

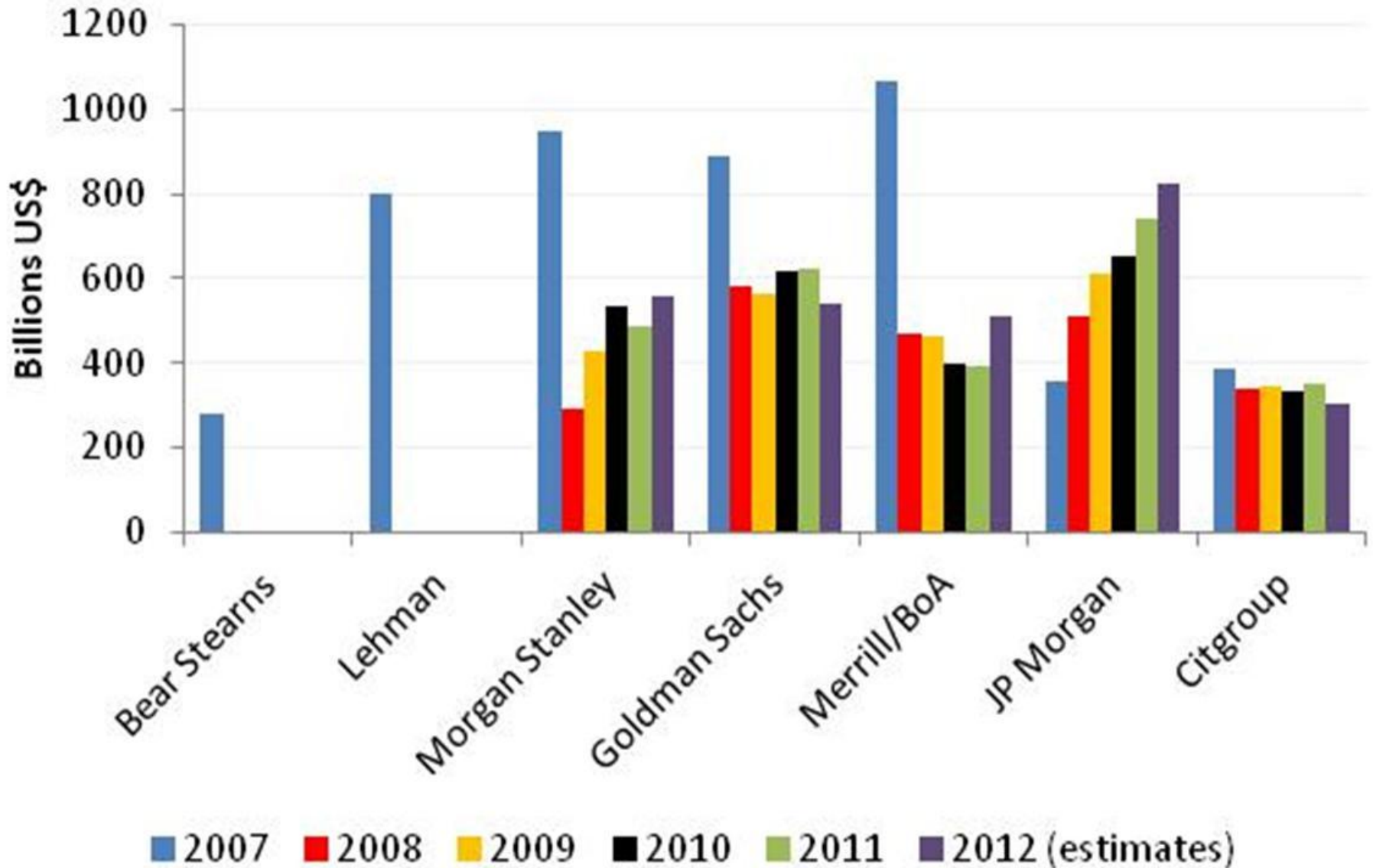
Cross Border Issues— the financial plumbing

Manmohan Singh

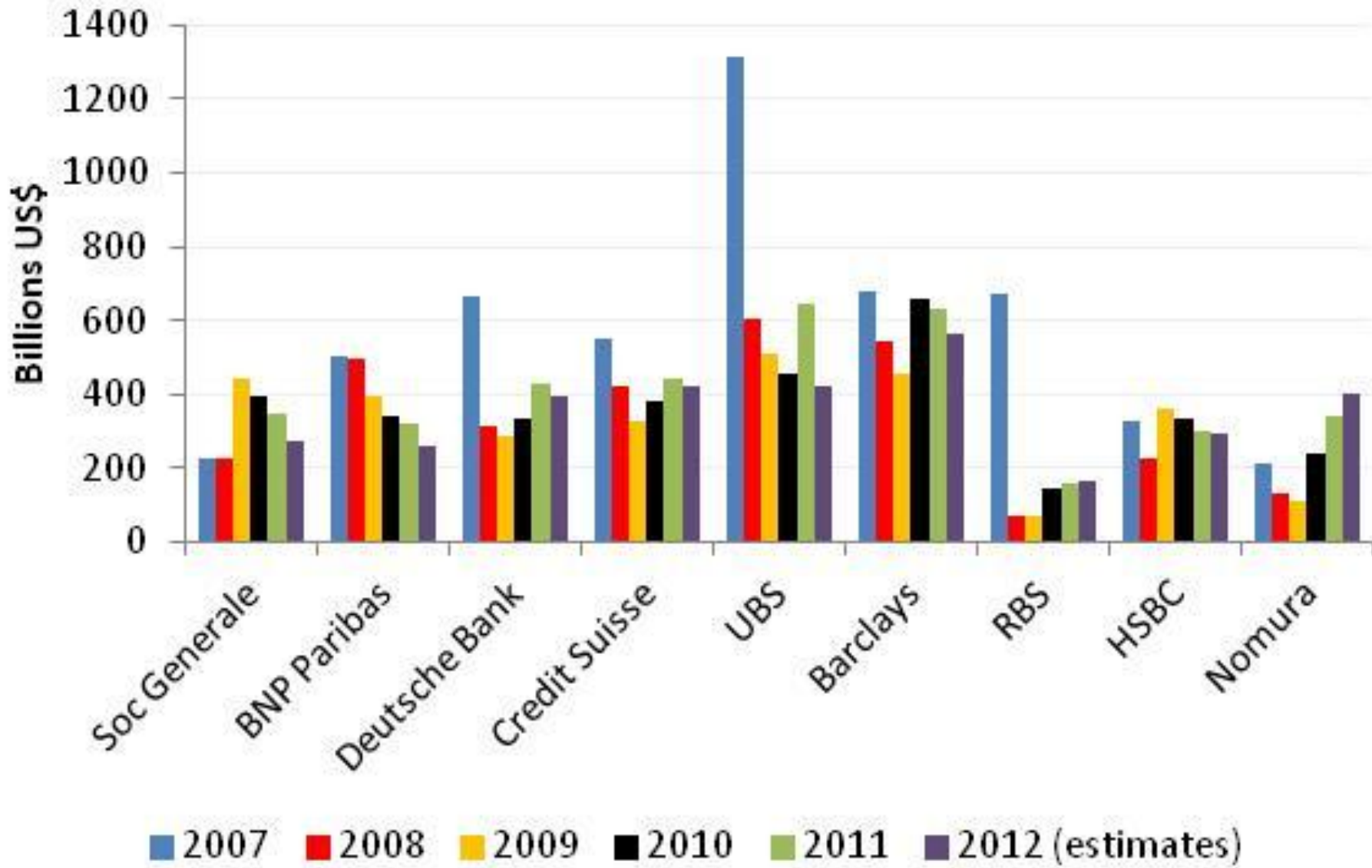
Senior Economist, International Monetary Fund

Views expressed are of the author only and not attributable to the IMF, its
Executive Board or Management.

Pledged Collateral—US banks



Pledged Collateral—European banks (plus Nomura)



Collateral from Hedge Funds

Hedge Funds largely finance their positions in two ways.

- **First**, they can either pledge collateral for reuse to their prime broker in lieu of **cash borrowing** from the PB (via rehypothecation

< note: In the U.S., SEC's Rule 15c3a and Regulation T generally limits PB's use of rehypothecated collateral from a client. Non US jurisdictions such as UK via English Law do not have any limits. >

- **Second**, HFs also fund their positions via **repo(s)** with dealers who may or may not be their PBs.
- HF collateral to the street was about **\$1.7 trill (2007)** and down to about **\$1.35 trill** in recent years, to **\$1.8 trillion** as of end-2012

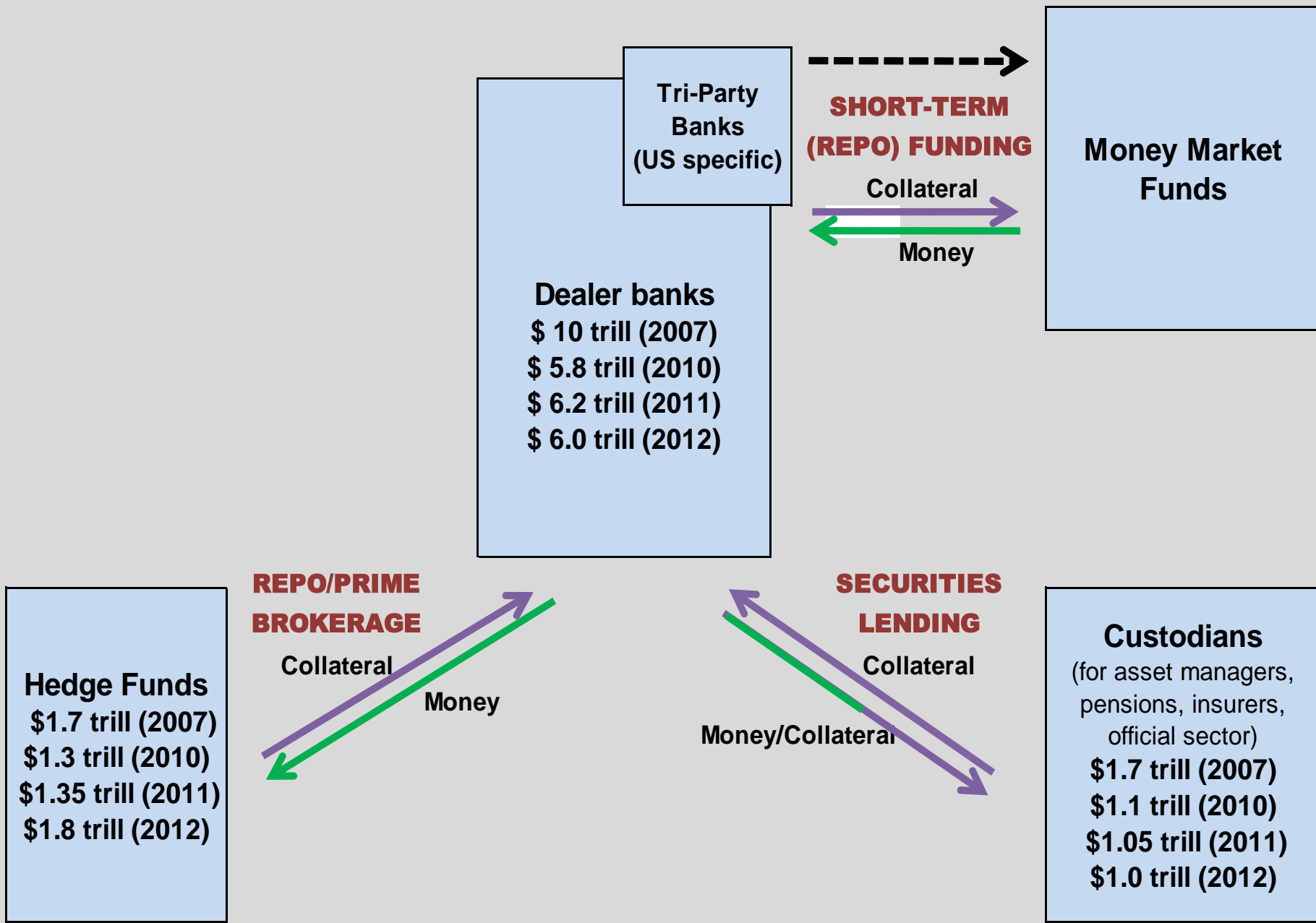
The “non-hedge fund” source of collateral— declining due to counterparty risk etc

Table 1: Securities Lending, 2007-2012

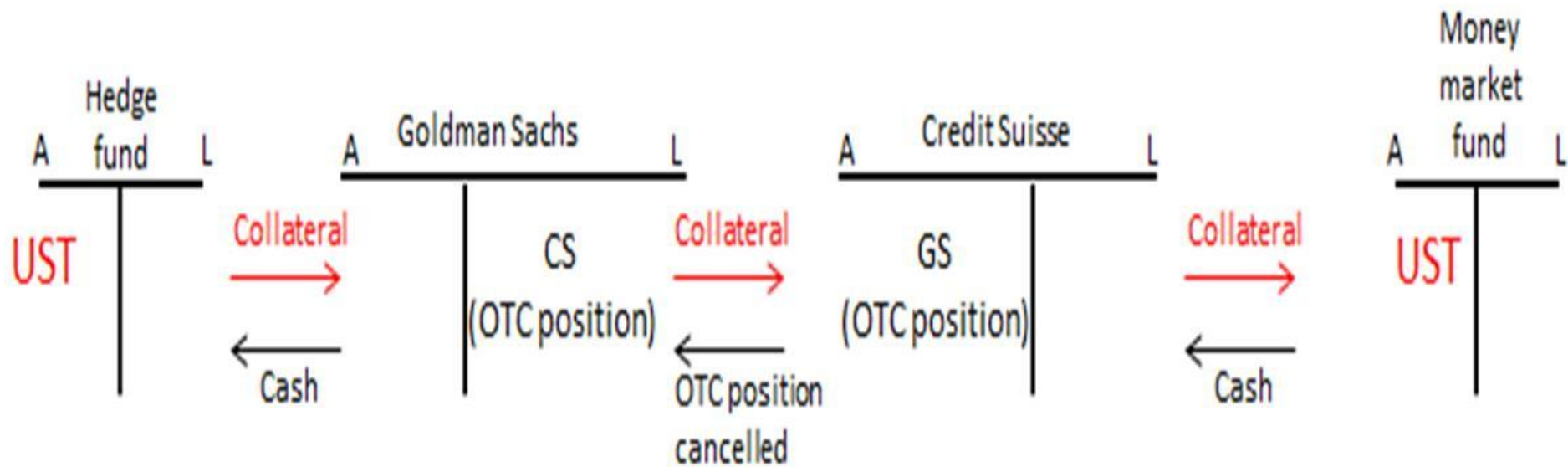
Collateral Received from Pension Funds, Insurers, Official Accounts etc (US dollar, billions)						
	2007	2008	2009	2010	2011	2012
Securities Lending vs. Cash Collateral	1209	935	875	818	687	620
Securities Lending vs. Non-Cash Collateral	486	251	270	301	370	378
Total Securities Lending	1695	1187	1146	1119	1058	998

source: RMA

Non Bank / Bank / CB Nexus



An example of repeated use of collateral (that leads to “collateral chains”)



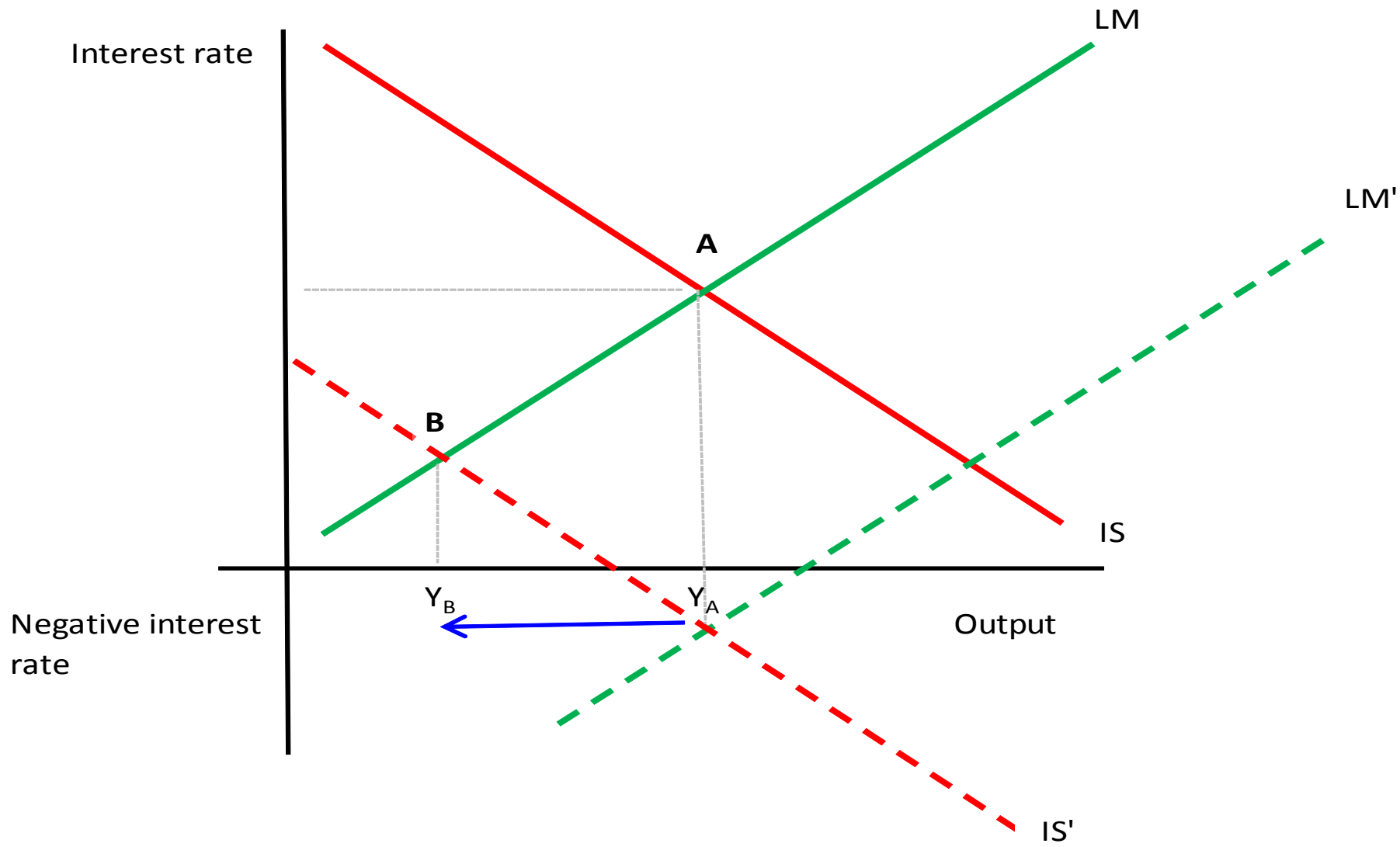
Sources of Pledged Collateral, Velocity, and Collateral, 2007 and 2010–12

(In trillions of U.S. dollars; velocity in units)

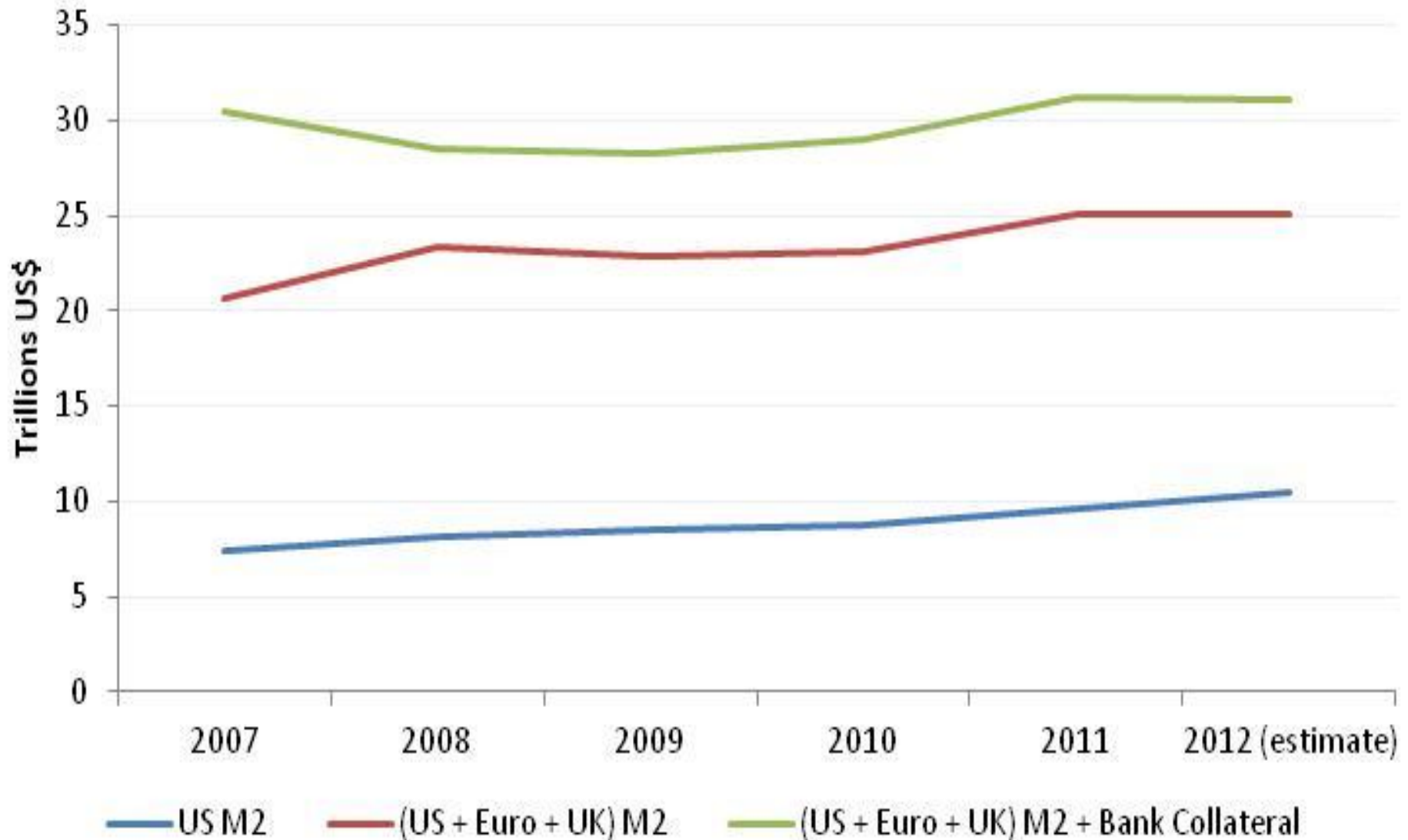
Year	Sources			Volume of Secured Operations	Velocity
	Hedge funds	Others	Total		
2007	1.7	1.7	3.4	10.0	3.0
2010	1.3	1.1	2.4	5.8	2.4
2011	1.3	1.05	2.35	6.1	2.5
2012	1.8	1.0	2.8	6.0	2.2

Sources: Risk Management Association; and IMF staff estimates. See also Singh (2011 and 2012).

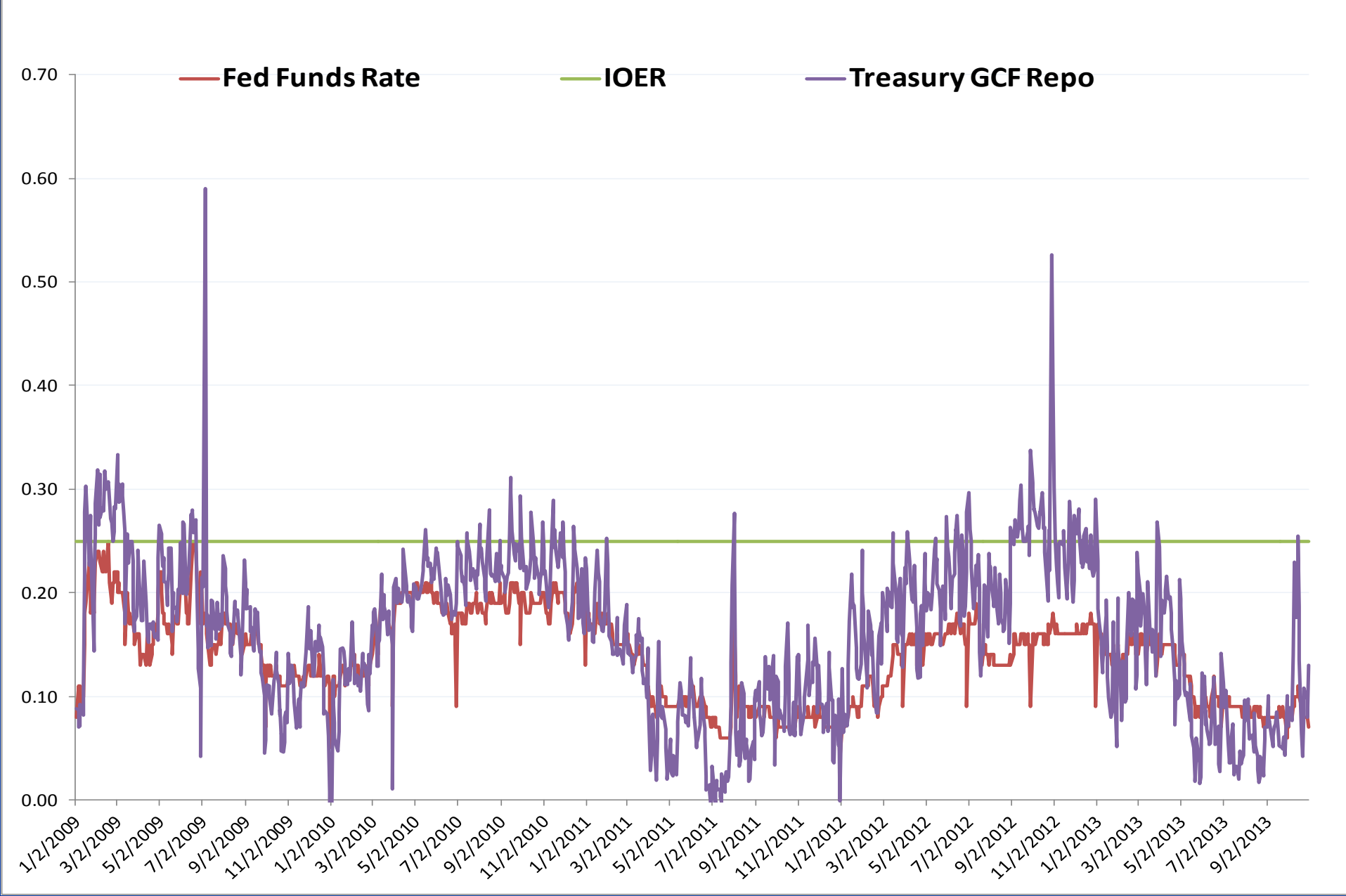
IS/LM and pledged collateral market: IS shifts “in” as financial plumbing crashes



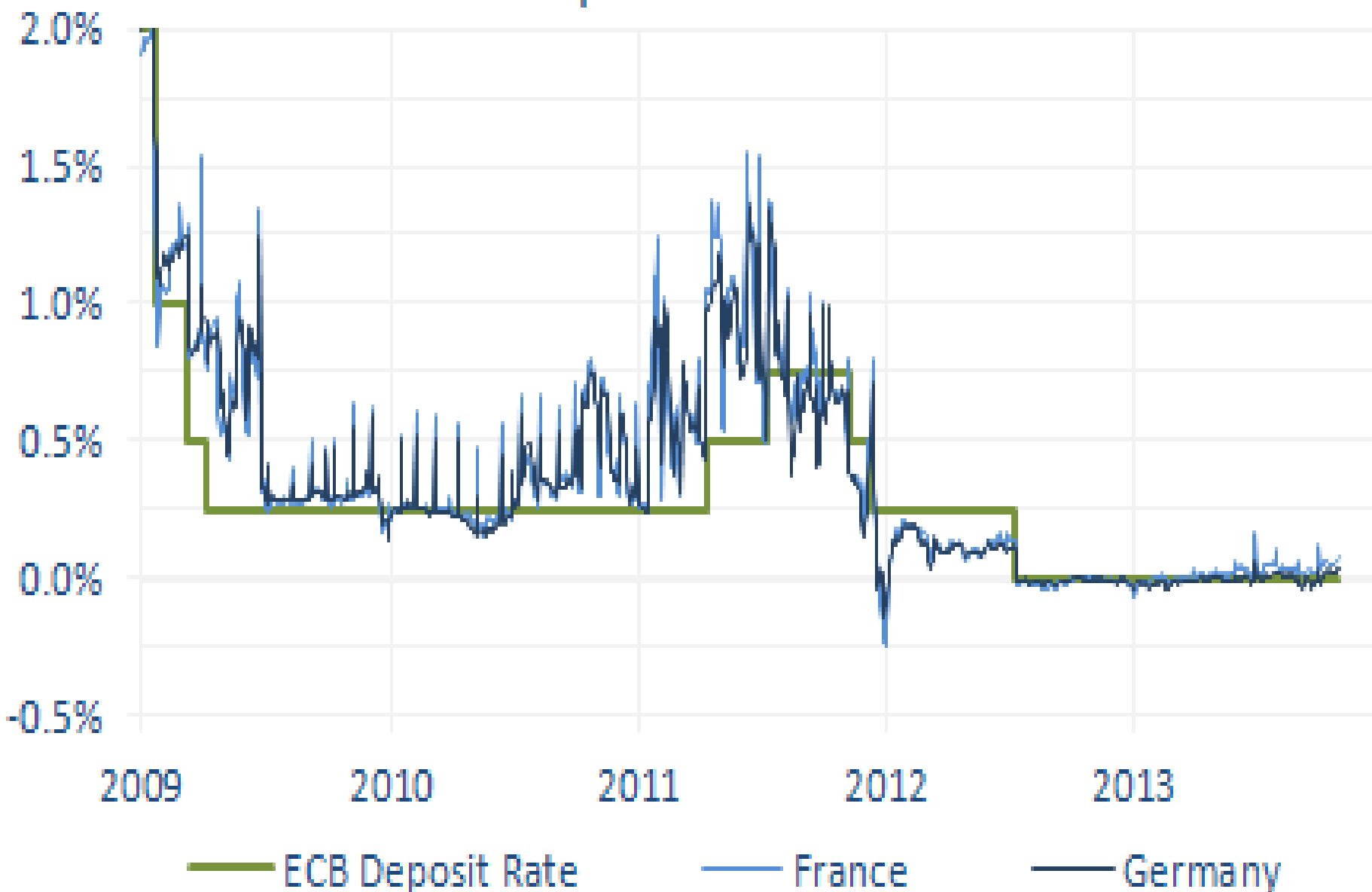
Overall Financial Lubrication—some intuition.....Money and Collateral



US money (IOER) and GC rates



Eurozone 'good collateral' rates and ECB deposit rates - source ICAP



The changing collateral space:

In the “new” collateral space, the increasing role of central banks regulations, and collateral custodians is significantly changing the collateral landscape. **As collateral remains scarce (i.e., low repo rates), good collateral will become more fungible (i.e., Bunds/UST substitutability)**

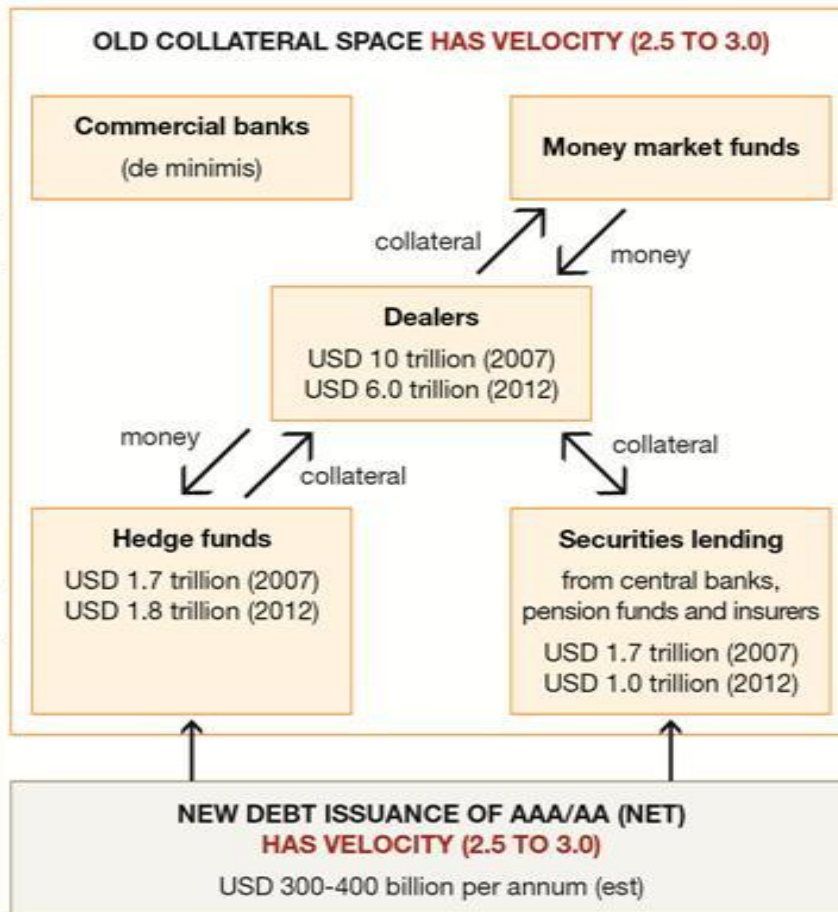
- (i) **unconventional monetary policies pursued by central banks**
- (ii) regulatory demands stemming from Basel III, Dodd Frank, EMIR etc that will entail builder collateral buffers at banks (LCR), CCPs etc;
- (iii) collateral custodians who are striving to connect with the central security depositories (CSDs) to break out of silo(s).
- (iv) supply of new collateral (assume D/GDP ratio does not increase significantly in developed countries).

**CENTRAL BANKS
ZERO VELOCITY**
hold good and bad collateral
(but in silos)

REGULATIONS WILL REDUCE COLLATERAL VELOCITY
estimated USD 2-4 trillion additional collateral needed
e. g. liquidity ratios e. g. CCPs e. g. non-cleared OTC derivatives

**COLLATERAL CUSTODIANS
WON'T CHANGE VELOCITY**
(unless collateral reaches dealers)
may alleviate
some regulatory demands

European Central Bank
Assets Liabilities
not-so-good collateral ↑



Euroclear / Clearstream
USD 1-1.5 trillion (est)



Federal Reserve
Assets Liabilities
USD 2.8 trillion of UST and MBS ↑
(good collateral)
expected USD 85 billion MBS monthly ↑

Central security depositories

Swiss National Bank
Assets Liabilities
USD 400-425 billion in short term Euro bonds
expected ↑ to maintain Swiss Franc / Euro peg

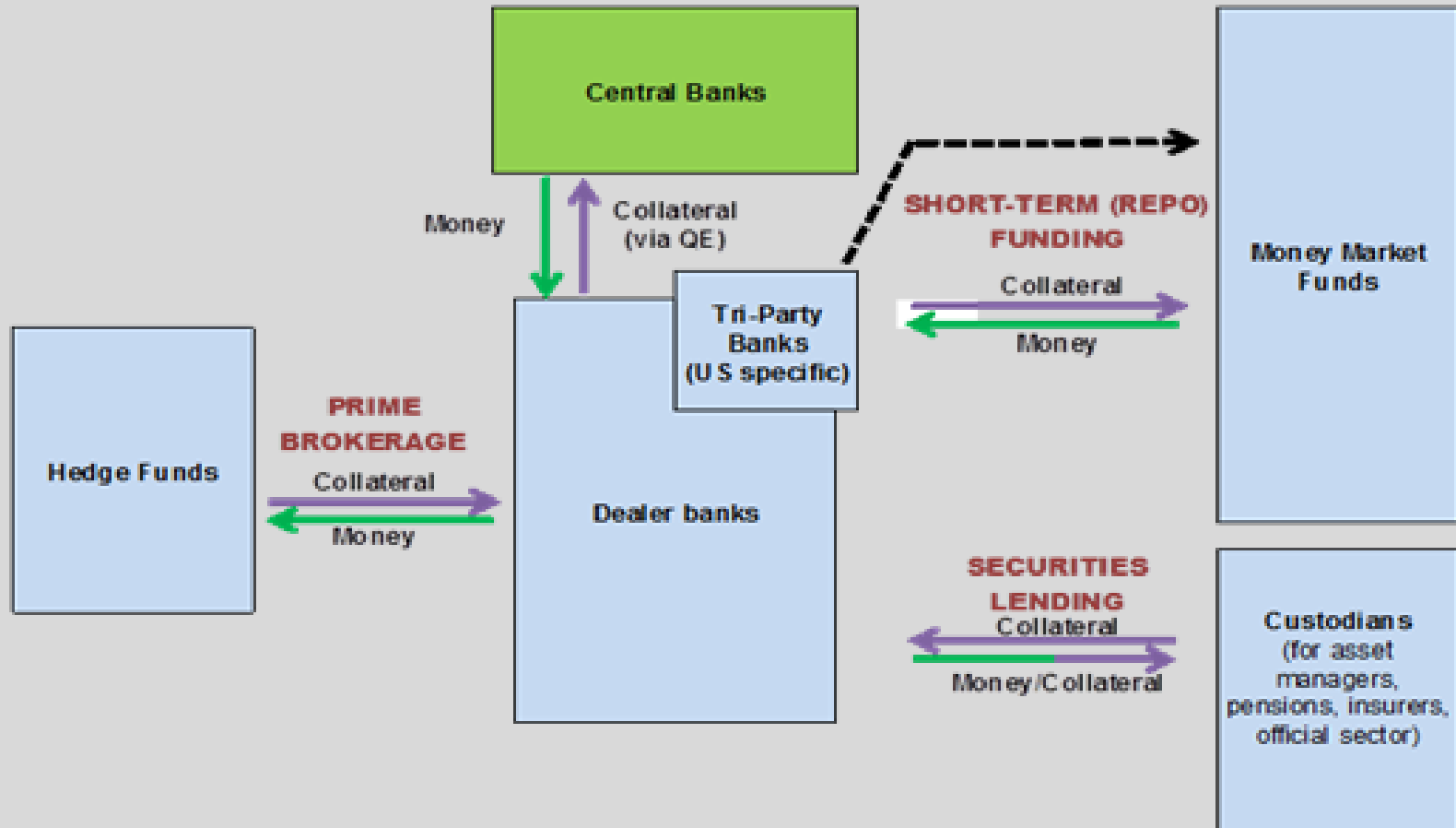
**US triparty repo
(JP Morgan and BNY Mellon)**
USD ? trillion
depends on triparty and MMF regulation in the United States

(-) / (+) refers to the impact on both the amount and velocity of collateral
(-) negative for global liquidity
(+) positive for global liquidity

The new plumber.....

Figure 1: Collateral and Financial Plumbing

Non Bank / Bank / CB Nexus



Collateral intermediation

Financial plumbing/ monetary policy

- If QE is buying US Treasury directly from a bank, the Fed is substituting one bank asset for another. No change in bank balance sheet
- **But if QE is buying UST from a non-bank (which has been the case..refer Carpenter et al 2013),** then they're increasing bank balance sheet by *increasing nonbank deposits with banks*. That deposit never really goes away - no matter how the non-bank lends it to or pays it out, it ends up as someone's deposit eventually. **So M2 increases by the amount by which the securities purchased were non-bank assets.**
- Money market funds have had increasing difficulty finding balance sheets willing to provide investments. That implies that custodial banks – BoNY, State Street especially – will likely grow because of their position as **'balance sheet of last resort'** for the MMMF industry.
- ***QE converts useful collateral to excess balance sheet at banks.***

Excess reserves do not equal good collateral

- So if all the excess reserves deposits were converted to reverse repos and reverse repos were a perfect substitute for a excess reserve deposit (but they are not!!) Fed could reduce total bank balance sheets by the amount of reverse repo done with eligible nonbanks.
- However, collateral with these nonbanks **via reverse repos cannot be rehypothecated**, and thus will not contribute towards financial lubrication. Only banks are allowed to rehypothecate collateral received via reverse repos (this impacts collateral velocity).
- So by design, collateral release to nonbanks will **avoid any jumps in repo rates** (as this will be important when policy rates lift off)

Collateral Transformation and Regulation

- **Dealers are interested in collateral transformation.** In fact they may be the *only* actor in the financial space to bridge the likely demand/ supply gap quickly. However transforming a BB to AA off balance sheet—via pledged collateral -- may be constrained due to Basel III.
- The final definition of leverage/LCR ratios will matter, especially if ratios “pick up” all/most off-balance sheet pledged collateral transactions.
- The *re-use* of collateral is fundamental to bridging the gap between demand and supply. **Reserve Bank of Australia's** suggestion is similar to collateral transformation by using good assets from their own balance sheet to keep collateral re-use rate high. (**Academia has so far ignored collateral velocity** in their models)

$$\text{Demand}_{\text{collateral}} = \text{Supply}_{\text{collateral}} * \text{re-use factor}$$

Recent example of “puts” to the shadow: Reverse Repo ..

- At least prior to QE, non-banks like MMMFs had to work hard to get a positive return (i.e., higher than bank deposits) by choosing a good counterparty. Going forward, it is likely that MMMFs assets will grow, given the guarantee return from reverse repos (and at odds with proposed regulations — like floating NAV— that try to limit the size of MMMFs).
- Banks get balance sheet space to the extent of reverse repos done w/nonbanks. So banks get to “push out deposits” from their balance sheet and get “balance sheet space”

Collateral velocity:

Tapering vs. Reverse Repo

- If Fed tapers (and no reverse repo), the 10 billion (85 minus 75) that will now "stay" in the market can be sliced and diced, (whatever the tenor) and prop up collateral velocity. **There are no constraints on the use of collateral.** So tapering is a genuine release of collateral—in a relative sense-- and may nudge repo rates higher.
- Compare above to the 85 billion+ reverse repo world that we are in today in the reverse repo world, the nonbanks (who are the biggest bidders for reverse repo) ***are not allowed to rehypothecate.***
- So, in the 85 billion QE and \$10 billion of reverse repo simultaneously—in this combination, Fed can "contain" collateral velocity. This combination may be more useful for Fed to ***get a grip on repo rates*** than tapering from 85 bn to 75 bn (and no reverse repo).

Monetary Policy Rate in the medium term—as projected by Fed’s paper from Jan 2013 (baseline consensus forecast). Repo rates will matter!

