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NYU | STERN

TESTING THE PORTFOLIO REBALANCING CHANNEL OF QUANTITATIVE EASING

EUROPEAN CENTRAL BANK

EUROSYSTEM

Testing the Portfolio Rebalancing Channel of Quantitative Easing

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The Portfolio Rebalancing Channel

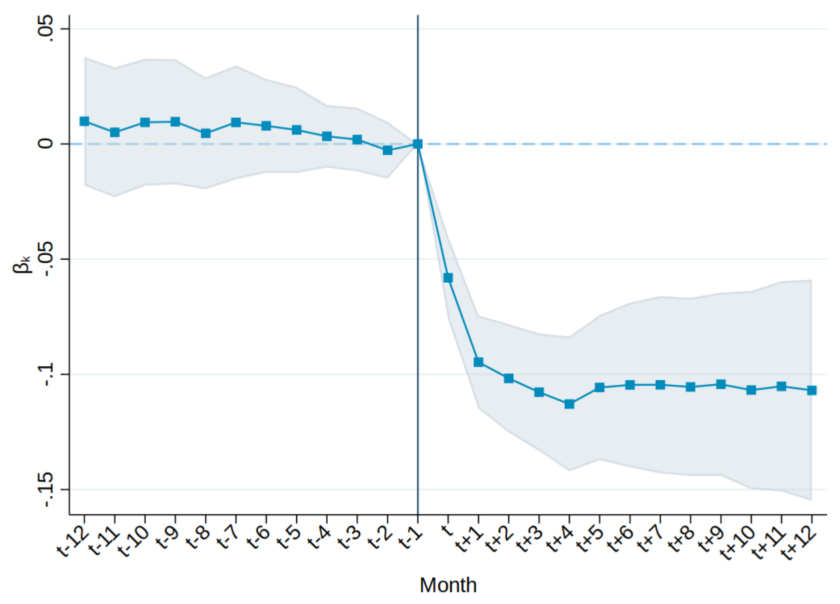
Central bank buys govt. bonds → Investors rebalance into corp. bonds → Corp. bonds' yields ↓ → Firms' cost of capital ↓ → Stimulates real economy

Question: Does QE lower firms' cost of capital via the portfolio rebalancing channel? If so, by how much?

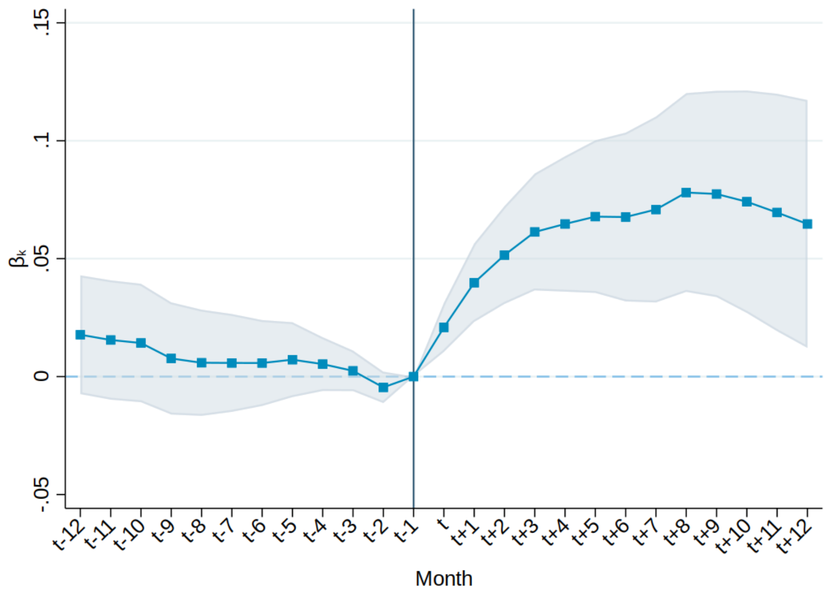
Empirical Strategy

1. Construct a novel QE shock that captures unexpected QE purchases of individual govt. bonds
2. Combine security-level QE shock with portfolio holdings data for mutual funds
3. Test the effect of experiencing a greater QE shock on a funds' rebalancing
   - Fund-level shock: $QEShock_{f,t} = \sum_i w_{i,f,t-1} \times QEShock_{i,t}$
4. Test the effect of rebalancing on corporate bond yields, issuance, and firm outcomes
   - Issuer-level shock: $QEShock_{i,t} = \sum_{f \in F} \frac{Holdings_{f,i,t-1}}{AmountOutstanding_{i,t-1}} \times QEShock_{f,t}$
5. Extend Vayanos-Vila model and calibrate using reduced form moments to obtain aggregate effect on yields

Investors Rebalance out of Government Bonds and into Corporate Bonds



Effect on Rebalancing in Treasurys the Fed Buys

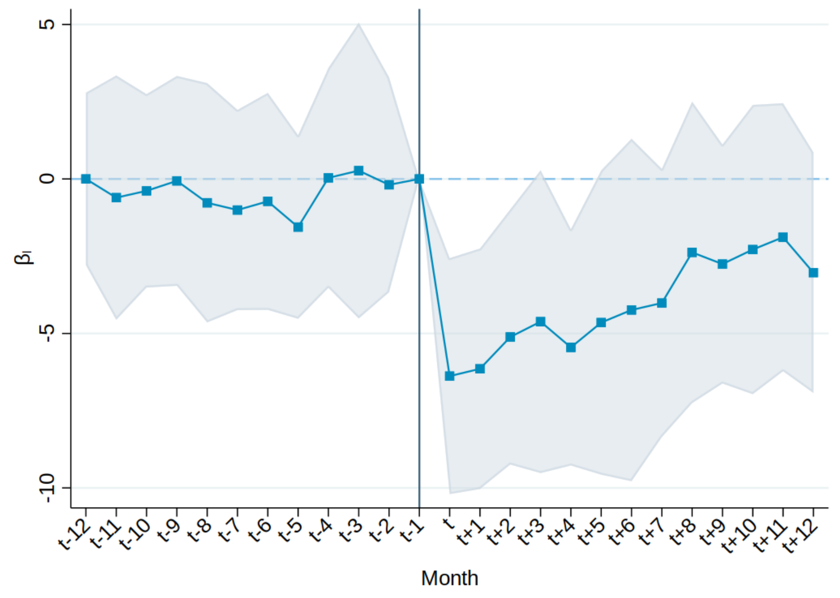


Effect on Rebalancing in Corporate Bonds

$$\Delta Holdings^{A}_{f,t-1\rightarrow t+\tau} = \sum_{\ell=-12}^{12} \beta_\ell QEShock_{f,t+\ell} + \gamma_\ell + \lambda_f + \lambda_t + \epsilon_{f,t,\tau}$$

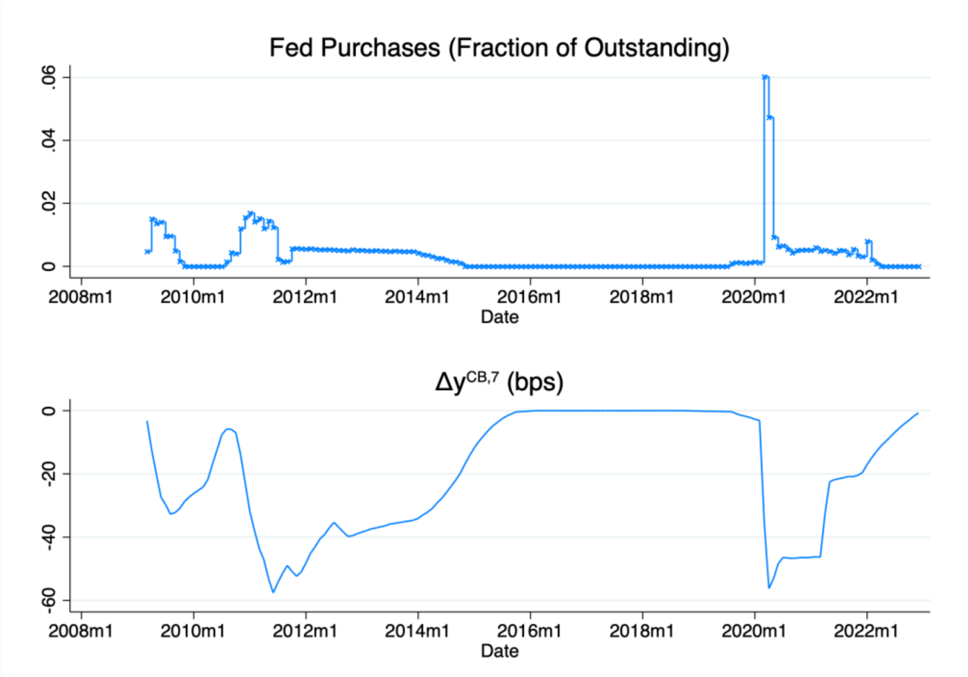
- Mutual funds rebalance ~60% of Treasury sale proceeds into corporate bonds
- More into corporate bonds of issuers they already own and of similar maturities to Fed-bought Treasurys

Rebalancing Lowers Corporate Bond Yields



Effect of Rebalancing on Yields of Issuers

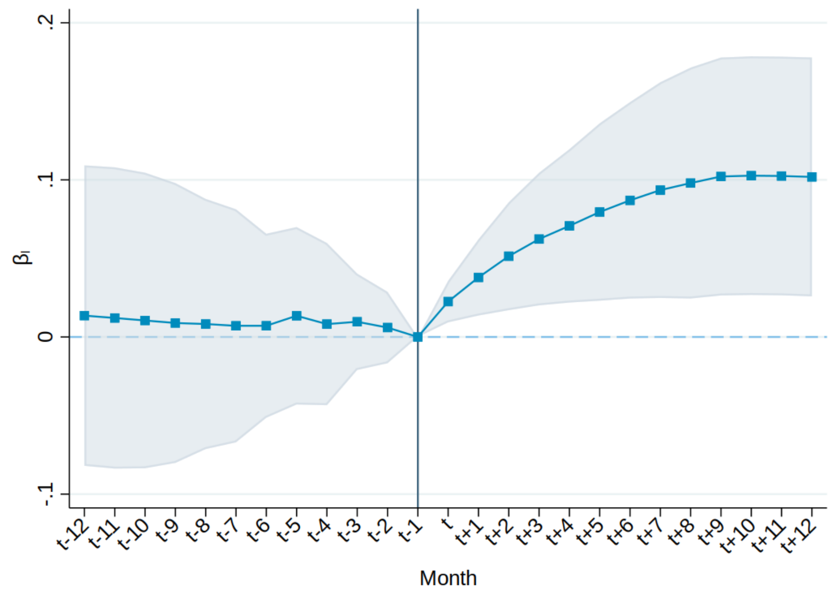
$$\Delta y_{b,t-1\rightarrow t+\tau} = \sum_{\ell=-12}^{12} \beta_\ell QEShock_{i(b),t+\ell} + \lambda_\ell + \lambda_b + \lambda_t + \epsilon_{b,t,\tau}$$



Aggregate Effect of Channel on all Corporate Yields

- \$100bn of Treasury QE lowers corporate bond yields by 8bps on impact

Firms Issue More Corporate Bonds and Invest More



Effect of Rebalancing on New Issuance

$$Issuance_{i,t-1\rightarrow t+\tau} = \sum_{\ell=-12}^{12} \beta_\ell QEShock_{i,t+\ell} + \lambda_\ell + \lambda_i + \lambda_t + \epsilon_{i,t,\tau}$$

	(1) CAPX	(2) CAPX & R&D	(3) Cash	(4) Cash & ST Inv.
$QEShock \times 1\{\tau = 4\}$	0.0383***	0.0405***	0.0508**	0.0693**
	(0.012)	(0.013)	(0.019)	(0.027)
R^2	0.337	0.162	0.301	0.332
N	185,122	185,122	185,122	185,122

Effect of Rebalancing on Firm Outcomes

$$y_{i,t-1\rightarrow t+\tau} = \sum_{\ell=-4}^{4} \beta_\ell QEShock_{i,t+\ell} + \lambda_\ell + \lambda_i + \lambda_t + \epsilon_{i,t,\tau}$$

- Firms facing greater rebalancing demand issue more bonds at lower yields
- Firms use the funds raised to increase their cash buffers (~2/3) and their investment (~1/3)