The I Theory of Money & Redistributive Monetary Policy

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Redistributive Monetary Policy

(New) Keynesian Demand Management		I Theory of Money Risk (premium) management
Stimulate aggregate consumption		Alleviate balance sheet constraints
Woodford	Tobin (1982)	BruSan
Price stickiness & ZLB Perfect capital markets	Both	Financial Frictions Incomplete markets
Representative Agent	Heterogeneous Agents	
Cut i Reduces r due to price stickiness Consumption c rises	Cut i Changes bond prices Redistributes from low MPC to high MPC consumers	Cut i or QE Changes asset prices **Ex-post:** Redistributes (depend on asset holdings)
Yield curve: Expectation hypothesis		Ex-ante: insurance -> reduces endogenous risk -> impacts risk premia (Hanson-Stein,…) Moral hazard -> role for MacroPru
Focus on **levels**		Focus on **levels** and **risk** dynamics

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Roadmap

- Redistribution via MoPo
  - A Money Model without Banks
  - Banks as “Money Creators” & “Risk Mitigators”
  - Amplification in 4 Steps
  - Ex-post Redistribution: Money vs. Credit View
    - Special Role of Long-term Safe Bond
  - Ex-ante Perspective: Risk-transfer (Insurance)
  - MacroPru Allows more Aggressive MoPo
- Defaultable government bond
  - Role of Financial Sector
    - Insurer (if strict MacroPru)
    - Hostage – but diabolic loop
- ESBies

A Money Model without Intermediaries

- Store of value: Money pays no dividend and is a bubble
  - Value of money and of capital is endogenous

\Friction	OLG	
	deterministic	endowment risk borrowing constraint
Only money	Samuelson	
With capital	Diamond	

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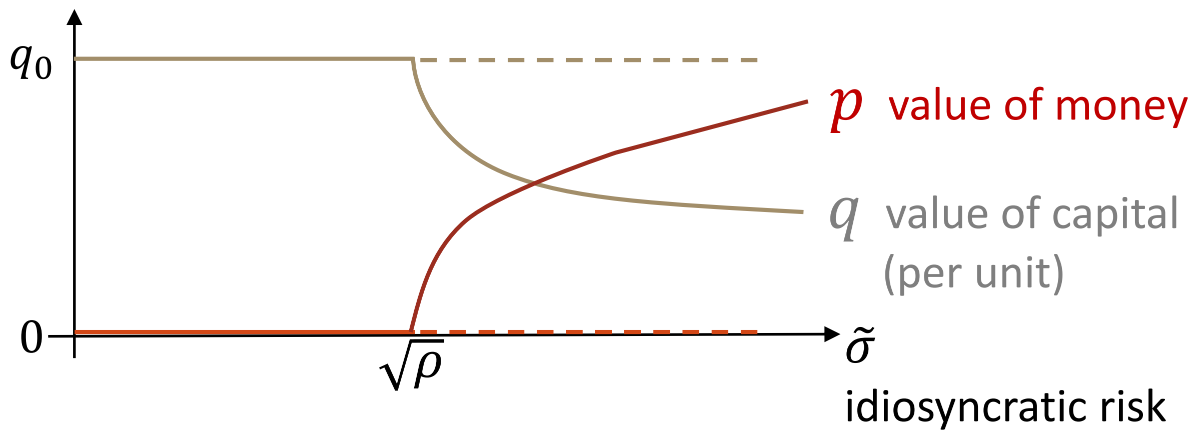
Risk	deterministic	endowment risk borrowing constraint	investment risk
Only money	Samuelson	Bewley	
With capital	Diamond	Aiyagari, Krusell-Smith	Basic "I Theory"

- Portfolio choice
  - Invest in own firm ⟶ output/dividend yield but idio risk
  - Hold money ⟶ no dividend no idio risk

Endogenous Value of Money and Capital



- Higher idiosyncratic risk $\tilde{\sigma}$
  - Lower price of physical capital q
  - Higher value of money p

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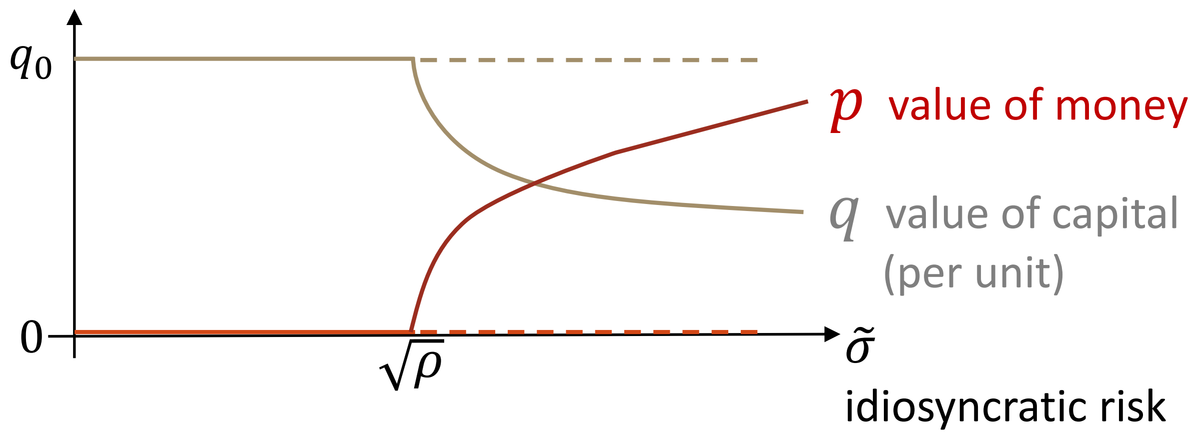

Time preference

$$p = \frac{\tilde{\sigma} - \sqrt{\rho}}{\sqrt{\rho}} q$$

TFP

$$q = \frac{\kappa A + 1}{\kappa \sqrt{\rho}\, \tilde{\sigma} + 1}$$

Adjustment cost

Closed form solution!

- Higher idiosyncratic risk $\tilde{\sigma}$
  - Lower price of physical capital q
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Brunnermeier & Sannikov

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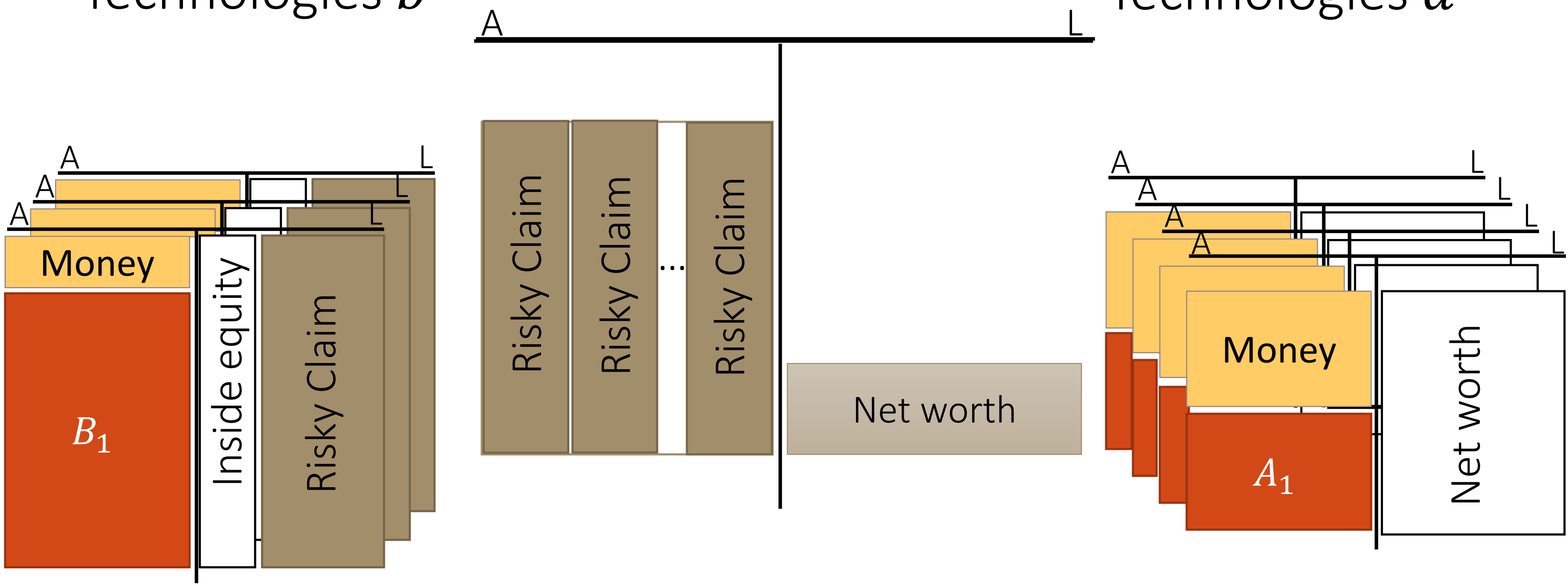
Add intermediaries

Outside Money

- Technologies b
- Technologies a



- Intermediaries
  - Can hold outside equity & diversify within sector b
  - Monitoring

Add ~~intermediaries~~ "risk mitigators"

Outside Money

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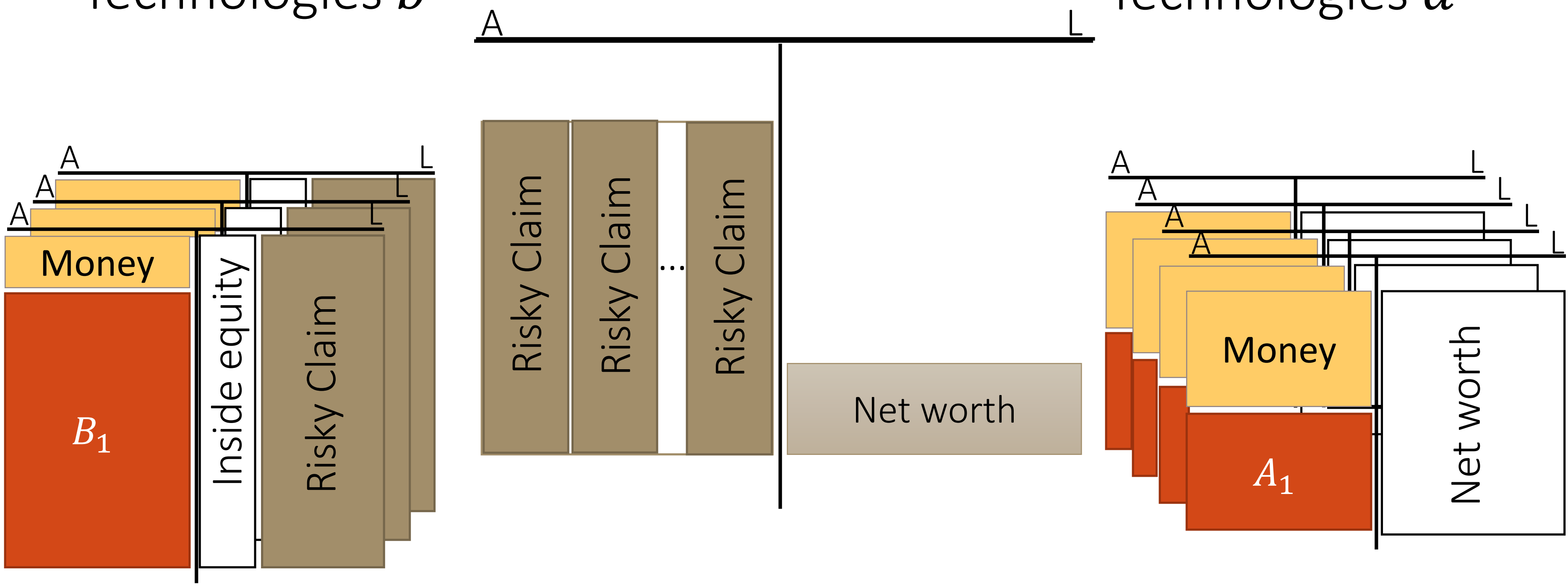

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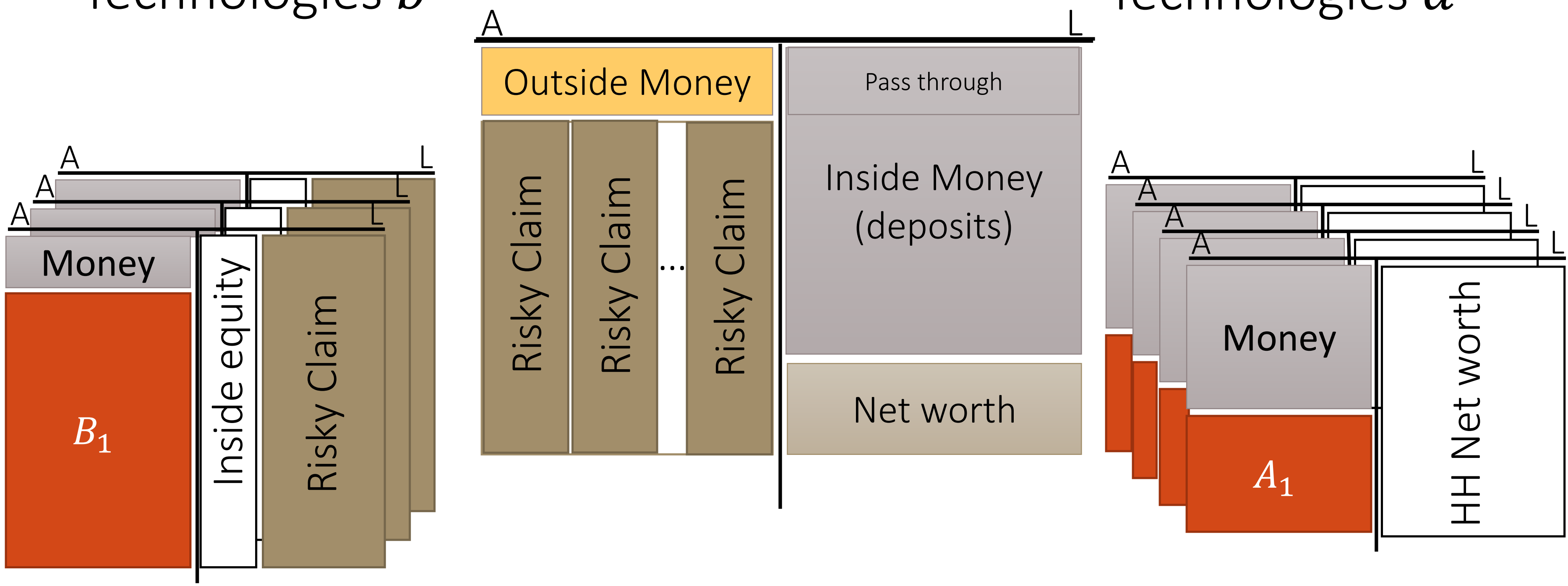

- Intermediaries
  - Can hold outside equity & diversify within sector b
  - Monitoring
  - Create inside money
  - Maturity/liquidity transformation

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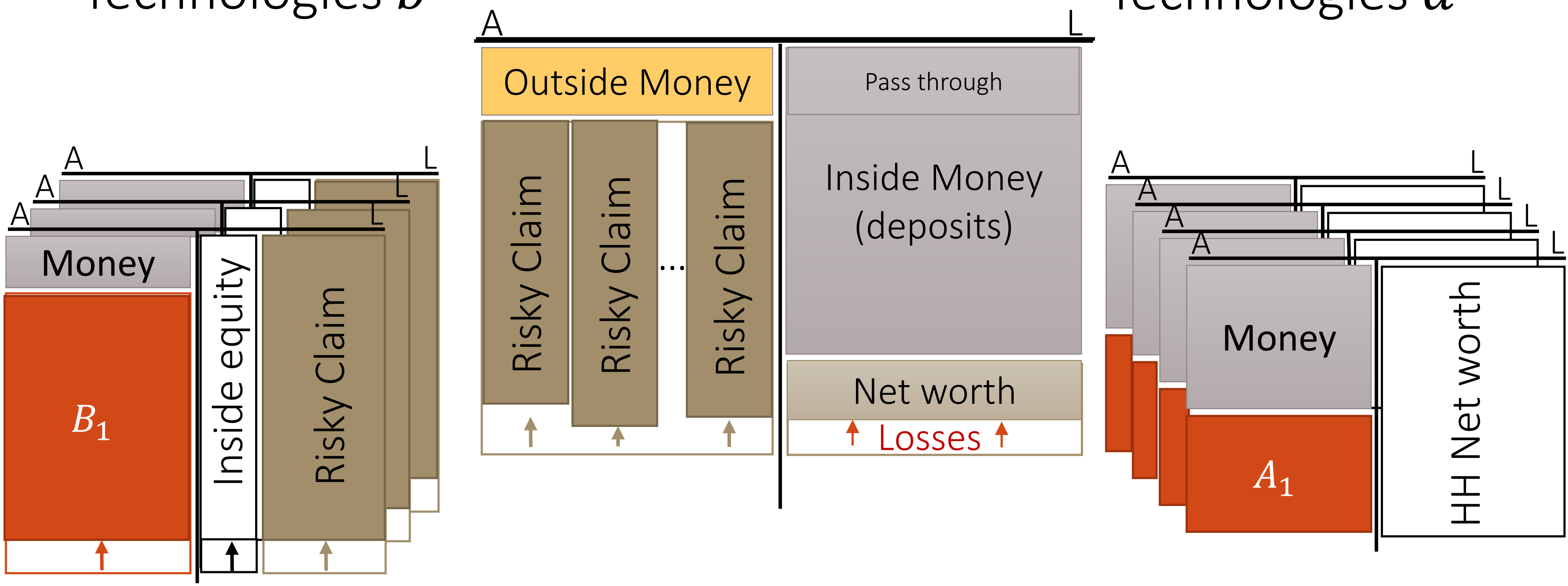
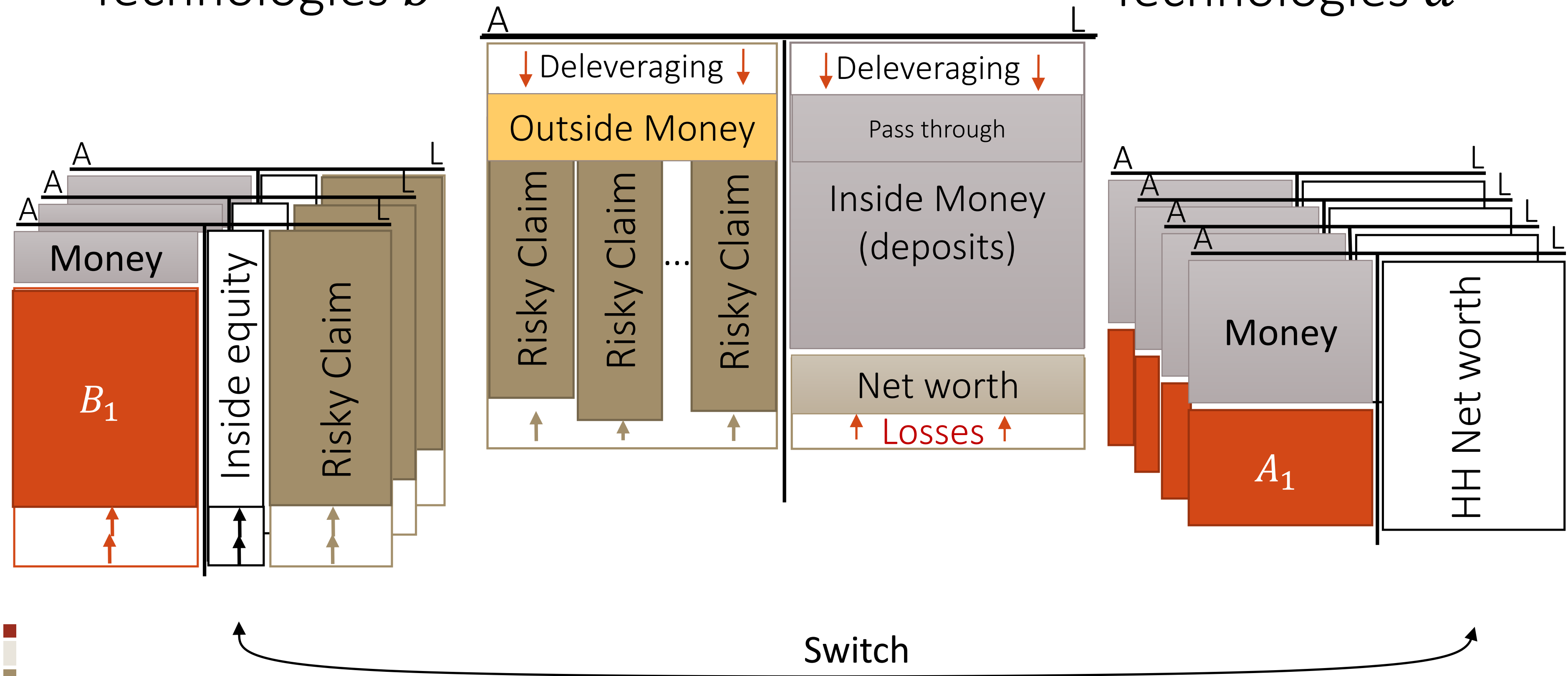
Shock impairs assets: 1st of 4 steps

- Technologies b
- Technologies a



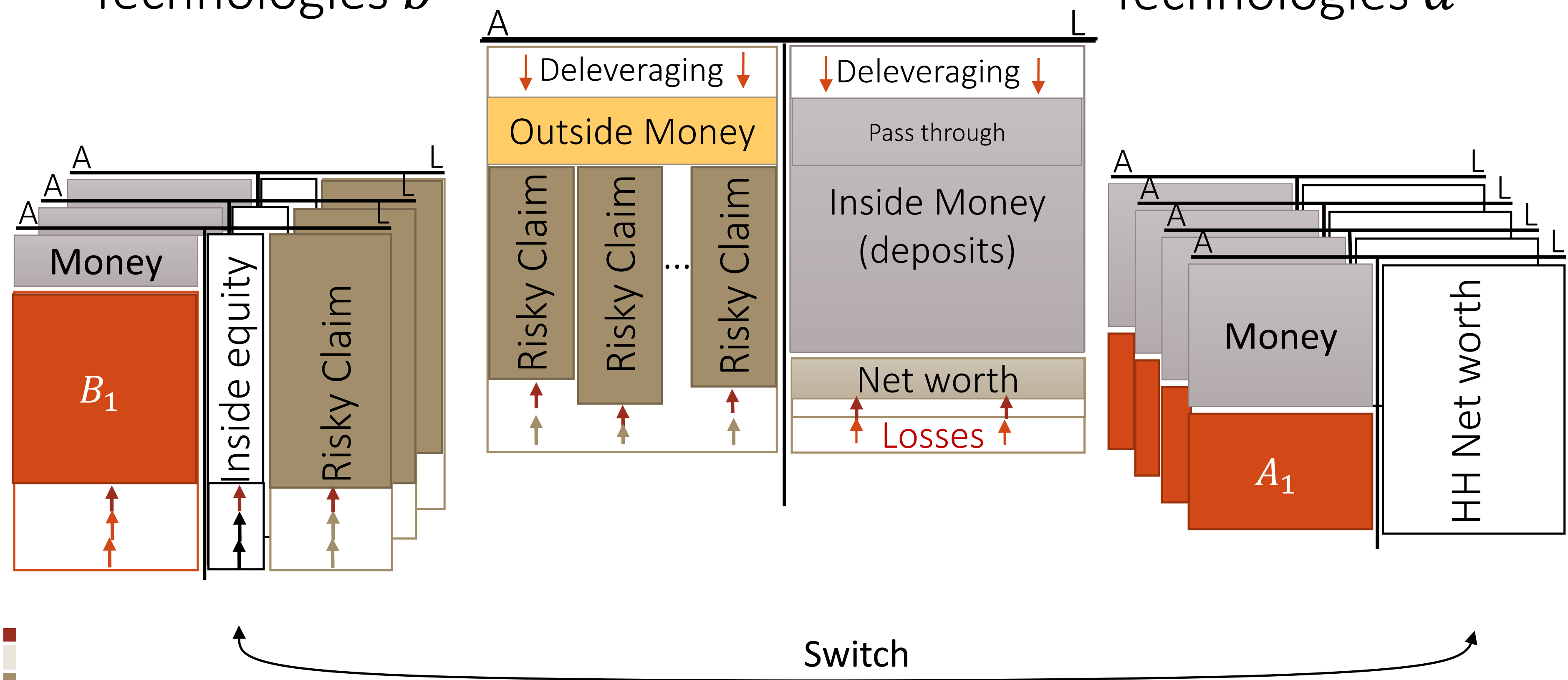
Shrink balance sheet: 2nd of 4 steps

- Technologies b
- Technologies a



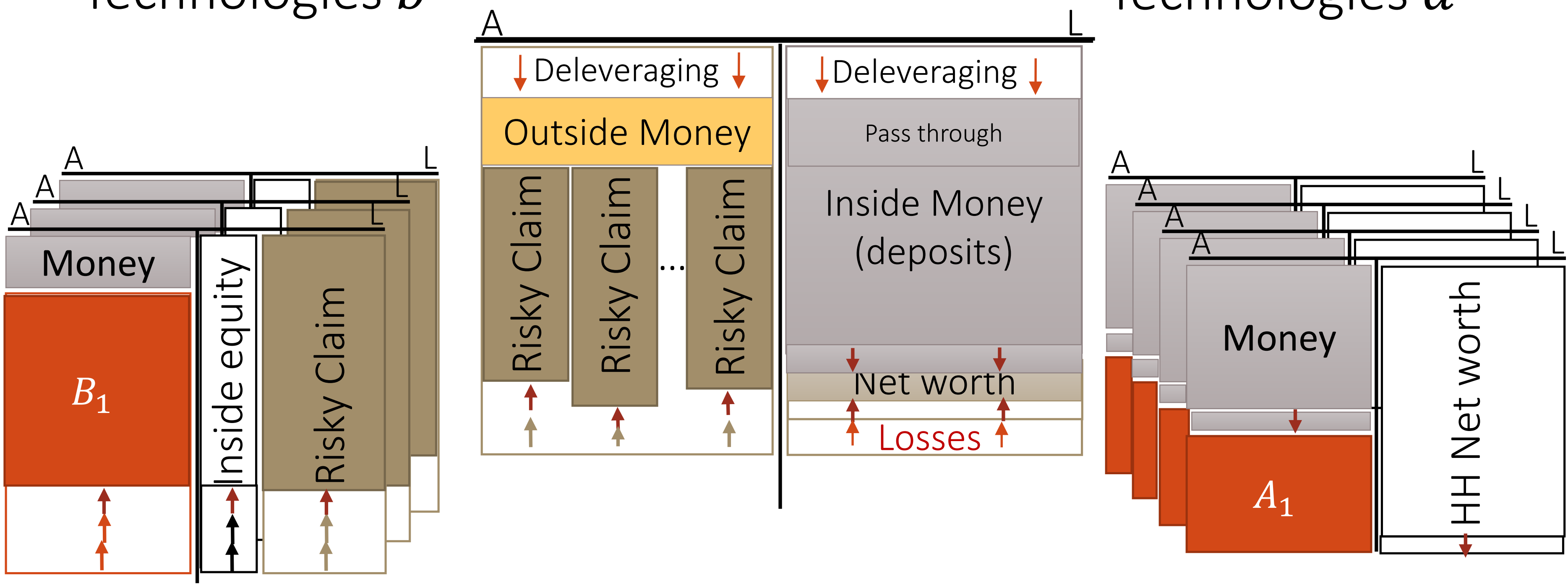
Liquidity spiral: asset price drop: 3rd of 4

- Technologies b
- Technologies a



Disinflationary spiral: 4th of 4 steps

- Technologies b
- Technologies a



… after an adverse shock

- Intermediaries are hit and shrink their balance sheets inducing
  - Asset side — liquidity spiral — financial stability
  - Liability side — disinflation spiral — price stability

- Financial frictions are key driver
  - Risk premium is time-varying
  - Risk is endogenous

- Risk-bearing capacity of financial sector ↓
  - Credit ↓
  - Inside money ↓
  - Disinflationary pressures ↑
  - Risk premia ↑

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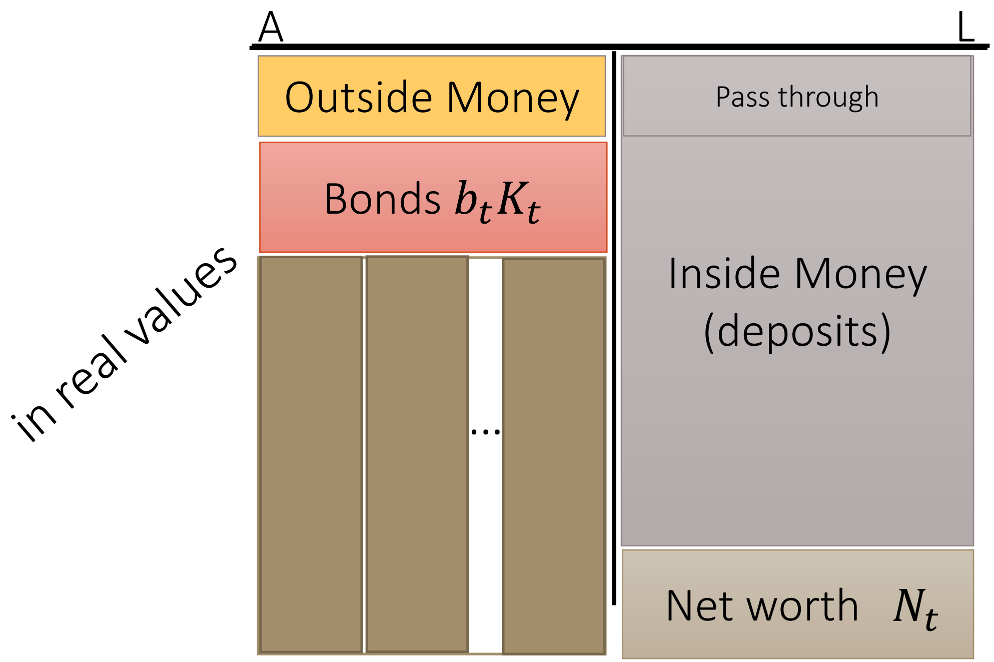
Monetary Policy: Ex-post perspective

- Money view — Friedman-Schwartz
  - Restore money supply
    - Replace missing inside money with outside money
  - Aim: Switch off deflationary spiral
    - … but banks might not extent credit (hold excess reserves)

- Credit view — Tobin
  - Restore credit flow
  - Aim: Switch off deflationary spiral & liquidity spiral

Redistributive MoPo: Ex-post perspective



- Adverse shock $\rightarrow$ value of risky claims drops
- Monetary policy
  - Interest rate cut ⇒ long-term bond price ↑
  - Asset purchase ⇒ asset price ↑
  - ⇒ "stealth recapitalization" - redistributive
  - ⇒ risk premia ↓
- Liquidity & Deflationary Spirals are mitigated

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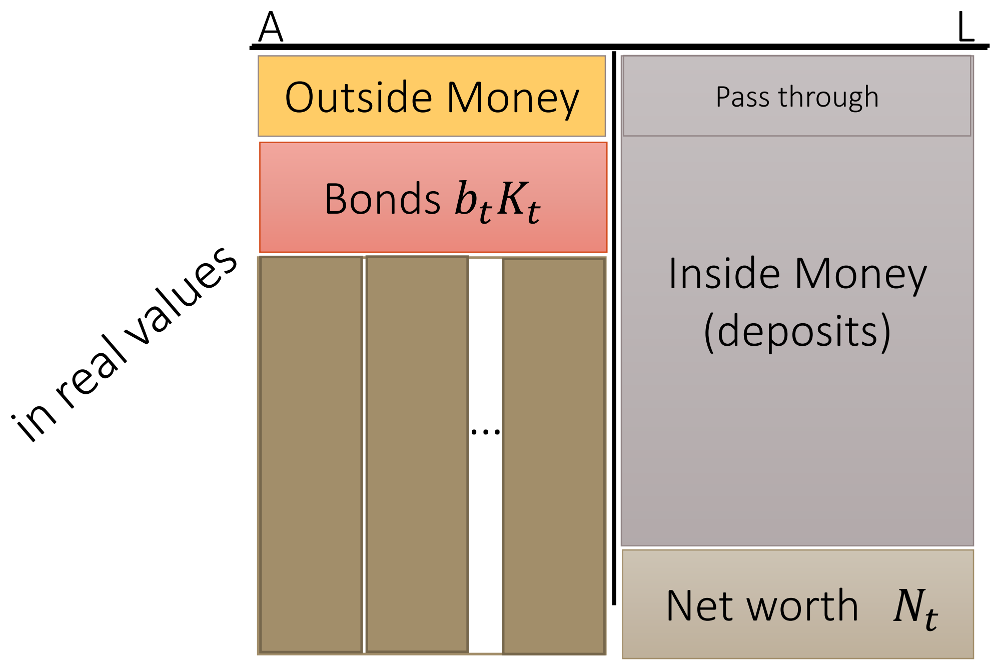

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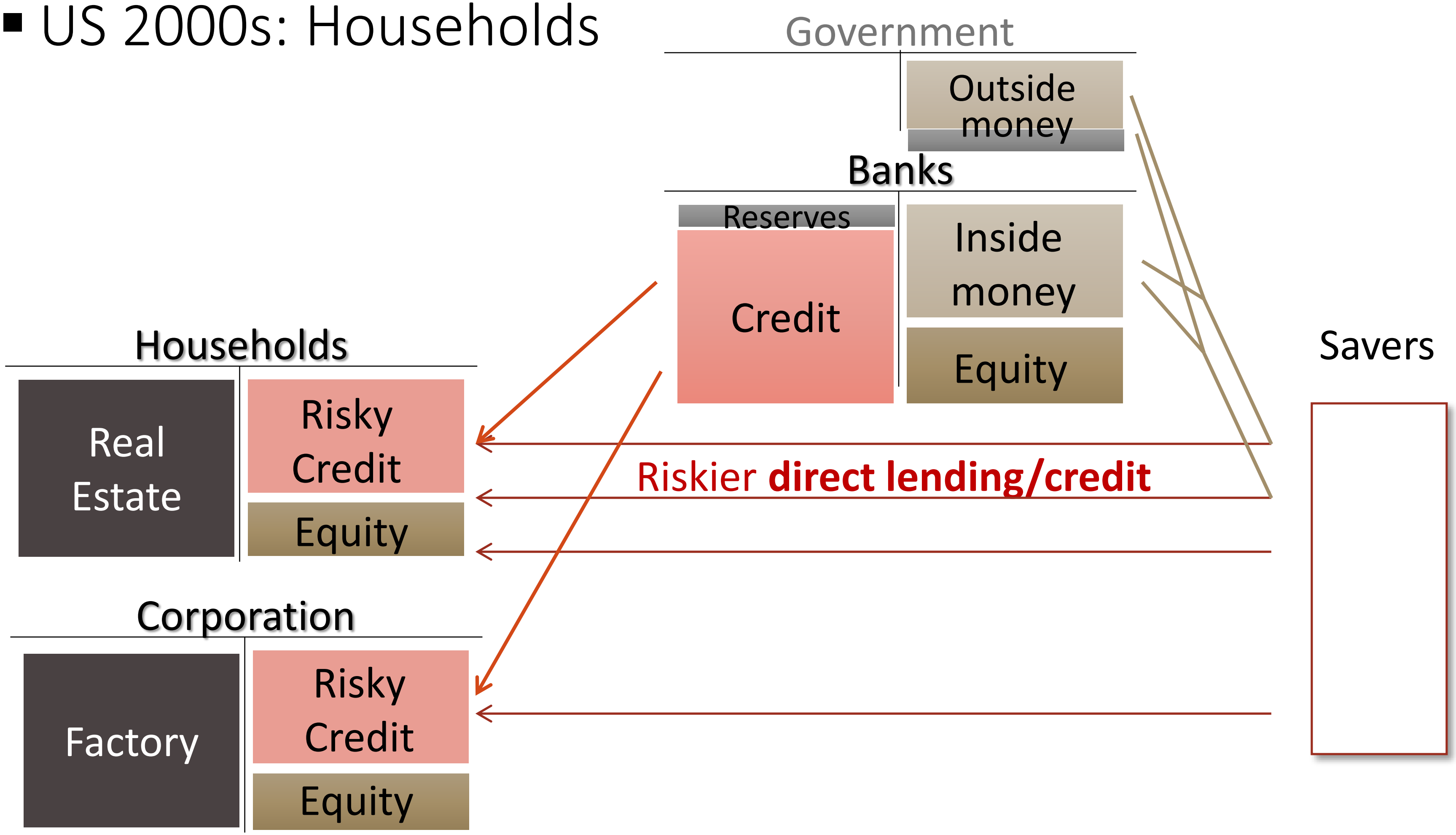
"stealth recapitalization"

LTRO, QE

Bottle Neck Approach: Beyond Financial Sector

- Japan 1990s: Corporations
- US 2000s: Households



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MoPo Rules: Ex-ante perspective

- No monetary economics
  - Fixed outside money supply
  - Amplification/endogenous risk through
    - Liquidity spiral — asset side of intermediaries' balance sheet
    - Disinflationary spiral — liability side

- Monetary policy
  - Ex-ante: Wealth shifts by affecting relative price between
    - Long-term bond
    - Short-term money
  - Ex-post: Risk transfers – reduce endogenous aggregate risk

- MoPo can provide insurance, but cannot control risk from risk-taking and risk premia separately!
  - Risk taking of banks changes
  - Form of "moral hazard"

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- Aggressive MoPo can be welfare reducing (due to behavioral response)! → MacroPru

A "O. Hart example"

"Financial Dominance" (see my Baffi Lecture)

- So far, we assumed
  - Banks do not issue new equity or
- Extended framework:
  Bankers pay out dividend and store private wealth
  - Fear that losses will be pushed on financial sector
    - Change of private bankruptcy laws/foreclosure rules
      "financial repression"
  - "being weak is your strength"
  - Banks pay out dividends ....

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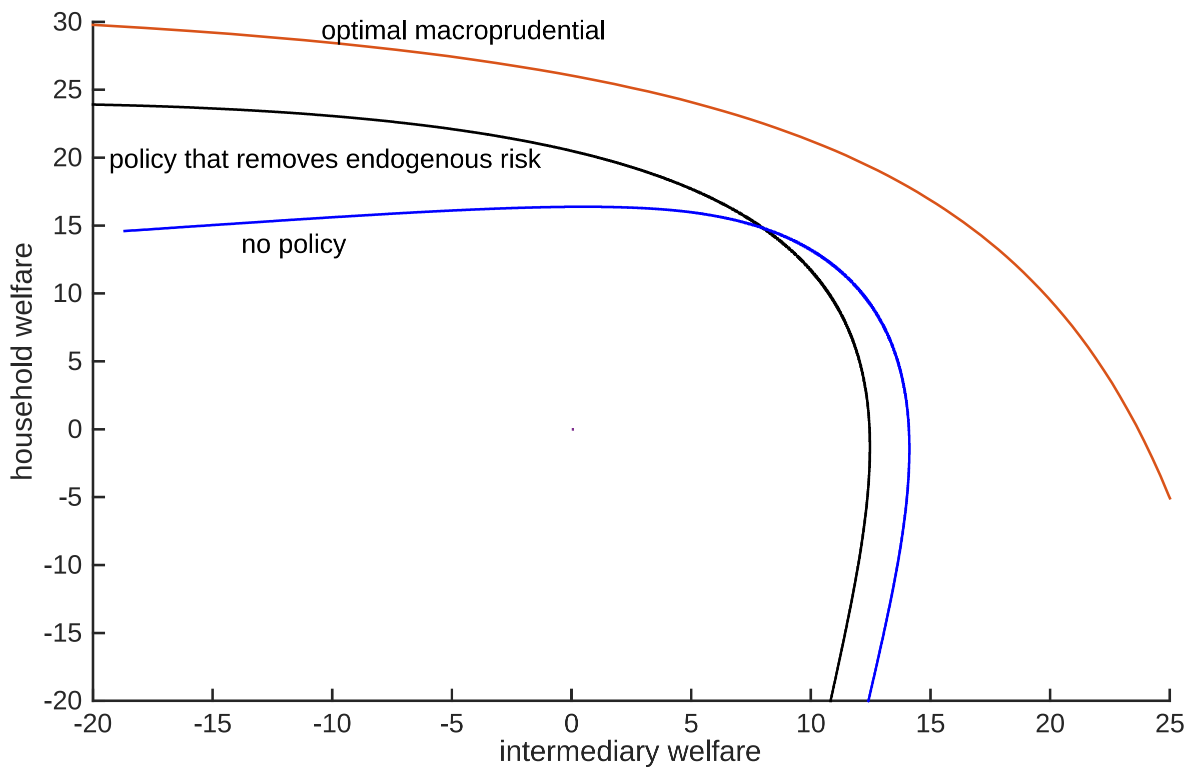
MacroPru policy: Welfare frontier

- Stabilize intermediaries net worth and earnings
- Control the value of money to allow HH insure idiosyncratic risk (investment distortions still exists, otherwise can get 1st best)



MacroPru

- MacroPru complements MoPo
  - Not subsitutes
- Good MacroPru enables more aggressive MoPo
  - More redistribution ex-post
  - More risk-transfers/insurance ex-ante
  - Value of money is higher (lifts level)

Contingent Commitment Challenge

- Ideal:

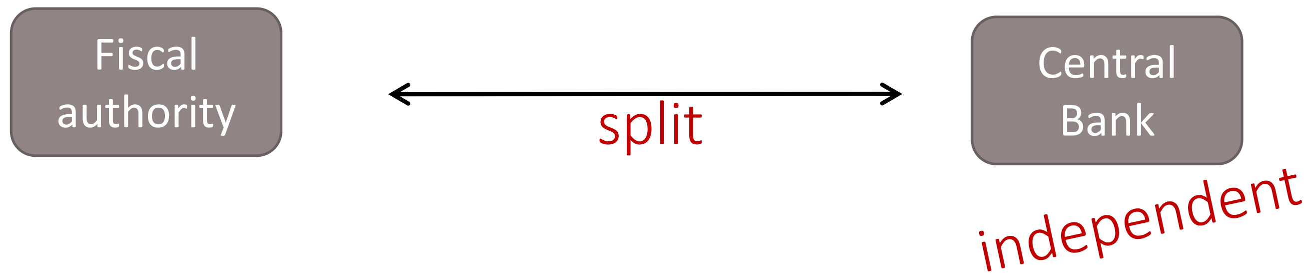
State 1: Bliss
State 2:
State 3: Boom
....
State 6: Recession
State 7: Downturn
State 8: Crisis
State 9: ...
State 10: Catastrophe

Commit not to distribute

Commit to share losses

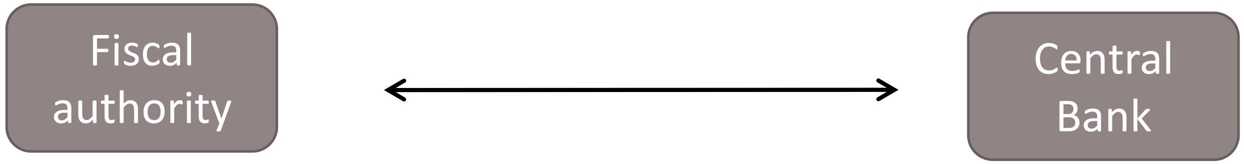
- Time-inconsistency
  - Ex-ante: promise limited redistribution to keep interest rate low
  - Ex-post: redistribute too much

Institutional design: split authorities



0/1-Dominance vs. battle: “dynamic game of chicken”

Institutional design: split authorities



0/1-Dominance vs. battle: "dynamic game of chicken"

- Monetary dominance
  - Fiscal authority is forced to adjust budget deficits
- Fiscal dominance
  - Inability or unwillingness of fiscal authorities to control long-run expenditure/GDP ratio
  - Limits monetary authority to raise interest rates

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Government Debt

- Dual role of contingent debt
  - Liquidity: Smooth temporary shocks <u>over time</u>
    - Tax smoothing
    - Keynesian stimulus

    → default-<u>free</u> bond
  - Solvency: Risk sharing permanent shocks <u>over states</u> of nature
    - Through MoPo → default-<u>free</u> gov. bond
    - Through default → default<u>able</u> bond

    tension

How can financial sector help?

1. Provide insurance against
   - Rollover risk
   - Solvency risk

   only achievable if banks are well capitalized in crisis

   → financial dominance rules this out

Northern view

inconsistent

2. Offer itself as hostage for commitment device to repay

   → financial dominance is helpful …

   - But …
     - "straight jacket commitment"
     - Gov. has to pay in addition to bail out banking sector
     - Banking sector kills real sector, gov. debt crowds out real loans
       - Even state 6, 7 will be shifted down to state 8,9

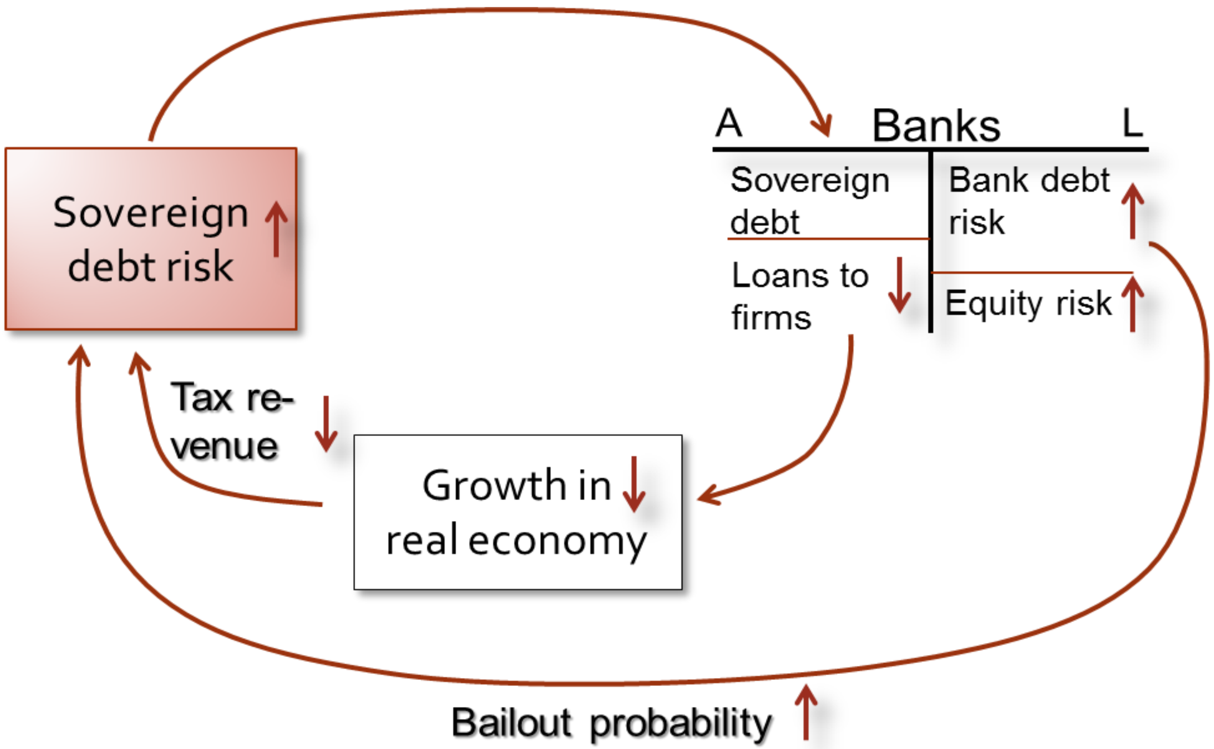
Southern view

Hostage Problem 1: straight jacket

- 0-1 Choice Dilemma!
  - "straight jacket" commitment
  - No commitment
- Analogy:
  - currency union is already a "straightjacket commitment" w.r.t. inflation or exchange rate safety valve
  - Where is the safety valve?

Hostage Problem 2: Diabolic Loop

- Trigger: fiscal or financial



- Make bad state really horrible

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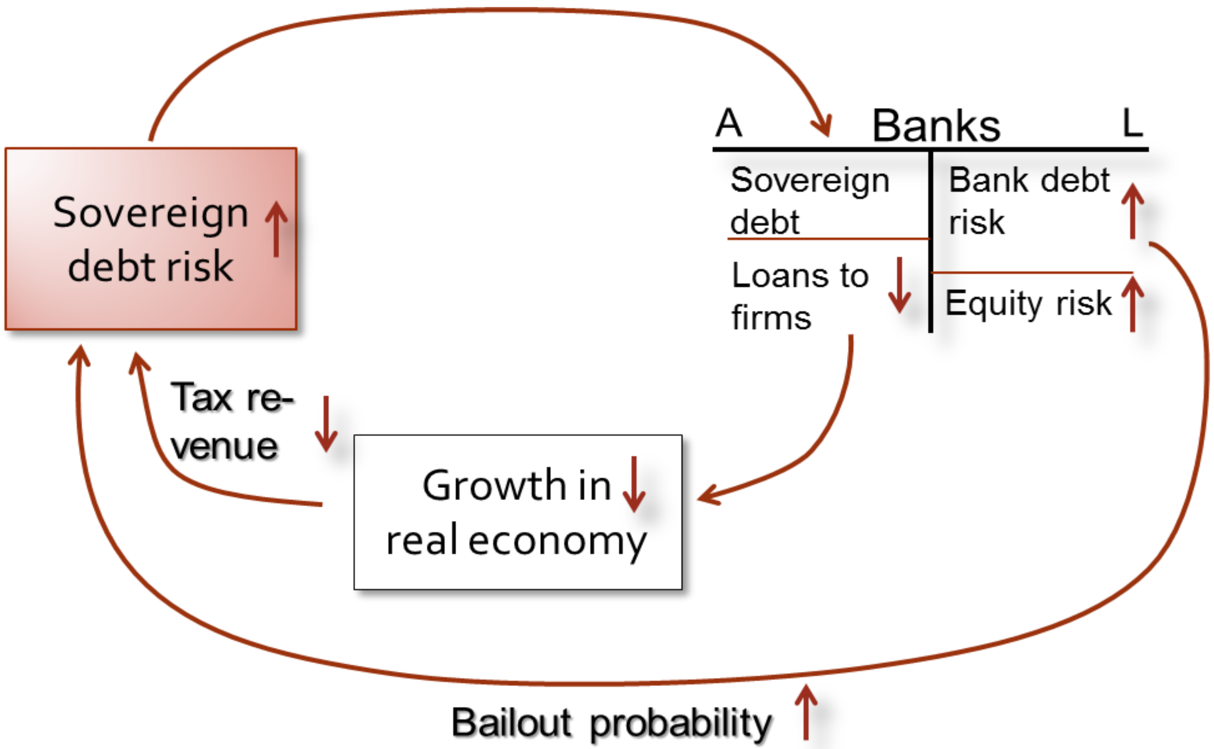

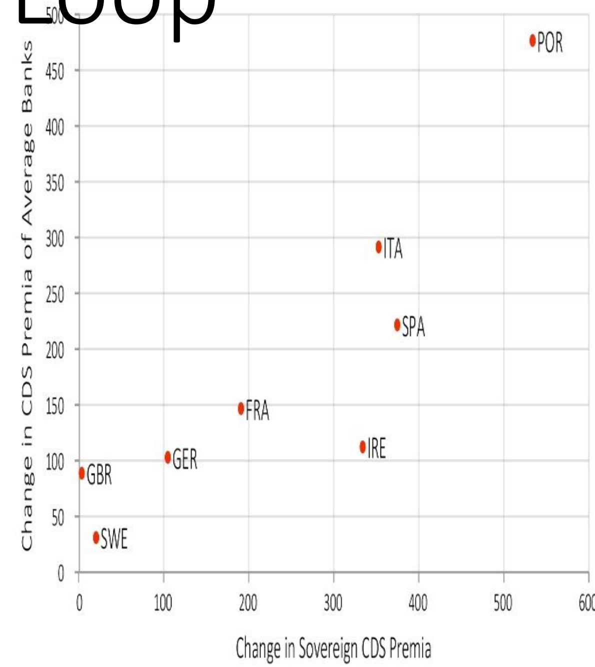

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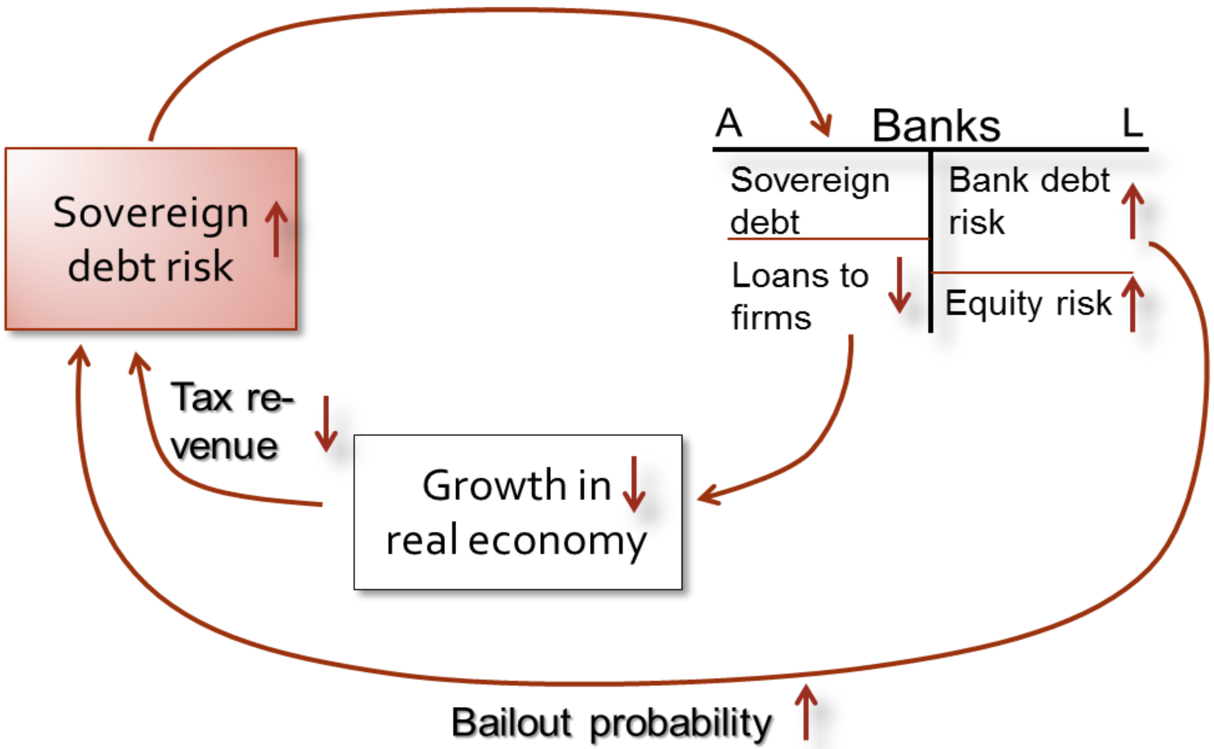

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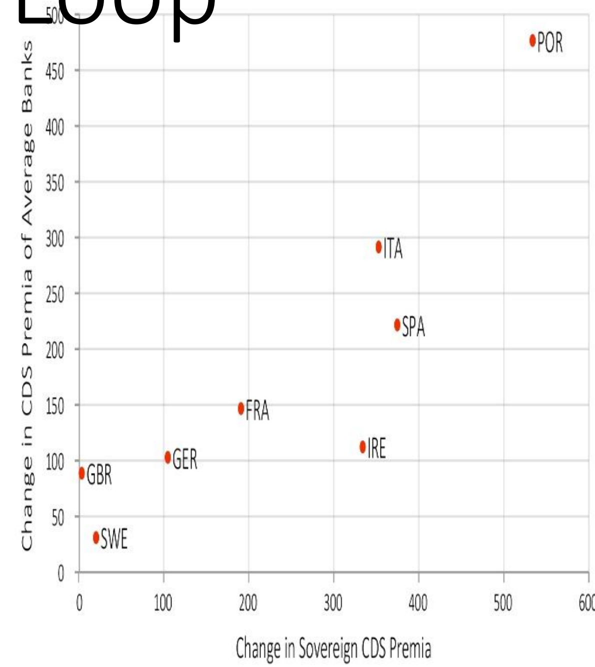
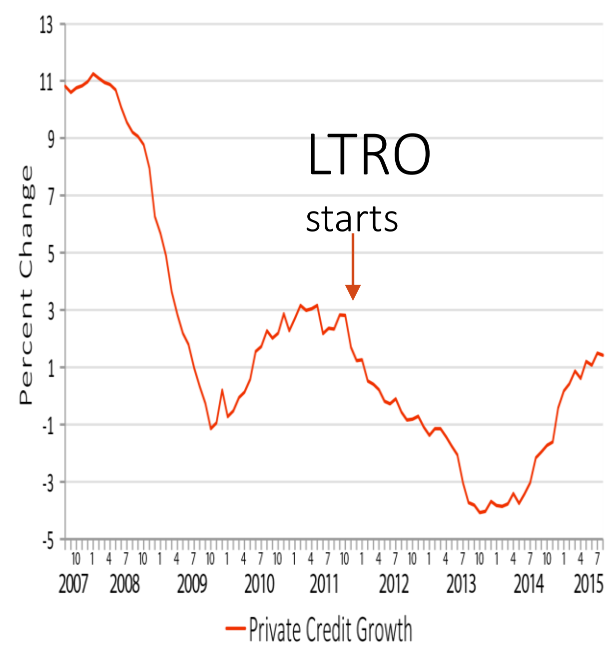




Solution for Europe: ESBies

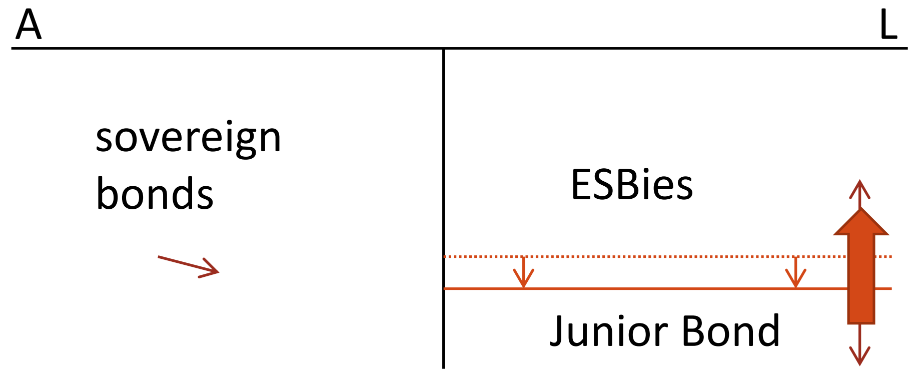
- Challenge: Need both
  - Safe asset to conduct redistributive MoPo
  - Insurance component in contingent debt (see e.g. Greece)

- ESBies structure

A	L	
sovereign bonds	ESBies	Safe asset
	Junior Bond	Allows “default insurance” - Contingent on very bad states

- MacroPru for banks:
  - no risk weight on ESBies,
  - all risk weight on Junior bond

ESBies & Flight to Safety: An Added Bonus



Flight to safety asset is endogenous (coordination problem)

- Today: asymmetric shifts across borders
  - Value of German debt decreases
    - German CDS spread rises, but yield on bund drops (flight to quality)
  - Value of Italian/Spanish/Greek… sovereign debt declines
- With ESBies: Negative co-movement across tranches
  - Value of ESBies expands – due to flight to quality
  - Value of Junior bond shrinks – due to increased risk
  - Asset side is more stable

Conclusion

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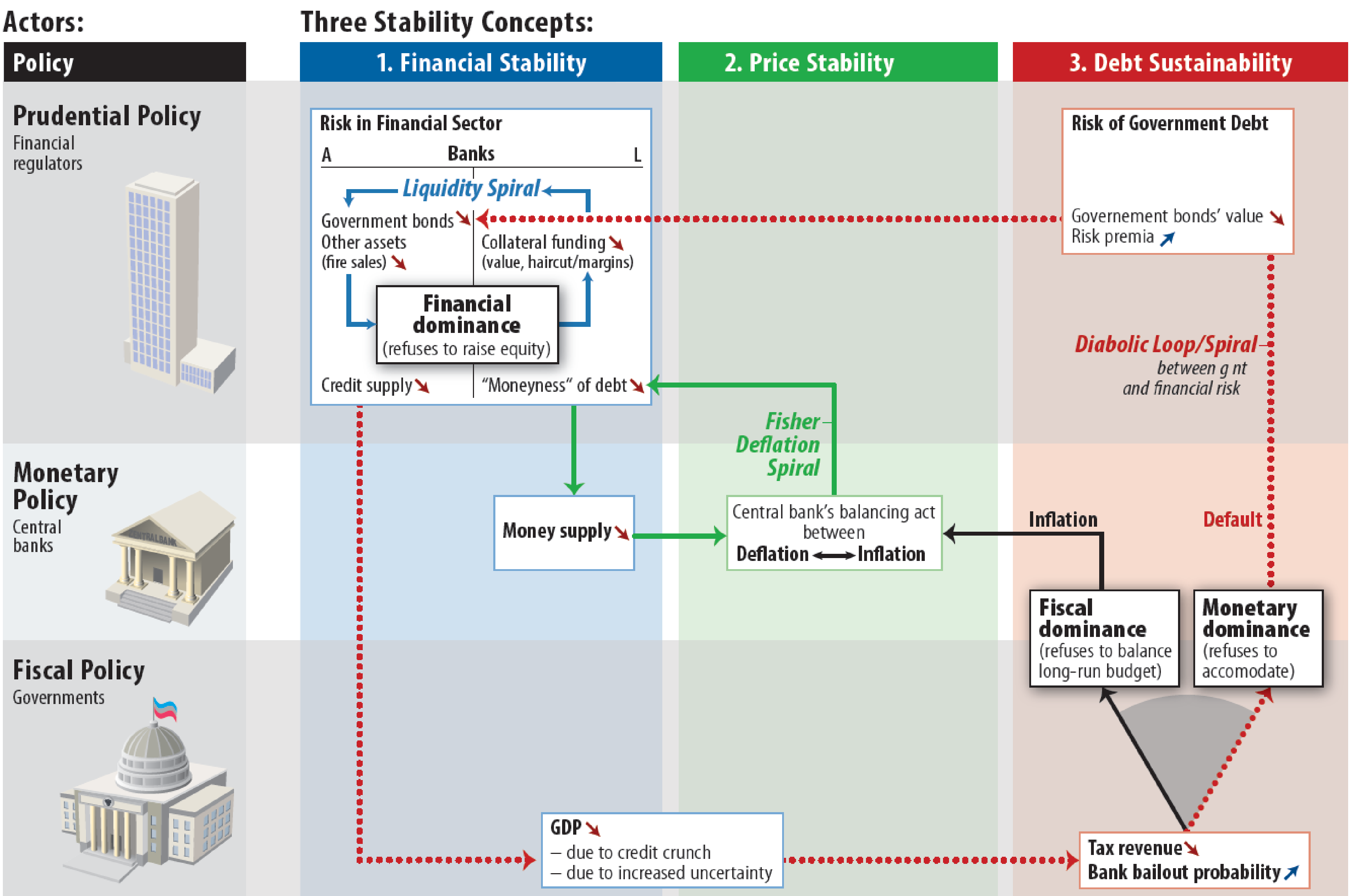

Source: Markus K. Brunnermeier and Yuliy Sannikov, Redistributive Monetary Policy, Princeton, NJ, August 2012

F.A.Z. infographic Heumann/Kaiser