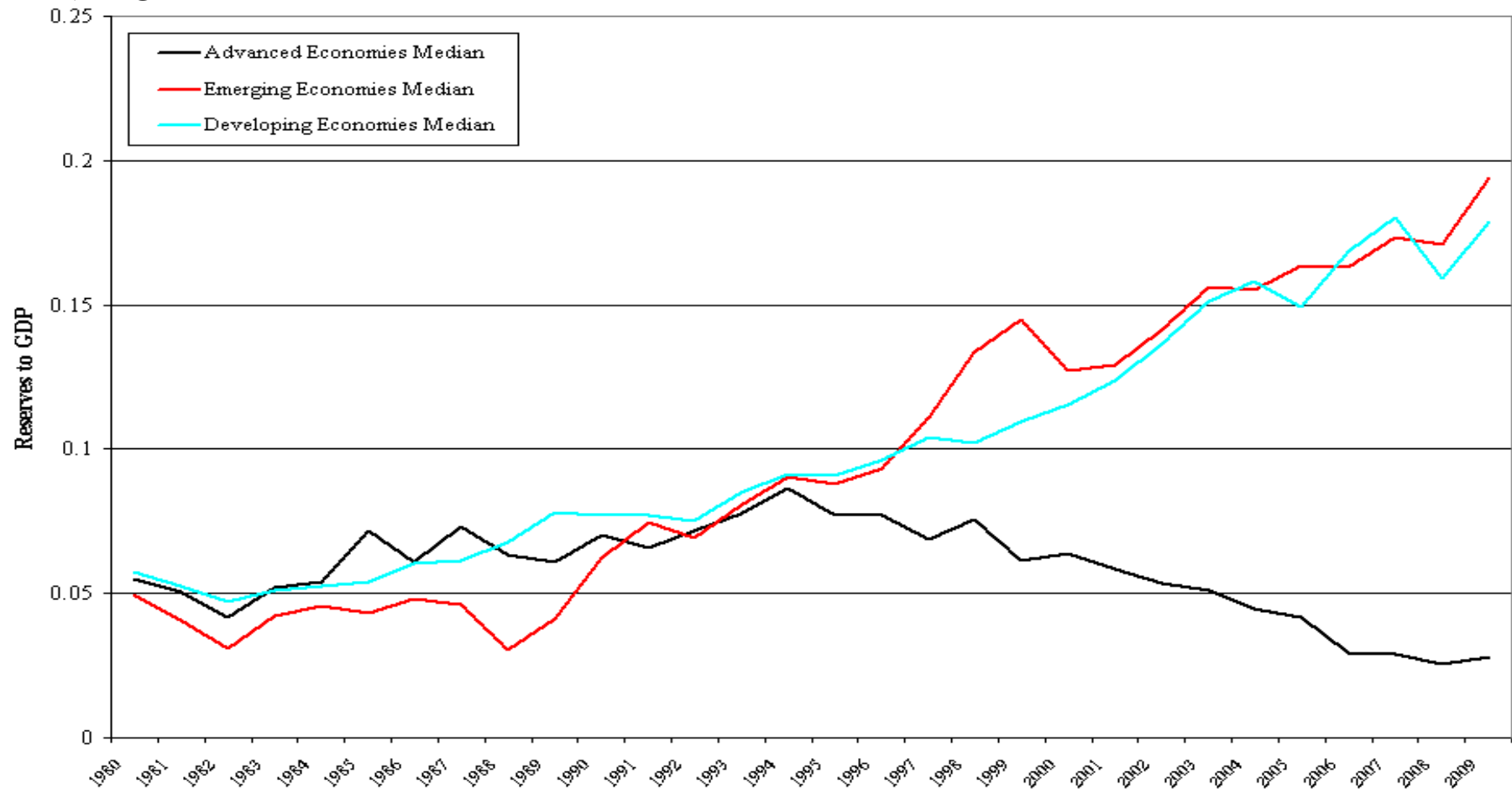


ARE RESERVES AND PRECAUTIONARY LENDING COMPLEMENT OR SUBSTITUTE?

Romain Rancière (PSE, IMF, and CEPR)

MAIN FACT

Level of International Reserves to GDP



A “common” view

- International Reserves became the prime vehicle of country insurance in the emerging and developing world.
- But this form of self-insurance has been criticized as inefficient, costly, and partly responsible for global imbalances.
- We should move from self-insurance to insurance because:
 - ▣ insurance is less costly than self-insurance.
 - ▣ This would reduce the negative externalities associated with global imbalances

Challenging the common view

- Becker and Erhlich (JPE 1972)
 - ▣ Mitigation: reduction of the loss associated with a disastrous shock
 - ▣ Protection: reduction of the probability of a disastrous view.
 - ▣ Main Result:
 - Pure Mitigation: Fairly priced insurance is a better substitute to self-insurance (Market Completion)
 - As soon as protection is introduced, **this is no longer true** and no general results on substitution or complementarity.
 - Self-protection can reduce the price of mitigation-insurance.
 - Market protection can reduce the cost of self-protection, increase its effectiveness.

Fund “Insurance” vs. Self-insurance

	Crisis Mitigation	Crisis Protection
Self	Reserves	Reserves
Fund	Stand-by Agreement	Precautionary Lending.

Example 1. Pure Crisis Mitigation

- Insurance and Self-insurance affect the output cost of a crisis.
- **In theory:** Actuarially-fair insurance leads to switch from self-insurance to insurance.
 - ▣ Risk-sharing across countries.
- **Caveat:** you need the insurer to be efficient ex-post in mitigating your loss.
- Experience of East-Asian Crisis. IMF Protection is not very effective → let's increase self-insurance through more reserves
- Time-Varying Risk-Aversion. “behavioral” assumption

Sudden Stop Mitigation Model (Jeanne-Ranciere, 2010)

Baseline Model: Optimal Level of Reserves equal to 9.5% of GDP based on output cost equal to 6.5%, probability (10%)

Table 4. Output Cost of the 1997-1998 Asian Crisis and the Optimal Level of Reserves in South East Asia

Country	Output cost of 1997-1998 sudden stop (in percent of GDP)	Optimal Level of Reserves to GDP (risk aversion =2)	Optimal Level of Reserves to GDP (risk aversion =10)	Actual Reserves to GDP (2005)
Korea	-14%	0.16	0.22	0.25
Malaysia	-17%	0.2	0.26	0.51
Philippines	-6%	0.09	0.15	0.16
Thailand	-17%	0.19	0.25	0.29

Exemple 2. Self-Protection and Precautionary Lending

- Crisis Mitigation is not the only form of insurance
- Self-protection against crises.
- Probability of a Crisis depends on:
 - ▣ Fundamentals (a)
 - ▣ Precautionary Lending (PL)
 - ▣ Reserves (R)
 - ▣ $PR_CRISIS = F(a - b * R - c * PL)$ [e.g: logistic model]

Exemple 2. Channels of Complementarity

- Benefit Chanel
 - ▣ Complementarity: $d\text{Proba_Crisis}/dR * dP > 0$
 - ▣ Precautionary Lending puts you in a zone where the marginal benefits of additional reserves are greater.
 - ▣ Extreme Exemple: “Diamond Dybvig” self-fulfilling panics
 - $\text{Pr_Crisis} = \text{PI}$ if $R + \text{PL} < R_{\text{bar}}$
 - $\text{Pr_Crisis} = 0$ if $R + \text{PL} > R_{\text{bar}}$
 - Precautionary Lending can change dramatically the decision from **Exposed** (and only crisis mitigation) to **Covered**.
- Cost Chanel.
 - ▣ By reducing the probability of a crisis, precautionary lending makes self-insurance less costly.

Exemple 2. Result

- Precautionary Lending and International Reserves Can be Complement.
- Precautionary Lending **subsidizes** Self-Protection

Exemple 3. Moral hazard prevention

- Well-known result. self-protection reduces the cost of market insurance.
- Eligibility to precautionary lending arrangement depend on some degree of self-protection one measure of international reserves.
- Reserves as a “collateral” to reduce moral hazard problems.
- Once again precautionary lending and international reserves can be complement.
- Note: similar point on complementarity domestic saving and FDI. (Aghion et al. (2009))

Conclusion (I)

- The view that generalizing Flexible Credit Lines or other form of precautionary lending will reduce international reserves can be misleading.
- Other problems with FCL-type instrument.
 - Sovereignty Issue.
 - Reserves cannot be seized but FCL can be canceled.
 - Risk of losing eligibility
 - A country can use its reserves even if policy framework needs to deviate from model.

Conclusion (II) Reserves and the Global Financial Architecture.

- ❑ IMF: A Global Bank for Reserves.
- ❑ Issue Reserve Deposits (aka. Voluntary Reserves)
- ❑ Pooling of Reserves: Liquidity Management.
 - ▣ Higher Interest Rate on Reserve Deposits
 - ▣ No Liquidity Risk.
- ❑ Trade of Reserve Deposits: Insurance Role.
 - ▣ Short Sale of Reserve Deposits i.e. borrowing.
 - ▣ Discipline. You need to save (deposit reserves) in order to borrow.
 - Multiple of voluntary reserves
 - ▣ IMF Resources: Cover a global short sale (a deposit run)



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