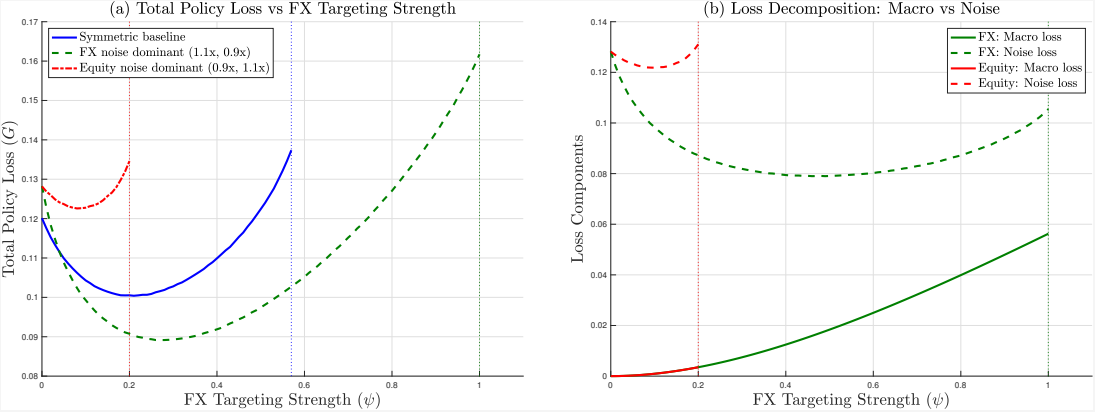
FX targeting suppresses FX volatility, but may *increase equity volatility* (anti-recruitment).

FX-targeting may reduce FX volatility but increase market volatility



FX variance declines, but market variance and total loss may rise; shaded regions indicate no stable equilibrium.

FX-targeting: Noise composition and fragility



FX-targeting is more likely to help when FX noise dominates and backfire when equity (non-targeted) market is noisier.

MCI experience — Canada & New Zealand (1990s)

How MCIs worked

- Weighted average of interest rates and the exchange rate.
- Policy aimed to stabilise this index.
- Typical calibration: 1pp rate $\uparrow \approx$ 3% currency appreciation.

Why operational use failed

- Chasing FX shocks $\Rightarrow$ **excess rate volatility**.
- Fixed weights became unreliable over time.
- Index mixed **noise and fundamentals**.

Takeaways: Narrow operational targeting (FX only)

- May have triggered anti-recruitment effects.
- Unlike FCI-target, FX-target requires figuring out relative importance of noise and fundamentals in non-targeted markets (didn't show this today)

Final Remarks

1. FCI-targeting is effective. Recruitment lowers volatility endogenously and improves macro stabilization. Recruitment effects spill across markets and reinforce each other.

2. FX-targeting is narrow and fragile. Helps only when FX noise dominates; otherwise shifts volatility to equities and raises interest-rate volatility. Triggers anti-recruitment effects on non-targeted markets.

3. Direct FX intervention can be very effective, but information–intensive. It neutralizes noise where it originates and activates recruitment across all markets (Singapore–style frameworks).
Caveat: FX targets (of any kind) require judging whether movements in other FCI components reflect noise or fundamentals.