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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: $QEShock_{f,t} = \sum_i w_{f,t-1,i} \times QEShock_{i,t}$
4. Test the effect of rebalancing on corporate bond yields, issuance, and firm outcomes
   • Issuer-level shock: $QEShock_{i,t} = \sum_{h=1}^{12} \gamma_h \times QEShock_{f,t-1,h} \times \epsilon_{f,t}$
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

• 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 on Rebalancing on Yields of Issuers

Aggregate Effect of Channel on all Corporate Yields

$\Delta \text{H holdings}_{f,t-1,i+1} = \sum_{h=1}^{12} \beta_h \times QEShock_{f,t-1,h} \times \gamma_i \times \lambda_i + \lambda_i + \epsilon_{f,t}$

$\Delta \gamma_i \times (bp)$

$\text{Firms Issue More Corporate Bonds and Invest More}$

Effect of Rebalancing on New Issuance

<table>
<thead>
<tr>
<th>(1) CAPX</th>
<th>(2) CAPX &amp; R&amp;D</th>
<th>(3) Cash</th>
<th>(4) Cash &amp; ST Inv.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$QEShock \times 1(\tau &gt; 4)$</td>
<td>0.0483***</td>
<td>0.0410***</td>
<td>0.0065*</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.337</td>
<td>0.162</td>
<td>0.309</td>
</tr>
<tr>
<td>N</td>
<td>185,122</td>
<td>185,122</td>
<td>185,122</td>
</tr>
</tbody>
</table>

Effect of Rebalancing on Firm Outcomes

$\Delta \gamma_{f,t-1,i+1} = \sum_{h=1}^{12} \beta_h \times QEShock_{f,t-1,h} \times \lambda_i + \lambda_i + \alpha_i + \epsilon_{f,t}$

• 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)