

ECB FORUM ON CENTRAL BANKING

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Tsvetelina Nenova

London
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**GLOBAL OR REGIONAL
SAFE ASSETS:
EVIDENCE FROM BOND
SUBSTITUTION PATTERNS**



EUROPEAN CENTRAL BANK
EUROSYSTEM

Global or Regional Safe Assets: Evidence from Bond Substitution Patterns

Tsvetelina Nenova

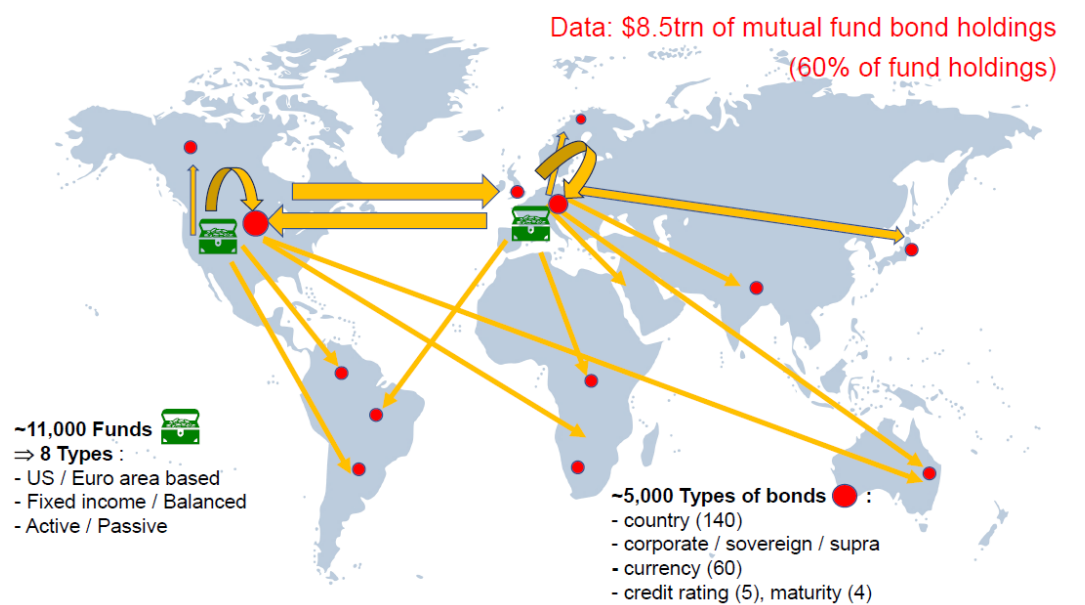
tneova@london.edu
https://sites.google.com/view/tsvetelinanenova

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Granular Look at Global Bond Markets

- Role of Global & Regional Safe Assets in International Monetary Policy Transmission
- New perspective: *demand elasticities* of international bond investors
 - *Own* elasticities → degree of portfolio rebalancing
 - *Substitution* elasticities → composition of portfolio rebalancing
 - Estimated at detailed bond level for ~57% of global debt securities
- Lessons:
 - Different Fed vs ECB *spillovers*: global (US Treasuries) vs regional safe assets (German Bunds)
 - Less substitution between safe and risky assets *during financial crises* → *QE less effective*

- Bond portfolios of US & Euro area mutual funds
 - 2007--2020 (*Morningstar + Refinitiv*)



Bond Demand Model & Elasticities

- Bond demand function captures funds' heterogeneous:
 - ✓ Portfolio return maximization
 - ✓ Risks: credit, duration, liquidity, country, FX
 - ✓ Mandates: geographic, asset type
 - ✓ Time-varying risk aversion
- Builds on Kojien & Yogo (2019, 2020): *flexible substitution patterns*
- Instruments for bond returns:
 - Fed & ECB shocks to different *maturities* spill over heterogeneously by bond *country, currency* (Miranda-Agrippino & Nenova, 2022)

Panel Logit demand functions (per fund type):

$$\log\left(\frac{w_{i,t}(n)}{w_{i,t}(0)}\right) = \alpha_{T(i)} \text{per}_{\chi(i),t}^h(n) + \mathbf{x}_t^1(n)' \beta_{T(i)}^1 + \mathbf{x}_t^2(n)' \beta_{T(i)}^2 + \mathbf{b}_i(n)' \theta_{T(i)} + \zeta_{i,t} + \varepsilon_{i,t}(n)$$

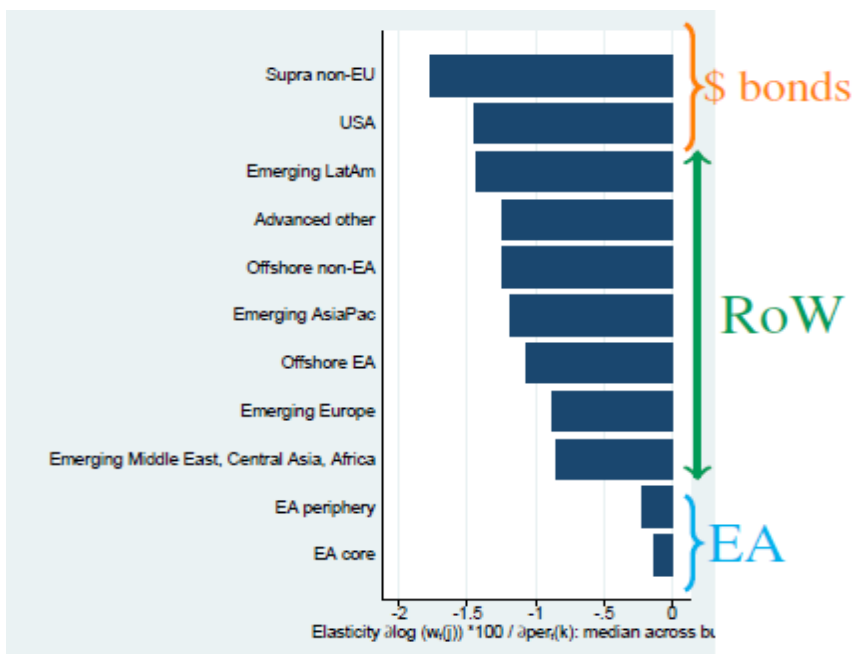
$w_{i,t}(n)$: portfolio weight of bond n , fund i , quarter t
 $w_{i,t}(0)$: portfolio weight of outside asset

Substitution elasticities:

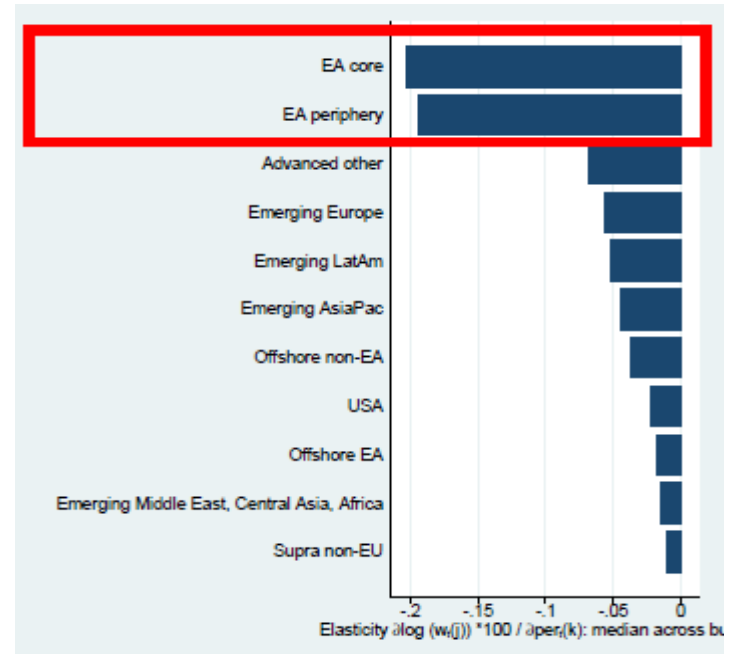
% change in weight of bond j in fund sector portfolio in response to 1ppt change in predicted excess return of bond k

$$\eta_t(j,k) \equiv \frac{\partial \log(w_t(j)) * 100}{\partial \text{per}_t(k)} = - \underbrace{\sum_i \frac{AUM_{i,t} w_{i,t}(j)}{\sum_i (AUM_{i,t} w_{i,t}(j))}}_{\text{fund } i \text{ footprint}} \underbrace{\hat{\alpha}_{T(i)}}_{\text{estimated return sensitivity}} \underbrace{w_{i,t}(k) * 100}_{\text{exposure to bond } k}$$

US Treasuries: Global Safe Asset Spillovers

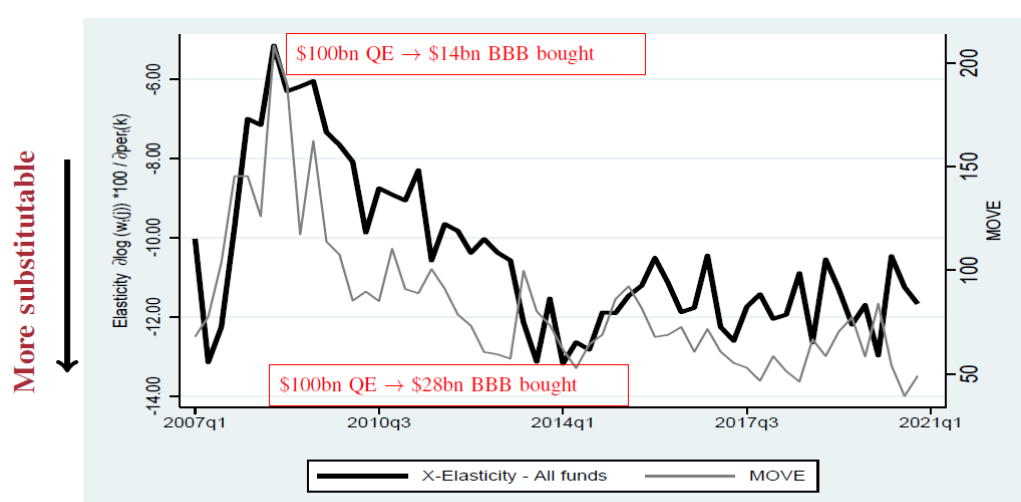


German Bunds: Regional Safe Asset Spillovers



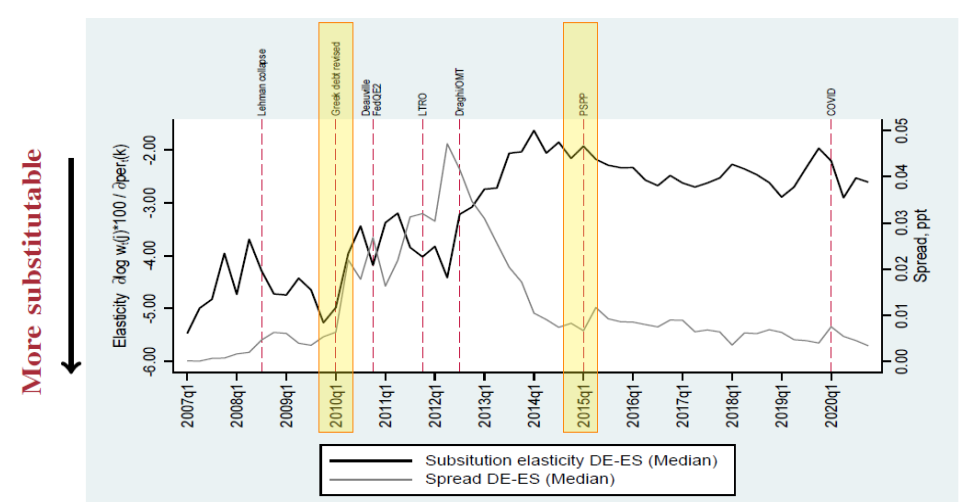
Flights to Safety Impair Monetary Policy Transmission

... between global safe and risky assets



Black line: Substitution elasticity of BBB-rated US corporate bonds with maturity of over 10 years w.r.t. 1ppt change in predicted excess returns on US Treasury with maturity over 10 years.

... within euro area sovereign bond market



Black line: Substitution elasticity of Spanish sovereign bonds w.r.t. 1ppt change in predicted excess returns on German sovereign bonds. Median of substitutions within all four maturity buckets (under 1y, 1-5y, 5-10y, over 10y).