European Stability Mechanism

DANGEROUS LIAISONS? DEBT SUPPLY AND CONVENIENCE YIELD SPILLOVERS IN THE EURO AREA

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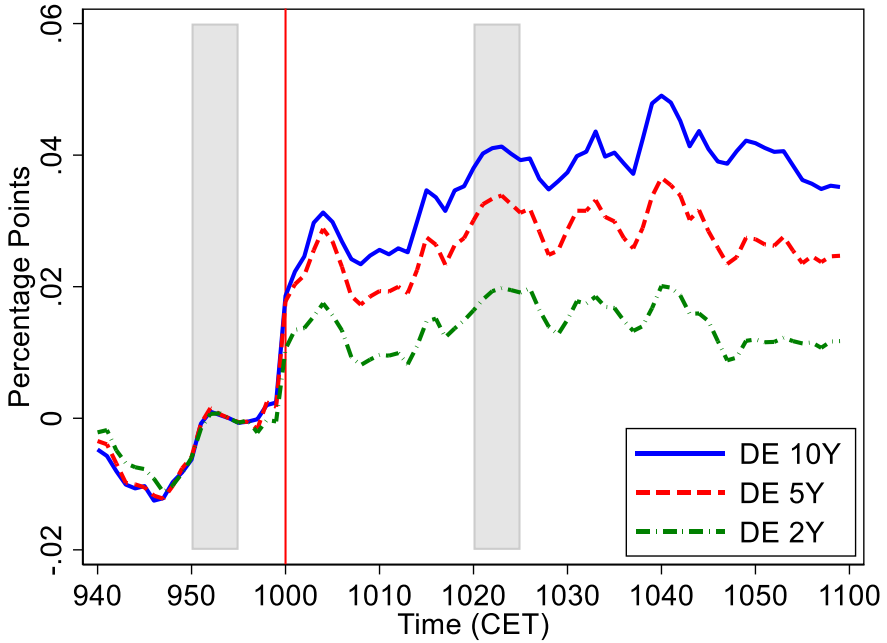
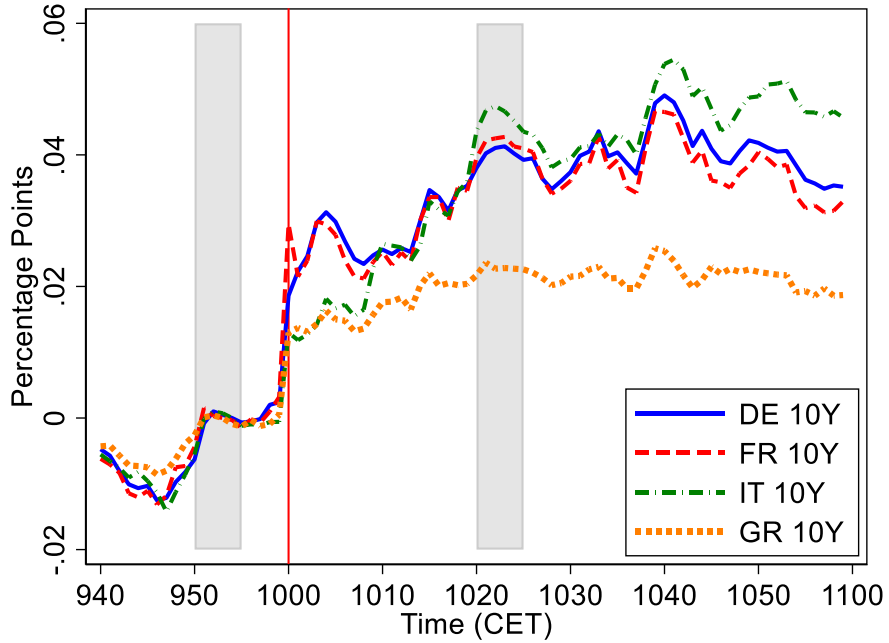
MOTIVATION – WHAT MATTERS FOR LOW SOVEREIGN YIELDS?

- Many sovereign bond yields are often below the risk-free rate + default risk premium
  - Recent and dynamic literature on this “convenience yield”-premium
- When a country issues more sovereign bonds, its convenience yield declines
  - Krishnamurthy & Vissing-Jorgensen 2012; Jiang, Lustig, Van Nieuwerburgh, Xiaolan 2022; Reis 2022
- But does a country’s convenience yield also change when another country issues more bonds?
  - If investors buy more bonds from one country, do they buy fewer bonds from others?
  - What issuer characteristics determine these spillovers (substitution effects)?

DEBT ISSUANCE SPILLOVERS – AN ILLUSTRATIVE EXAMPLE

- On 14 December 2022 at 10:00 CET, the German debt management office („Deutsche Finanzagentur”) published its debt issuance plan for 2023
- Market commentary suggests that the total amount exceeded expectations





Source: Bloomberg, ESM calculations

MAIN RESULTS: A NEW TYPE OF SPILLOVER

- Two main empirical findings about spillovers of safe-country debt supply shocks

  1) To other "safe"[1] countries: Convenience yields fall in "receiving" countries as much as in issuing countries, i.e., spillovers are one-to-one

  2) To "riskier"[2] countries: Convenience yields also fall, but spillovers are weaker (around 2/3)

- We explain these findings in a two-country model with heterogeneous default risk
  - All safe bonds are useful to hedge against recessions -> high substitutability
  - Risky bonds are particularly risky in recessions, hence not a good hedge -> low substitutability

[1] "Safe" countries include Germany, the Netherlands, France, Finland, Austria, and Belgium.
[2] "Risky" countries include Spain, Italy, and Portugal.

AGENDA

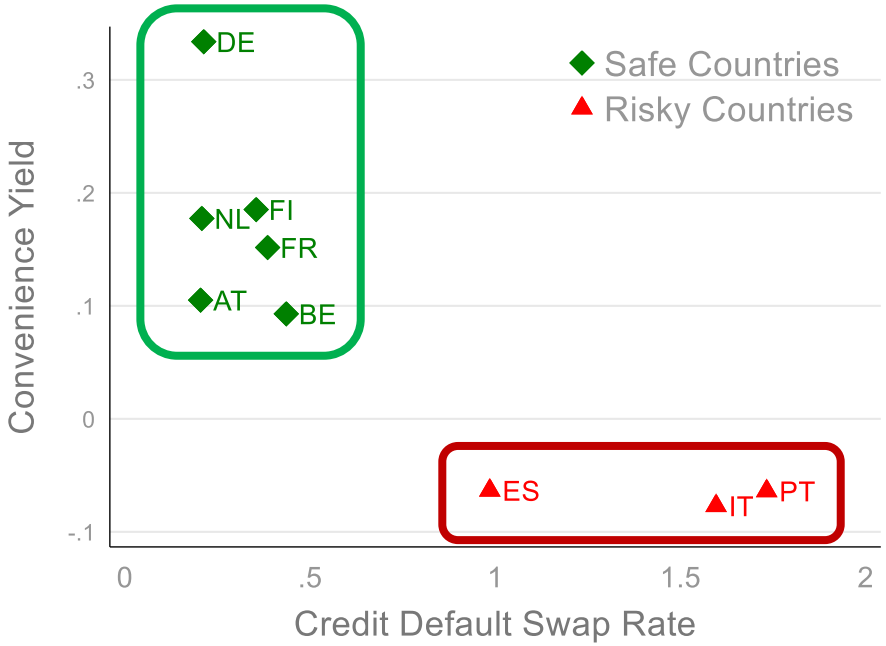
1. **Data & Empirical Strategy**
2. Empirical Results
3. Theoretical Rationalisation

DATA & DEFINITION : CONVENIENCE YIELDS IN EURO AREA

- Safe countries' bonds earn a premium for being reliably liquid, remain valuable in recessions, and are insulated from risk contagion effects
- Convenience yield definition (Jiang et al. 2020):

$$Y_t^i = R_t + \delta_t^i - CY_t^i$$

  - Y: simple (10-year) yield
  - R: risk-free rate reflected in *Overnight Index Swap* rates
  - δ: default risk premia reflected in *Credit Default Swap* rates
  - CY: convenience yield



Notes: This figure plots median 10-year convenience yields and median 10-year CDS rates for each country in the main data set. Sample period: 2009-2023.

CHALLENGES FOR ESTIMATING DEBT ISSUANCE SPILLOVERS

- Many euro area (convenience) yields are highly correlated, which could be due to…
  - Common shocks (e.g., monetary policy, global financial cycle, flight to safety)
  - Large spillovers of country-specific shocks

- To identify spillovers of debt issuance, we study yield co-movements around news about German debt issuance
  - Actual changes in bond supply are usually anticipated
  - Use high frequency changes (30-minute) around quarterly announcements about debt issuance of the German Debt Management Office (DMO) since 2011
  - Daily spillover estimates from an IV estimation (the IV is the 30-min yield jump)

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HIGH-FREQUENCY YIELD SPILLOVERS FROM GERMANY

- Response to a change in the German yield within a 30-minute window around news about German debt supply:
  - French (safe) yields co-move almost one-to-one
  - Italian and Spanish (riskier) yields co-move less
- What about convenience yields, daily changes, other countries?

TABLE 1: Intraday Yield Spillovers from Germany (Method 1: OLS)

	Safe Countries	*Risky Countries*	
	(1) ΔY_{FR}	(2) ΔY_{IT}	(3) ΔY_{ES}
ΔY_{DE}	0.88***	0.62***	0.51**
	(0.10)	(0.21)	(0.24)
Constant	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Observations	44	43	39
R^2	0.80	0.20	0.20

Notes: Each column displays coefficients from a separate regression: $\Delta Y_{Destination,t} = \beta_0 + \beta_1 * \Delta Y_{DE,t} + \epsilon_t$. *Standard errors are reported in parentheses.* $*\ p < 0.10,\ **\ p < 0.05,\ ***\ p < 0.01$.

CONVENIENCE YIELD SPILLOVERS FROM GERMANY

- Spillovers to safe countries are almost 1-for-1, but smaller and insignificant to riskier countries, unless credit default swap (CDS) rates are low

TABLE 2: Daily Convenience Yield Spillovers from Germany (Method 2: IV)

	Safe Countries						*Risky Countries*				
	(1) ΔCY_{FR}	(2) ΔCY_{NL}	(3) ΔCY_{FI}	(4) ΔCY_{AT}	(5) ΔCY_{BE}	(6) Pool	(7) ΔCY_{IT}	(8) ΔCY_{ES}	(9) ΔCY_{PT}	(10) Pool	(11) Pool
ΔCY_{DE}	0.92***	0.97***	1.19***	0.67***	1.14**		0.79	-0.43	1.62		
	(0.23)	(0.25)	(0.21)	(0.24)	(0.56)		(0.85)	(0.90)	(1.05)		
ΔCY_{DE}						0.98***				0.66	0.89***
						(0.22)				(0.65)	(0.25)
$\Delta CY_{DE} \times \mathbb{1}\{CDS_t > 1\}$											-0.48
											(1.19)
Constant	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	44	44	44	44	44	220	44	44	44	132	132

Notes: Columns (1)-(10) display coefficients from separate regressions: $\Delta CY_{Destination,t} = \beta_0 + \beta_1 * \Delta CY_{DE,t} + \epsilon_t$ *while column (11) is based on* $\Delta CY_{Destination,t} = \beta_0 + \beta_1 * \Delta CY_{DE,t} + \beta_2 * \Delta CY_{DE,t} * \mathbb{1}\{CDS_t > 1\} + \epsilon_t$. *Daily change in the German convenience yield is instrumented with the 30-minute yield change*

SIMILAR SPILLOVERS FROM FRENCH DEBT ISSUANCE

- Spillovers from France have similar pattern: almost 1-for-1 to other safe countries, but smaller to riskier countries (using heteroskedasticity-based Rigobon-Sack estimator)

TABLE 7: Convenience yield spillovers from French supply shocks using the RS estimator

	(1) ΔCY_{DE}	(2) ΔCY_{NL}	(3) ΔCY_{FI}	(4) ΔCY_{AT}	(5) ΔCY_{BE}	(6) ΔCY_{IT}	(7) ΔCY_{ES}	(8) ΔCY_{PT}
ΔCY_{FR}	1.259***	0.852**	0.772*	0.906***	0.949***	-0.192	0.735	1.664
	(0.388)	(0.350)	(0.430)	(0.272)	(0.307)	(0.542)	(0.636)	(4.142)
Constant	0.001	0.002	-0.001	-0.001	-0.001	0.003	0.003	0.017
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.006)	(0.005)	(0.018)
N	44	44	44	44	44	44	44	44
Weak IV	4.576	5.131	3.926	3.950	4.848	3.969	3.991	7.614
Overid.	0.235	0.755	0.482	0.455	0.743	0.830	0.793	0.236

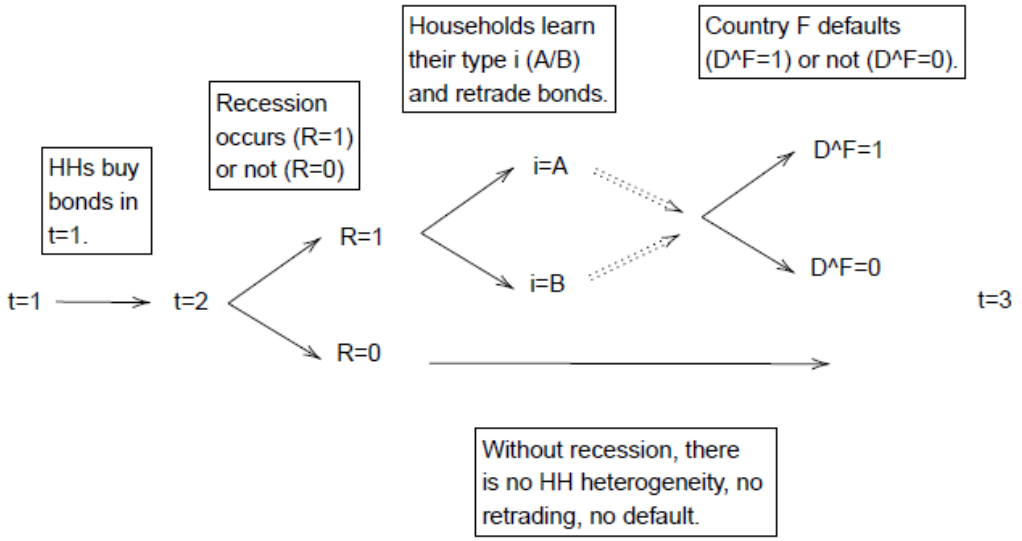
Notes: This table report coefficient estimates of equation $\Delta CY_{receiving} = \alpha + \beta \Delta CY_{FR} + \varepsilon$ *using the RS estimator described in Section 4.4. Each column corresponds to a different receiving country.*

AGENDA

1. Data & Empirical Strategy
2. Empirical Results
3. **Theoretical Rationalisation**

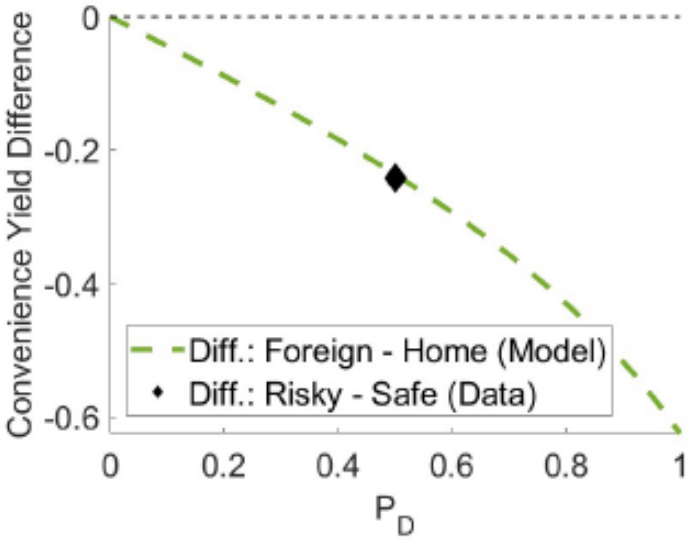
BRUNNERMEIER ET AL. (2024) WITH 2 COUNTRIES & DEFAULT

- 2 countries ("Home", "Foreign") issue bonds in t=1
  - Sovereign bonds are liquid, even in recessions
  - Foreign potentially defaults in t=3
- Ex-ante identical households buy bonds
  - Exogenous income, low and heterogeneous in recessions
  - => idiosyncratic income risk at t=2
- Convenience yields arise …
  - because of insurance value (bonds can be sold in recessions to alleviate income losses)
  - … but foreign bonds lose value in recession because default risk rises



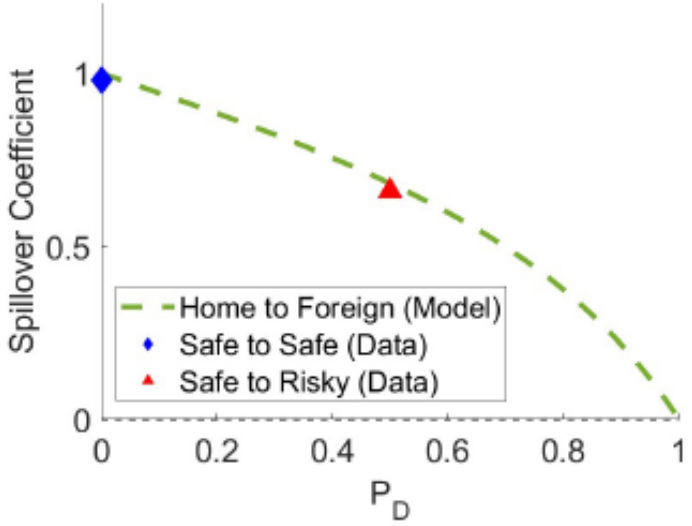
DEFAULT RISK REDUCES CONVENIENCE YIELD & SPILLOVERS

Proposition 1: Foreign convenience yield is smaller and differential increases with default risk (in foreign country)



(A) The Role of Default Risk

Proposition 3: In response to debt supply change in home, relative change in foreign convenience yield falls with default risk (in foreign country)



(B) Spillover Coefficient $(\Delta CY_F/\Delta CY_H)$

Intuition: When foreign default risk increases, foreign bond prices drop more in case of recession, hence they are less useful as insurance (Prop. 1) and less good substitutes for home bonds (Prop. 3)

SUMMARY & POLICY IMPLICATIONS

- Spillovers of safe-country debt issuance to (convenience) yields of other safe countries are one-for-one, but weaker for riskier countries
  - In line with stylised 2-country model of safe asset re-trading à la Brunnermeier et al. (2024)

- For maintaining high convenience yields (low sovereign yields) in the euro area …
  - … it matters **how much debt is issued in total**
  - … it matters **less who issues it** (Germany, France, …)

- This underscores the importance of coordinating national fiscal policies
  - Fiscal rules can address negative externalities of debt issuance

More information: Full Paper & VoxEU Column

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