ESBies: Safety in the Tranches

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Outline

- Definitions of safe asset
- Rationale: Which policy issues would ESBies address?
- Simulation: How safe are ESBies?
  By how much does safe asset supply increase?
- Theory: Reduction in endogenous default probability, cross-country spillover risk?
- Implementation: Practical details

Definitions of Safe Asset

1. Safe = risk-free for a particular horizon
   - E.g. holders are infinitely risk aversion
   - … but inflation risk

   Caballero & Farhi

2. Safe = informationally insensitive
   - No decline in value due to asymmetric info

   Holmström & Gordon

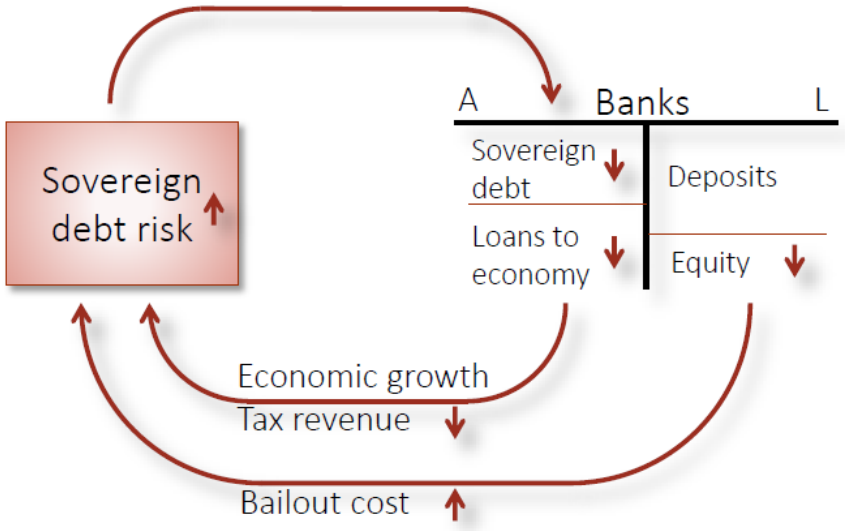
3. Safe = "Good friend analogy"
   - Safe for random horizon
   - Appreciates in times of crisis

   Brunnermeier & Haddad

   Safe = "Safe Asset Tautology"
   - Safe because perceived to be safe (multiple equilibria)
   - Bubble

1. Rationale: current challenges

1. Diabolic loop between sovereign & bank risk



- Can be avoided if banks hold a safe asset (not sensitive to sovereign risk)

2. Cross-border flight to safety

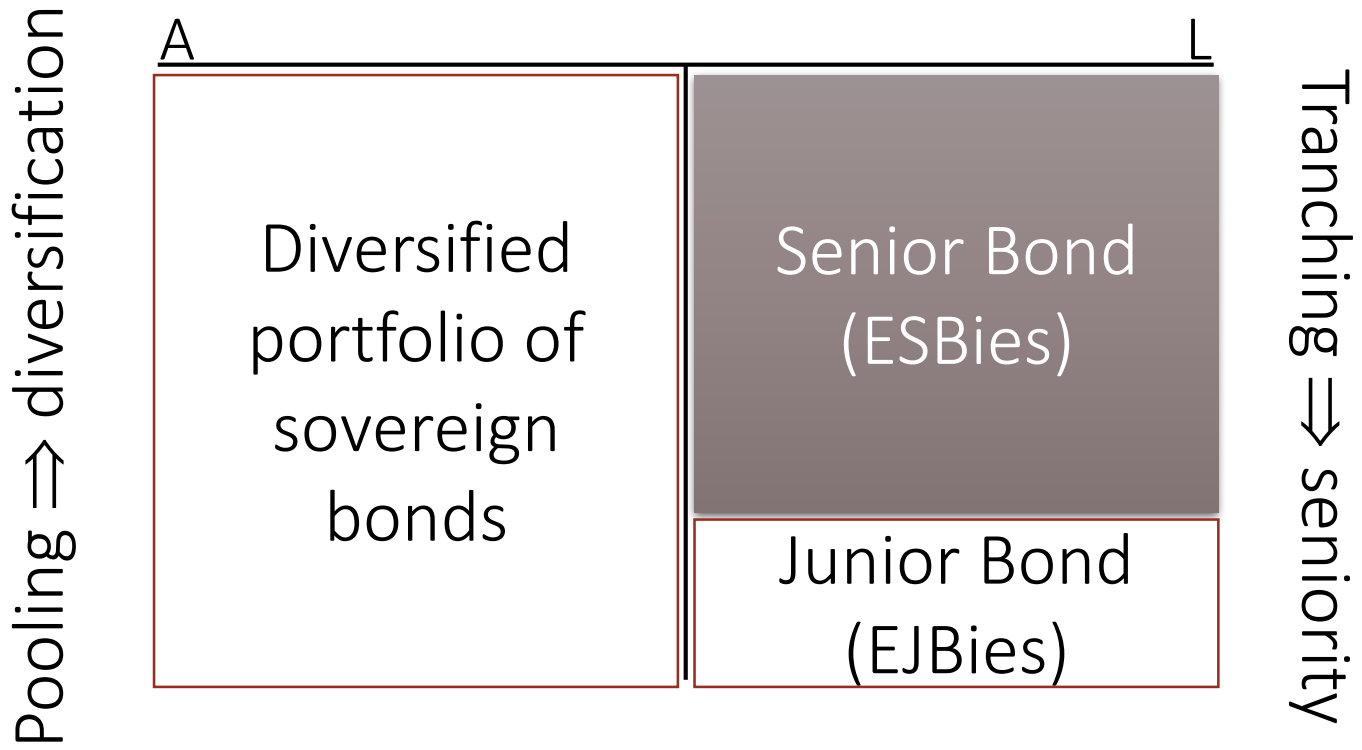
- Asymmetric supply & scarcity of safe asset

- Price of German debt ↑
- Price of Italian/Spanish/Greek debt ↓

Desiderata

- Union-wide safe asset in sufficiently large supply
  - Equally safe & liquid as the German Bund
  - All countries contribute to safe asset creation
    - As long as price signal of national debt is given
- No joint liability
- No EU treaty change
- Other features:
  - Monetary policy tool
  - Euro-area risk-free benchmark yield curve
- No downside risk: costless return to status quo

ESBies



- Proposed by Euronomics (2011)
  - Brunnermeier, Garicano, Lane, Pagano, Reis, Santos, Van Nieuwerburgh & Vayanos

Some details

- Each country continues to issue its sovereign debt
  - All debt must be placed in market, like it is today,
  - Price signal
- No joint liability – no debt mutualization
- Portfolio share = GDP weight in euro area
- Limited to 60% of GDP
  - Start small

2. Simulation scenarios

- Benchmark scenario
  - Stage 1: macro states
    - 5% crisis state
    - 25% mild recession
    - 70% good state
  - Stage 2:
    - Default probabilities calibrated on credit ratings & CDS spreads

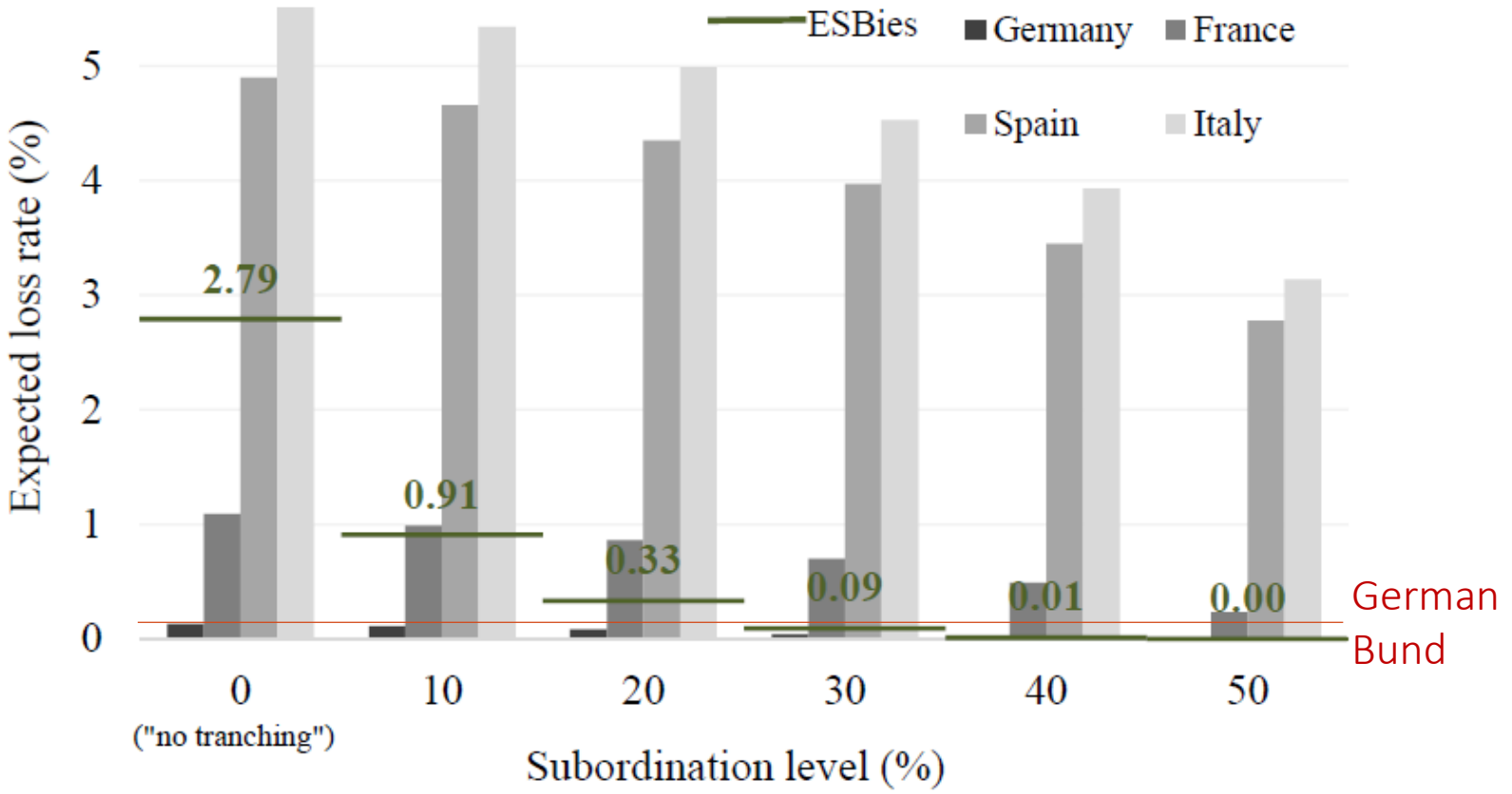
Table 1: Simulation inputs

	(1) Rating	(2) Debt/GDP	(3) Weight	(4) pd1	(5) pd2	(6) pd3	(7) lgd1
Germany	1	71	28.16	5	0.5	0	40
Netherlands	1	65	6.61	10	1	0	40
Luxembourg	1	21	0.18	10	1	0	40
Austria	1.5	86	3.21	15	2	0	45
Finland	1.5	63	2.02	15	2	0	45
France	3	96	21.25	25	3	0.05	60
Belgium	3.5	106	3.93	30	4	0.1	62.5
Estonia	4.5	10	0.03	35	5	0.1	67.5
Slovakia	5	53	0.66	35	6	0.1	70
Ireland	6.5	94	1.80	40	6	0.12	75
Latvia	7	36	0.17	50	10	0.3	75
Lithuania	7	43	0.25	50	10	0.3	75
Malta	7.5	64	0.07	55	11	0.4	78
Slovenia	9	83	0.37	60	15	0.4	80
Spain	9	99	10.77	60	15	0.4	80
Italy	9.5	133	16.52	65	18	0.5	80
Portugal	12	129	1.77	70	30	2.5	85
Cyprus	13.5	109	0.19	75	40	10	87.5
Greece	19	177	2.01	95	75	45	95
Average	4.58	91		31.30	8.07	1.12	59.47

- Compare status quo with
  - (i) pure pooling, (ii) country-level tranching, and (iii) ESBies ("pooling & tranching")

5-year expected loss rates: status quo

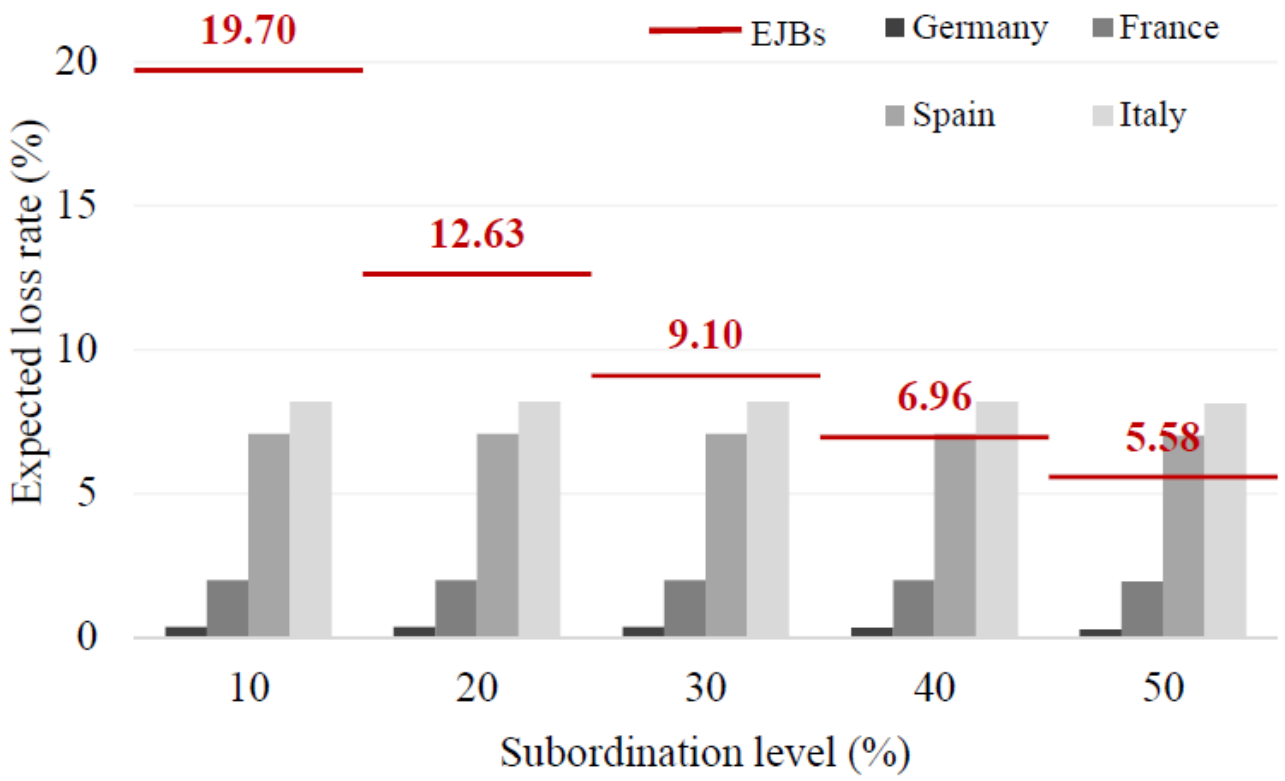
Figure 5: Senior tranches' five-year expected loss rates by subordination level



ESBies benefit from tranching more than national sovereign debt

5-year expected loss rates: junior tranches

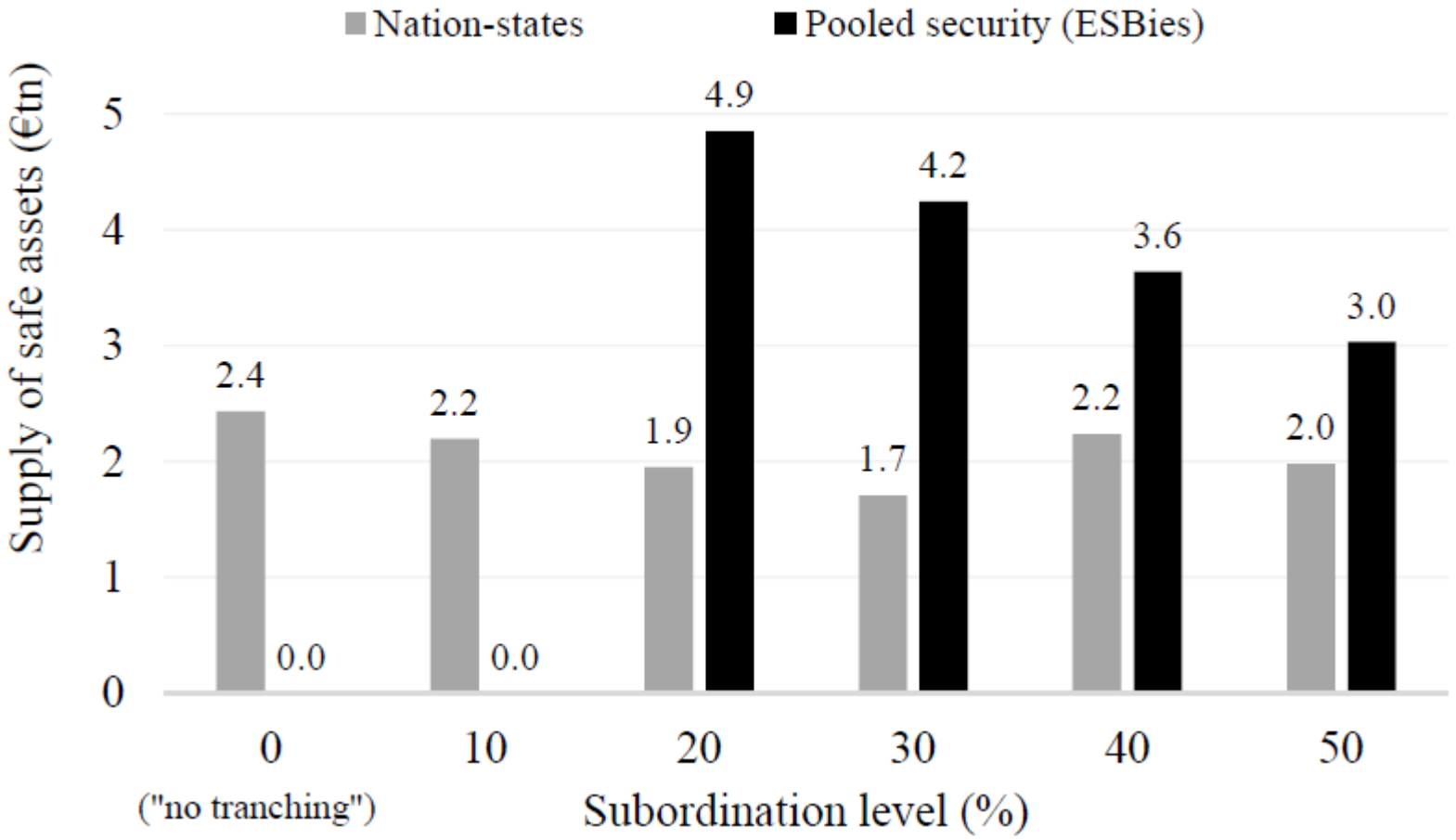
Figure 7: Junior tranches' five-year expected loss rates by subordination level



- Compares with Portugal (8.97%), basket of IT, PT, CY, GR (9.32%)

Supply of safety assets: national tranching vs. ESBies

Figure 6: Supply of safe assets



Robustness

- Adverse scenario where contagion scenarios increase degree of cross-country correlation in default rates
  - And a scenario with even more extreme contagion
- More frequent deep recessions (10% instead of 5%)
- Higher probability of default (15% higher)
- Higher losses given default (15% higher)
- Stress test: all countries with credit rating of
  - Belgium or worse default (SI, ES, IT, PT, CY, GR)

→ 30% subordination keeps ESBies safe in all scenarios

3. Can ESBies weaken the diabolic loop?

- So far, MM neutrality
  - ESBies just reallocate risk, do not reduce it
  - In the simulations all correlations were taken as given

- ~~MM~~ doesn't hold in model with endogenous risk
  (ESBies do more than simply repackaging)
  - Endogenous risk due to diabolic loop
    - Sunspot triggers doubt in government debt ➡ hurts banks ➡ forces bailout
  - If banks hold ESBies instead of national government debt
    ➡ diabolic loop less likely
  - Default probability may decline
  - Cross-country correlation
    - Contagion cost
    - Diversification benefit

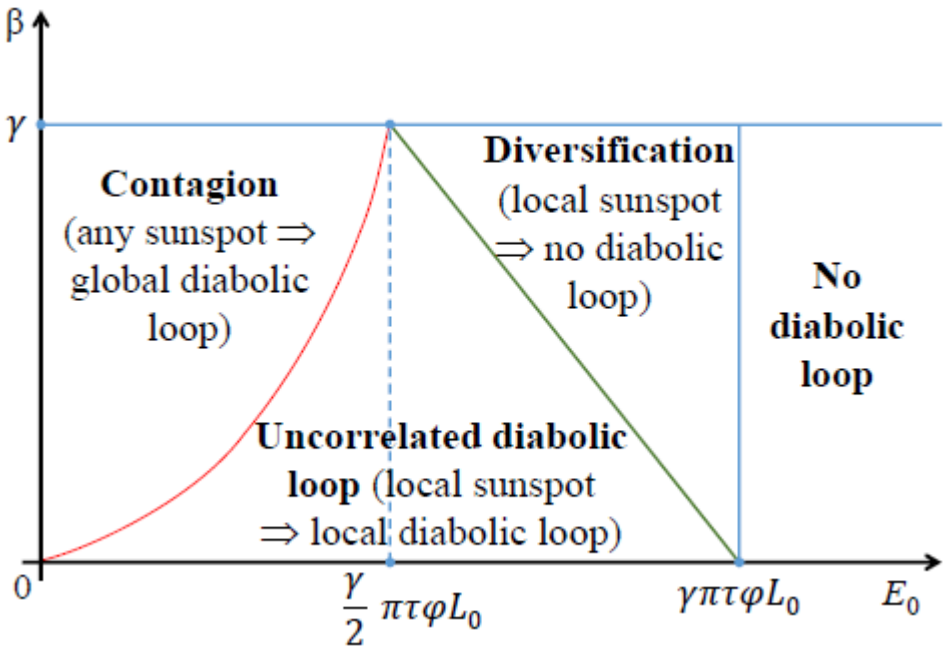
Diabolic loop with 2 countries

- 2 symmetric countries,
  sunspots with independent probability *p*
- In each country, banks hold $\alpha \underline{S}$ domestic sovereign debt and $\beta \underline{S}$ of a pooled security formed by a 50-50 mix of the two sovereign bonds: total sovereign portfolio held by banks is $\gamma \underline{S} = (\alpha + \beta)\, \underline{S}$
- Raising β has two opposite effects:
  - *diversification* effect
  - *contagion* effect

Contagion cost vs. diversification benefit

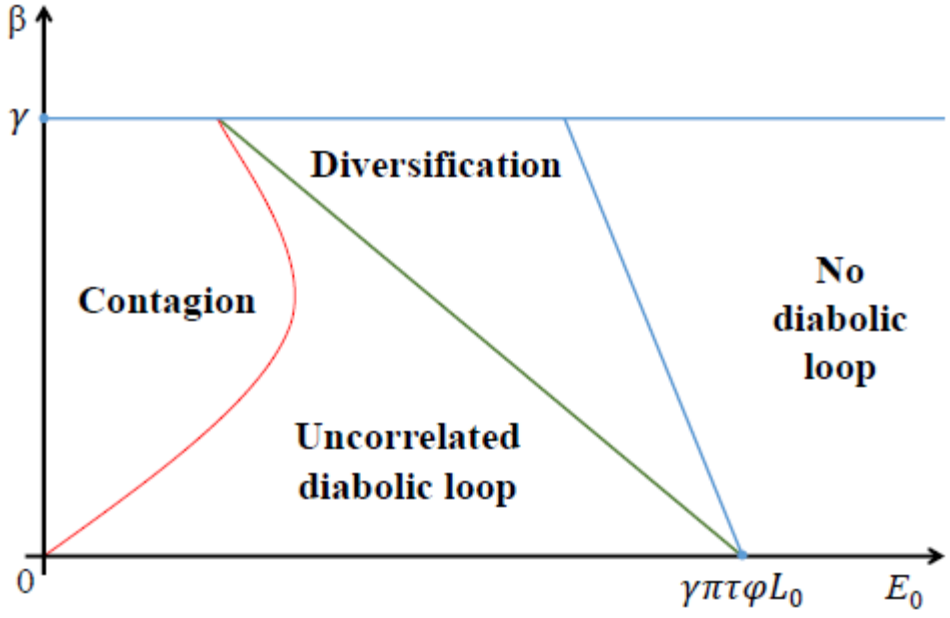
- β = degree of "international diversification" of bank sovereign portfolios (vertical axis)
- E_0= bank equity on (horizontal axis)

- No tranching (only pooling)

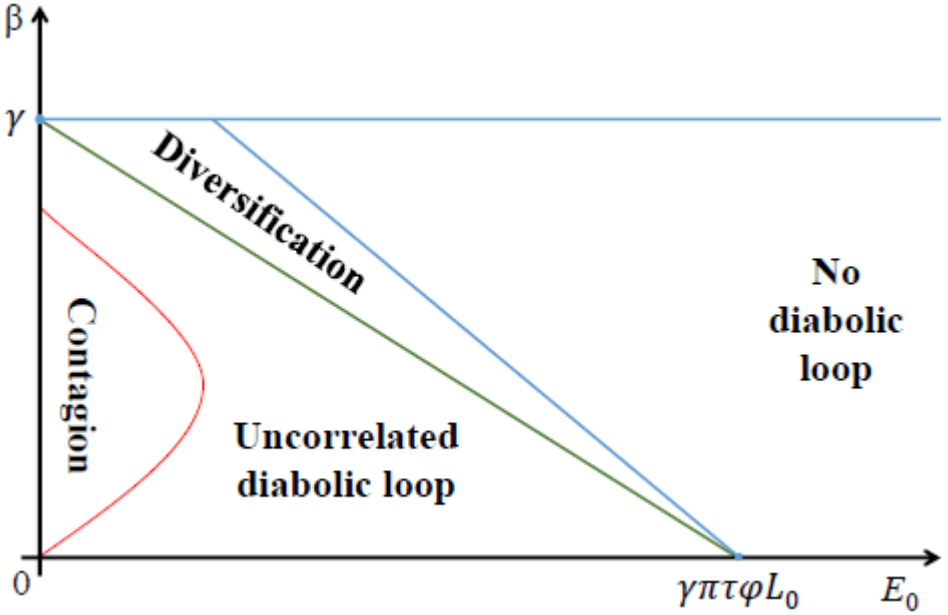


ESBies: Pooling and Tranching

- Low tranching point:



- High tranching point:



Intuition: tranching shifts default risk to junior bond holders outside of the banking sector

Note: in region with no diabolic loop, also EJBs are safe!

4. Implementation

- Regulations: sovereign debt risk weights
  - Current battle between periphery and core
- "ESBies Handbook"
  - Standardization
  - Coordination (across DMOs)
- Who would issue ESBies and EJBies?
  - Private (many competing)
  - Public
  - Both
- Who would buy EJBies?
- Transition phase

… for more eco-philosophical differences

"French"

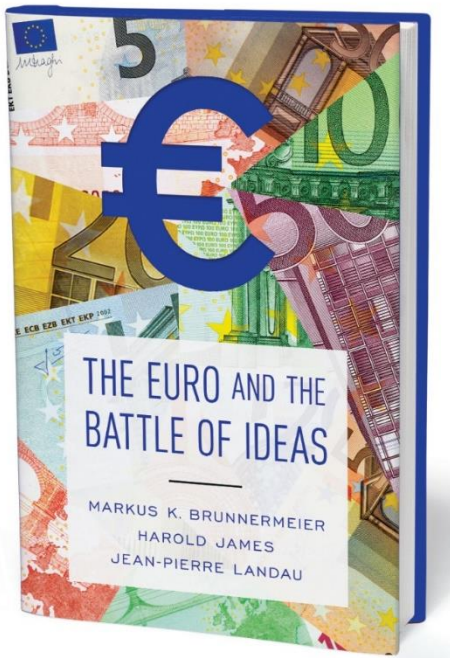
"German"

"Rhine-divide"

Book:
"The Euro and
the Battle of Ideas"

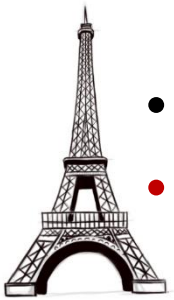
(with Harold James

Jean-Pierre Landau)



Gov. debt: safe versus contingent

- "French view"
  - Almost never default
    - Straitjacket commitment
  - ***No risk weights***
  - Banks as hostage
    - Default would destroy banks and economy



"Rhine-divide"

- "German view"
  - Default in tail events
    - "Safety valve"
  - ***Risk weights*** on risky s-debt
  - Banks as insurance providers

Deauville

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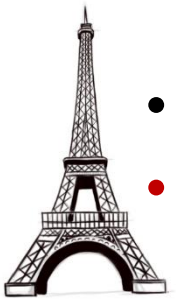

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➡ Lowers interest rate
- chance to get out of crisis,

- **Doubling up strategy**, but ..

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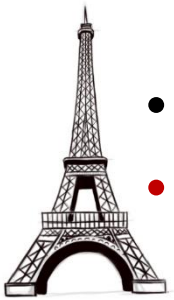

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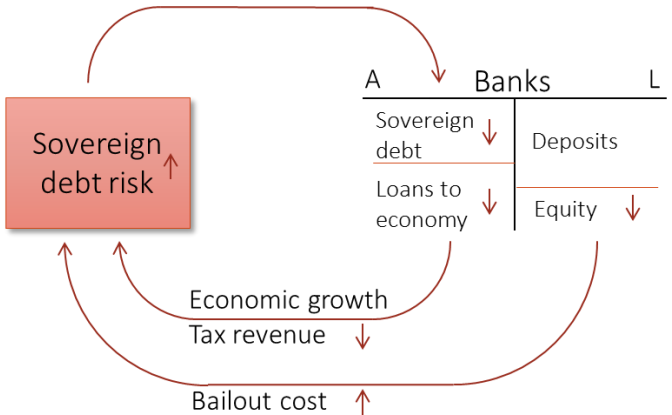
- chance to get out of crisis,

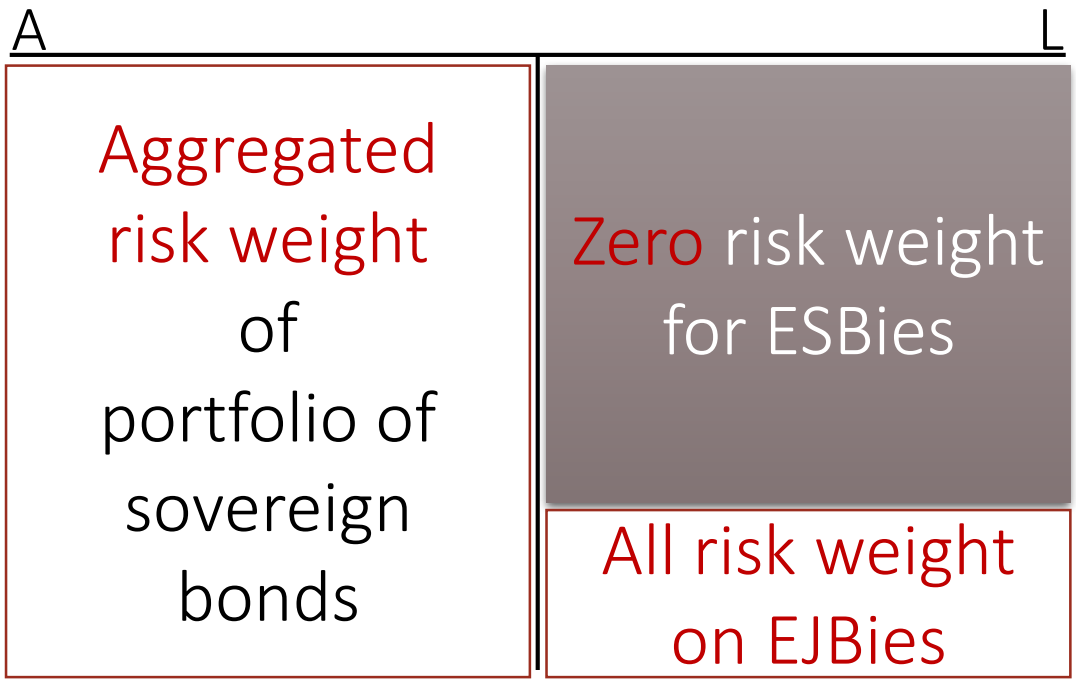
- **Doubling up strategy**, but ..
  - 2nd diabolic loop
    sovereign debt holdings increase
    ➡ less credit to real economy
    ➡ lower tax revenue



Regulation

- Risk weights for risk, but safe asset is needed
- Exposure limits disadvantage small countries
  - Diversify simply holding large countries' debt

- How to regulate ESBies? "Look through principle"



ESBies' Handbook

- Standardization of ESBies
  - Same subordination/tranching point
  - Same portfolio shares
    - GDP weight moving average (to avoid procyclicaclity)
    - k% rule to keep some sovereign debt afloat
  - No maturity mismatch or "time tranching"
- Coordination of national debt issuances (DMOs)
  - Issuance of similar maturity
    - to reduce maturity mismatch
  - Time of issuance (or frequent issuance)
    - to reduce warehousing risk and enable TBA securitization
  - No countries issues bonds senior to ESBies

➡ Reduce warehousing risk

- ESBies issuer can always buy on secondary market
  - To avoid being squeeze

ESBies issuer: public or private (or both)

- Public issuer:
  ESM, ECB/Eurosystem, EIB, … ?
  - Danger: ensure independence of political interference
  - Legal challenge
  - Lower fee
- Private issuer:
  - Arm's length relationship
    - important in times of sovereign debt restructuring
  - Competing ESBies issuers create market liquidity and help price discovery for national debt

Who would buy EJBies?

- Modigliani-Miller fails
  - EJBies are less risky than what simply “repacking” would imply
  - Less endogenous risk since diabolic (doom) loop is reduced

- Embedded leverage
  - Build sovereign portfolio and lever it up 70% debt, 30% equity
  - EJBies allow investor to borrow at the
    - Safe asset interest rate (of ESBies)
    - Big advantage!

ESBies governance during restructuring

- Temporary exclusion of
  - Program countries
  - Countries without reliable price discovery of sovereign debt

- ESBies issuer does not get votes (or veto power)
  - no concentration of power
  - Ensures arms length relationship

- Second "look through principle"
  - "votes" are distributed to ESBies and EJBies holders according to their share
  - Balance – conflict of interest
    - EJBies holders prefer to hold out (gamble for resurrection) more than ESBies holders

Transition phase: Introducing ESBies

- No downside risk – revert to square one
- Stage 1: Limited experimentation
  - Asset purchase in secondary market and only later in primary market
- Stage 2: Swap – auction mechanism
  - Submit multi-dimensional demand schedules & clear markets

$$\begin{pmatrix} x^{Bund} \\ x^{OAT} \\ x^{BTP} \\ \vdots \end{pmatrix} = f \begin{pmatrix} P^{Bund} \\ P^{OAT} \\ P^{BTP} \\ \vdots \end{pmatrix}$$

  - Like "bundle auctions" for spectrum rights
- Stage 3: phase in new regulatory risk weights
  - Some front-running by market is ok
- Role of the ECB
  - Conduct MoPo (esp. OMO) with ESBies
  - Haircut-rules for ESBies

Conclusions

- Key feature: exploit synergy of pooling and tranching
  - Pooling has diversification benefit but contagion cost
- For given PDs and LGDs, ESBies would
  - more than double the supply of euro safe assets
  - be at least as safe as German Bunds
- If banks hold ESBies instead of domestic sovereign debt
  - weaken the bank-sovereign diabolic loop
  - reduces cross country spillovers
- ESBies are feasible:
  - Politically (no mutualisation)
  - Technically