

# Trilemmas and Tradeoffs

## Living with Financial Globalization

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# Introduction

Two contradictory recent views of monetary autonomy in small open economies:

- The open economy is basically no different from the closed economy, provided the nominal exchange rate is flexible.
- Small economies have no monetary autonomy, regardless of the exchange rate, except through capital controls. United States monetary and financial shocks dominate the global monetary environment.

Recent “taper tantrum” highlights role of volatile capital flows for EMEs.

## Here is Mike Woodford (2010) ...

be more extreme. These cases are not always intended to be regarded as especially realistic, but are taken up in an effort to determine if there are conditions under which the fear of globalization would be justified. Yet I find it difficult to construct scenarios under which globalization would interfere in any substantial way with the ability of domestic monetary policy to maintain control over the dynamics of domestic inflation.

From: **International Dimensions of Monetary Policy**, edited by Jordi Galí and Mark Gertler and (University of Chicago Press, 2010).

## ... and here is H el ene Rey (2013)

*The global financial cycle has transformed the well-known trilemma into a 'dilemma'. Independent monetary policies are possible if and only if the capital account is managed directly or indirectly. This column argues the right policies to deal with the 'dilemma' should aim at curbing excessive leverage and credit growth. A combination of macroprudential policies guided by aggressive stress-testing and tougher leverage ratios are needed. Some capital controls may also be useful.*

From: Vox column summarizing **Dilemma Not Trilemma: The Global Financial Cycle and Monetary Policy Independence**, presented at the Jackson Hole Symposium, August 2013.

# Which View is Closer to the Truth?

- **Woodford's** view reflects the pre-Lehman worldview (which he and we have moved beyond).
  - But financial markets and financial stability (FS) matter.
  - Even without financial issues, that view is too narrow: his argument is that policy can always move the AD curve.
  - One target, one instrument.
- **Rey** points to monetary policy's inability *fully* to deliver both macro stabilization *and* systemic FS.
  - A **tradeoff** problem -- even for a closed economy.
  - Exacerbated by an **additional (financial) trilemma**.
  - But does not contradict utility of exchange flexibility.

# The Classic Monetary Trilemma

The following three are not all mutually compatible:

1. Fixed exchange rate.
2. Unimpeded cross-border financial flows.
3. Monetary autonomy.

Bretton Woods made US exceptional.

Floating was supposed to change that, and “insulate” economies and free monetary policy (Milton Friedman, Harry Johnson).

# So, How Does Monetary Policy Work?

Not infrequently we hear central bankers say something like: “We have only one instrument, money growth (or the interest rate), and so we can have only one target, inflation.” This view may be based on the targets and instruments approach of Tinbergen, of over fifty years ago, the general result of which was that you need as many instruments as targets. That view is correct if you have to hit the target exactly.

But it is not correct if the problem is set up as is typical in microeconomics, where the goal is to maximize a utility function subject to constraints, in a situation where for whatever reason it is not possible to hit all the targets precisely and all the time. Among the reasons we may not be able to hit our targets precisely and all the time is that there may be more targets than instruments, for instance when the central bank’s maximand is a function of output and growth. In that case we have to find marginal conditions for a maximum, and to talk about tradeoffs in explaining the optimum.

Stanley Fischer, “Myths of Monetary Policy,” *Israel Economic Review*, 2010.

# A General Perspective

- With targets  $>$  instruments, not all targets will be hit.
- Attained level of “social welfare” depends on position of the tradeoff between targets consistent with the economy’s equilibrium (e.g., a short-run Phillips relationship).
- Economic openness  $\rightarrow$  gains from trade, but also can worsen some policy tradeoffs.
- Even optimal exercise of “monetary autonomy” may leave the economy farther from policy bliss point than if more instruments were available.

# “Monetary Autonomy” Is Only One Instrument for Multiple Goals

- Even in closed economy:
  - Inflation vs. unemployment – “divine coincidence”?
- Exchange rate side-effects in the open economy:
  - Sectoral objectives (e.g., export or tradables externalities).
  - Adjustment challenge for EMEs: market power, credit markets.
  - Dollarized liabilities → balance-sheet spillovers.
  - No “divine coincidence” for exchange rate.
- So: harsher *tradeoffs* in the open economy, even abstracting from any global financial cycle → “fear of floating.” This is all well accepted ....

# Recent Concerns Focus on a Broader Range of Transmission Channels -- with FS Implications

- The traditional monetary mechanism works through the policy interest rate/exchange rate connection:

$$i_t = i_t^{US} + E_t e_{t+1} - e_t + \rho_t.$$

- Generally: more exchange stability  $\rightarrow$  less interest rate independence (monetary trilemma).
- But: quantity adjustments relevant to FS may accompany price adjustments (and non-adjustment).
- See Calvo, Leiderman, Reinhart on capital inflows.

# Non-Standard Transmission Channels

- Cross-border bank lending can relax quantitative credit constraints, undermine domestic credit control.
- If agents hedge foreign dollar credits, covered interest parity → same cost as domestic-currency loans.
- But they may chose not to → carry trades.
- Domestic-currency bond markets have developed in EMEs but in many cases remain thin – vulnerable to shifts in foreign demand (Shin 2013), and could conceal off-balance sheet currency mismatches.

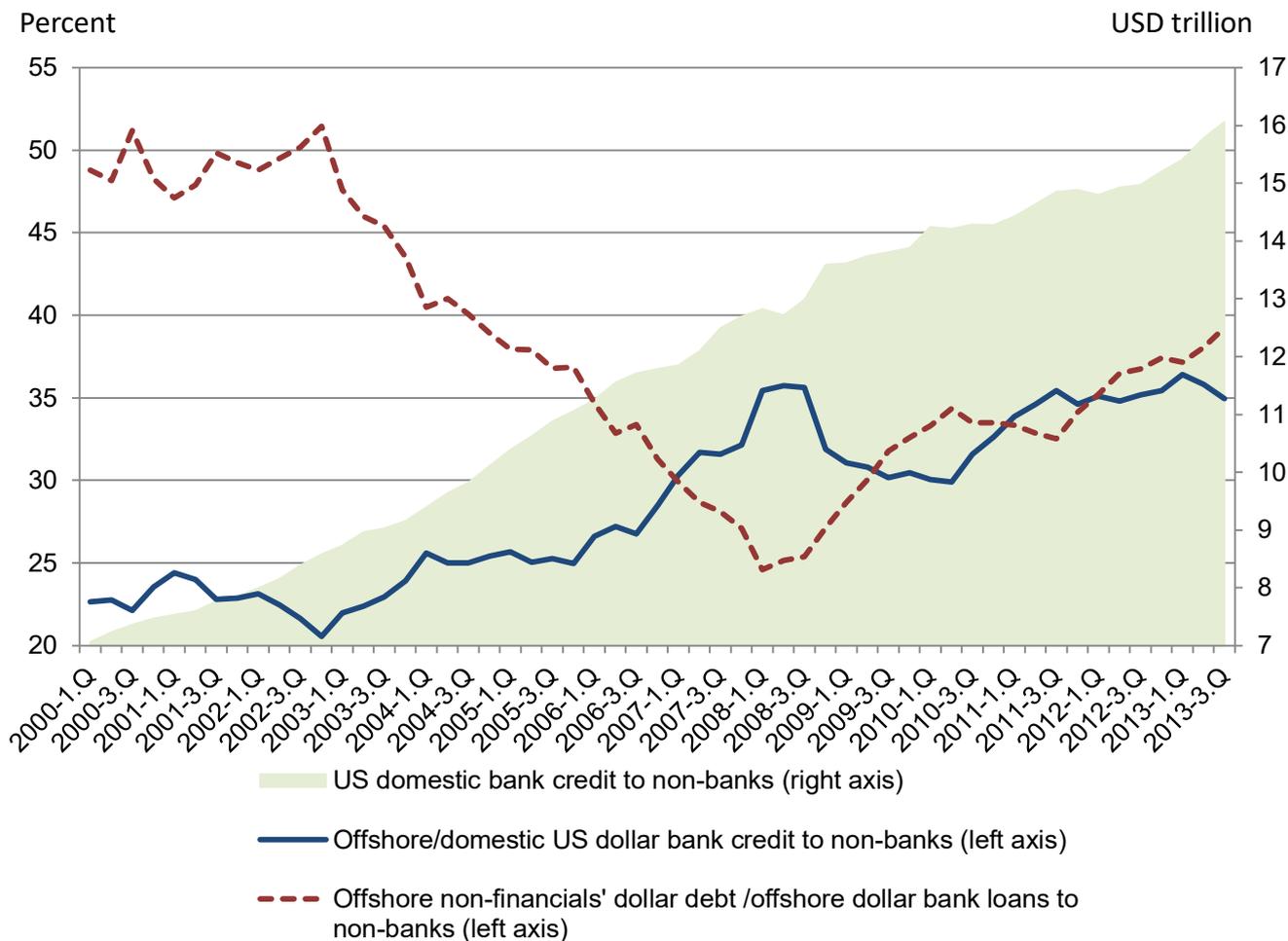
# Non-Standard Transmission Channels

- Direct arbitrage of long-term interest rates:

$$i_t^{(2)} = i_t^{US(2)} + \frac{1}{2}(E_t e_{t+1} - e_t) + \frac{1}{2}(E_t e_{t+2} - E_t e_{t+1}) + \frac{1}{2}\rho_t + \frac{1}{2}E_t \rho_{t+1} + \tau_t - \tau_t^{US}.$$

- Nominal exchange rate changes over long horizons may be small (and constant) with inflation targeting.
- High correlations among term premiums?
- Large volume of offshore US dollar intermediation → US monetary/financial conditions affect banks worldwide, and their lending behavior.

# Offshore Dollar Bank Credit and Debt

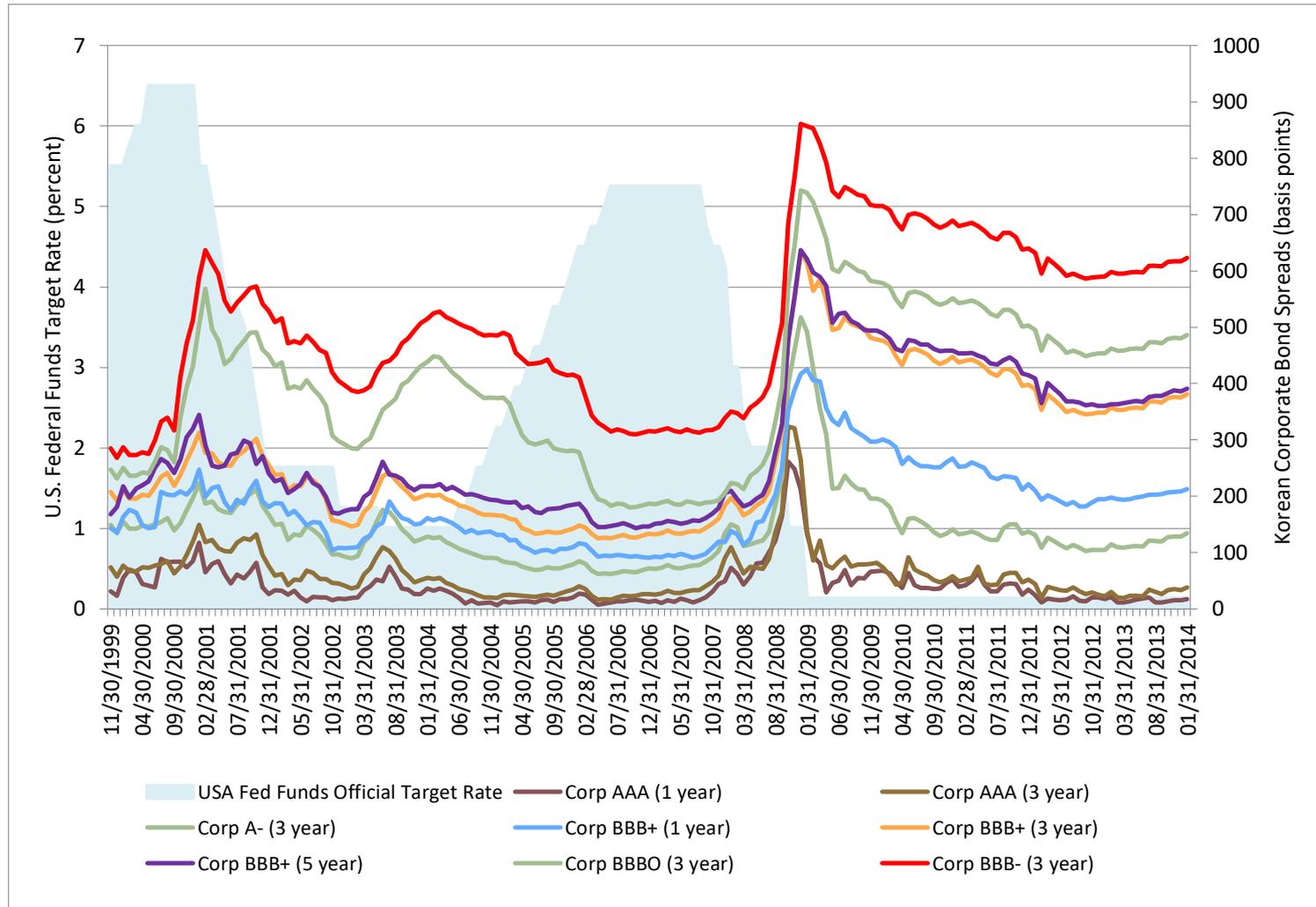


Source: BIS, Global Liquidity Indicators

# Exchange Rates Do Not Offset Financial Shocks

- Imagine a portfolio shift toward an EME's assets.
- If the central bank intervenes, it will create liquidity.
- Sterilization may be problematic.
- Even if central bank does not intervene, and currency appreciates, domestic balance sheets may improve.
- Even at a constant current account balance, there can be offsetting *gross* position changes – e.g., corporates borrow and place funds abroad.
- Portfolio shifts can show up in other prices along with exchange rate, such as corporate borrowing spreads.
- We need more/better **general-equilibrium** models.

# Korean Borrowing Spreads



# Evidence on Interest Rate Relationships

- Following Shambaugh, Obstfeld-Taylor-Shambaugh, Klein-Shambaugh, consider the panel regressions:

$$\Delta i_{jt} = \alpha + \beta \Delta i_{bt} + \boldsymbol{\gamma}' \mathbf{X}_{jt} + u_{jt}.$$

- With literally no monetary independence we expect  $\beta = 1$ . Would also be true for *long-term* rates.
- Initially pool all countries, with US as base currency.
- Then look at nuances, including: pegs, time effects to capture global interest rate shocks.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	US-base SR	Multi-base SR	Multi-base SR with Time Effects	Multi-base SR with VIX Percent Change	US-base LR	Multi-base LR	Multi-base LR with Time Effects	Multi-base LR with VIX Percent Change
US-base SR change	0.0571 (0.158)							
Multi-base SR change		0.202 (0.171)	0.0457 (0.229)	0.240 (0.177)				
US-base LR change					0.354*** (0.0594)			
Multi-base LR change						0.548*** (0.0668)	0.430*** (0.136)	0.631*** (0.0616)
VIX Percent Change				0.00236* (0.00139)				0.00291*** (0.000663)
Constant	-0.00166** (0.000746)	-0.00151** (0.000751)	0.000171 (0.000713)	-0.00150** (0.000745)	-0.000791*** (0.000174)	-0.000624*** (0.000165)	-0.00113** (0.000438)	-0.000635*** (0.000165)
N	3273	3273	3273	3273	3076	3076	3076	3076
adj. R <sup>2</sup>	0.034	0.036	0.061	0.036	0.048	0.084	0.138	0.094
Optimal Lags	5	5	5	5	0	0	0	0
p-value for F Test that growth and inflation change variables (and their lags, where applicable) = 0	2.81911E-12	5.34395E-12	2.29415E-07	2.31095E-11	0.07240475	0.17723405	0.04280572	0.13447361

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	US-base SR	Multi-base SR	Multi-base SR with Time Effects	Multi-base SR with VIX Percent Change	US-base LR	Multi-base LR	Multi-base LR with Time Effects	Multi-base LR with VIX Percent Change
US-base SR change	0.0303 (0.166)							
Peg * US-base SR change	0.464* (0.270)							
Multi-base SR change		0.0480 (0.226)	-0.0625 (0.268)	0.0856 (0.232)				
Peg * Multi-base SR change		0.622** (0.260)	0.491** (0.239)	0.622** (0.261)				
US-base LR change					0.344*** (0.0606)			
Peg * US-base LR change					0.221 (0.203)			
Multi-base LR change						0.494*** (0.0817)	0.418*** (0.136)	0.575*** (0.0755)
Peg * Multi-base LR change						0.164 (0.110)	0.0981 (0.110)	0.171 (0.109)
VIX Percent Change				0.00236* (0.00139)				0.00293*** (0.000668)
Constant	-0.00167** (0.000741)	-0.00151** (0.000737)	0.000186 (0.000718)	-0.00150** (0.000731)	- (0.000174)	- (0.000164)	-0.00113** (0.000438)	- (0.000164)
N	3273	3273	3273	3273	3076	3076	3076	3076
adj. R <sup>2</sup>	0.035	0.038	0.062	0.038	0.048	0.086	0.138	0.095

# Advanced versus Emerging/Developing

- Both short and long-term correlations are higher for advanced than for emerging, though emerging data more sketchy.
- Could reflect remaining capital controls in poorer countries.
- For advanced countries, there is more policy coherence.
- Sheets and Sockin (2013): growing correlation in arguments of Taylor rules.

## So Monetary Autonomy Is Exercised ...

- ... but if capital account openness makes the FS problem harder to manage, and if additional prudential policy instruments are unavailable, monetary policy will deviate more from its other targets at an optimum.
- I will argue that **financial openness inevitably degrades prudential tools.**
- So tradeoff for policy is worse ... even if monetary policy is potentially effective.

# Example

- An EME is facing inflationary pressure and high domestic credit expansion.
- If US yields fall, these pressures rise.
- Country might prefer to opt for some interest rate increase, some currency appreciation, some direct lending restrictions (e.g. required bank capital).
- But if foreign lenders can circumvent the restrictions, there will be more interest rate increase, more currency appreciation, less resistance to the inflation and the credit boom.

# Why is FS Policy Harder in Open Economies?

## The *Financial* Trilemma

The following three are not all mutually compatible (Schoenmaker 2013):

1. Financial stability.
2. Nonintervention in cross-border financial flows.
3. National control over financial supervision and regulation.

Note: Valid *under any exchange-rate regime*.

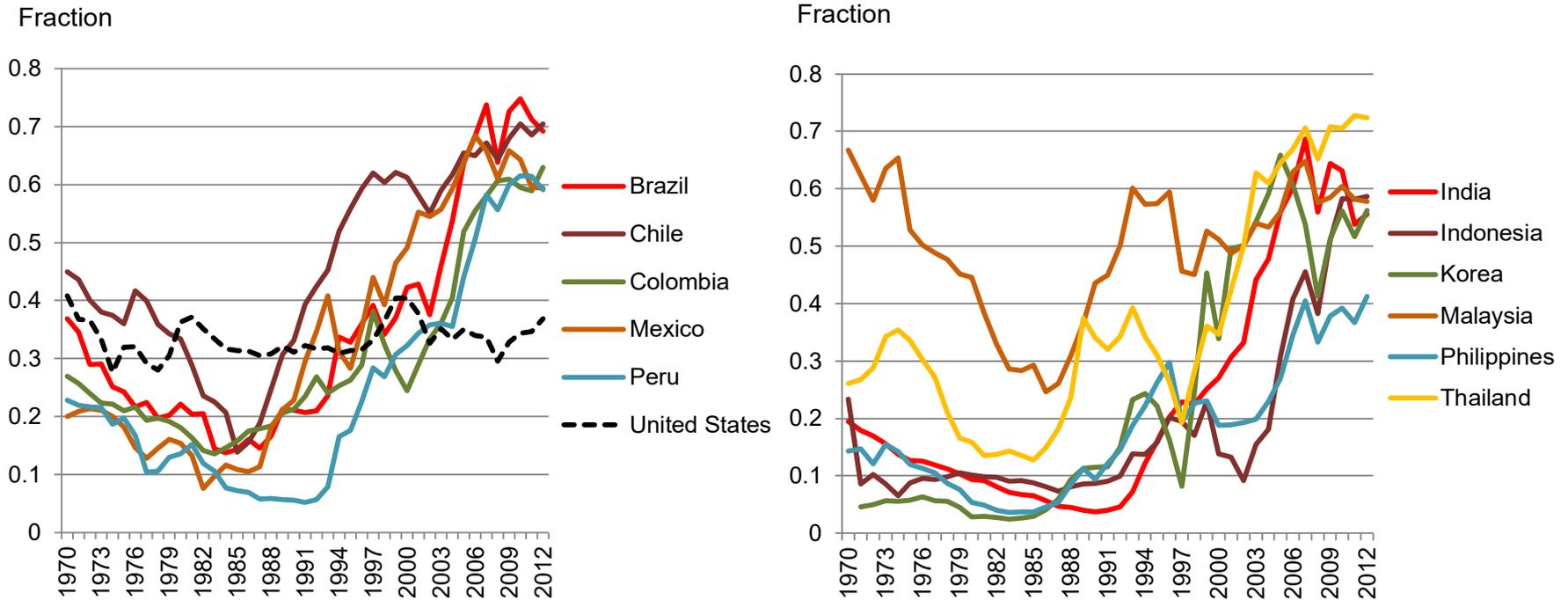
# Flexible Exchange Rates *Do* Give Monetary Independence, but with a Greater Burden

- We learned from GFC that conventional monetary policy *always* (closed or open economy) needs the help of a strong micro/macro-prudential framework.
- In open economies, monetary policy has even less traction over financial stability: a harsher tradeoff.
- Even if ideal financial stability policies were available in a *closed* economy, they might not be in *open* case.
- Short of much better international FS coordination (even EU is falling short), capital controls might be only way to reconcile sovereignty with some integration.
- But (when) do they work? With what side effects?

# Resolving Trilemmas and Improving Tradeoffs

- Ingredients of a more efficient international system:
  1. Flexible exchange rates (to resolve monetary trilemma).
  2. Sound macroprudential policies (to address the inadequacy of monetary policy alone).
  3. Much better international coordination of regulatory/resolution frameworks -- more reciprocity, as in Basel III CCB rules?
  4. Since full coordination politically impossible, rules of road for capital controls, if they are at times needed to address idiosyncratic national issues.
  5. Enhanced facilities for international liquidity support (swap lines) – to counteract downsides of gross reserve accumulation.
  6. More equity, less debt – well underway for EMEs.

# Remember the Upside of Financial Integration



**J- curve of external equity liabilities relative to total external liabilities**