Shadow Banking: Economics and Policy

ABFER Conference

Financial Regulations: Intermediation, Stability and Productivity

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Stijn Claessens
Senior Adviser, Federal Reserve Board

Based on work joint with
Zoltan Pozsar, Lev Ratnovski, and Manmohan Singh

Shadow Banking: Economics and Policy

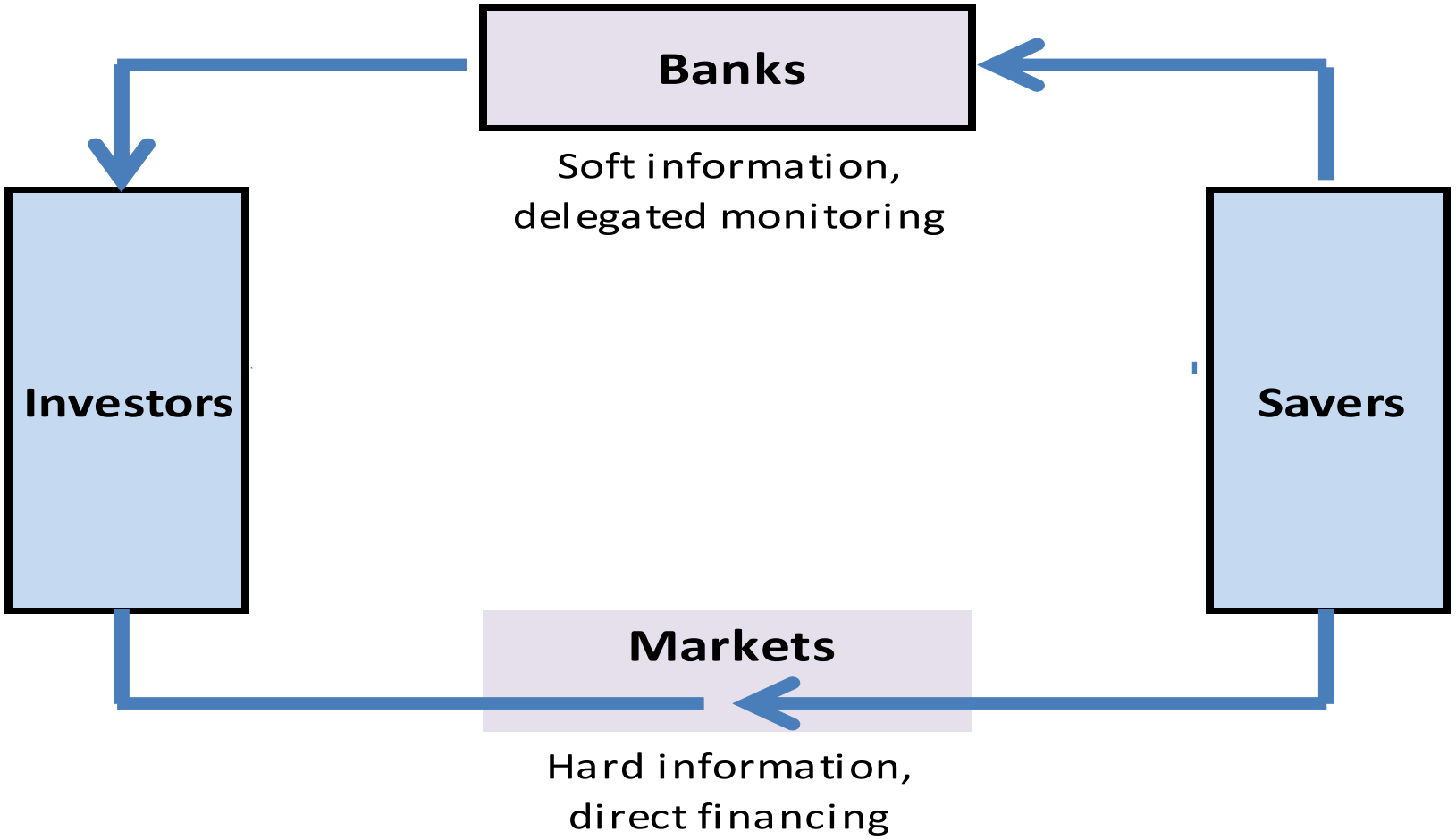
- Many changes in financial systems over last decades
  - Some cyclical, notably due to GFC, some due to regulations
- Focus on structural changes, due to changes in:

  1. Real economy ("demand"); 2. Financial services provision ("supply"); or 3. Regulations (of a "structural" nature)
- Question: "*Considering changes, what is the role of shadow banking for **both** growth and financial stability*
- Lessons: Guideposts for regulations and other actions

Approach and Outline

1. Start of Analysis: *Financial Structure*
   - Theory on financial structures
     - Definition (institutions, activities, functions). Why it may matter
   - Snapshot of structures: globally and G4 (euro area, Japan, UK, US)
   - Financial structures, economic growth, and financial stability
     - Considering also complementarities, volatility, procyclicality
2. Shadow Banking: Demand, Supply, and Regulation
   - How to define? How to fit it in? What are good and bad parts, risks?
     - Examples: securitization and collateral re-use
   - Policy implications, given drivers of structures, regulatory trends

1. Traditional theory of financial intermediation and financial structure: banks vs. markets

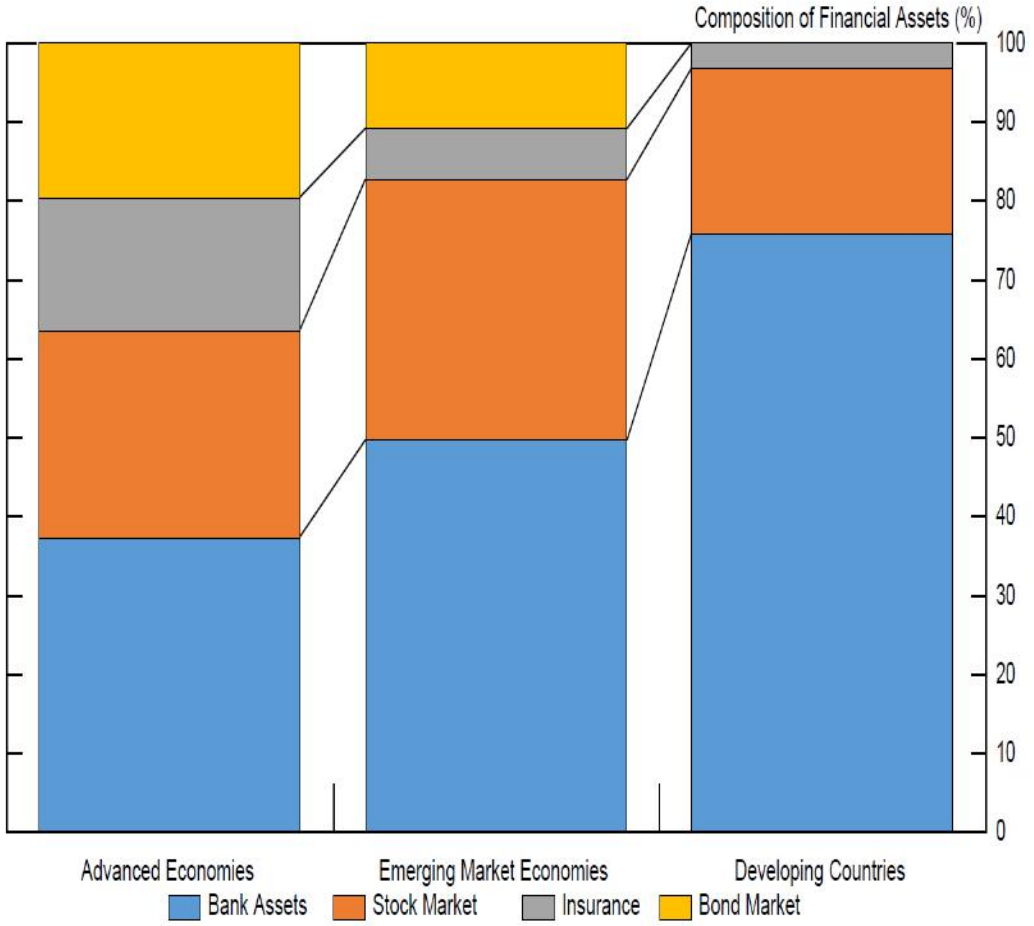


Financial structures' distinctions can become blurry, also given complementarity in supply

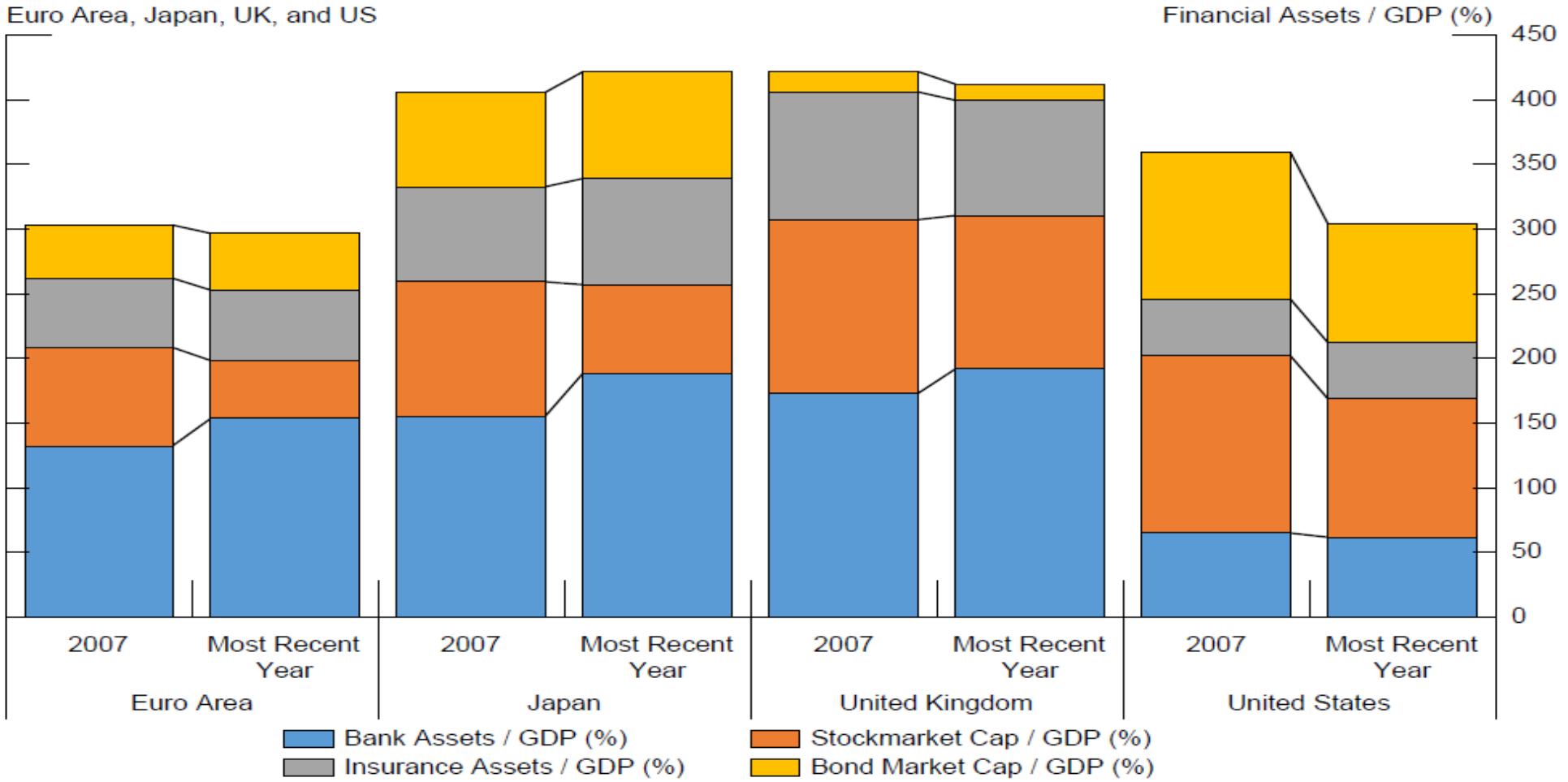
- Financial structures vary in many ways, more than banks vs. markets
  - Transaction vs. relationship, types of risk-sharing, hard vs. soft information..
  - But also functions, e.g., payments, deposit, credit, insurance, repos..
  - And destination – households, corporations, government, etc. – and sources
- Financial structure matters, as not "first-best, complete market" world
  - Deviations are many: frictions, information asymmetries, enforcement,..
  - Means in second best world, prefer some mix of functions, services
- Analyses mostly about demand, but supply and complementarity is key too
  - Competition and complementarity, which can vary between/among services
  - Technology determines provision frontier, and drives intra-financial system changes
  - Also supply interests and political economy can drive (regulatory) changes

As income rises, structures shift away from bank-based towards market-based financing

- At higher levels of income, more market-based financing
- Over time, supply-side complementarities between banks and markets – at individual institution and system level – have been increasing
- Overall, a rise in market-based recently, but not dominant in all G4 (euro area, Japan, UK, US)



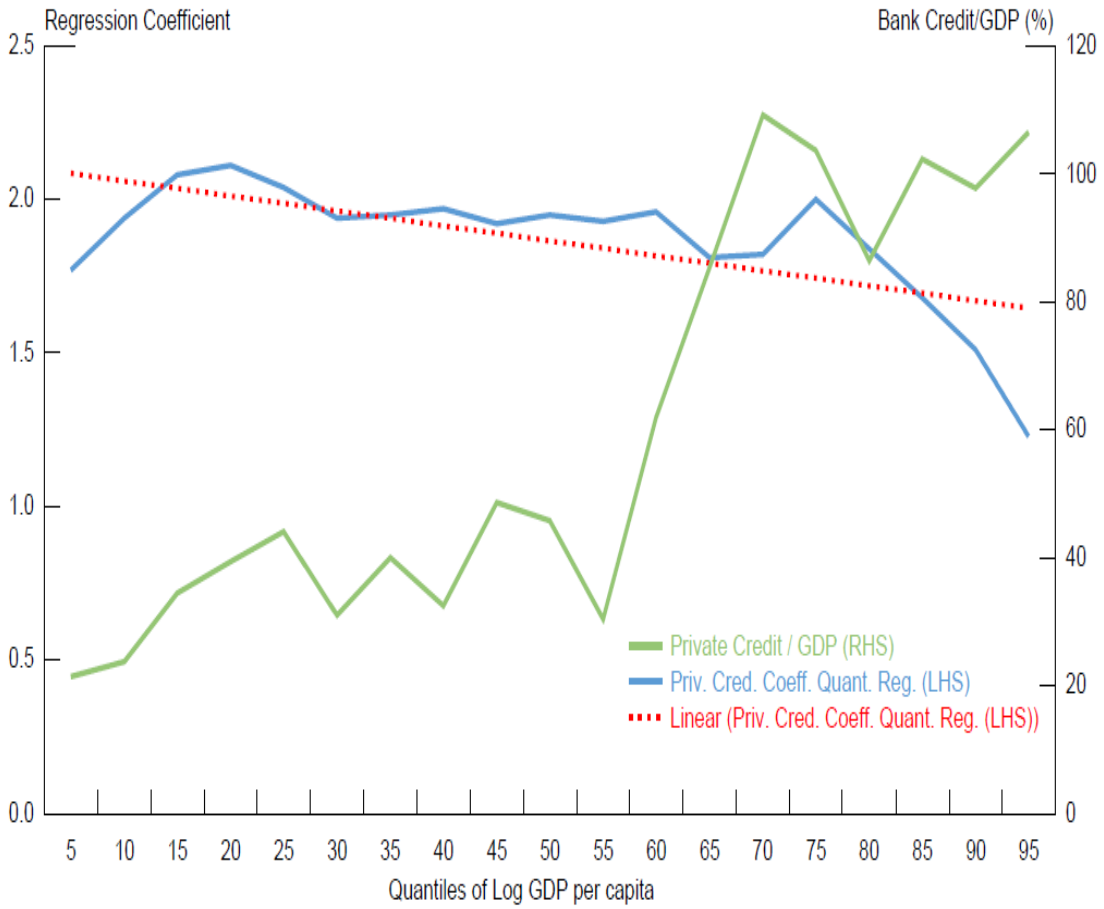
Financial structures in G4, except for US, still mostly bank-based, but markets up

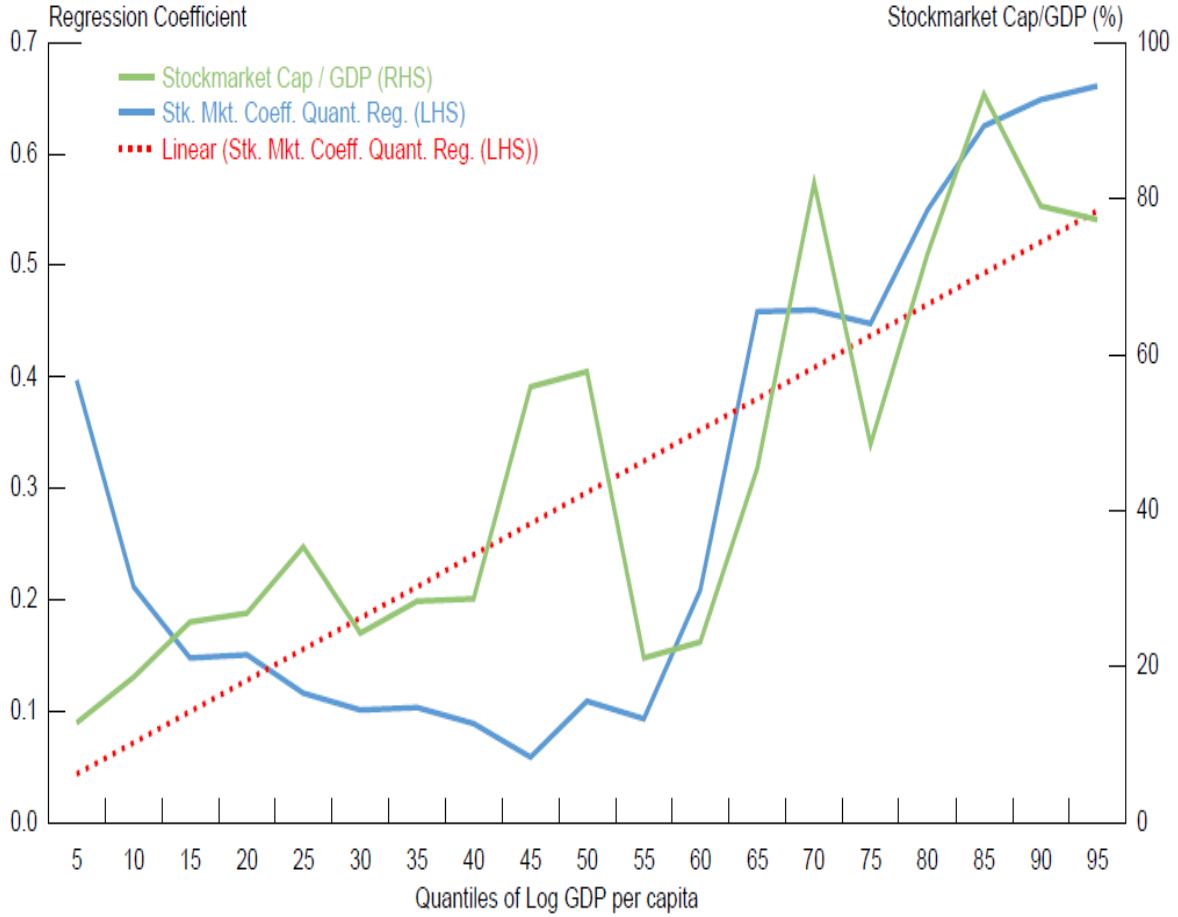


Financial structures affect growth and stability

- Financial structures affect growth, innovation, productivity
  - Bank vs. markets: initially indifferent, given good property rights. Lately shown to affect growth as "optimal" mix depends on income level
  - And destination of financing matters, e.g., housing (-) vs. corporations (+)
- Financial system diversity affects financial stability
  - Crises more likely and recovery from busts worse for bank-dominated systems
    - Especially real estate booms and busts bad
  - Diversity ("spare wheel") helps, for various reasons
  - Procyclicality over shorter run though higher with market-based financing
- P.S. Financial development and growth
  - Positive, but revisited: declining over time and maybe peaking at high depth

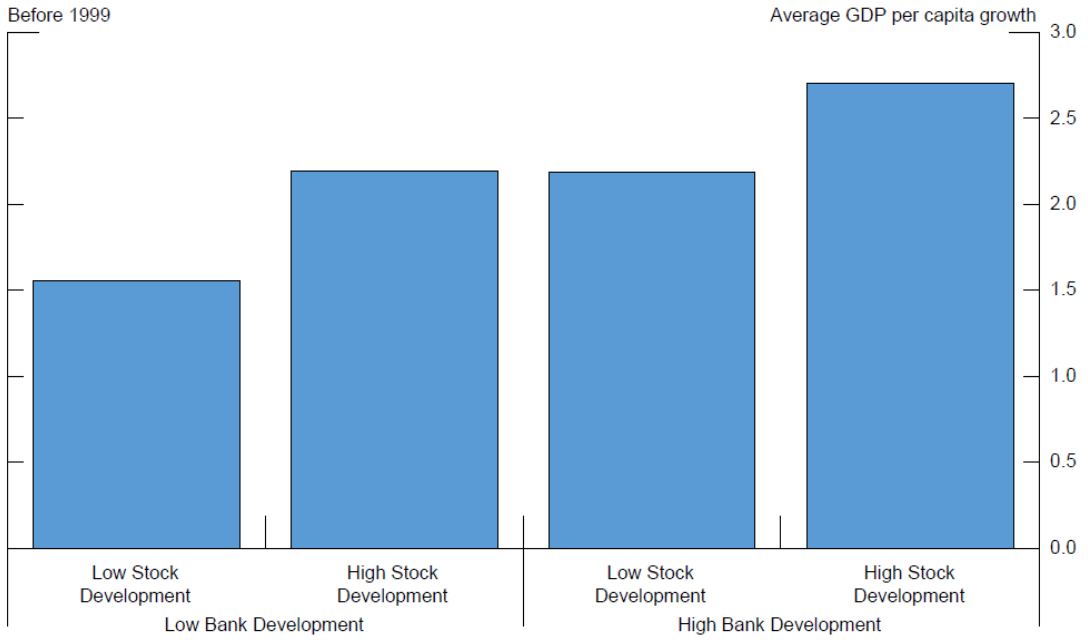
As income rises, contribution to growth of banks declines, stock markets' increases

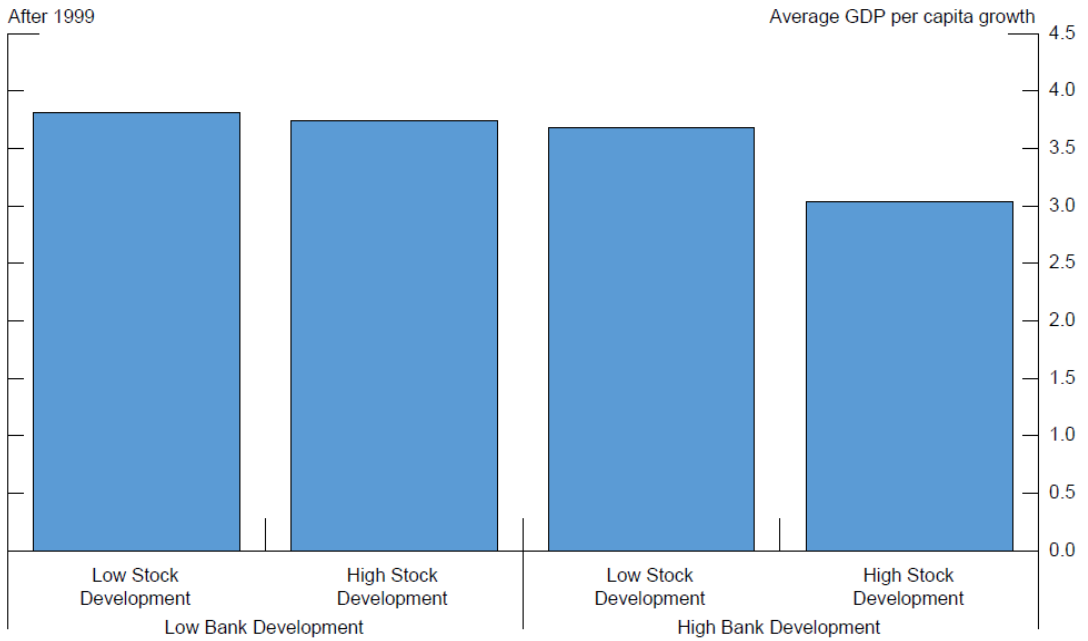




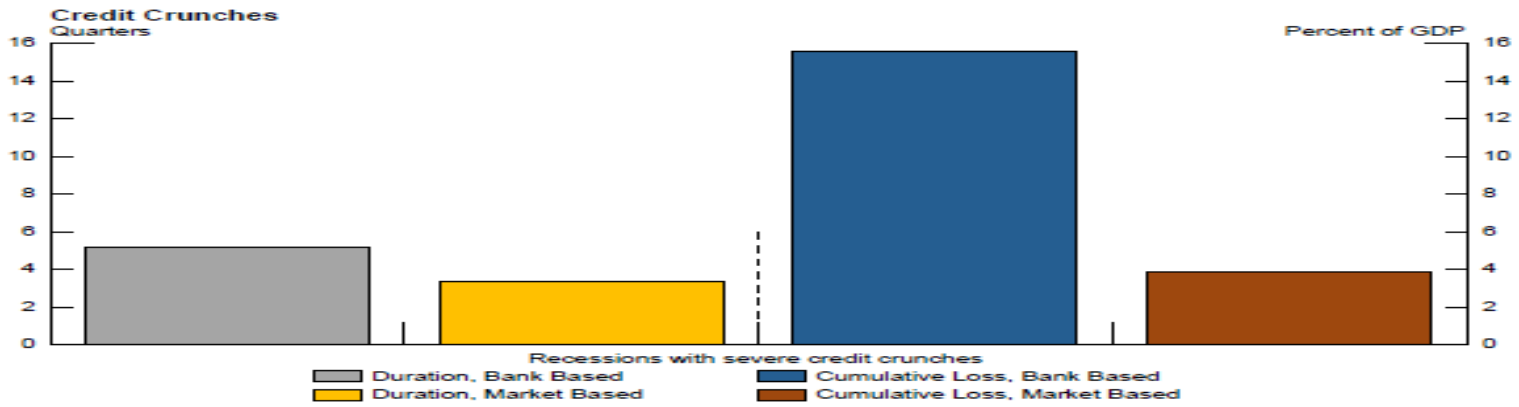
But.. while markets increasingly complement banks, growth impact may be declining..

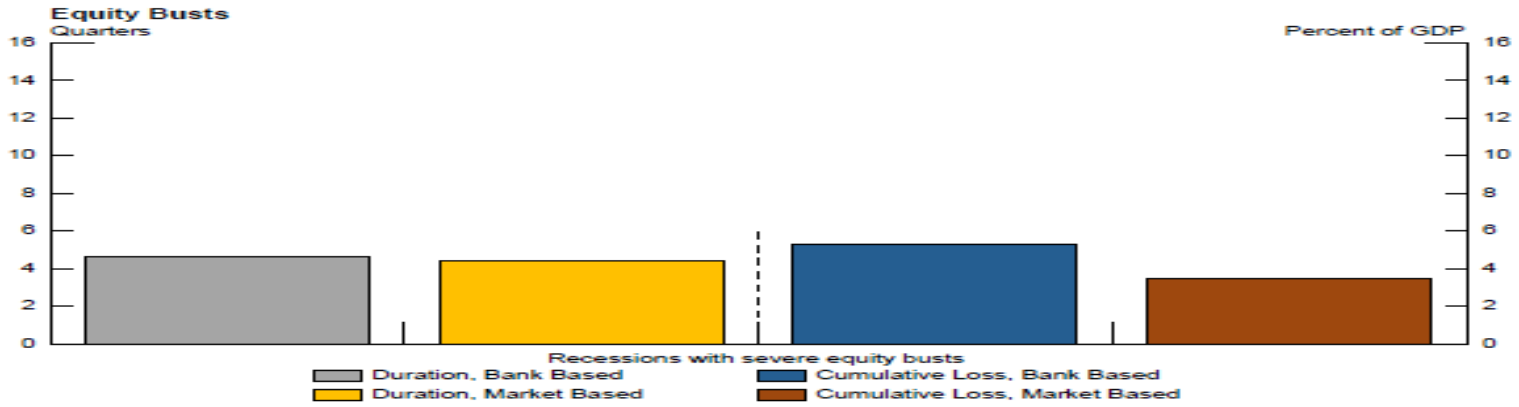
- Many complementarities, at financial institutions' and systems' level
  - Sources of funds, securitization, risk management, economies of scope, …
- But growth benefits of complementarities may have declined





Recessions with credit crunches longer, deeper in bank-based. Equity busts' not so in market-based



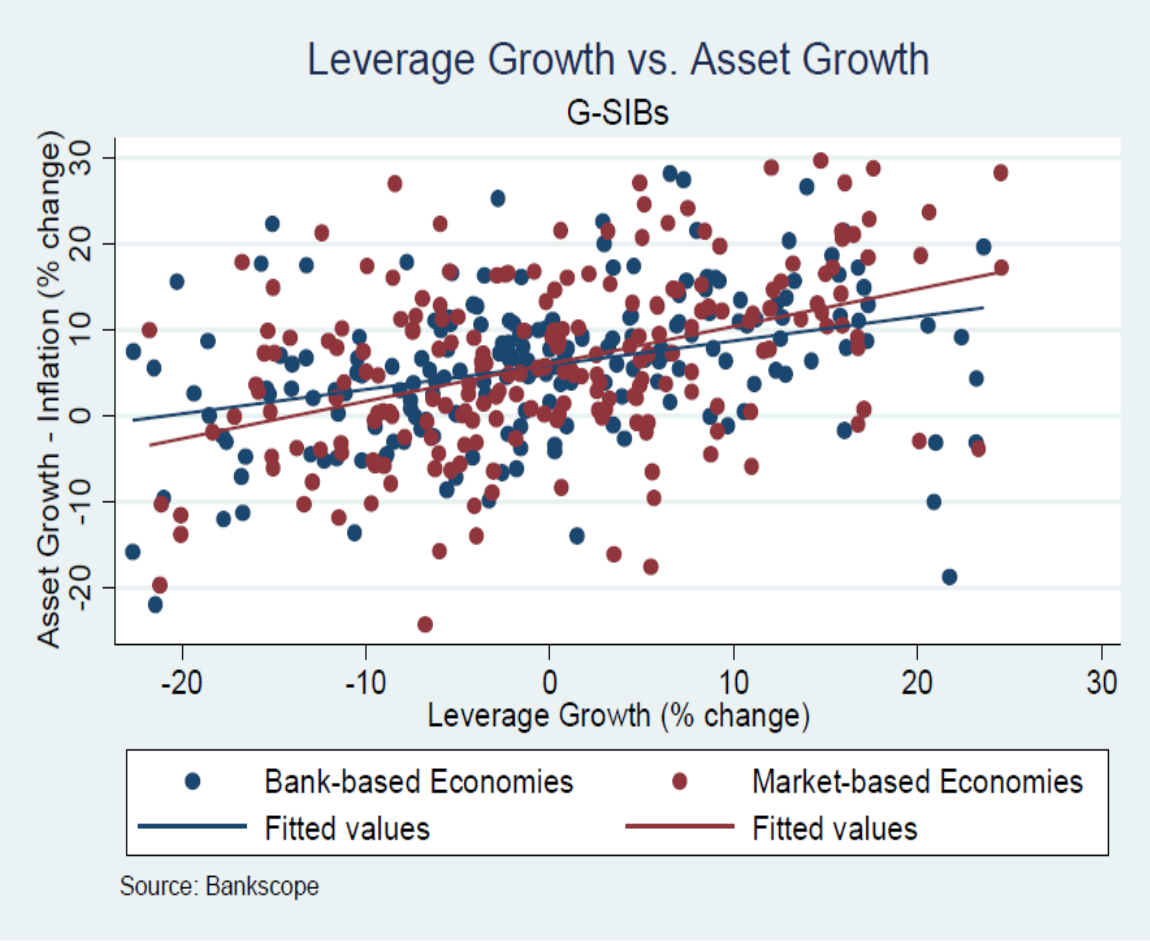


- Largely driven by real estate booms
  - Are more likely followed by banking crises, low growth
  - Recessions deeper, recoveries slower
  - Housing debt predicts lower future growth
- Spare tire benefits
  - Not just diversity

Claessens et al. 2012, updated. Advanced countries sample.

But.. volatility, procyclicality greater with more market-based finance and more diversity..

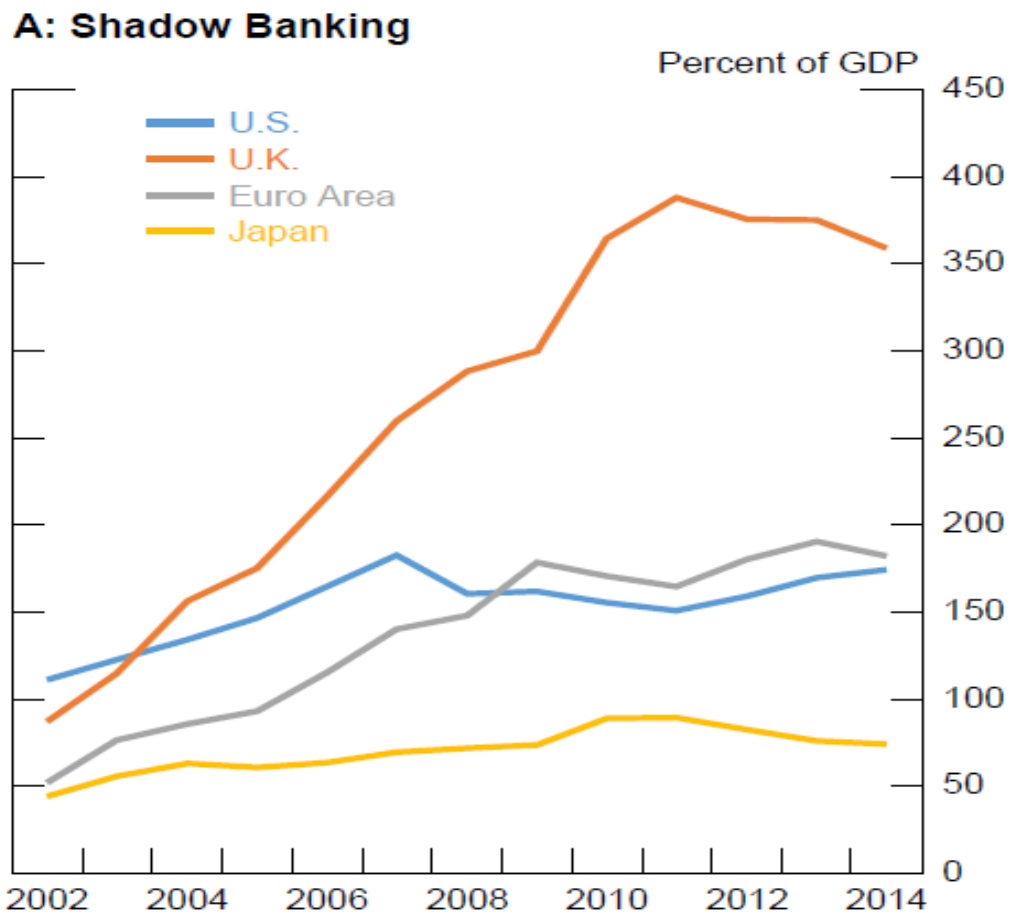
- Dark side of more market-based
  - Procyclicality in bank balance sheets (leverage ↔ asset growth) in market-based systems double that in bank-based systems
- With more fragmentation and diversity, also greater volatility
  - Easier and more trading, shorter investment horizons, less HTM
  - More peak pricing (also FinTech
  - More collateral, safety demands

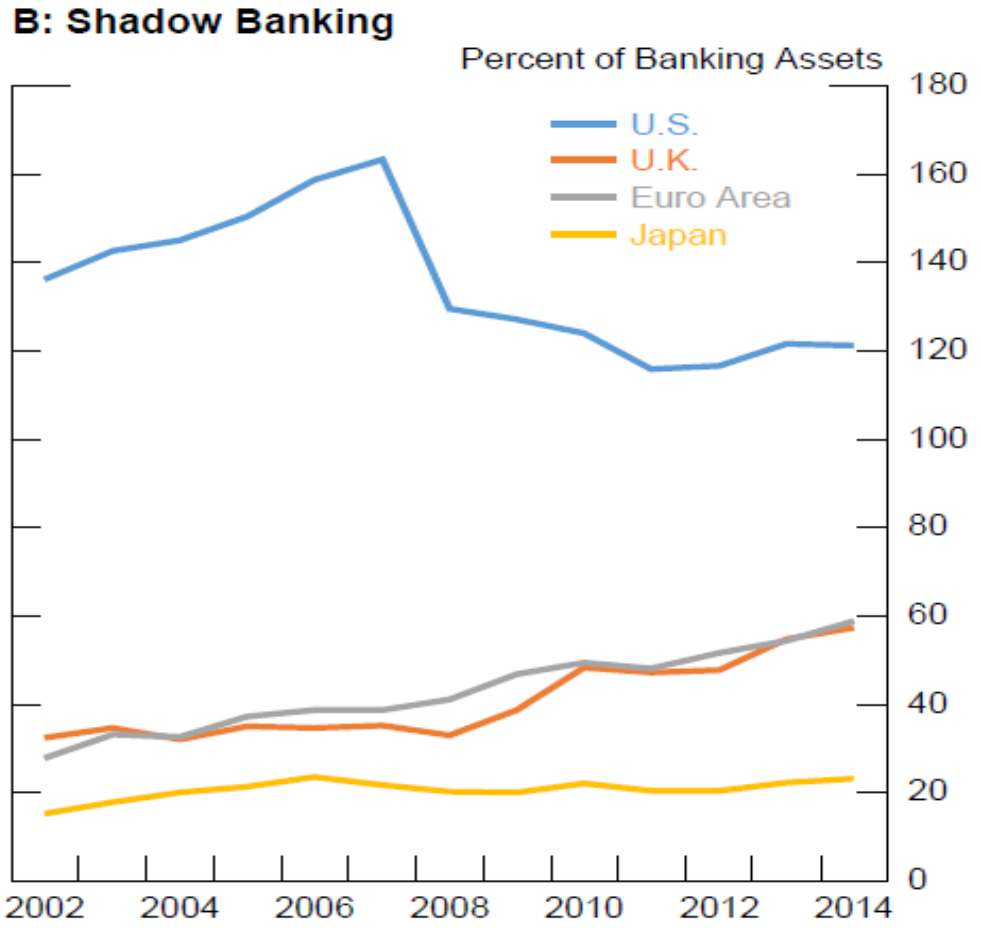


2. Shadow banking: new area of research

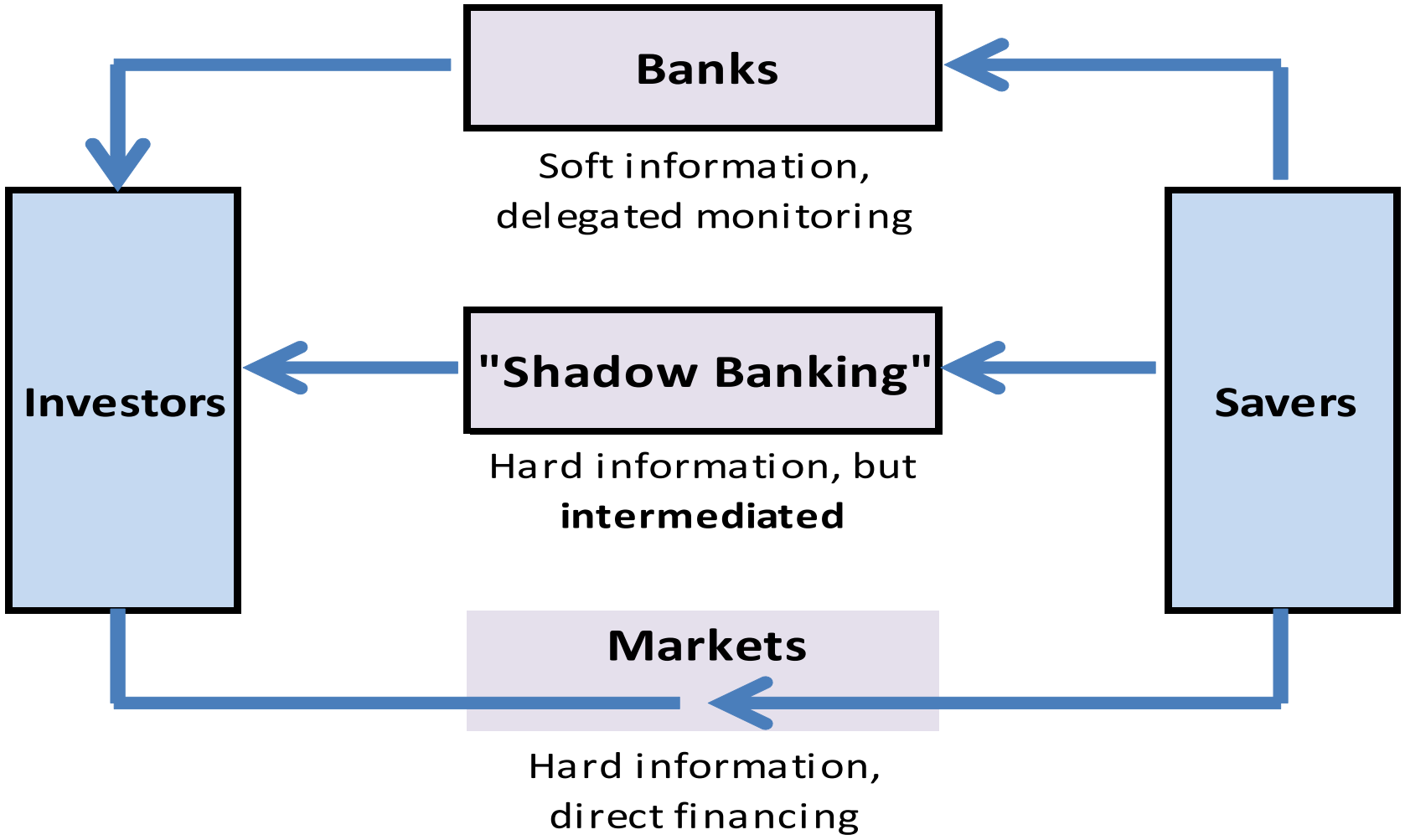
- How to adapt financial intermediation theory?
  - Financial intermediation with shadow banking
- How to define shadow banking?
  - Suggestion: “All financial activities, except traditional banking, which require a private or public backstop to operate”
- Examples of such shadow banking, demand and supply
  - Securitization, safe assets
  - Collateral intermediation
- What to do? Policy for shadow banking
  - Polar cases, FSB agenda, Outstanding issues

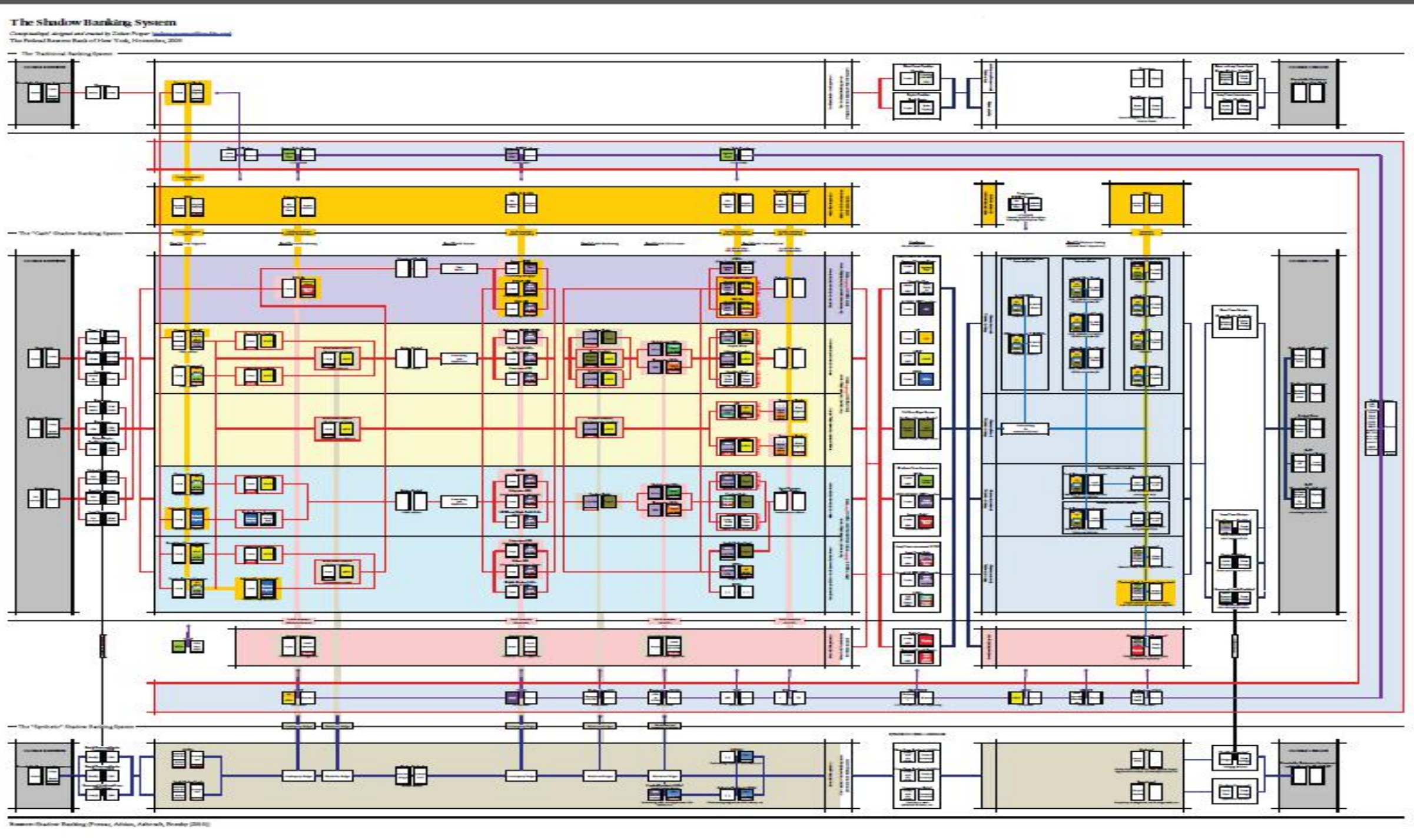
Shadow banking has been increasing in G4s and elsewhere.





Shadow banking role in financial intermediation (theory largely “TBD”)




The Shadow Banking System

Spectrum of Finance

←Banks ↔ Shadow Banking Activities ↔ Market Entities→

"Traditional " intermediation by institutions	**Activities commonly referred to as forms of "shadow banking"**	**"Traditional " intermediation by market entities**
Traditional banking (deposit taking and lending) Traditional insurance	***Securitization***, including: tranching of claims, maturity transformation, liquidity "puts" from banks to SIVs, support to par value money funds. ***Collateral services***, primarily through dealer banks, including: supporting the efficient re-use of collateral in repo transactions, for OTC derivatives and in prime brokerage; securities lending. ***Bank wholesale funding arrangement,*** including the use of collateral in repos and the operations of the tri-party repo market ***Deposit-taking and/or lending by non-banks***, including that by insurance companies (e.g., France) and bank-affiliated companies (e.g., India and China).	***In capital markets:*** Hedge funds Investment companies Underwriters Market-makers Custodians Brokers ***In non-bank sector:*** Leasing and finance companies Corporate tax vehicles

How to Define Shadow Banking?

Classifications of SB so far often ad-hoc, unsatisfactory

- **Existing definitions**
  - FSB (2012): “credit intermediation involving entities and activities outside the regular banking system”
  - NY Fed (2010): Securitization; CPRS (2012), Mehrling. Pozsar (2013), McCulley (2007): Safe Assets, Money, Collateral, Secured Funding; Singh (2011,12): Collateral Re-use
- **Drawbacks of definitions (FSB and others)**
  - Covers entities not commonly thought of as SB; and describes SB activities as operating primarily outside banks, but in practice, many operate within banks

An Alternative Classification is Functional. Even Better: Risk Based

- **Functional ("a collection of specific services")**
  - Stresses demand (and less supply/arbitrage), but does not tell what essential characteristics are; nor works across countries (e.g., US, EU, China, vs. India)
- **Suggested here: (Systemic) Risk Based View**

  "All financial activities, except traditional banking, which require a private or public backstop to operate"

Focus is on backstop and systemic risk

- Backstop is what SB activities fundamentally need
- And this backstop relates to systemic risk

Shadow banking: “All financial activities (but for banking) that need a backstop”

- SB, just like *traditional banking*, involves risk – credit, liquidity, maturity – transformation
- Differs from banking though in that SB uses many *capital markets* type tools
- Yet also differs from capital market activities in that SB needs a *backstop:*
  - While most risks can be distributed away, some rare and systemic ones (“tail risks”) always remain
  - SB needs to show it can absorb tail risks to minimize the potential exposure of ultimate claimholders who do not wish to bear them

Shadow banking = Activities that look for deep backstop externally

- SB cannot generate the needed ultimate risk absorption capacity internally
  - Too low margins - as services are contestable
- Yet backstop needs to be sufficiently deep
  - Scale is large and residual, “tail” risks significant
- Two ways to obtain such a backstop:
  - **Private** – franchise value of existing institutions $\Rightarrow$ therefore operate **within** banks or rely on implicit guarantees (e.g., bank-affiliated products, “WMP”, NBFI liabilities w/ banks)
  - **Public** – explicit or implicit $\Rightarrow$ thus seek government guarantees, too-big-to-fail; bankruptcy “stay” exemptions for repos; etc.

Use backstop as a "Litmus test" ⇒ Better policy clues, helps in practice

1. **Where to look for new SB risks.** Among activities needing franchise value or guarantees
2. **Why SB poses regulatory challenges.** Backstops reduce market discipline, enable (systemic) risks
3. **Yet, often within regulatory reach.** Policy can affect whether regulated entities use franchise value or guarantees to support SB activities
4. **Less migration of risks from regulated to SB.** A lesser problem than many fear: cannot migrate on a large scale w/o access to FV/Gurant's. Makes spotting SB easier

Examples of such Shadow Banking

Two key shadow banking activities:

1. **Safe Assets/Securitization**

2. **Collateral Services**

Fit the definition

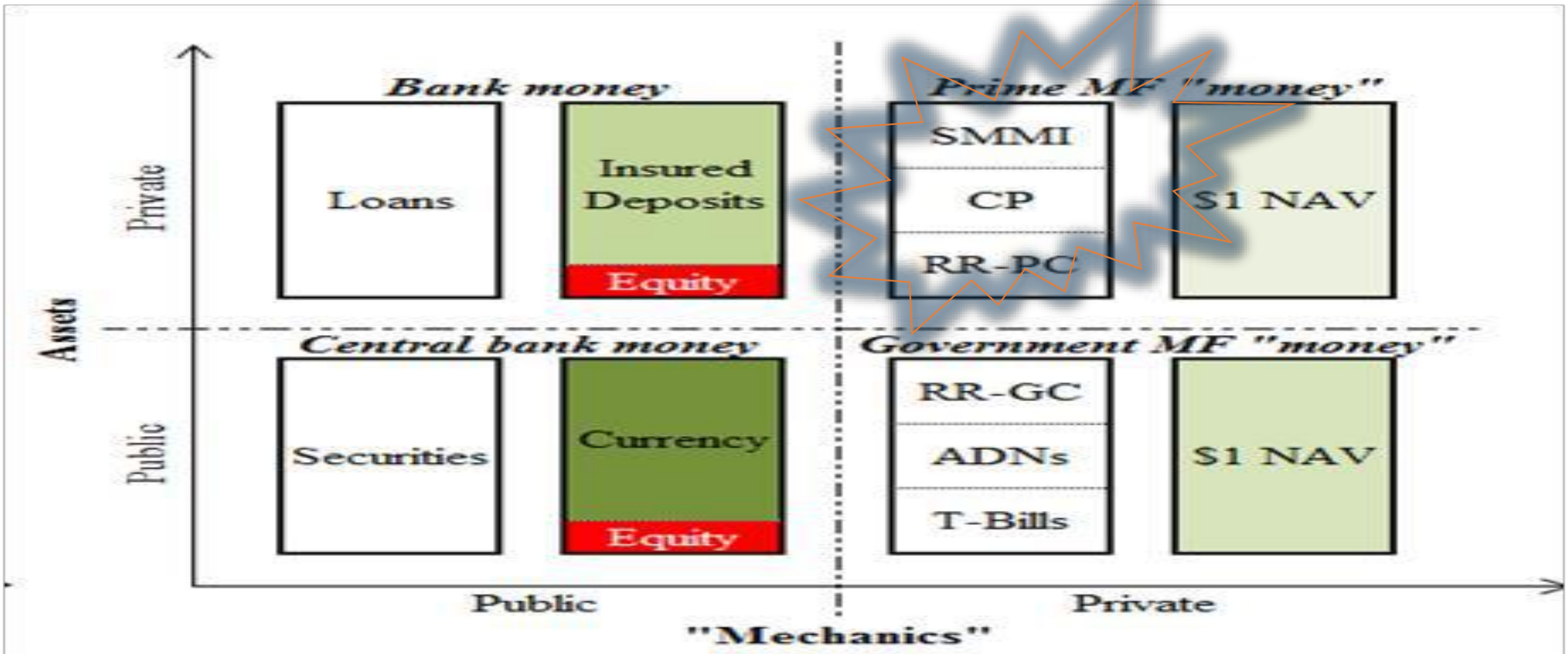
- Bank-like activities: intermediation from savers to borrowers + risk transformation
- Had/have (arguably) large macro / systemic risks
- Subset of FSB but easier focus on policy issues

Securitization: Driven by Demand for Safe, Par Assets, Liquid, Short-Term

- Traditional: Households
  - Deposits, but small pp and growing less (until crisis
  - Long-term into shares, government bonds
- New: Institutional investors
  - Hold some cash (Fidelity, State Street, etc.)
  - "Convert" long-term assets into short-term assets
- New: Corporations' cash-pools (e.g., Apple)
  - MNCs sweep cash globally and invest short-term
- New: Banks
  - Require assets/collateral for funding (repos)
  - To help secure transactions, leverage up

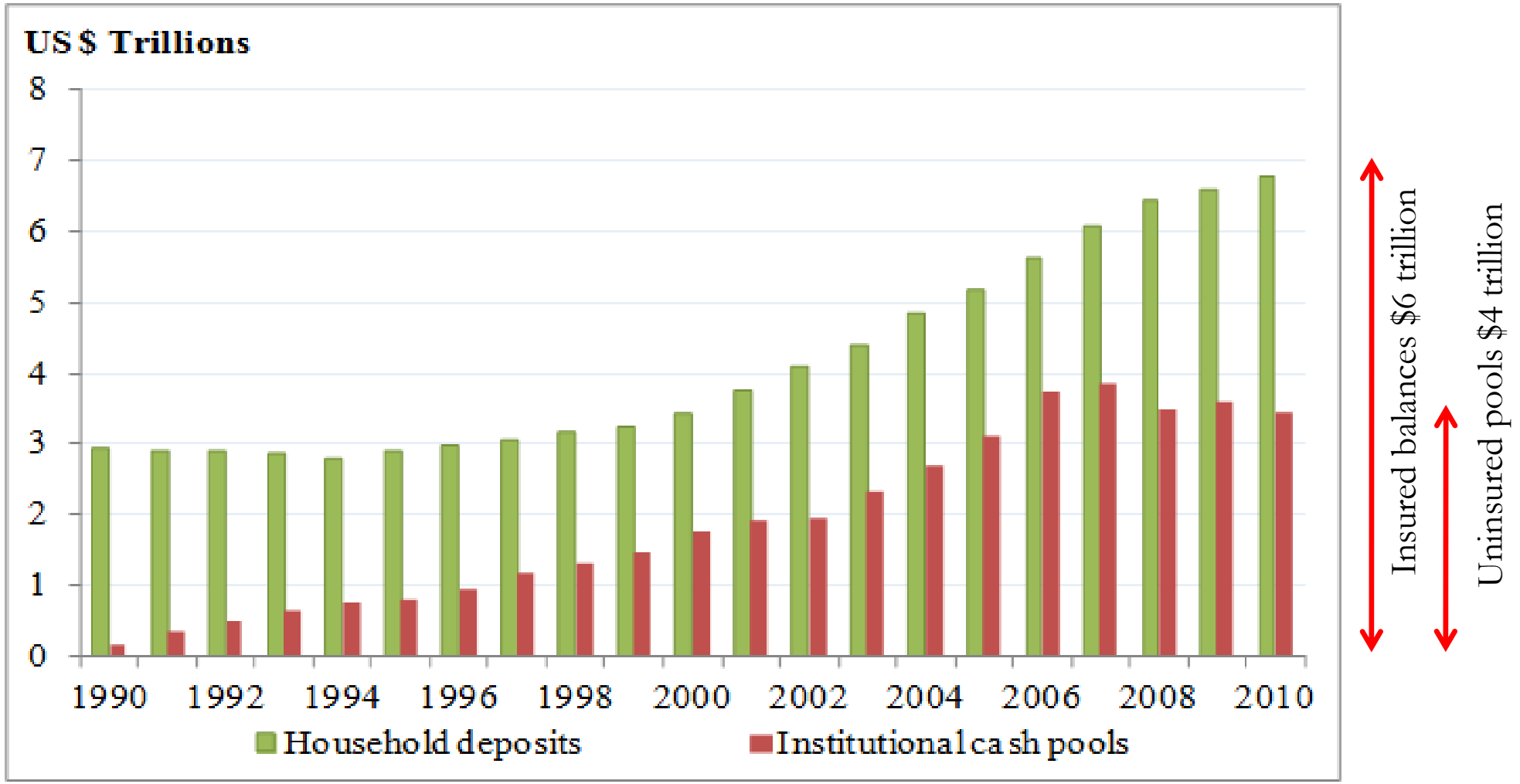
Supply of Safe Assets: Four Forms

Mixing Public-Private Forms/Mechanisms



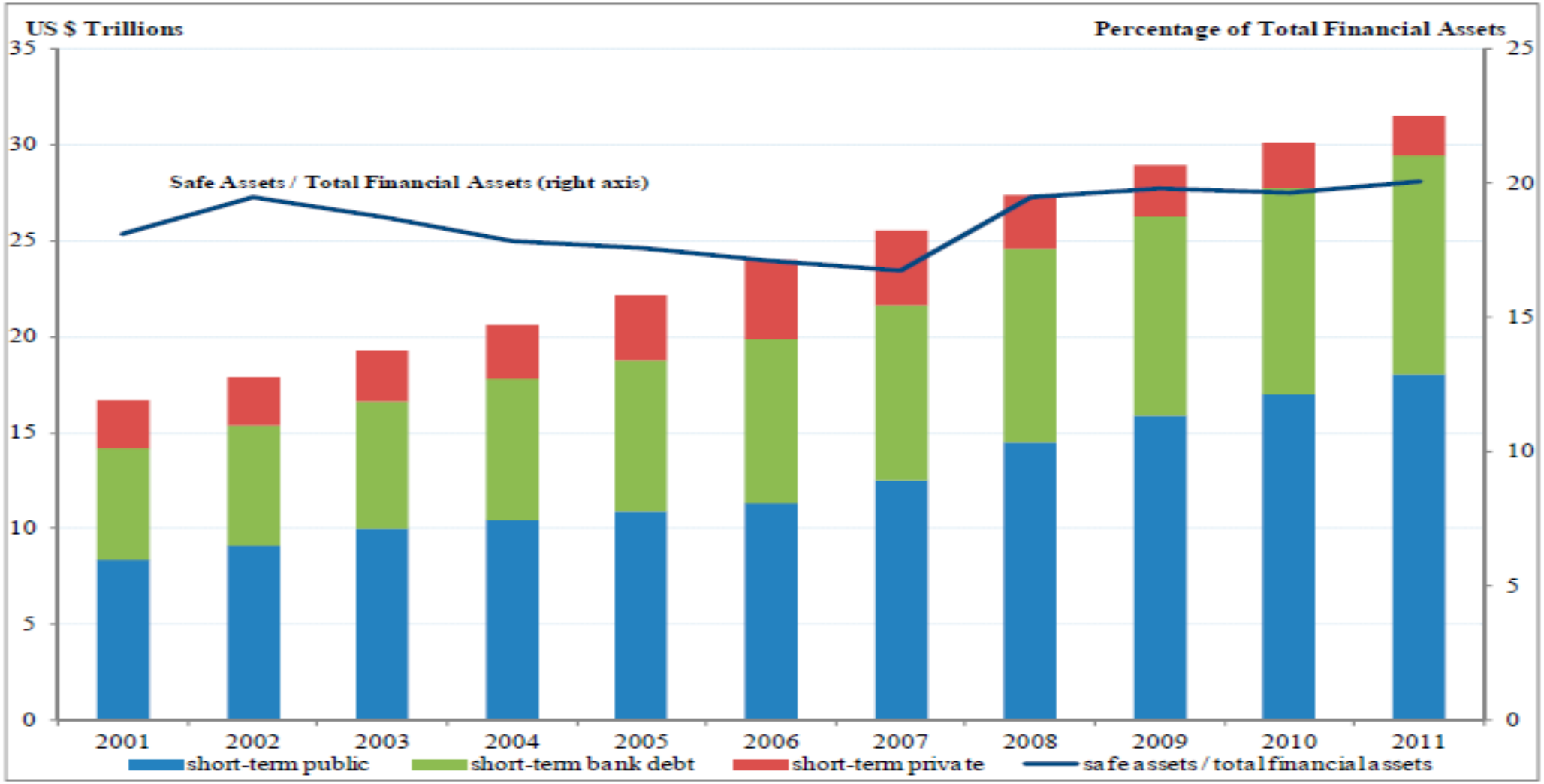
Notes: ADN=agency discount notes; RR=reverse repos; GC=general collateral; PC=private collateral; CP=commercial paper; SMMI=structured money market instrument

Deposits and Cash-Pools: Were Converging in Size

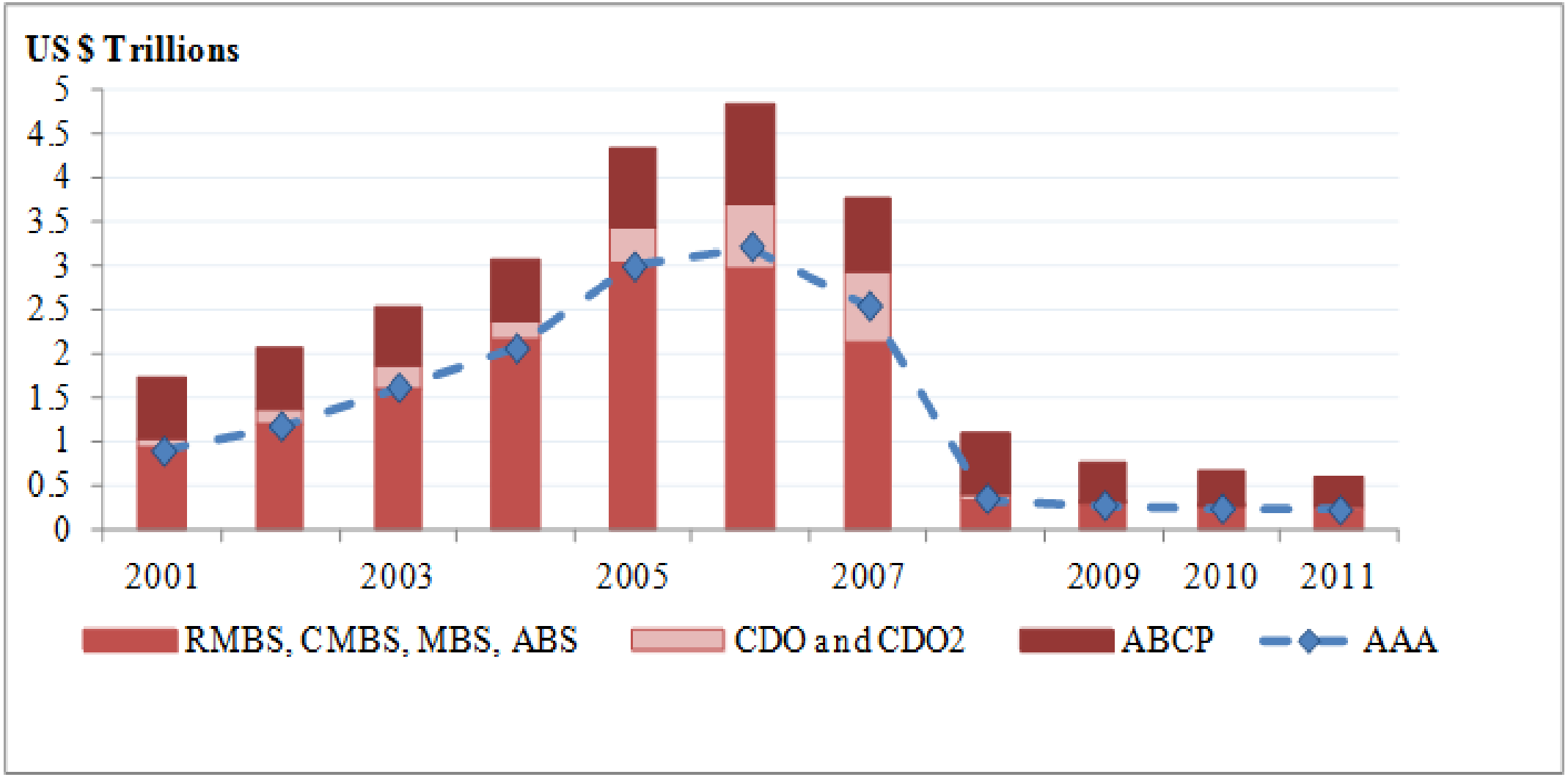


Sources: Federal Reserve, Capital IQ, ICI, RMA, BIS, Pozsar (2011)

As there was not enough “public” safe assets



“Led” to a rapid growth in private “safe assets”, but followed by a sharp collapse



What is Economics (genuine need)? What is Arbitrage? What are Risks?

- **Securitization, safe assets**
  - Some regulatory arbitrage (risk weights, etc.)
  - Many risk management mistakes
  - SIV-sponsor/put structure: less important today
  - Tail risks (endogenous): may remain
    - ➢ Backstop was needed/used for tail risks
- **Overall concerns**
  - Systemic risks latent in good times, ferocious under stress, leading to large disruptions, fire-sales, etc.
  - Within SB: leverage and procyclicality, with overall financial and macroeconomic consequences

Collateral Intermediation

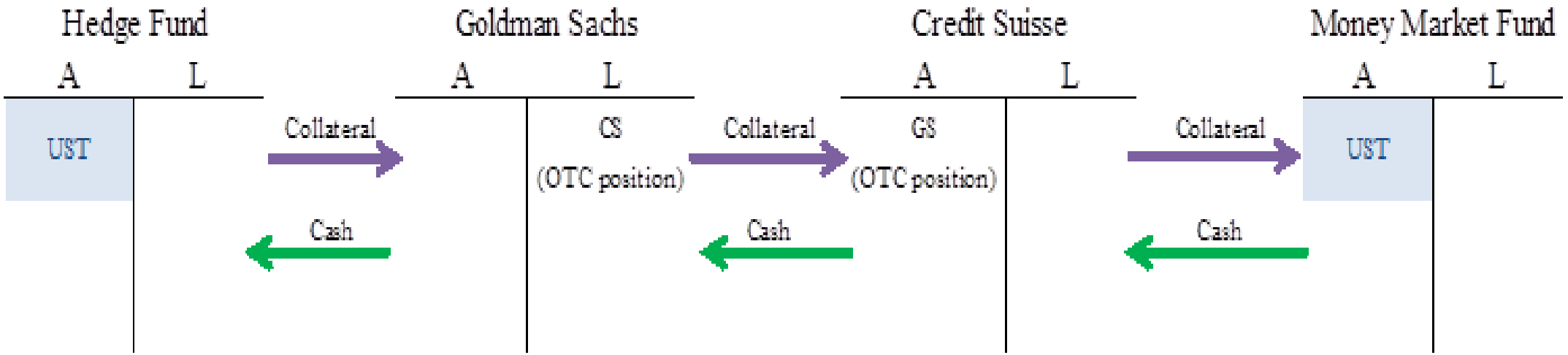
- **Demand**
  - Large financial intermediaries, other parties
  - To do/secure arms' length transactions

- **Supply**
  - Broker-dealers* "mine" source collateral from agents wanting to enhance return by "renting out"
  - Providers include hedge funds, insurers, pension funds, SWFs (and other official sectors actors)
  - Collateral is then pledged to other parties to obtain funding or support other contracts, and re-used

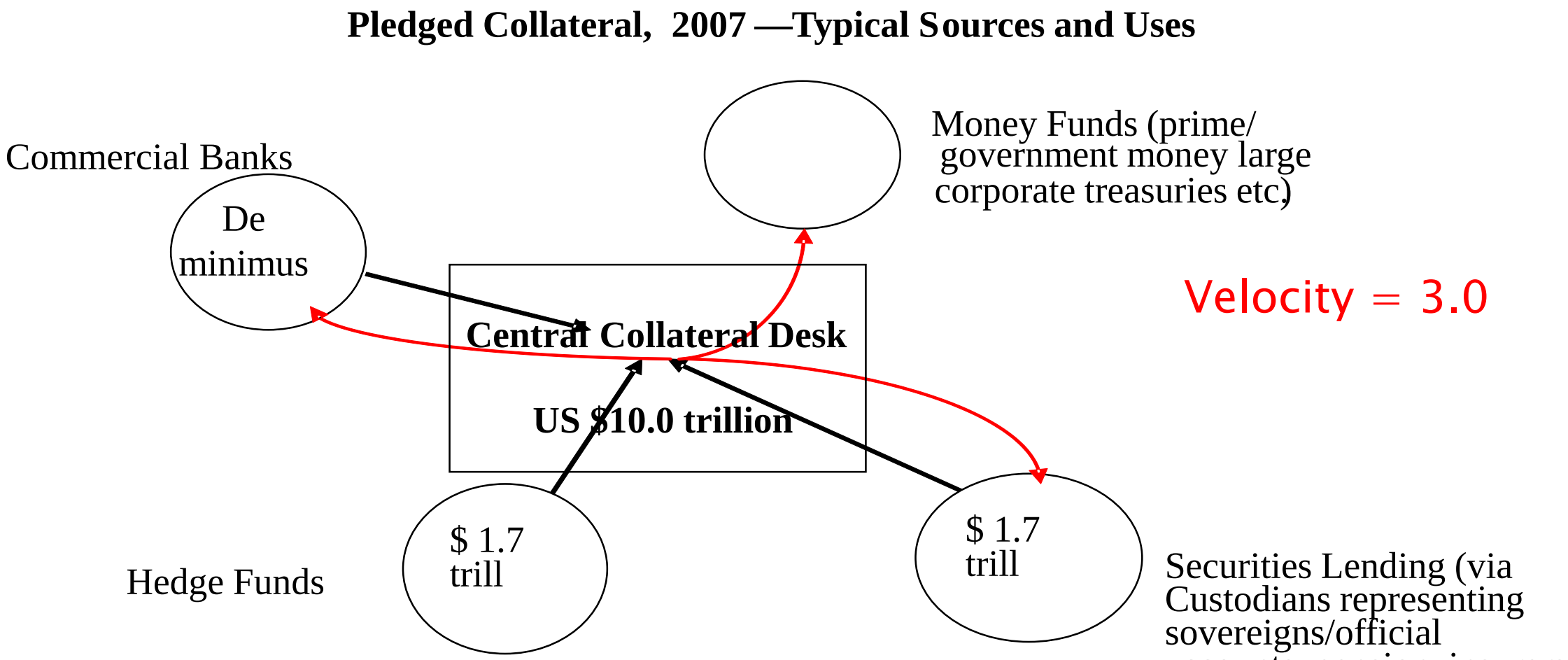
* Main are/were: Goldman Sachs, Morgan Stanley, JP Morgan, Bank of America-Merrill Lynch and Citibank in the U.S., and Barclays, BNP Paribas, Crédit Suisse, Deutsche Bank, HSBC, Royal Bank of Scotland, Société Generale, Nomura and UBS. All are classified as SIFIs by FSB

Collateral gets re-used

- Collateral (e.g., a UST or securities) used by a hedge fund to get financing ("cash") from a prime broker, e.g., Goldman Sachs
- Same collateral then used by GS to pay Credit Suisse on a derivative position
- CS passes it to a MMF holding it shortly

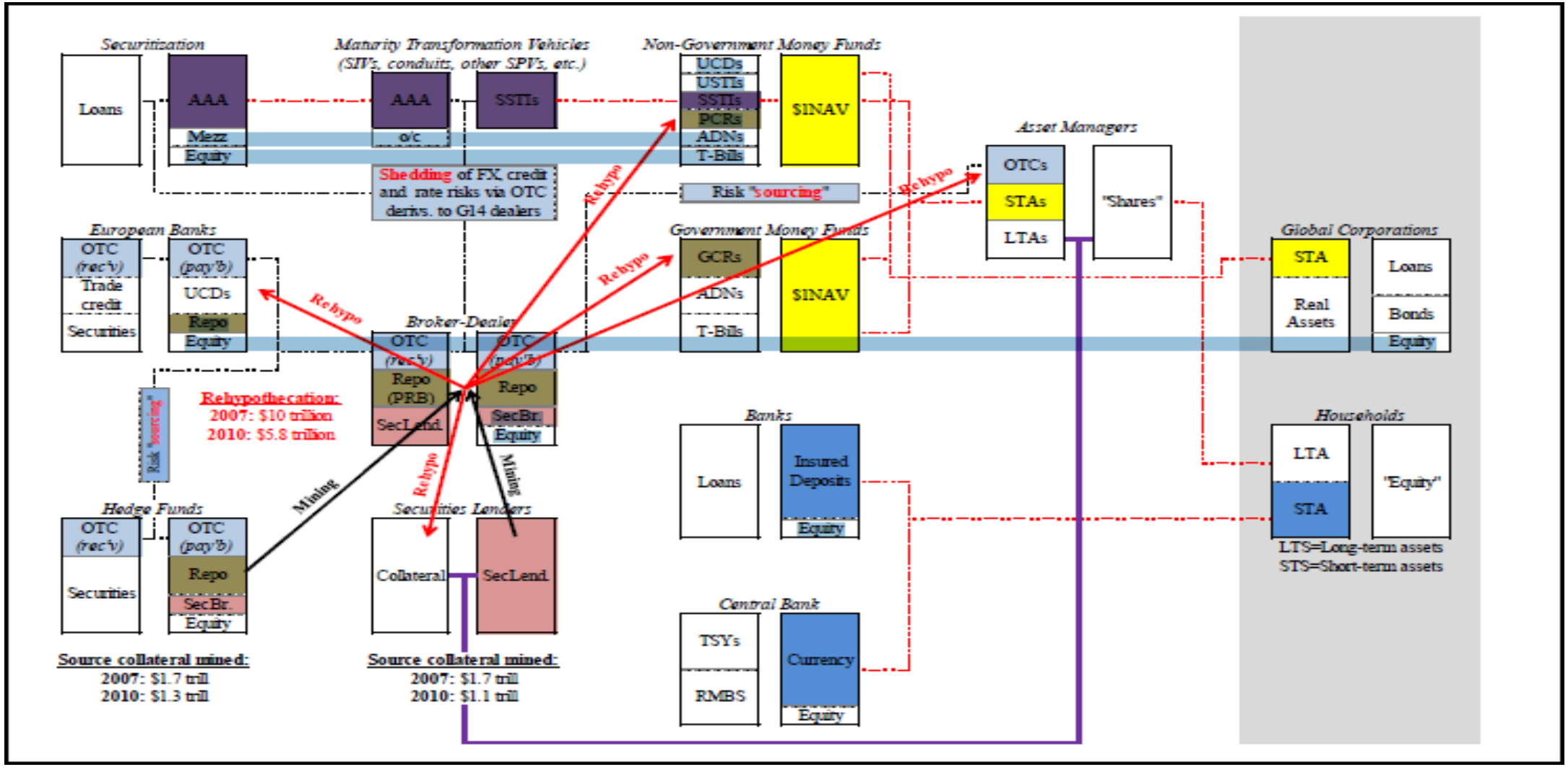


Collateral Sources and Uses



Source: Singh (2012)

Collateral intermediation in practice: very complex!



Reuse rate of collateral has declined since GFC

Year	Sources: Hedge funds	Sources: Securities lending	Sources: Total	Volume of secured operations	Reuse rate (or velocity)
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
2013	1.85	1.0	2.85	5.8	2.0
2014	1.9	1.1	3.0	5.8	1.9
2015	2.0	1.1	3.1	5.6	1.8

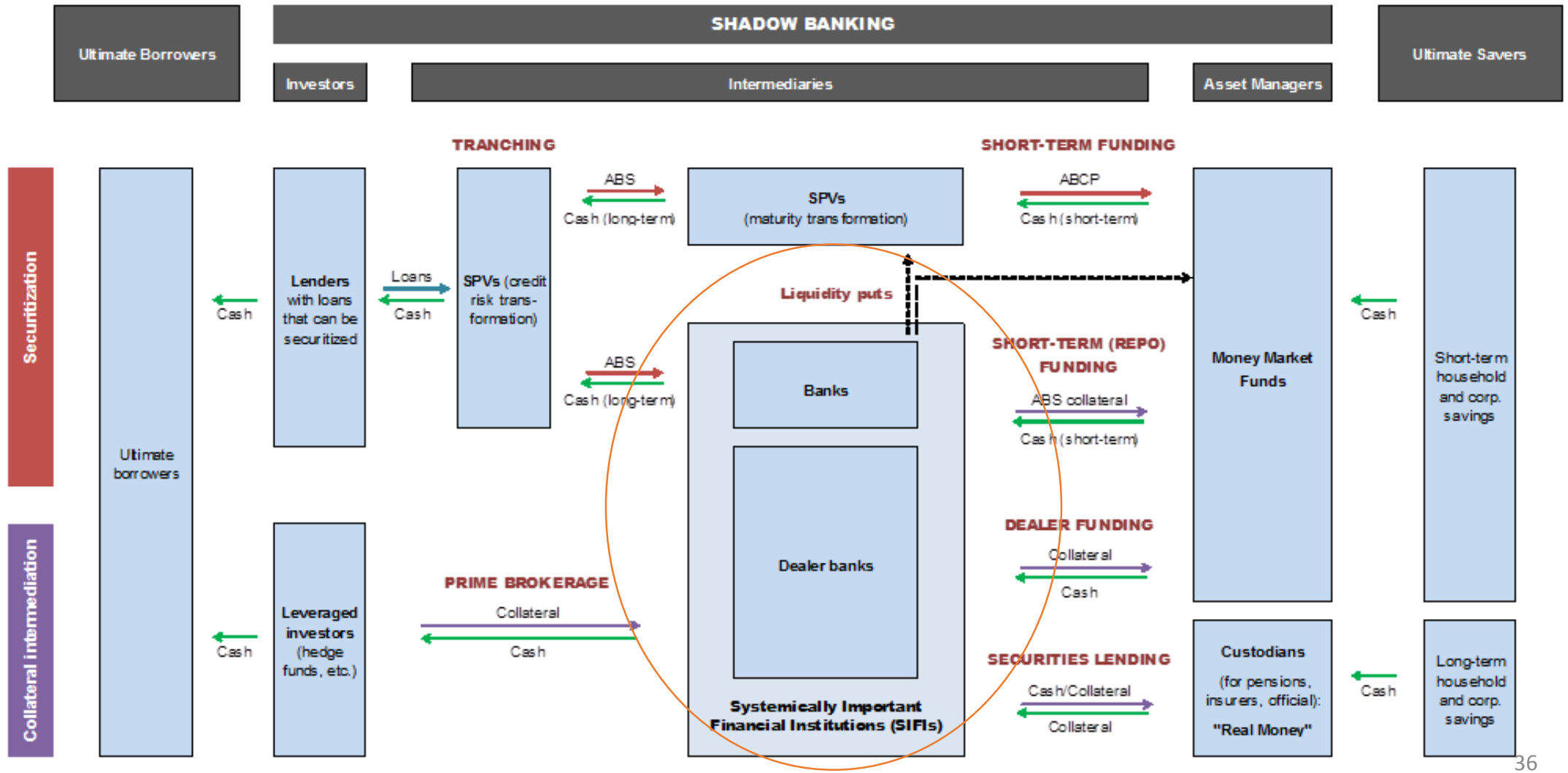
In trillions of US dollars; velocity in units. *Sources:* Risk Management Association (RMA); International Monetary Fund (IMF) Working Paper, "Velocity of pledged collateral" (Singh 2011).

What is Economics (genuine need)? What is Arbitrage? What are Risks?

- **Collateral services**
  - Genuine demand. **Key**: Efficiency of liq. services
  - But **puts** (for government) through broker-dealers, deposit banks
    - Qualified financial contracts status for derivatives, repos
    - Tri-party repo presents also (different) systemic risks

    ➢Backstop was used/is needed
- **Overall concerns**
  - Systemic risks (through DBs =SIFIs, and beyond)
  - Within SB: leverage and procyclicality
    - Collateral supply, “velocity” determine secured lending (similar to bank multipliers in monetary transmission)

Securitization & Collateral Services Together
⇛ Large Role of DBs/SIFIs



What do to? Policy for Shadow Banking

- Polar Views on shadow banking
  - Nice conceptual, but not useful or likely to be implemented
- Use the need for a backstop as a "Litmus test" and policy guide
  - "Easy" conceptual, hard in practice
  - Still some guide for policy, actions
- Current list of policy issues in SB
  - Long list, but need more guidance on what goals are, progress, where regulation/perimeter ends

Polar Views on Shadow Banking: Not Likely

- **SBs to become/merge into traditional banks**
  - Ensure supervisory coverage, help prevent regulatory arbitrage
  - But SB is more pro-cyclical, harder to regulate
  - And goes against spirit of Volcker, Vickers, Liikanen
- **SB to be separated from traditional banks**
  - Greater distance reduces risks of spillovers, limits moral hazard
  - But impossible to fully separate; could come with costs as banks increasingly rely on hard and tradable claims
  - Even if direct links severed (e.g., Vickers), SB could still have macroeconomic, systemic implications; and less information
- **Explicit limits on private safe assets supply**
  - Limit issuance to special charters, narrowly funded banks, like separation
  - Limits on financial innovations (e.g., vetted by an agency, NTSB)

List of Policy Issues in Shadow Banking (w/o Polar Views, some Litmus test)

1. **Regulatory arbitrage / spillovers to banks ("puts")**
   - A definite priority, largely on FSB's, others' regulatory agenda
2. **Regulating shadow banking entities**
   - Evident gaps (MMFs, dealer banks), but optimal policy not clear, and has been controversial (in US)
3. **"Demand-side": expanding supply of gov't debt**
   - Advocated by some (even when prices adjust, still externalities) and large RRP, but more controversial
4. **Macro / systemic risk: procyclicality, monetary policy**
   - New, to be explored more, e.g., what is non-M2 world
     - Leverage, externalities over cycle, procyclicality (Adrian-Shin)
     - Role of collateral (shortages, haircuts, etc.) in monetary policy

1. Regulatory Arbitrage and FSB Agenda

1. Banks' interactions with shadow banking entities
2. Money market funds
3. Other shadow banking entities
4. Securitization
5. Securities lending and repos

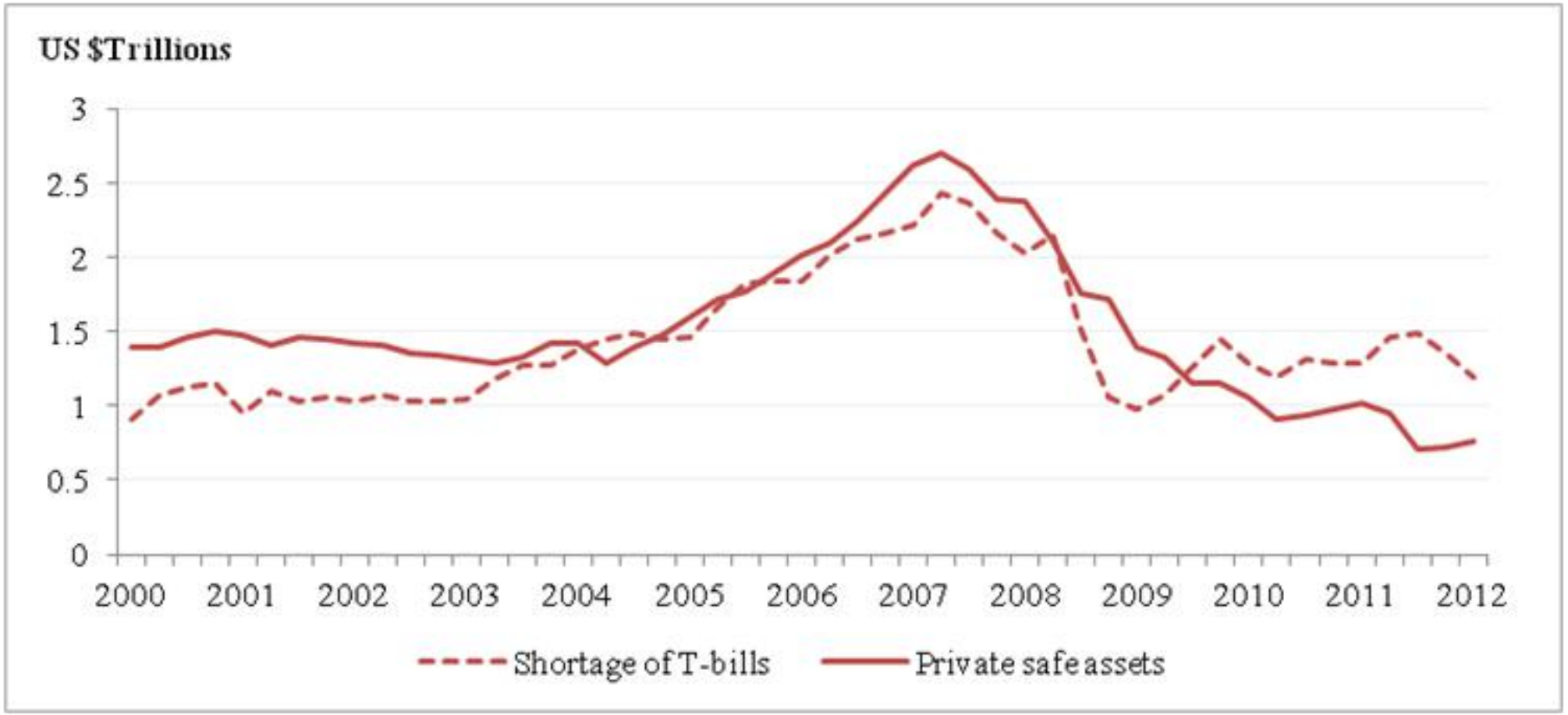
2. Regulating Risks within SB

- Some aspects of shadow banking differ from traditional banking system, yet new rules lacking
  - ➢ Have to develop a comprehensive regulatory approach to dealer banks; And for tri-party repo market
  - ➢ Cannot be only activity-based, like security financing
- Conceptually, very difficult issues:
  - Financial innovation
  - Instability of complex systems

3a. Demand-Side Policies

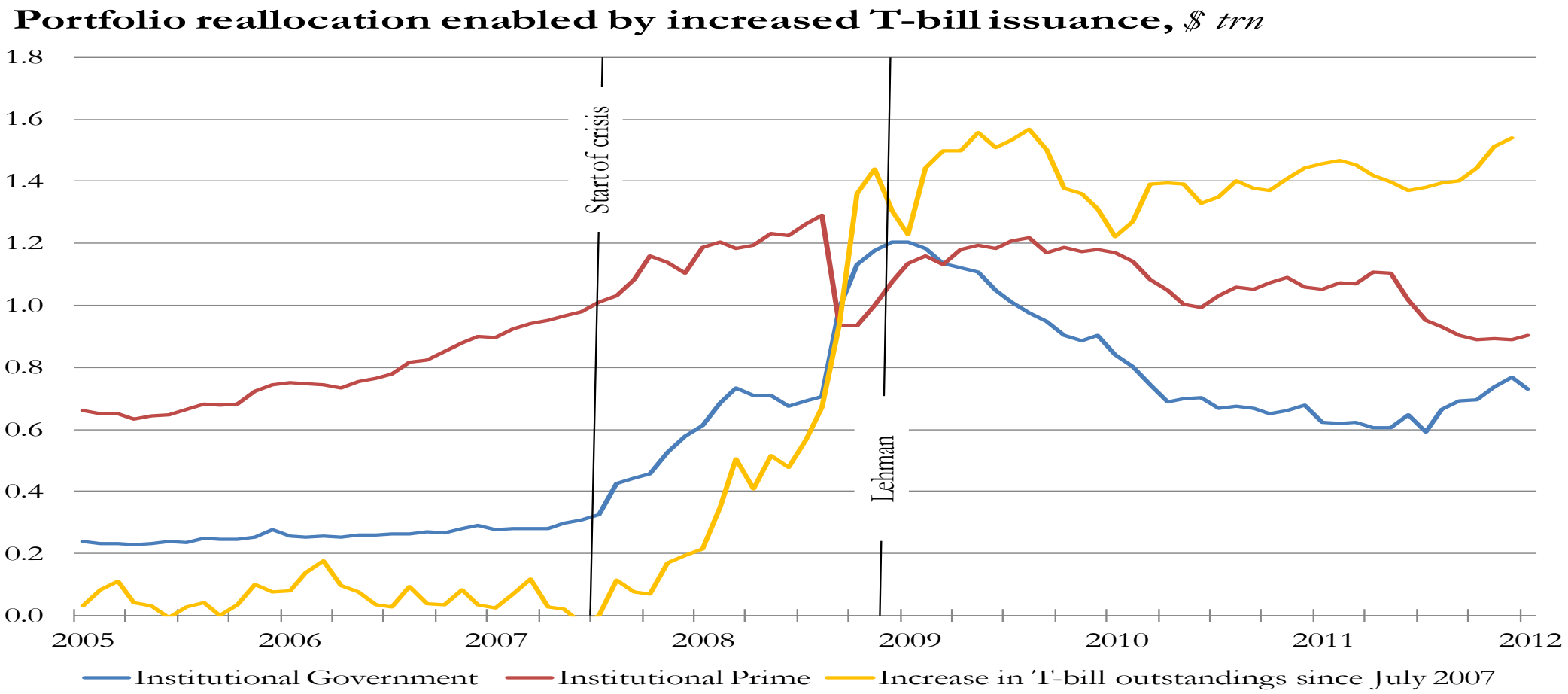
- Accommodating demand for safe, short-term liquid assets in volumes larger than those (inelastically) provided by short-term government debt, and possibly with higher return, is one raison d'être for SB
- The mismatch then drives incentives to create private money-like securities, which in turn are unstable and pose systemic risk
- And then government may have to respond

SB Filled the Vacuum of Short-term Government Guaranteed Debt



Sources: CapitalIQ; Risk Management Association; Investment Company Institute; *The Economist*; U.S. Treasury, Treasury International Capital (TIC) System; and U.S. *Flow of Funds.*
Notes: Shortage of T-bills is calculated by subtracting from the volume of cash pools the volume of short-term, government-guaranteed securities (the sum of T-bills, Treasury notes with a remaining maturity of less than one year, and agency discount notes) not held by foreign official accounts. Private safe assets are the sum of the volume of structured money market instruments and repo-based wholesale funding.

And following GFC, Government "Stepped in" with Short-term Debt for MMFs



3b. Demand-Side Policies

- Accordingly, government could at times expand supply of safe, short-term instruments to crowd out SB supplied assets
- While addressing risks, has challenges, particularly for public debt management
  - More interest rate and roll-over risks for gov't
- And conceptual and practical limitations to the effectiveness of demand-side policies
  - Moral hazard? Distort?
  - How to judge demand?

4. Macroeconomic Implications

- SB is highly procyclical, creates tail risks
  - Build-in (margins, MTM, collateral)
  - Can have adverse real sector consequences
- SB interacts with monetary policy
  - Private safe asset supply, stock and velocity of collateral can affect monetary policy transmission
  - And monetary policy affects SB expansion
    - If interest is low/yield curve steep, SB can expand more rapidly, potentially leading to financial fragility
  - Given macroeconomic consequences, state of SB needs to be considered in monetary policy making

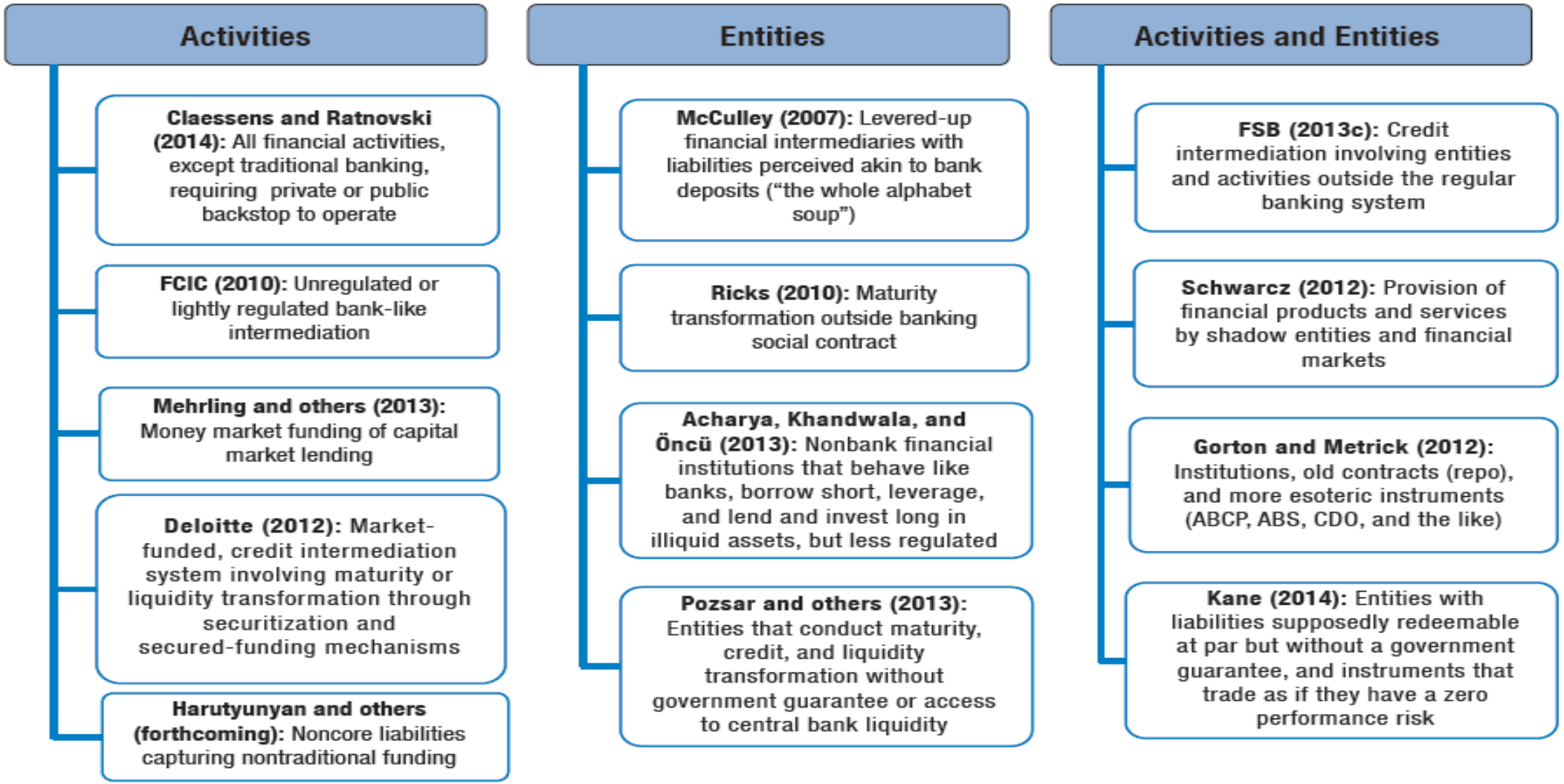
Lastly: Measuring SB(System) Better

- Measures vary greatly, in part as definitions of SB vary
- And not uniform data scope, institutional coverage, methodology
  - Better measurement has to include agreeing on whether to cover net or gross activities, and stock or flows, inclusive of re-use
- While significant progress made using existing data, more data is needed
- And continuous monitor developments

Conclusions on Shadow Banking

- SB is partly about "shadowy" banking
  - Regulatory arbitrage, with safety net risks
- But also genuine economic demands
  - Safe assets, collateral services, other
- Need to consider various policy angles
  - Look for (implicit) backstop as a clue
  - Consider systemic risks/impacts
- And better data and more monitoring
  - Important regardless, for "smell" tests

Annex: Shadow Banking Definitions (GFSR, October 2015)



Annex: References

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2. What is Shadow Banking?, Stijn Claessens and Lev Ratnovski, Working Paper No. 14/25, February 11, 2014 [Also: www.voxeu.org/article/what-shadow-banking]
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