

New York Fed Event

Flight-to-Safety Capital Flows

Global Financial Architecture

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Papers

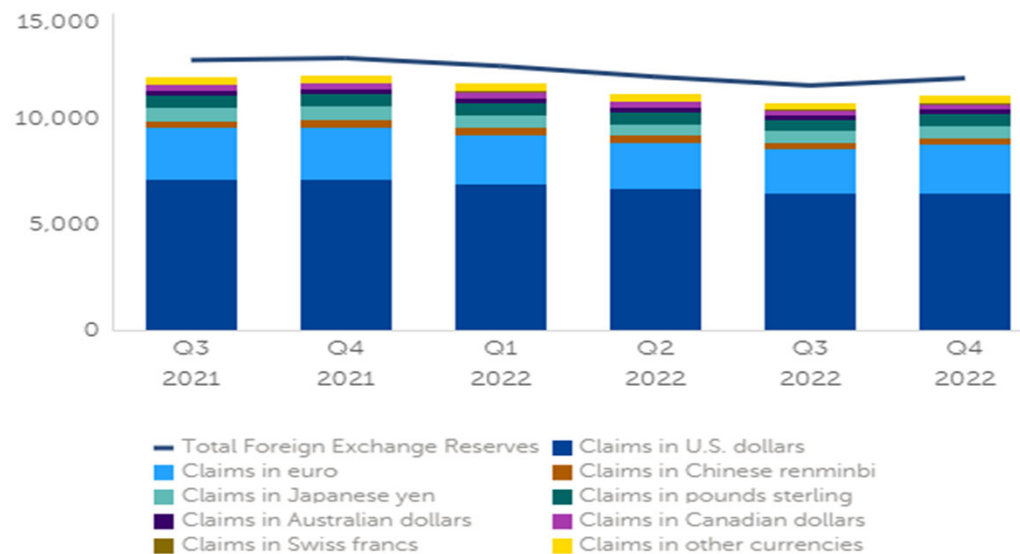
- Brunnermeier, Merkel, Sannikov
 - “Safe Assets: A Dynamic Trading Perspective”
 - “FTPL with a Bubble”
 - “International Monetary Theory: A Risk Perspective”



Official Reserves Holdings (IMF) in Safe Assets

■ Official Sector Reserves Holding

World - Official Foreign Exchange Reserves by Currency
(US Dollars, Billions)



■ Private sector holdings

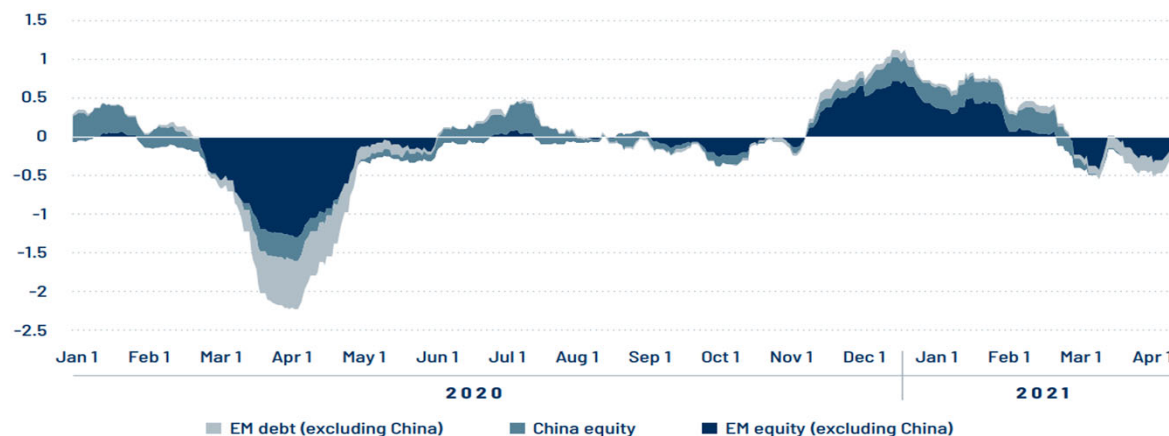


Global Financial Architecture & Flight-to-Safety

- Flight-to-safe asset
 - Tightening of US Monetary Policy
 - Risk-on, Risk-off
- Cross-border capital flows

Capital Flows to the Emerging Markets

Daily cross-border portfolio flows, six-week moving average, US\$ billion



Source: Institute of International Finance

Group of 30 Report

- Source of the Problem:
Safe Asset (reserve assets) are asymmetrically supplied

Exorbitant Privilege: US Treasury Debt Evaluation Puzzles

- Two valuation puzzles from standard perspective:
(Jiang, Lustig, van Nieuwerburgh, Xiaolan, 2019, 2020)

1. “Public Debt Valuation Puzzle”

- Empirical: $E[PV_{\xi}(\text{surpluses})] < 0$, yet $\frac{B}{P} > 0$

2. “Gov. Debt Risk Premium Puzzle”

- Procyclical surplus (> 0 in booms, < 0 in recessions) $\Rightarrow \beta > 0$
- But empirically, β is often negative

- Safe asset = exorbitant privilege ($\beta \ll 0$)

$$P_t = E_t[PV_{\xi^{**}}(\text{surpluses})] + E_t[PV_{\xi^{**}}(\text{service flows})]$$

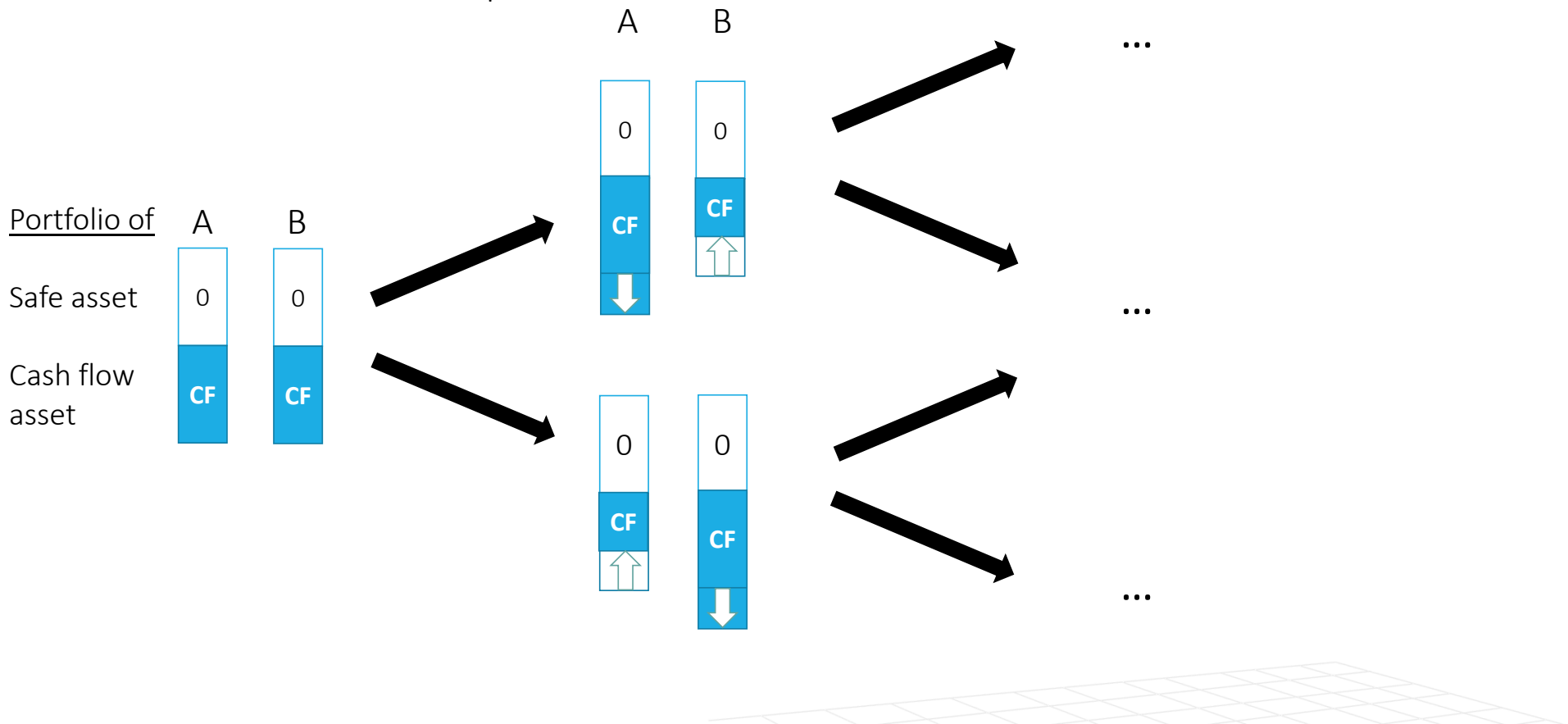
- $\beta \ll 0$: safe asset gains in value when risk is high
- In incomplete markets setting (Bewley, Ayagari, BruSan, ...)



What's a Safe Asset? What is its Service Flow?

$$P_t = E_t[PV_{\xi^{**}}(\text{cash flows})] + E_t[PV_{\xi^{**}}(\text{service flows})]$$

Example: = 0

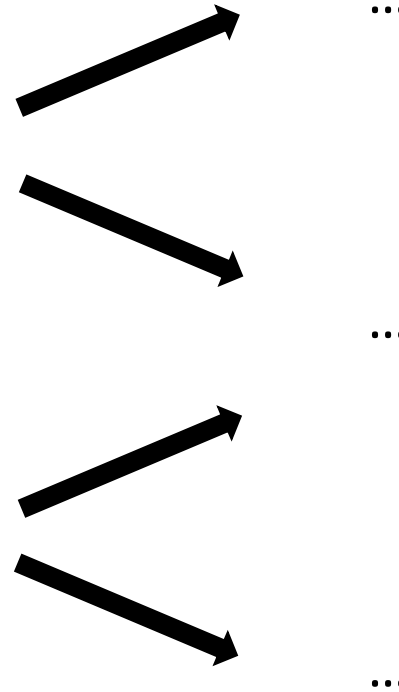
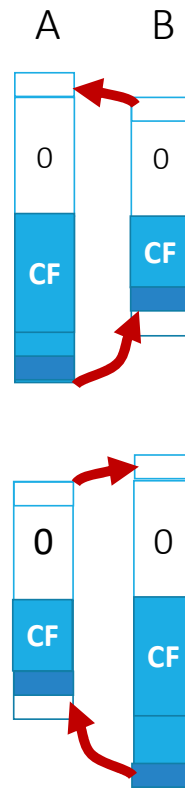
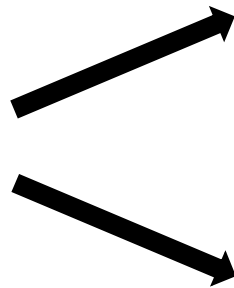
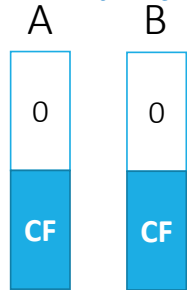


What's a Safe Asset? What is its Service Flow?

- $$P_t = E_t[PV_{\xi^{**}}(\text{cash flows})] + E_t[PV_{\xi^{**}}(\text{service flows})]$$

- Value come from **re-trading**
- Insures by partially completing markets

Reduces $Var_t[\tilde{g}_c]$

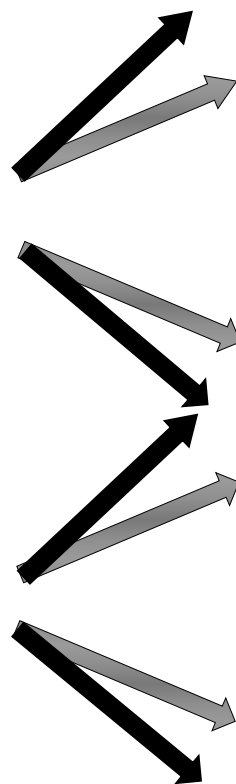
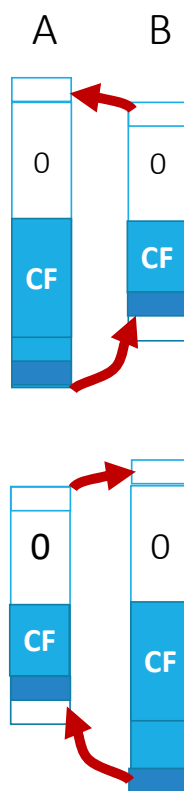
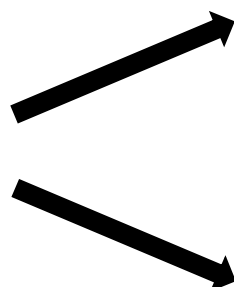


- Service flow has self-fulfilling component: higher price of asset = higher service flow

What's a Safe Asset? What is its Service Flow?

$$P_t = E_t[PV_{\xi^{**}}(\text{cash flows})] + E_t[PV_{\xi^{**}}(\text{service flows})]$$

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...

In recessions:

Risk is higher

- Service flow is more valuable
- Cash flows are lower
(depends on fiscal policy)

...

...

- Service flow has self-fulfilling component: higher price of asset = higher service flow



What's a Safe Asset?

- In incomplete markets setting (Bewley, Aiyagari, BruSan, ...)
- Good friend analogy (Brunnermeier Haddad, 2012)
 - When one needs funds, one can sell at stable price... since others buy
 - Idiosyncratic shock: *Partial insurance through retrading - low bid-ask spread*
 - Aggregate (volatility) shock: *Appreciate in value in times of crises*
- **Safe asset definition**
 - Tradeable: no asymmetric info – info insensitive
 - Service flow is derived from “dynamic re-trading”

- Individual $\beta_t^i = -\frac{\text{Cov}_t[d\xi_t^i/\xi_t^i, dr_t]}{\text{Var}_t[d\xi_t^i/\xi_t^i]} \leq 0$
where ξ_t^i is SDF of agent i

Note: $-\text{Cov}_t[d\xi_t^i/\xi_t^i, dr_t] = \zeta_t^i \sigma_t^r + \tilde{\zeta}_t^i \tilde{\sigma}_t^{r,i}$
where $d\xi_t^i/\xi_t^i = -r_t^f dt - \zeta_t^i dZ_t - \tilde{\zeta}_t^i d\tilde{Z}_t^i$



Understandings r_s for log utility, $\gamma = 1$

Time Preference rate

Precautionary savings/self-insurance

aggregate risk idiosyncratic risk

$$\underbrace{\rho + E[g_c]}_{\text{risk-free rate } r^f} - \underbrace{\{Var_t[g_c] + Var_t[\tilde{g}_c]\}}_{\text{Precautionary savings/self-insurance}} + \underbrace{\text{Risk Premium}}_{\text{(inflation + loss of safe asset status)}} - \underbrace{\{\lambda(\text{Collateral Constr}) - \Delta i\}}_{\text{Convenience yield on money/reserves}}$$

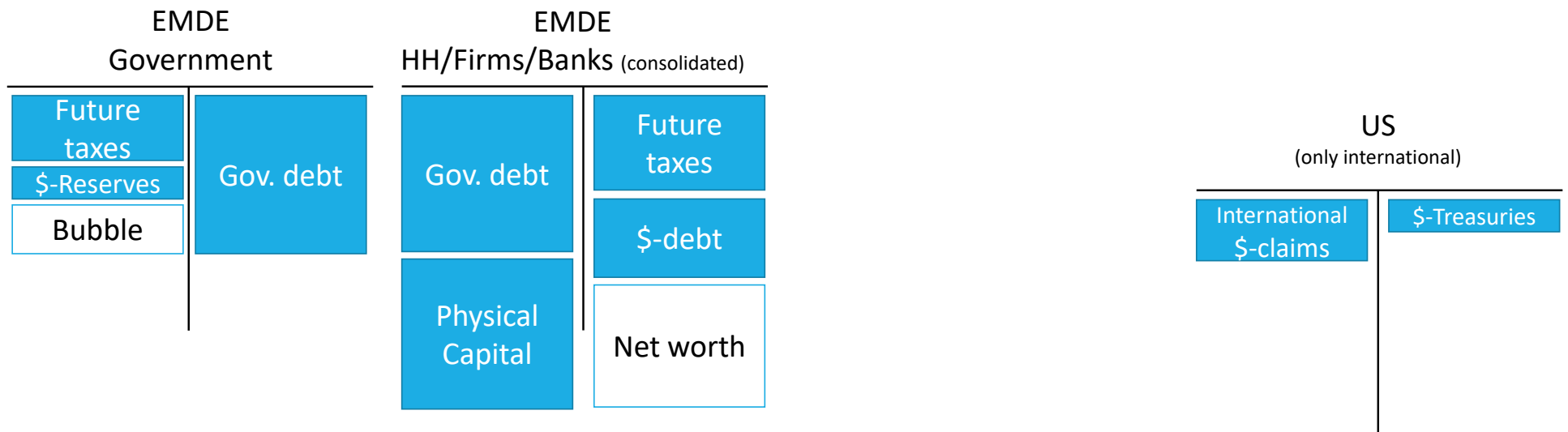


Local/EME and Global Safe Asset

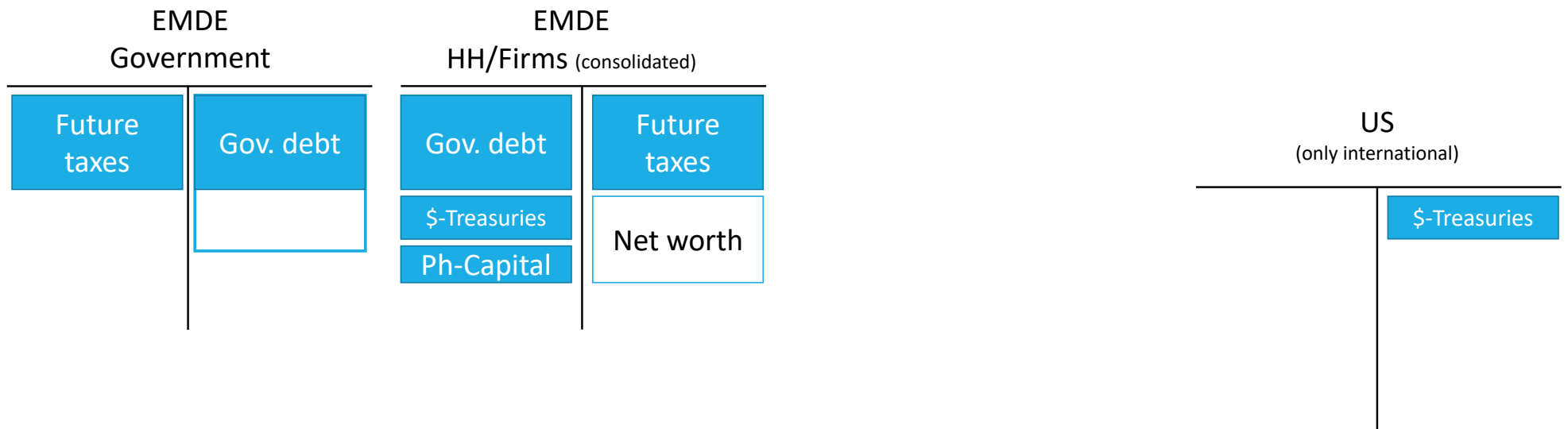
- High value of safe asset \Leftrightarrow low cash flow r
possibly $r < g$ enables Ponzi scheme
- **Local safe asset:** EME government bond
 - $r^{EM} > r^{US}$
 - Borrow in low r^{US} and invest in physical capital (equity, FDI,...)
 - Possible loss of safe asset status – jumps to US Treasury
- **Global safe asset:** US Treasury
 - Especially if risk is high



Local Safe Asset & Borrowing at US Dollar rate

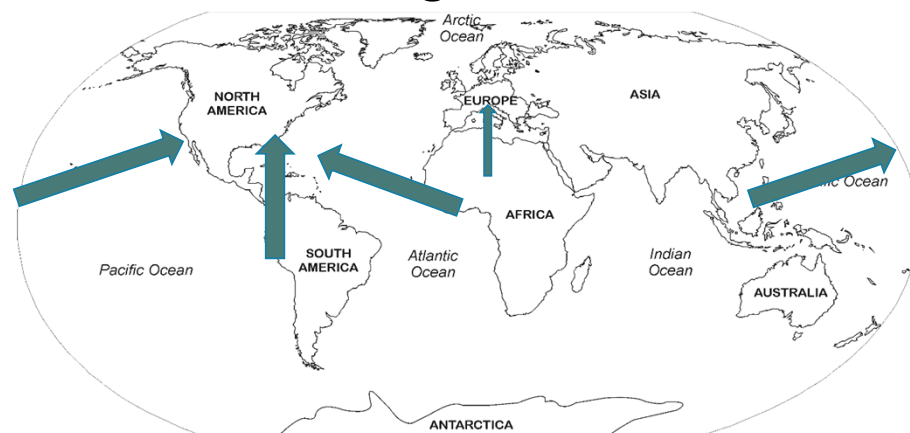


Loss of local Safe Asset & US Treasury as Safe Asset



International: Flight to Safety

- Risk-on, Risk-off
- Flight-to-safe asset



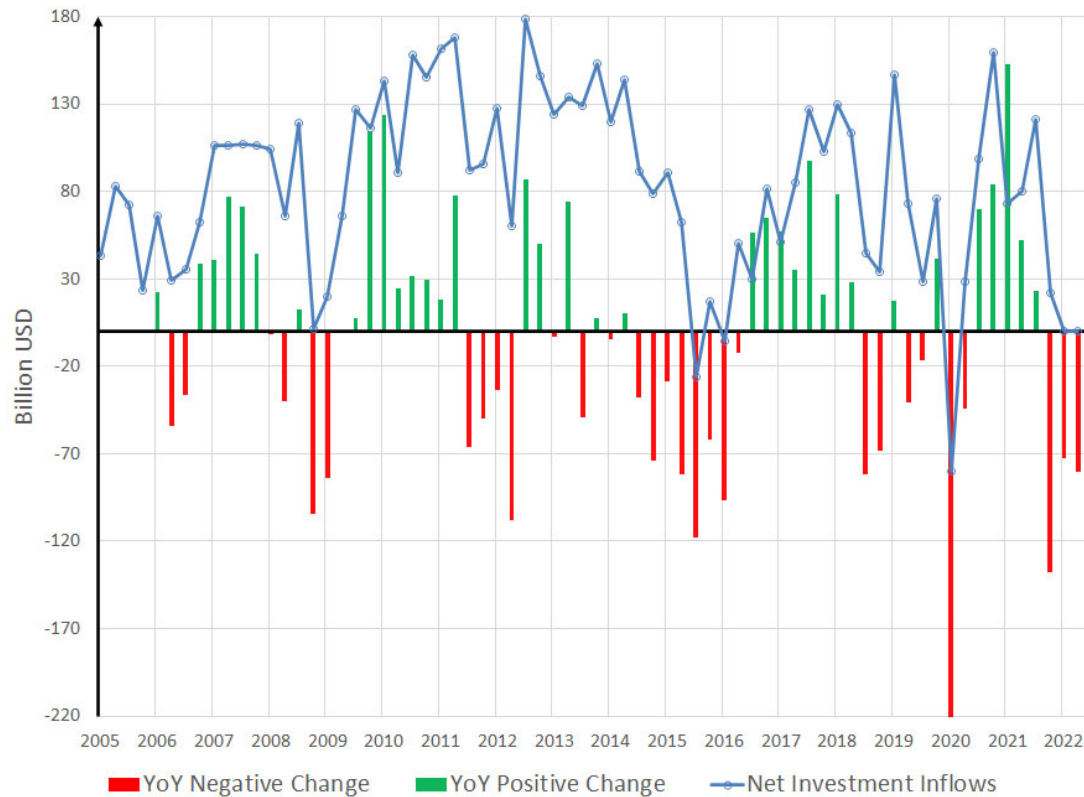
- Problem: Safe asset is *asymmetrically supplied* by AE
- Flight-to-safety → cross-border capital flows
- Debt issues at times of global crisis
 - For AE at inflated prices eases conditions
 - For EME at depressed prices worsens conditions
- *Paradox: “Poor insure rich Paradox”*



International: Flight to Safety

■ Risk-on, Risk-off

Flight-to-safe asset (in US\$)



Source: Brunnermeier and Reis (2023)

Defend Bubble from **Jumping to Foreign Asset (US Treasury)**

- Exorbitant privilege (“Bubble net worth”) leaves country
- EMDE safe asset status is even more wobbly

$$\begin{array}{l} r^f + \text{RISK PREMIUM} < g \\ > r^{\$} \end{array} \left. \vphantom{\begin{array}{l} r^f + \text{RISK PREMIUM} \\ > r^{\$} \end{array}} \right\} \text{Sandwiched}$$

- Note: risk is endogenous
due to self-fulfilling expectations
 - So is the risk premium
= price of risk * (exogenous + endogenous risk)



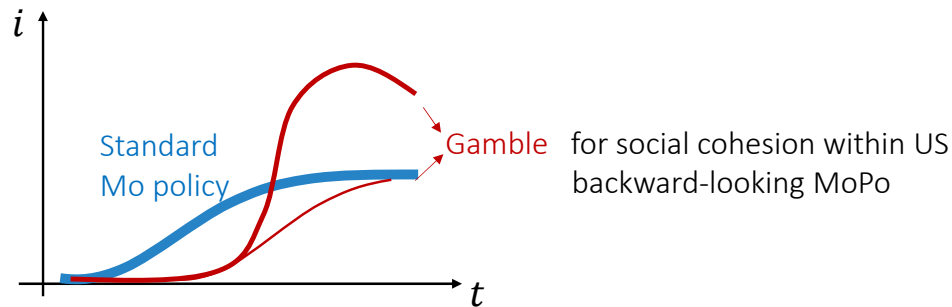
➡ Note: growth g is endogenous

- Multiple equilibria (invites speculative attacks)
 - Calvo (1988), Obstfeld (1996)



US Monetary Policy Spillover: Loss of Local Exorbitant Privilege

- The two alternatives of US Monetary Policy in fall 2021



- Taylor Principle $\phi_\pi > 1$, i.e. real rate $r^\$$ increase

- US MoPo spillovers to EMDC

⇒ US Treasury becomes more attractive as global safe asset

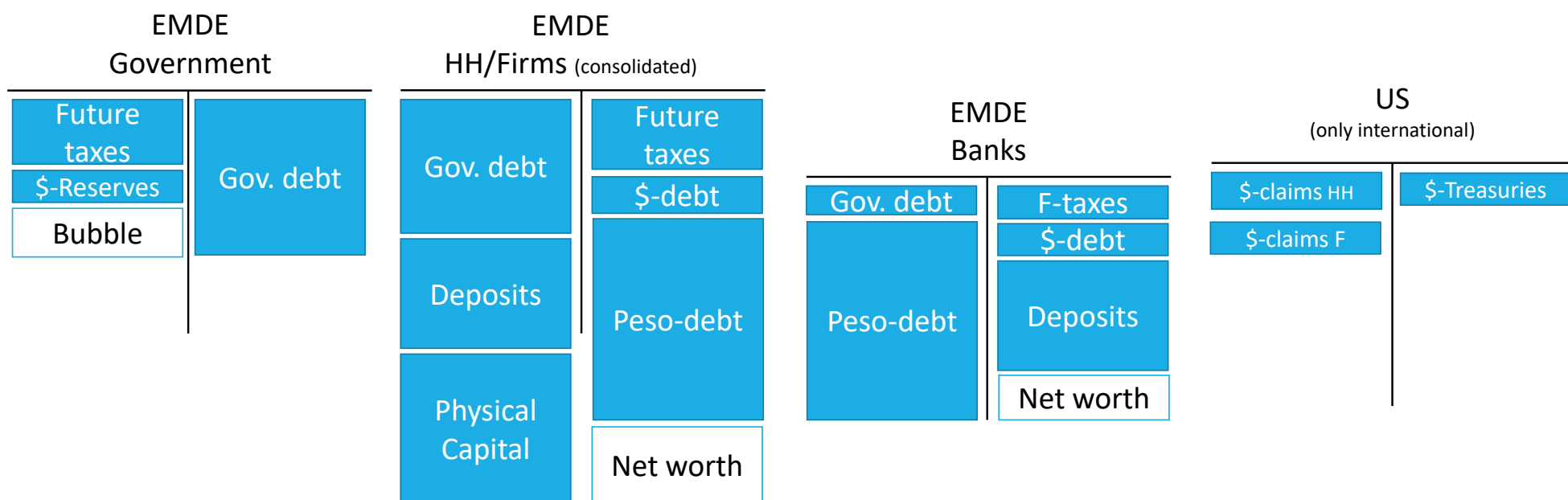
Emerging markets assets struggle compete



$$\left. \begin{array}{l}
 r^{EM} < g^{EM} \downarrow \text{ to sustain local EMDC safe asset} \\
 r^{EM} \uparrow \geq r^\$ \uparrow \text{ to be attractive relative to US Treasury}
 \end{array} \right\} \text{ sandwiched}$$

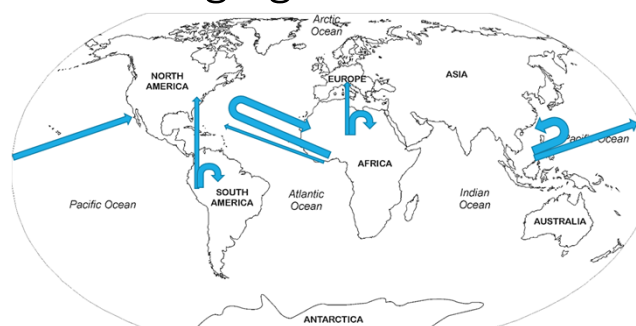
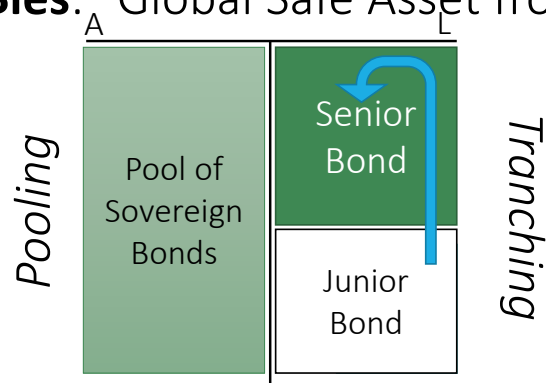


Interaction with Financial Sector



GloSBies: Rechanneling instead of Reserves Approach

- Global Financial Architecture: “Poor insure the Rich”
 - Crisis: Flight-to-Safety: $r^{\$} \downarrow$, $r^{EMDC} \uparrow$ (forces austerity on EMDC)
 - ⇒ IMF lending, SWAP lines, EM hold $\$$ -reserves ⇒ $r^{\$}$ is low
 - Sanctions and $\$$ -reserves (Safe Asset = good friend in bad times)
 - Source: Asymmetric Supply of Safe Asset (not shortage)
- “Rechanneling Approach”: Resilient & self-stabilizing
 - **GloSBies**: “Global Safe Asset from & for Emerging Economies”



SBBS for EMDE

- Flight-to-Safety across asset class instead of borders

Extra Slides



How to Defend *Bubbly* Safe-asset Status

Bubble/Ponzi scheme *bursts* vs. Bubble *jumps* to another asset/Ponzi scheme

a) Domestic asset, e.g. crypto asset

b) Foreign asset, e.g. US Treasury

- Ex-post: Prop up fundamentals
- Ex-post: Support bubble
 - Tradability: Market maker of last resort
 - Capital control (outflows)
 - FX intervention (with reserves)
- Ex-ante: Prevention
 - Capital control (inflow)
 - Reserves (signal/commitment)



Defend Bubble: Prop up Fundamentals

- Prop up Fundamentals

- So that discounted primary surplus support old bubbly valuation

- Avoid bursting of bubble

If $r < g$

- Small primary surplus is sufficient

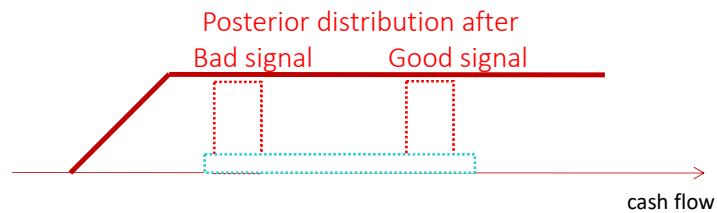
- Credible commitment as welfare benefits of safe asset status is high
(if gov. maximizes long-term welfare)

- Avoid jumping of bubble



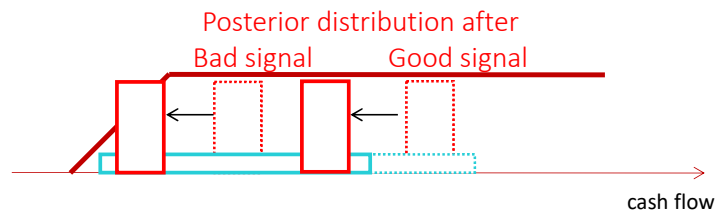
Defend Bubble: Tradability of Safe Asset

- Maintain high tradability/ market liquidity
 - Market maker of last resort by Central Bank
 - Informationally insensitive: Reduce asymmetric information
 - Low default risk



Defend Bubble: Tradability of Safe Asset

- Maintain high tradability/ market liquidity
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Defend Bubble: Avoid “wobbles” (self-fulfilling)

- If government bond is risky

$$r^f + \text{risk premium} < g \quad (1)$$

Risk premium

- Negative if safe asset appreciates in crises times (AE)
 - (1) easy → Safe asset status easy to maintain
- Positive if safe asset status is “wobbly” (EMDE)
 - (1) fails occasionally → loss of safe asset status
- Capital controls: Gov. debt only safe asset

Self-fulfilling nature
(safe asset tautology)



Defend Bubble from **Jumping to other Domestic Assets**

- E.g. equity, crypto assets,... (land has high trading costs)
- Total wealth in economy stays the same
- ... but redistributive (depending who owns other assets)
 - Loss of seigniorage/exorbitant privilege for government
- **For short-lived assets:** like most liquid assets other than stocks can only be used to sustain **Ponzi schemes**
 - In models, Ponzi schemes are prevented by no Ponzi conditions,
 - Part of **equilibrium selection** (only have to hold in all equilibria when markets are complete)
 - **Insolvency law:** legal prohibition or running Ponzi scheme
 - Firm is liquidated once book equity becomes too negative
⇒ can't be rolled over forever and pay out to shareholder/CEOs ...
- **For long-lived assets** like stocks
 - Insolvency adds background bankruptcy risk that triggers liquidation and delisting
In survival state, bubble must grow at larger rate to be attractive
⇒ less sustainable (as gov. debt always survives and thus need a lower growth rate)
 - **Crypto assets** are not subject to insolvency law, but more difficult to sustain if
 - If issuer extracts more seigniorage (issue bubbly crypto at faster pace) or gov. imposes tax (financial repression)

