The Equilibrium Real Rate in Advanced Economies:

Boston Federal Reserve Conference: What Are the Consequences of Long Spells of Low Interest Rates?
September 8, 2018

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## Now Vs November 2013

<table>
<thead>
<tr>
<th></th>
<th>Nov 2013 Expectations</th>
<th>Actual 2014-Present</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Budget Deficit, 2014-2020</strong></td>
<td>4.4 Trillion</td>
<td>5.0 Trillion</td>
</tr>
<tr>
<td><strong>Average Fed Funds Rate</strong></td>
<td>1.3%</td>
<td>0.6%</td>
</tr>
<tr>
<td><strong>Funds Rate August 2018</strong></td>
<td>3.16%</td>
<td>1.88%</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td>2.4%</td>
<td>2.4%</td>
</tr>
<tr>
<td><strong>PCE Core Inflation</strong></td>
<td>1.9%</td>
<td>1.6%</td>
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<tr>
<td><strong>Ten Year Interest Rate</strong></td>
<td>2.8%</td>
<td>2.3%</td>
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<tr>
<td><strong>Ten Year Real Rate</strong></td>
<td>0.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>Fed Neutral Rate</strong></td>
<td>4.0%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Sources: BEA, Bloomberg, Federal Reserve, CBO
Private Savings Has Outstripped Investment

Private sector saving-to-GDP and investment-to-GDP ratios in advanced economies

Sources: IMF; OECD; Rachel and Summers, The Equilibrium Real Interest Rate in Advanced Economies: The Role of Government Policies and Current Account Balances
Equilibrium Real Rate Has Declined Much More Than Growth

Sources: Rachel and Summers, The Equilibrium Real Interest Rate in Advanced Economies: The Role of Government Policies and Current Account Balances
Advanced Economies Rates Have Been Affected By Rising Debt Levels

Impact of government borrowing on the equilibrium rate in advanced economies

Note: Constructed using the panel of 17 advanced economies’ debt-to-GDP from the Jorda-Schularick-Taylor database. Assumes that an additional 1pp increase in the ratio of government debt to GDP raises interest rates by 3.5bp.

Sources: Rachel and Summers, The Equilibrium Real Interest Rate in Advanced Economies: The Role of Government Policies and Current Account Balances
Without Debt Effects Neutral Rates Would Be Decidedly Negative

Advanced economies $R^*$ adjusted for the impact of government debt

Sources: Rachel and Summers, The Equilibrium Real Interest Rate in Advanced Economies: The Role of Government Polices and Current Account Balances
The U.S. Experience is Fairly Typical

Impact of government borrowing on US interest rate

Note: The calculation underlying the deficit line assumes that a 1pp increase in government deficit raises the interest rate by 35bps. The corresponding figure for debt is 3.5bps. Both figures are meant to represent the consensus in the literature discussed above.

Sources: Rachel and Summers, The Equilibrium Real Interest Rate in Advanced Economies: The Role of Government Polices and Current Account Balances
Growth in Government Debt and Paygo Pensions

Sources: Jorda et al (2016b); World Bank; OECD; Rachel and Summers, The Equilibrium Real Interest Rate in Advanced Economies: The Role of Government Policies and Current Account Balances
Theoretical and Empirical Decline in AER In Synch

Changes in the equilibrium real interest rate as a result of policy, demographic and technological shifts

Sources: Rachel and Summers, The Equilibrium Real Interest Rate in Advanced Economies: The Role of Government Policies and Current Account Balances