



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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	\Friction	OLG	Incomplete Markets + idiosyncratic risk
Risk		deterministic	endowment risk borrowing constraint
Only money		Samuelson	Bewley
With capital		Diamond	Aiyagari, Krusell-Smith

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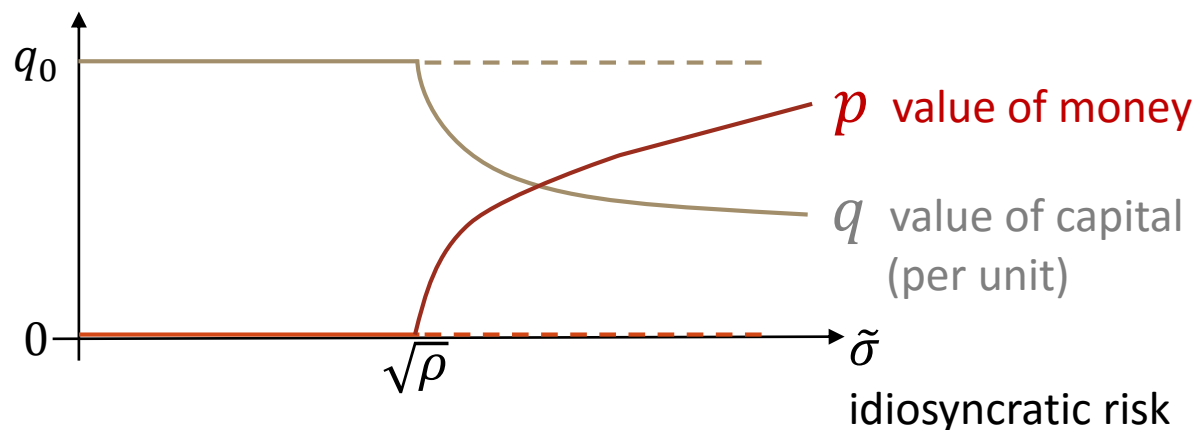
- Store of value: Money pays no dividend and is a bubble
 - Value of money and of capital is endogenous

\Friction	OLG	Incomplete Markets + idiosyncratic risk	
Risk	deterministic	endowment risk borrowing constraint	investment risk
Only money	Samuelson	Bewley	
With capital	Diamond	Aiyagari, Krusell-Smith	Basic "I Theory"

■ Portfolio choice

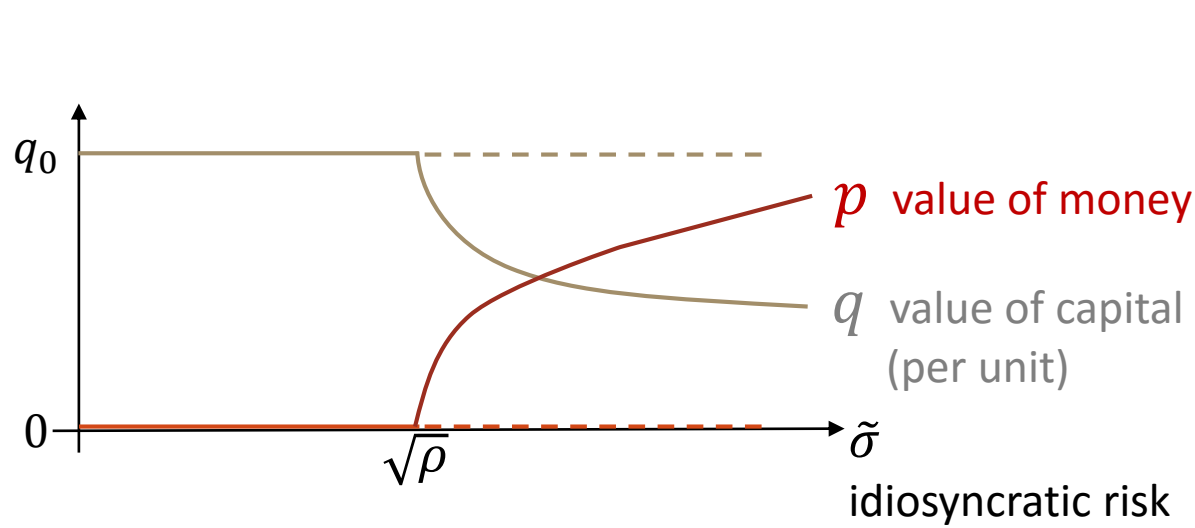
- Invest in own firm → output/dividend yield but idio risk
- Hold money → no dividend no idio risk

Endogenous Value of Money and Capital



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

Endogenous Value of Money and Capital



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!

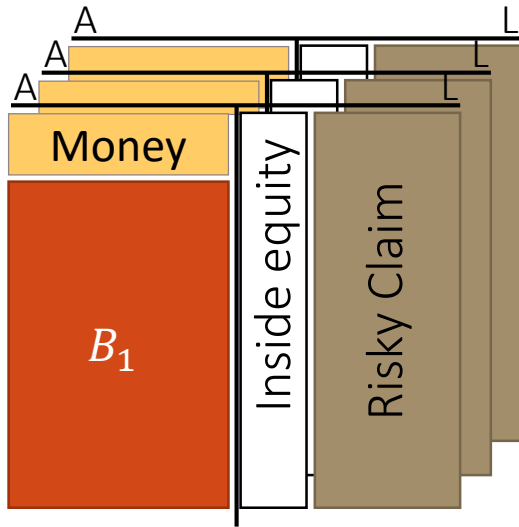
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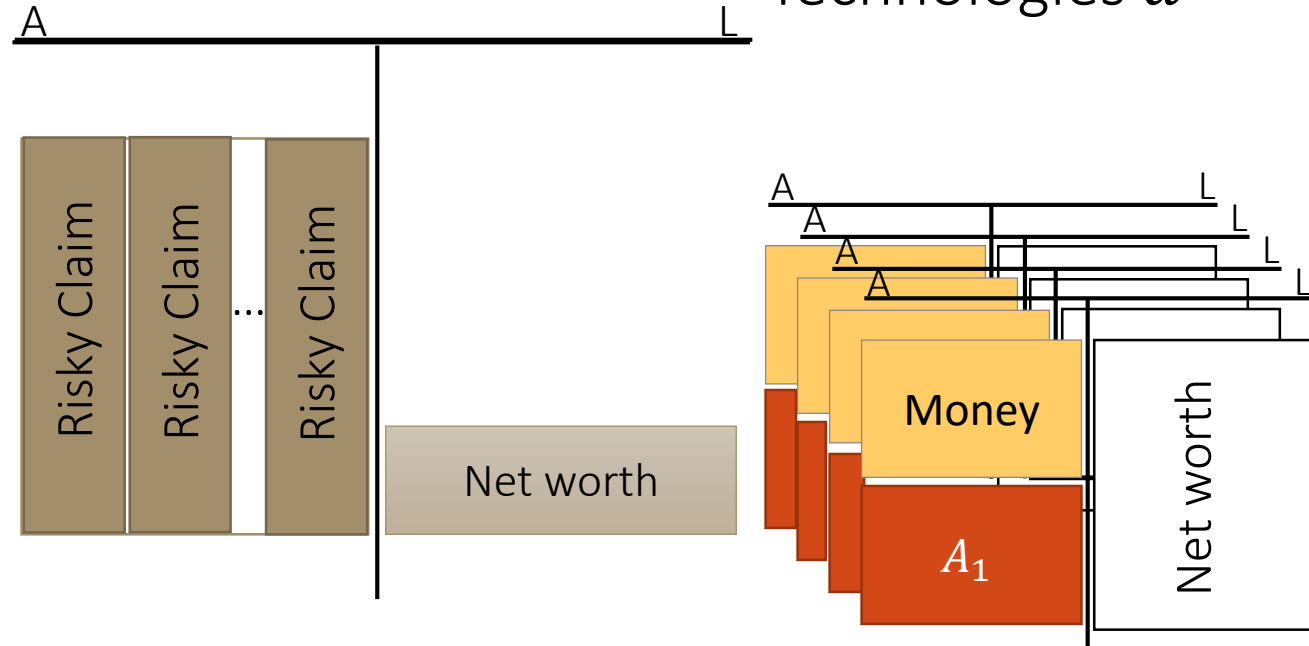
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Add intermediaries

Technologies b



Technologies a



Outside Money

Intermediaries

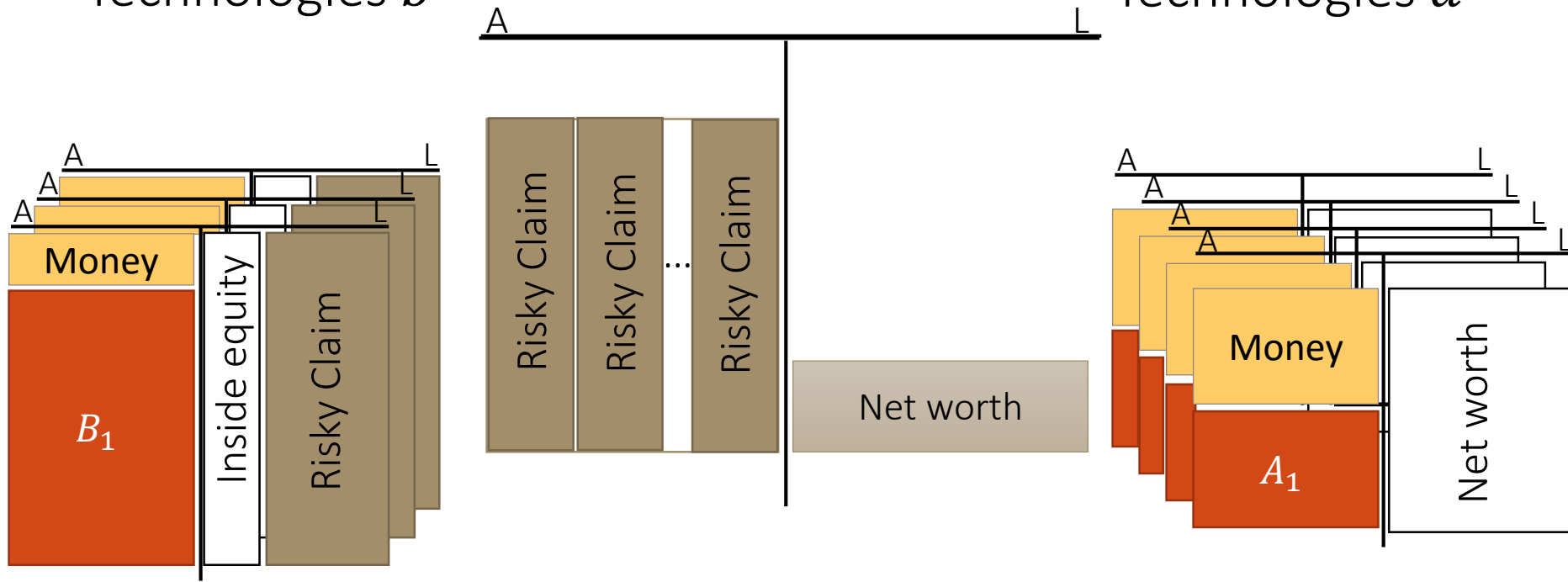
- Can hold outside equity & diversify within sector b
- Monitoring

Add intermediaries "risk mitigators"

Outside Money

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Intermediaries

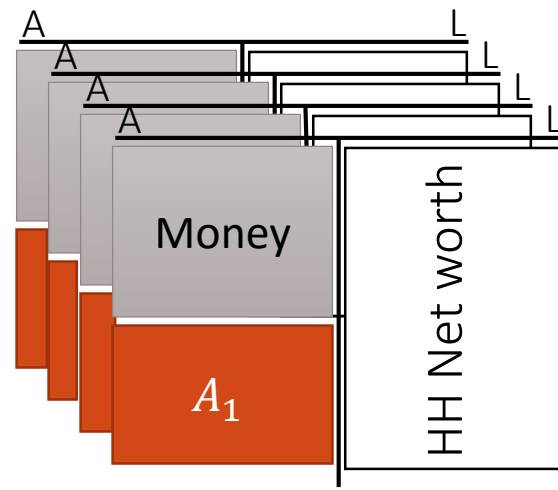
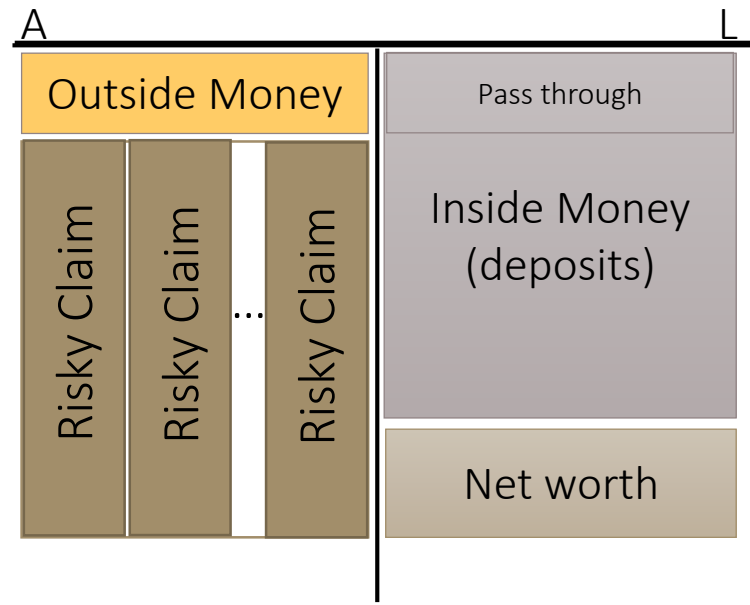
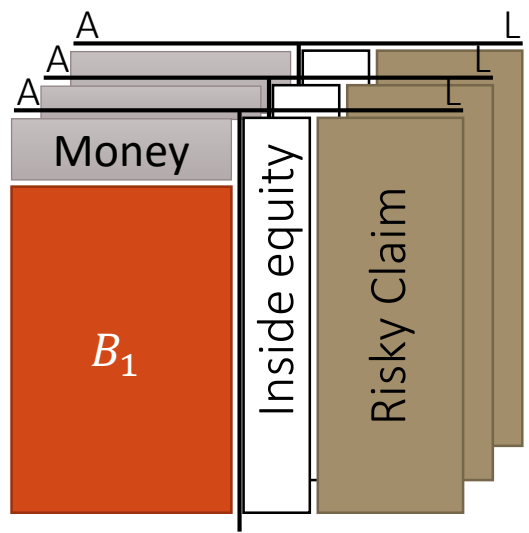
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Intermediaries

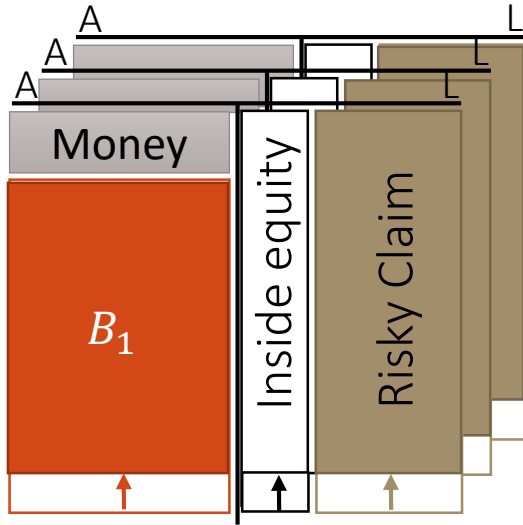
- Can hold outside equity & diversify within sector b
- Monitoring
- Create inside money
- Maturity/liquidity transformation

||| Roadmap

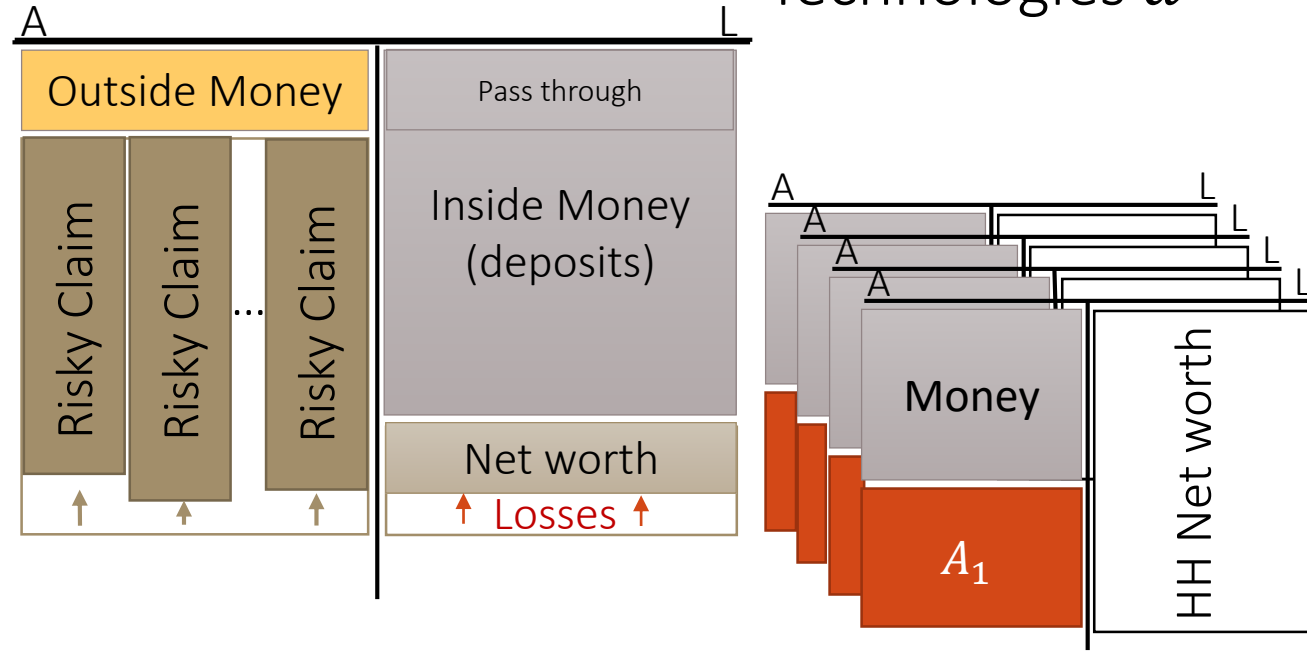
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Shock impairs assets: 1st of 4 steps

Technologies b



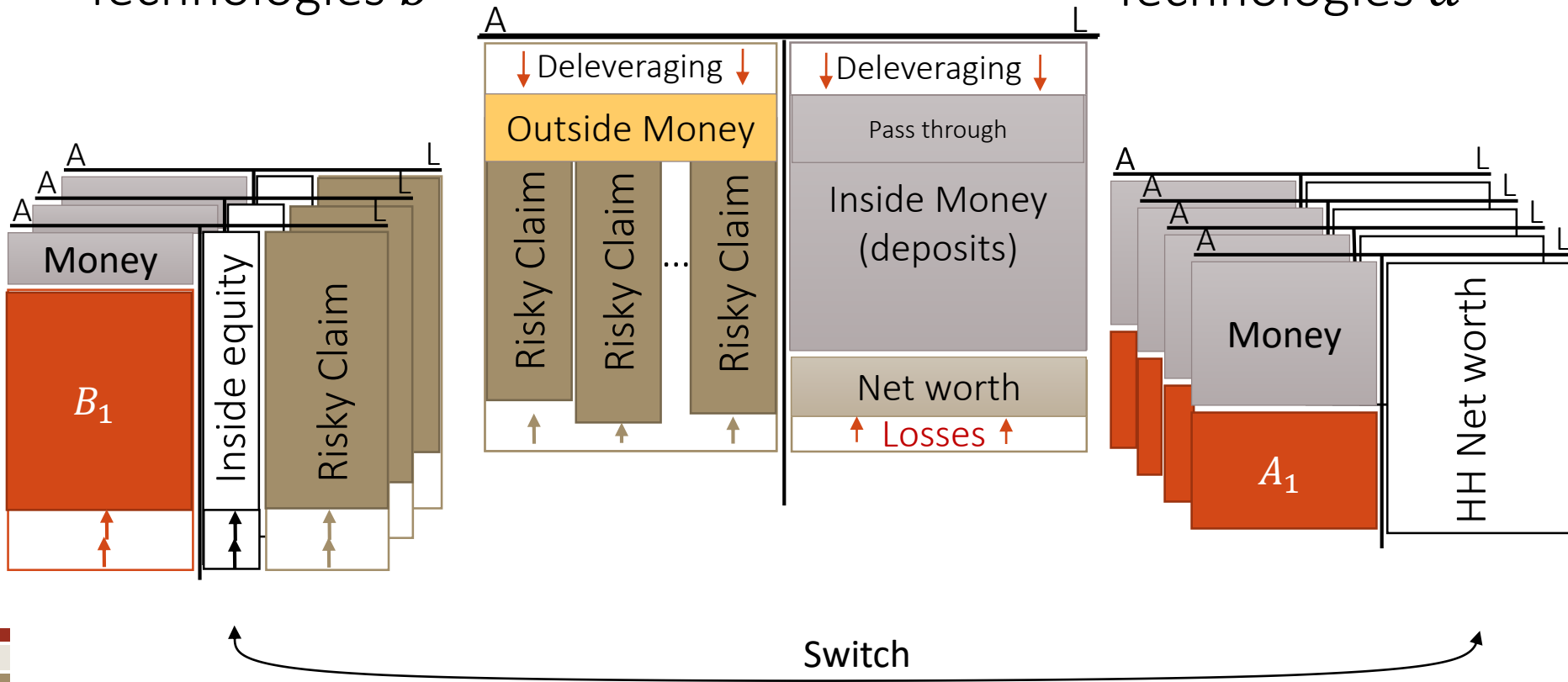
Technologies a



Shrink balance sheet: 2nd of 4 steps

Technologies b

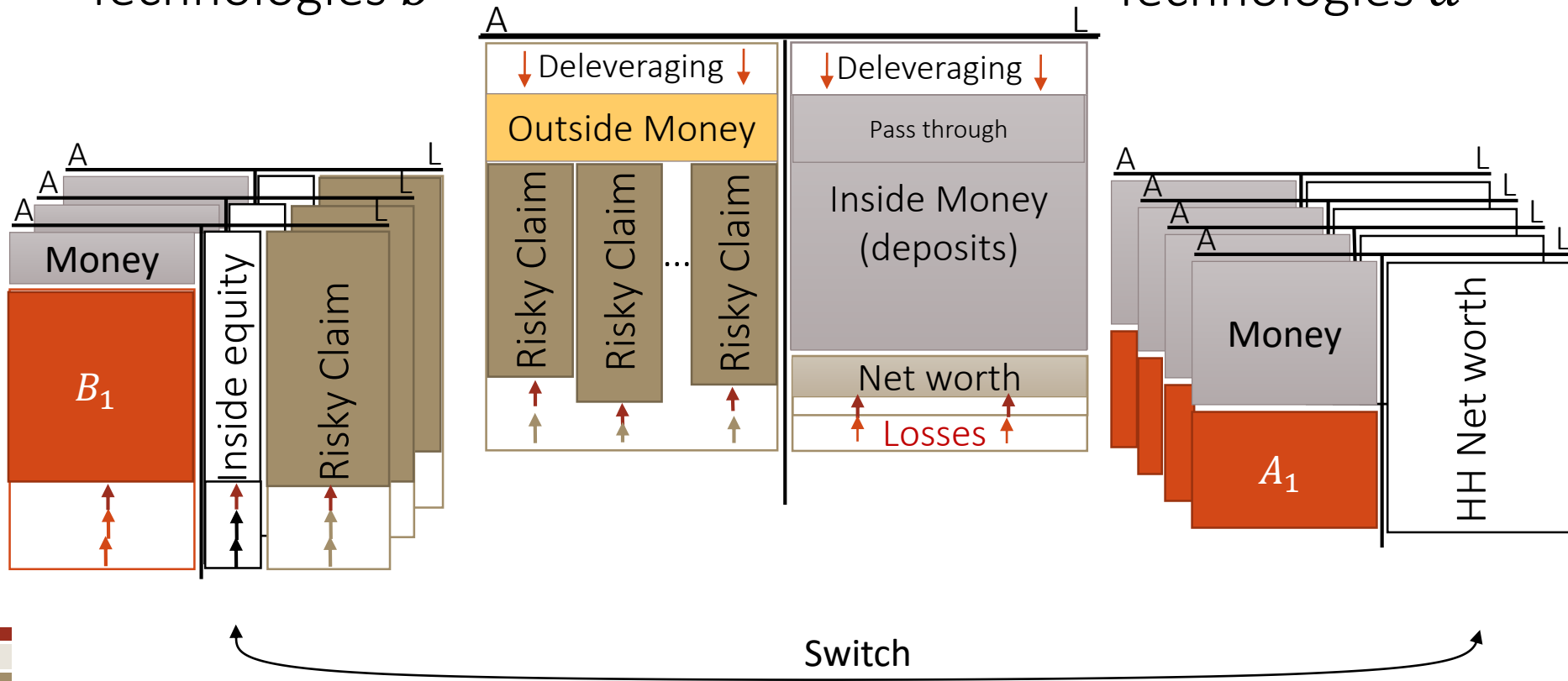
Technologies a



Liquidity spiral: asset price drop: 3rd of 4

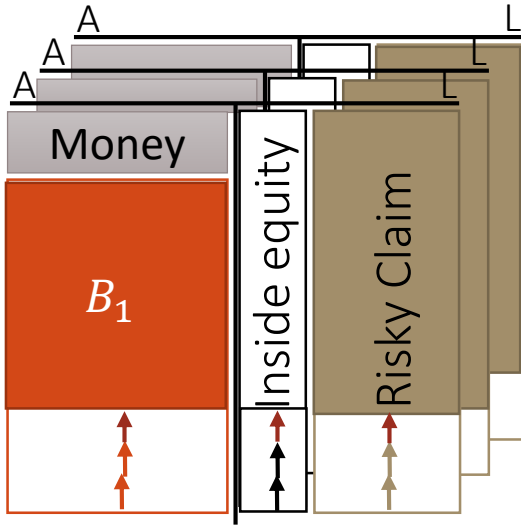
Technologies b

Technologies a

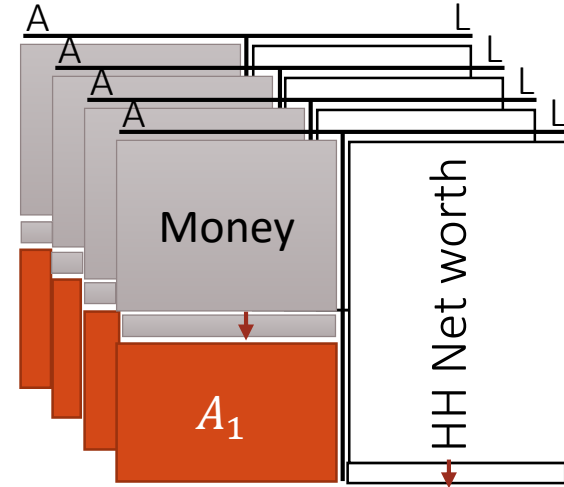
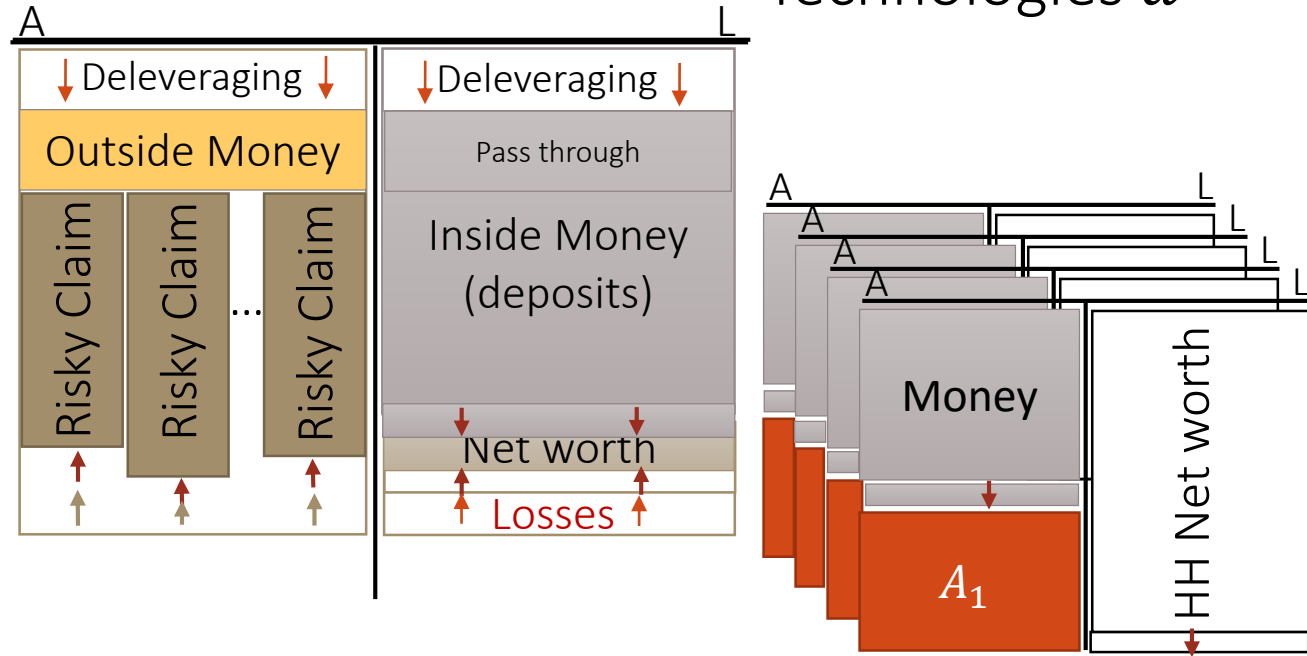


Disinflationary spiral: 4th of 4 steps

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

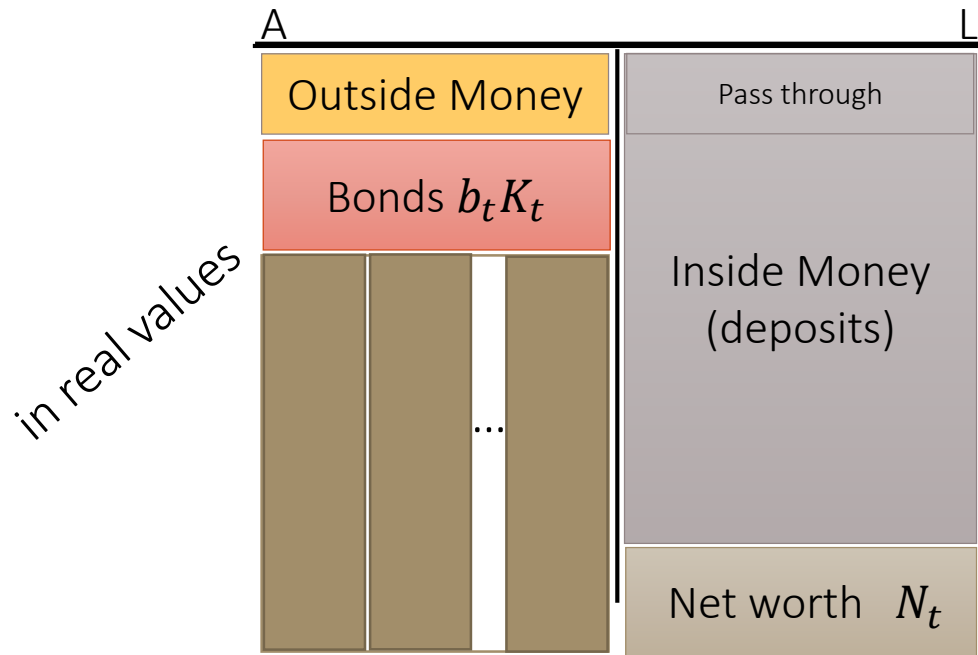
- Restore money supply
 - Replace missing inside money with outside money
- Aim: Switch off deflationary spiral
 - ... but banks might not extend credit (hold excess reserves)

■ Credit view

Tobin

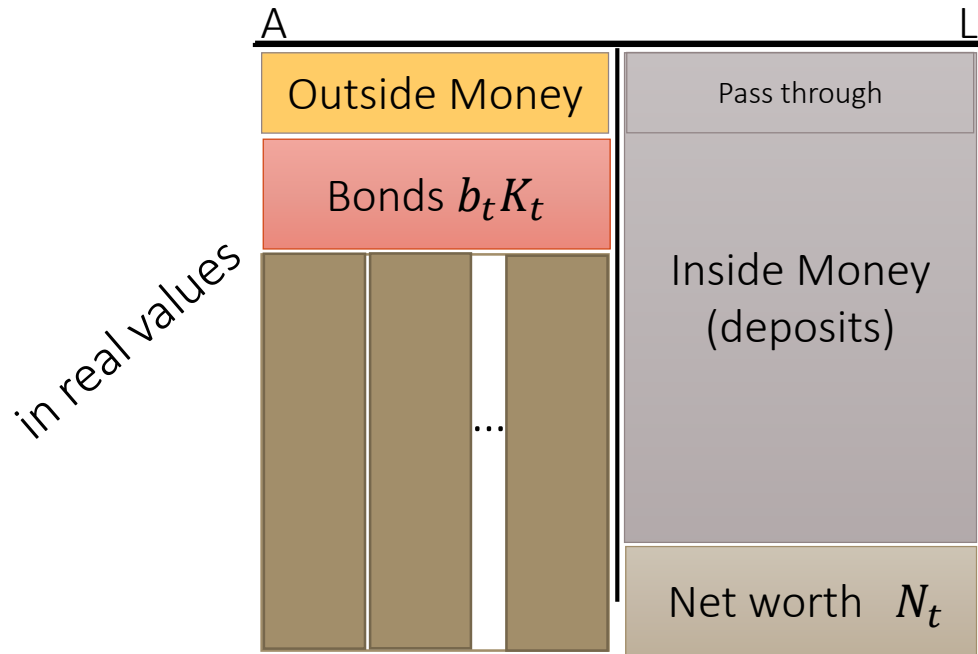
- Restore credit flow
- Aim: Switch off deflationary spiral & liquidity spiral

Redistributive MoPo: Ex-post perspective



- Adverse shock \rightarrow value of risky claims drops
- Monetary policy
 - Interest rate cut \Rightarrow long-term bond price \uparrow
 - Asset purchase \Rightarrow asset price \uparrow
 - \Rightarrow “stealth recapitalization” - redistributive
 - \Rightarrow risk premia \downarrow
- Liquidity & Deflationary Spirals are mitigated

Redistributive MoPo: Ex-post perspective

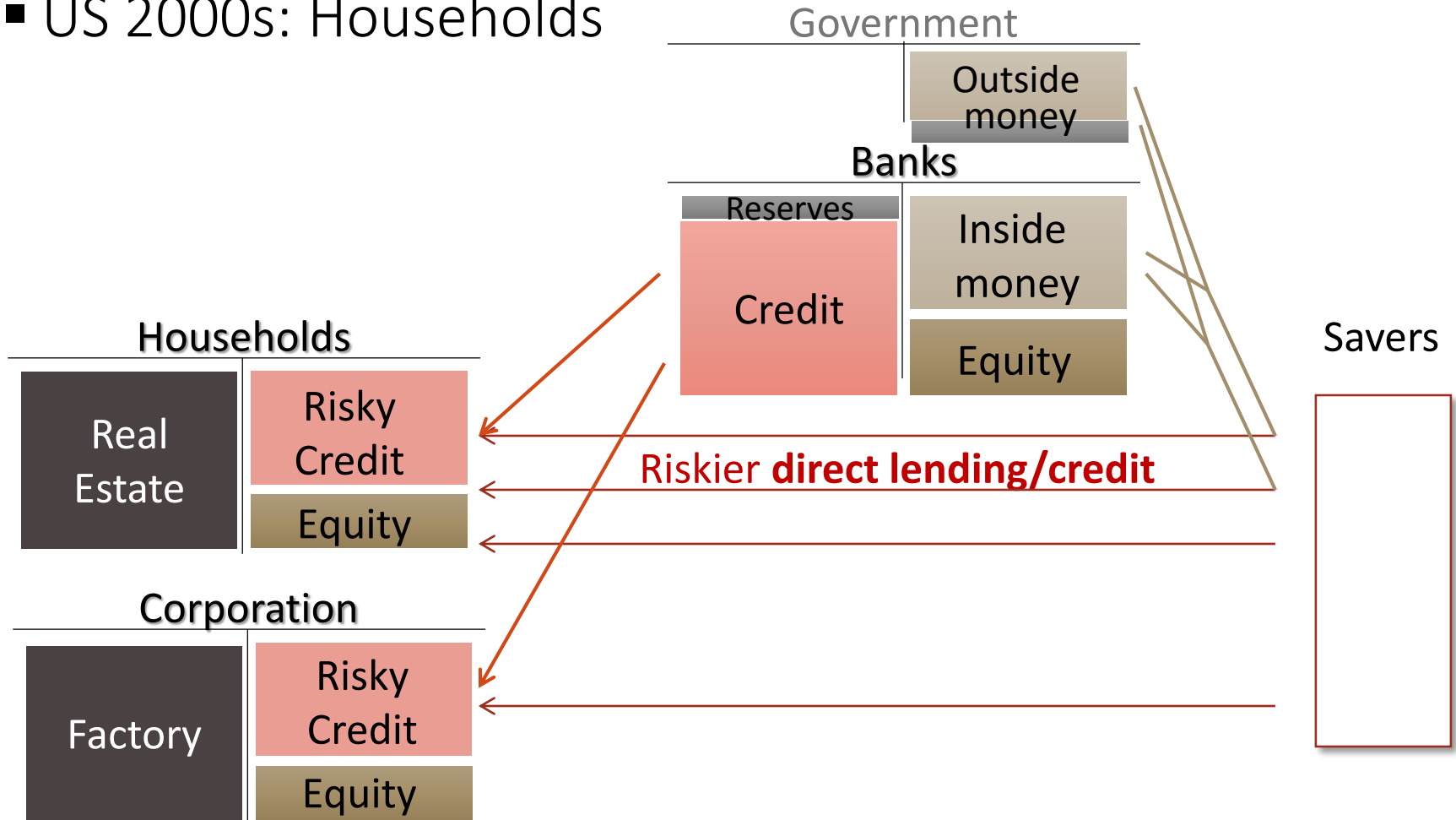


- Adverse shock → value of risky claims drops
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 - Interest rate cut ⇒ long-term bond price ↑
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 - ⇒ “stealth recapitalization” - redistributive
 - ⇒ risk premia ↓
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“stealth 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”

MoPo Rules: Ex-ante perspective

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- MoPo can provide insurance, but cannot control risk from risk-taking and risk premia separately!
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 - Form of “moral hazard”
- Aggressive MoPo can be welfare reducing (due to behavioral response)! A “O. Hart example” → MacroPru

“Financial Dominance” (see my Baffi Lecture)

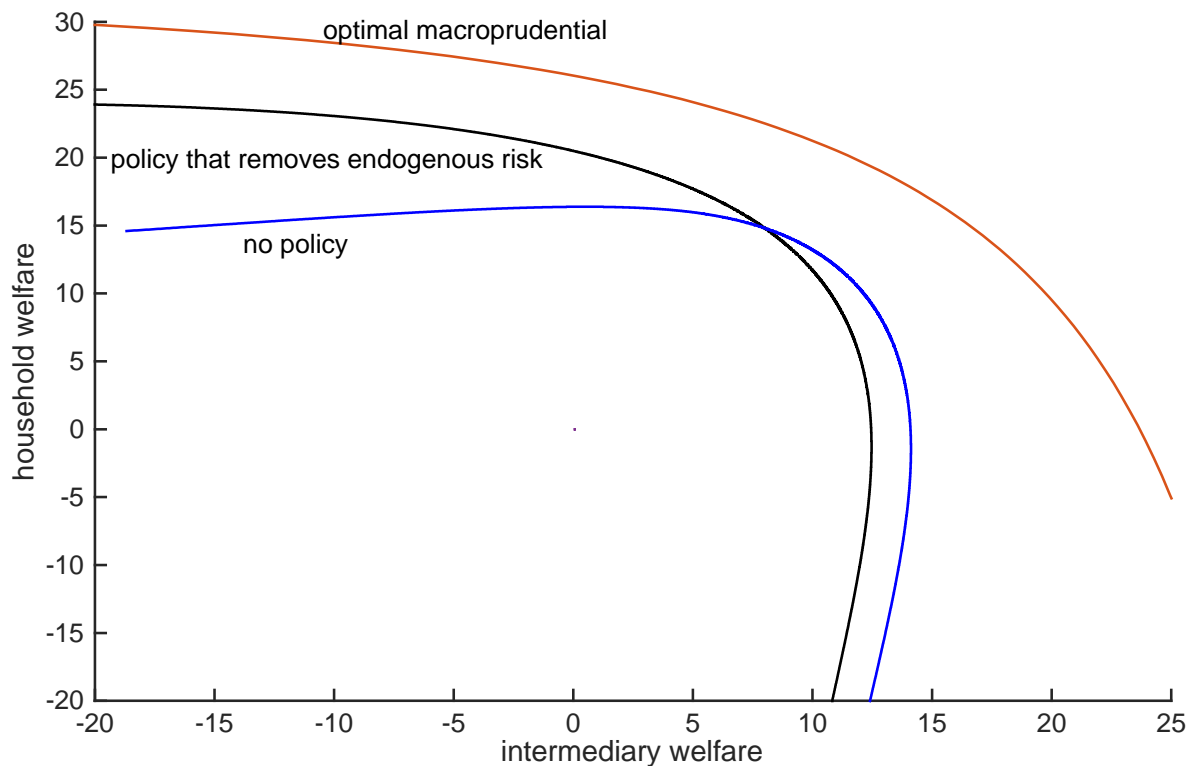
- So far, we assumed
 - Banks do not issue new equity or
- Extended framework:
Bankers pay out dividend and store private wealth
 - Fear that losses will be pushed on financial sector
 - Change of private bankruptcy laws/foreclosure rules
“financial repression”
 - “being weak is your strength”
 - Banks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

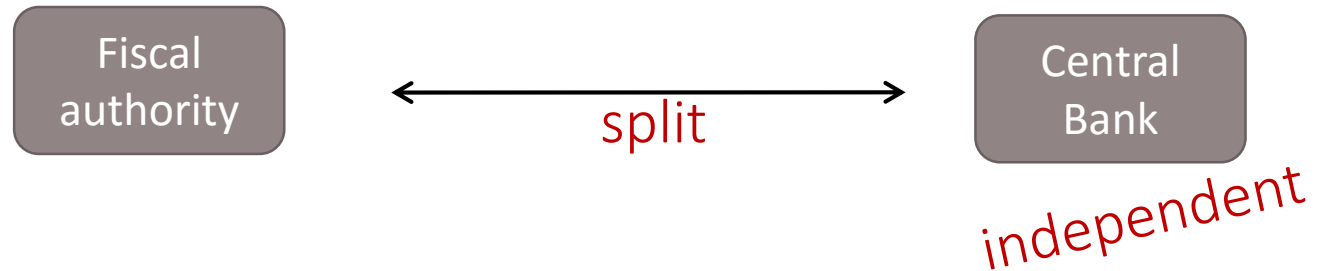
- Ideal:

State 1: Bliss	}	Commit not to distribute
State 2:		
State 3: Boom		
....		
State 6: Recession		
State 7: Downturn		
State 8: Crisis		
State 9: ...	}	Commit to share losses
State 10: Catastrophe		

- Time-inconsistency

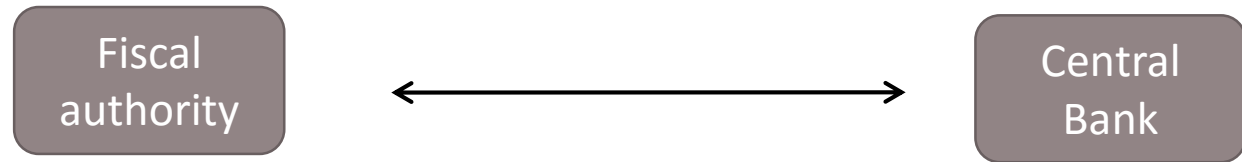
- Ex-ante: promise limited redistribution to keep interest rate low
- Ex-post: redistribute too much

|| Institutional design: split authorities



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

III 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 over time
 - Tax smoothing → default-free bond
 - Keynesian stimulus
 - Solvency: Risk sharing permanent shocks over states of nature
 - Through MoPo → default-free gov. bond
 - Through default → defaultable 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

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

Northern view

Inconsistent

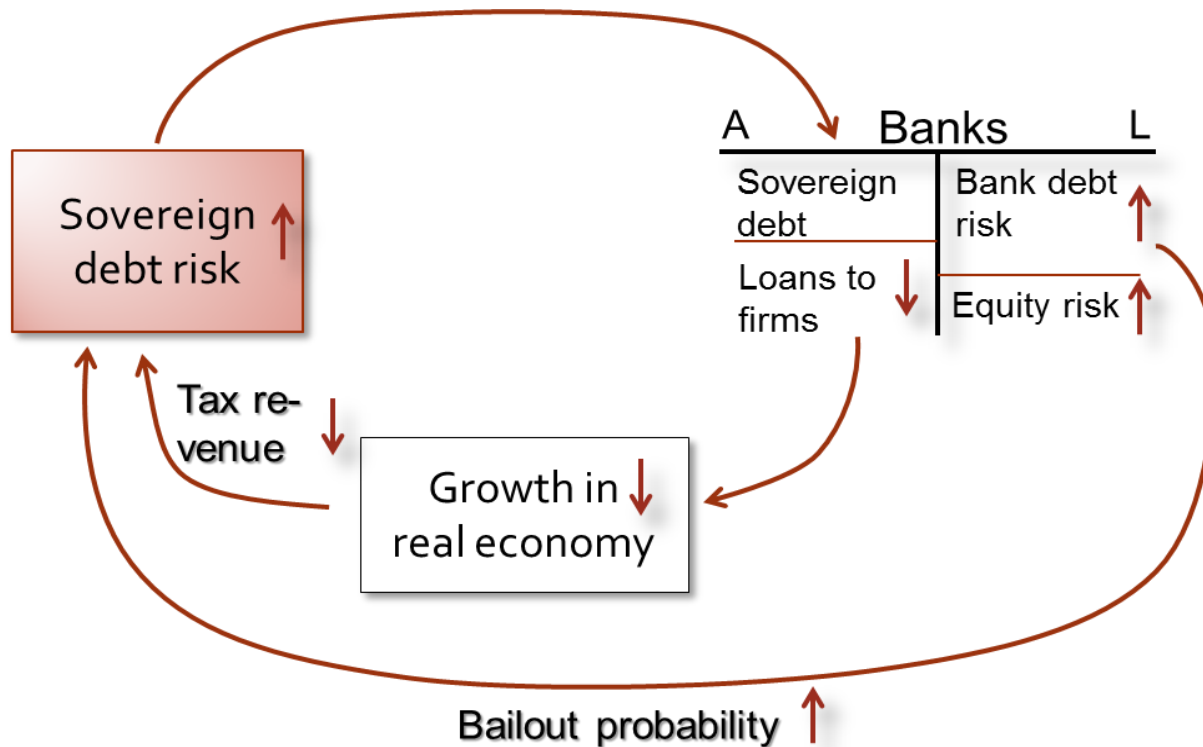
Southern view

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

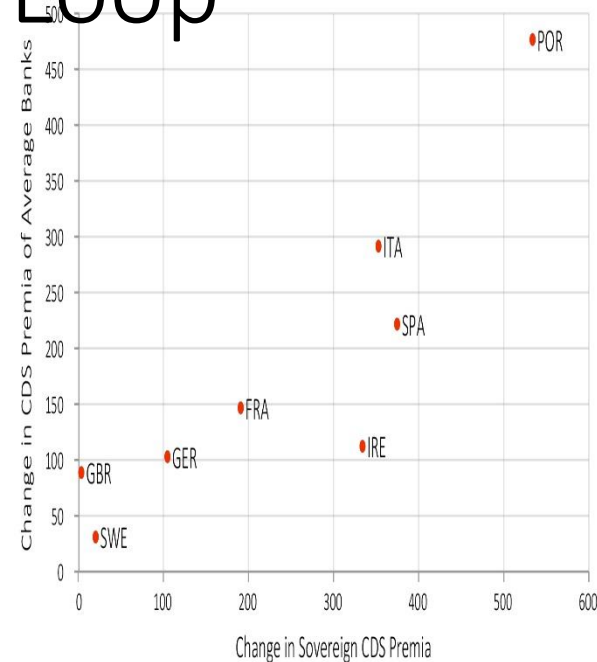
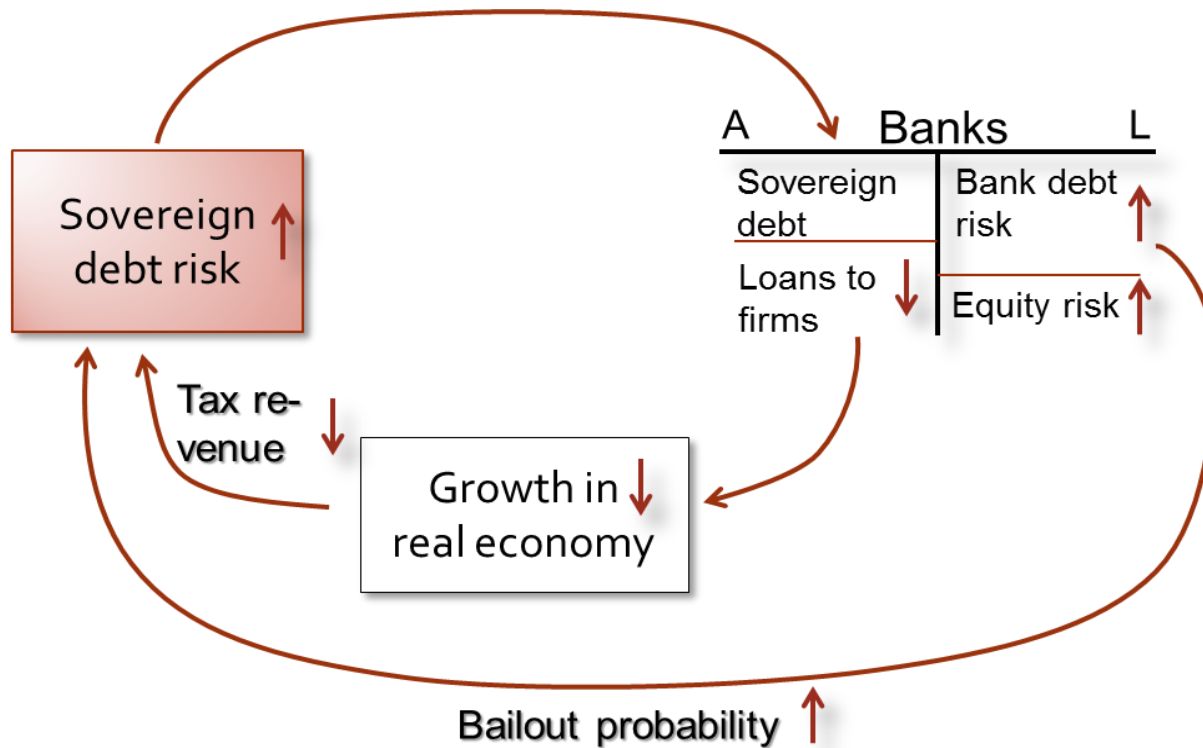
- Trigger: fiscal or financial



- Make bad state really horrible

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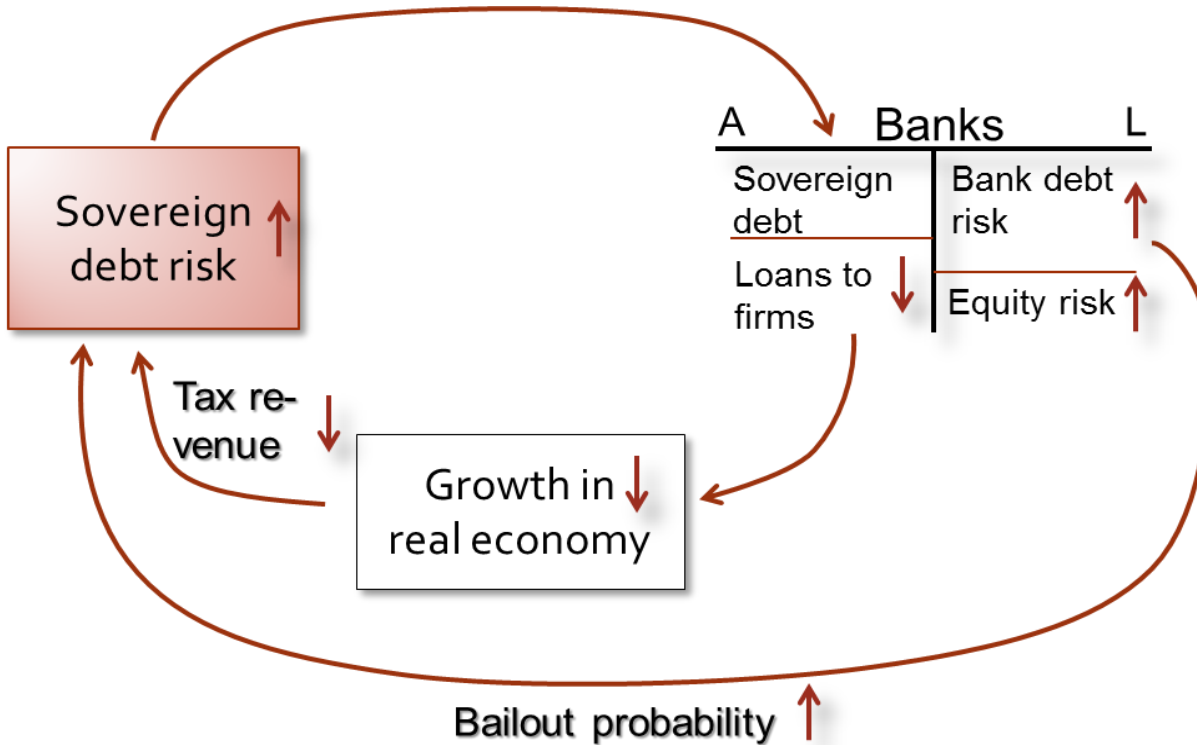
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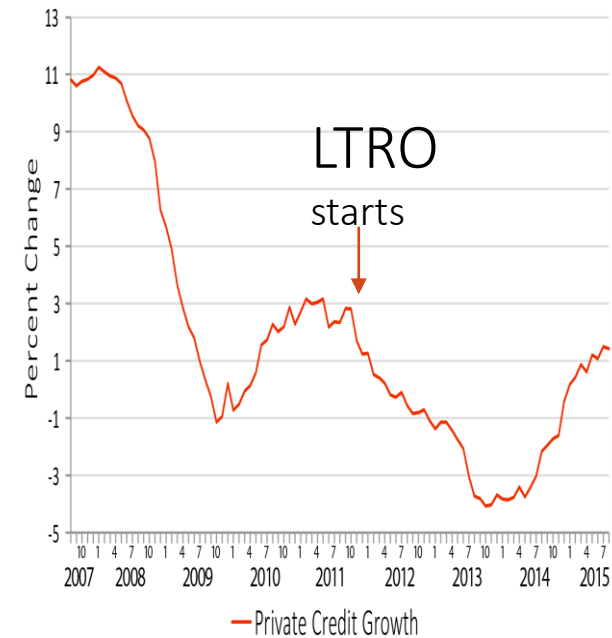
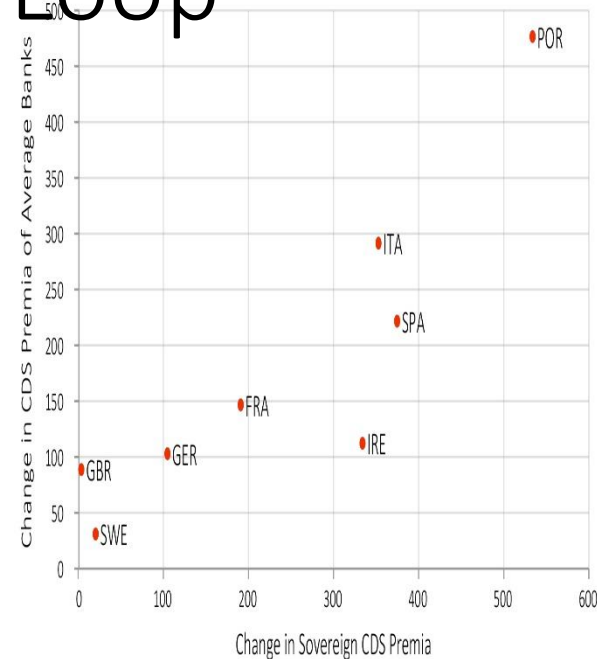
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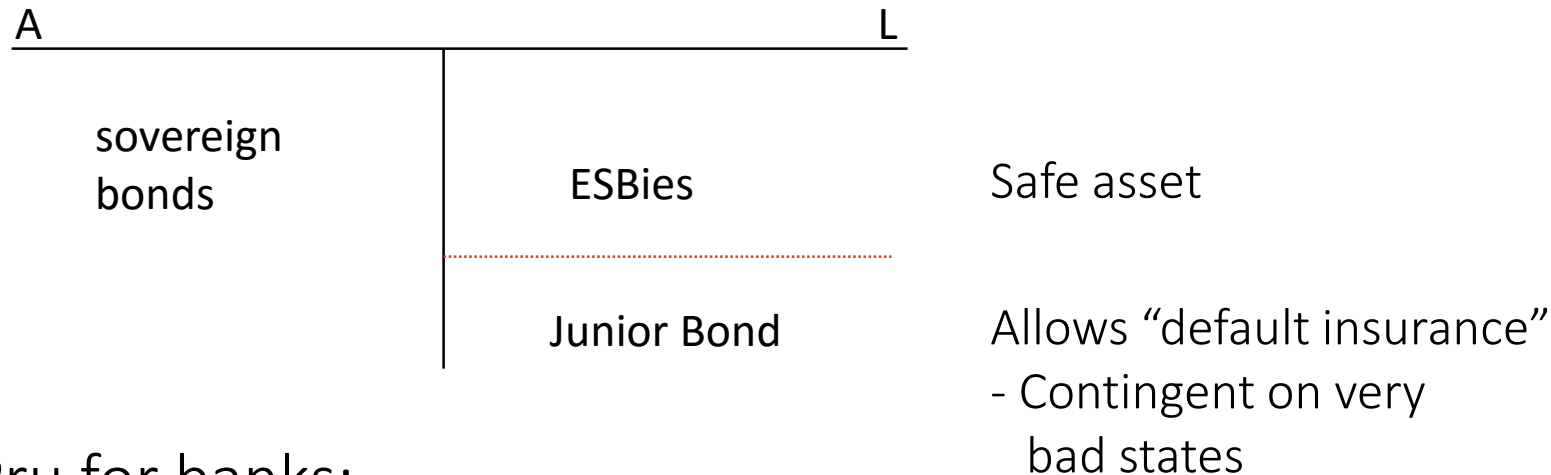
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||| Solution for Europe: ESBies

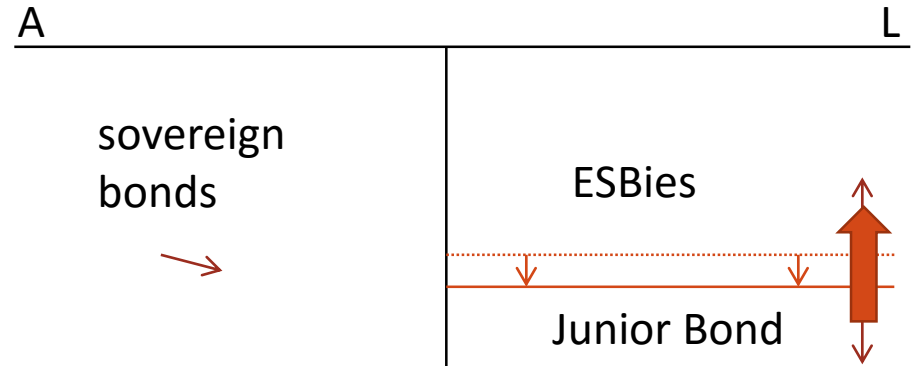
- Challenge: Need both
 - Safe asset to conduct redistributive MoPo
 - Insurance component in contingent debt (see e.g. Greece)

- ESBies structure



- 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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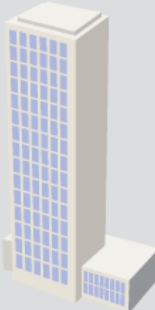


Actors:

Policy

Prudential Policy

Financial regulators



Monetary Policy

Central banks



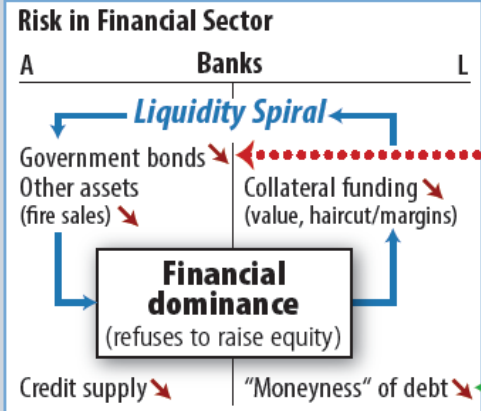
Fiscal Policy

Governments

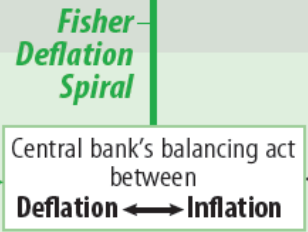


Three Stability Concepts:

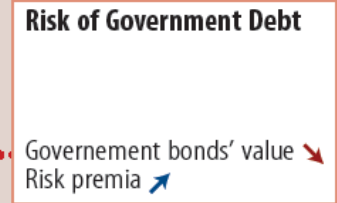
1. Financial Stability



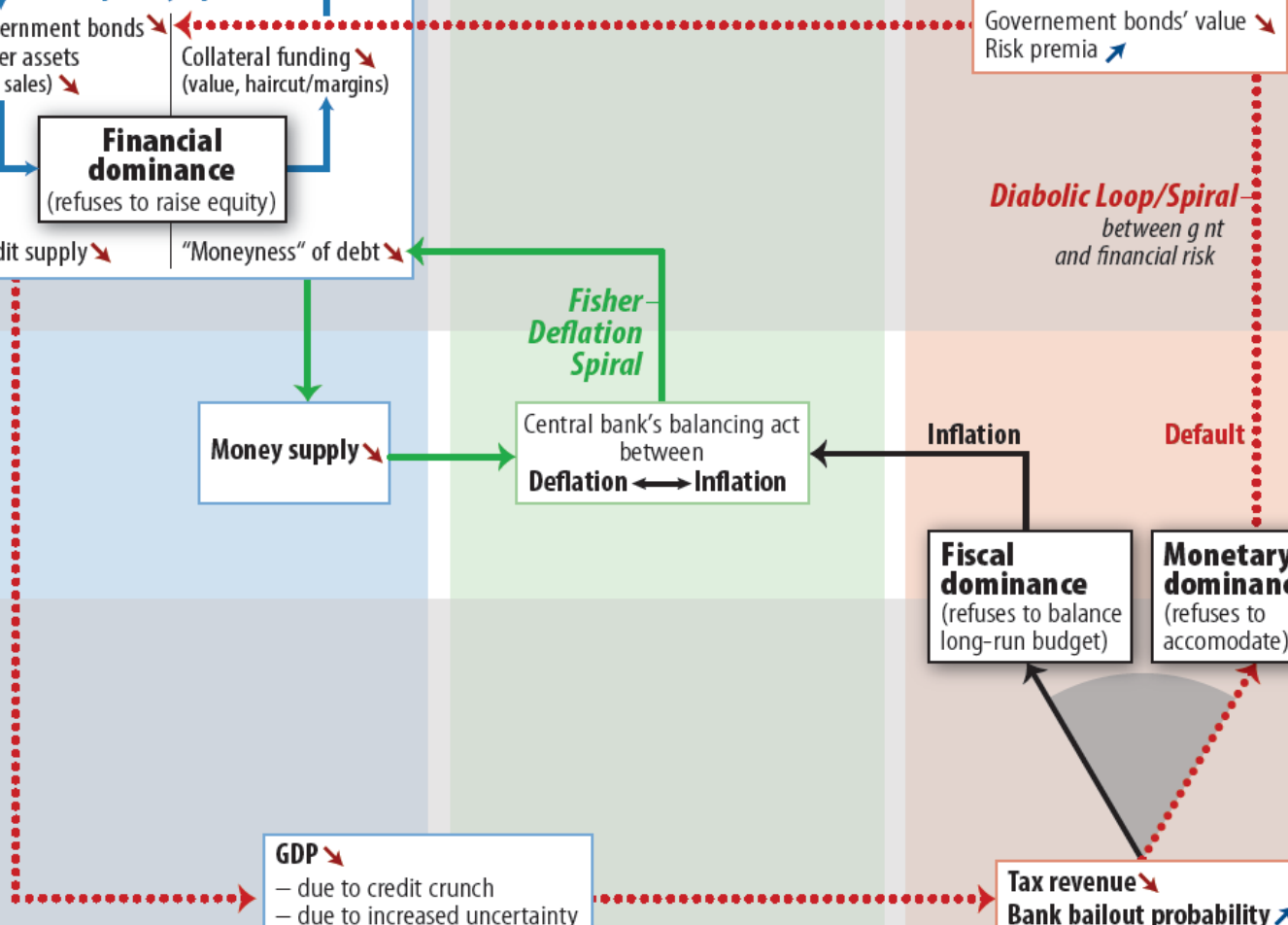
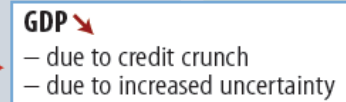
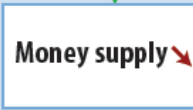
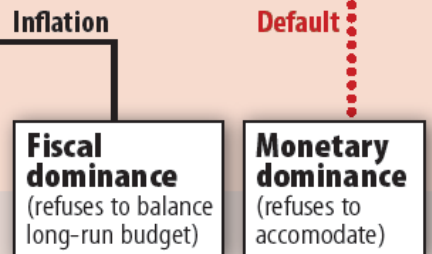
2. Price Stability



3. Debt Sustainability



Diabolic Loop/Spiral
between *g nt*
and financial risk



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