Is the long-term interest rate a policy victim, a policy variable or a policy lodestar?

Philip Turner*

“The yield curve and new developments in macro-finance: what have we learnt from the 2007-2010 financial crises?”

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A SYNOPSIS*

1. The real long-term interest rate – a widely used guide to many policy choices – has become a policy victim. It has been contaminated by many different government policies ... not mainly by monetary policy ease but rather by policies related to the investment of forex reserves, new financial sector regulation and accounting rules.

2. Huge rise in government debt and government-guaranteed mortgage debt in the past 4 years will ultimately increase uncertainty about future interest rates – and may raise the real long-term interest rate.

3. As asset substitutability along the maturity spectrum falls, central bank balance sheet policies and government debt management choices become more effective macroeconomic tools ... the long-term rate becomes a policy variable. This will require policy coordination between central banks and government debt managers.

4. The long-term rate cannot be a reliable guide to policy if these distortions cannot be quantified.

5. Greater volatility in the long-term rate could threaten financial stability and create awkward dilemmas for monetary policy.

Ten-year Treasury Inflation Indexed zero coupon yields (TIPS); prior to 1999, return on ten-year zero coupon bond deflated by centered three-year moving average of core PCE inflation. The horizontal line indicates the 1986–2000 average of the 10-year US inflation-linked yield (4.26%). The average of the Fed funds rate over that period was 5.82%, shown on the left-hand scale.

Source: National data; BIS calculations.
<table>
<thead>
<tr>
<th>Term</th>
<th>Fed funds</th>
<th>3-month T-bill</th>
<th>10-year nominal yield</th>
<th>10-year real yield</th>
<th>Term premium&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965.1 to 1978.9</td>
<td>0.45</td>
<td>0.37</td>
<td>0.19</td>
<td>na</td>
<td>0.33</td>
</tr>
<tr>
<td>1981.1 to 1998.12</td>
<td>0.24</td>
<td>0.20</td>
<td>0.25</td>
<td>0.25</td>
<td>0.23</td>
</tr>
<tr>
<td>1999.1 to 2011.8</td>
<td>0.20</td>
<td>0.21</td>
<td>0.24</td>
<td>0.20</td>
<td>0.28</td>
</tr>
</tbody>
</table>

<sup>1</sup> 10-year nominal yield less 3-month Treasury bill rate.

Note: Standard deviation of the first differences (ie $R_t - R_{t-1}$) of the monthly averages of daily observations of interest rates measured in percentage points.
Graph 2

OUTSTANDING DEBT OF DOMESTIC US NONFINANCIAL BORROWERS

As a percentage of GDP

- TOTAL NONFINANCIAL
- Federal government
- State and local governments
- Nonfinancial corporate business
- Other nonfinancial business
- Households

Sources: Board of Governors of the Federal Reserve.
Graph 3
LIGHTENING THE INTEREST EXPENSE OF HEAVY DEBT

- Total nonfinancial debt, %GDP (rhs)
- Real long-term Treasury yields\(^1\) (lhs)
- Interest expenses, %GDP (lhs)

\(^1\) Four-year moving average, shown at end

Sources: Board of Governors of the Federal Reserve.
Graph 4

NET INTEREST PAYMENTS AS % OF US FEDERAL DEBT

Graph 5

INCENTIVES FOR INTEREST RATE CARRY TRADES

1 Ten-year swap rate minus three-month money market rate, in basis points.  2 Defined as the differential between 10-year swap rate and three-month money market rate divided by the three-month/10-year swaption implied volatility.

Sources: Bloomberg; BIS calculations.
Graph 6
THE GLOBAL PROPENSITY TO SAVE
As a percentage of GDP

Marginal propensity to save¹
Average propensity to save

¹ Calculated over 7 years.
Sources: IMF World Economic Outlook; World Bank World Development Indicators.
Graph 7
THE PROPENSITY TO SAVE IN DEVELOPING ASIA
As a percentage of GDP

1 Calculated over 7 years.
Sources: IMF World Economic Outlook; World Bank World Development Indicators.
Graph 8
GROSS CAPITAL FLOWS TO DEVELOPING ASIA¹
In billions of US dollars

¹ Sum of direct investment, portfolio investment and BIS reporting banks loans to China, Chinese Taipei, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand. Actual quarterly rates.

Sources: IMF International Finance Statistics; BIS Locational banking statistics by residence.
Graph 9

ISSUANCE OF AAA-rated SECURITIES
In billions of US dollars

Sovereign and international institutions
Asset-backed securities¹
Mortgage institutions, public sector banks etc.
Other financial institutions
Corporate

¹ ABS, MBS and covered bonds.

Sources: Dealogic; BIS calculations.
<table>
<thead>
<tr>
<th></th>
<th>2000-05²</th>
<th>2006</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>US agencies³</td>
<td>1057</td>
<td>567</td>
<td>996</td>
<td>985</td>
<td>1185</td>
</tr>
<tr>
<td>Europe and Japan</td>
<td>27</td>
<td>6</td>
<td>1</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1083</td>
<td>573</td>
<td>997</td>
<td>993</td>
<td>1186</td>
</tr>
</tbody>
</table>

¹ As shown in Graph 9. ² At average annual rate. ³ Fannie Mae, Freddie Mac and the Federal Home Loan Banks
<table>
<thead>
<tr>
<th></th>
<th>Sovereign(^1)</th>
<th>ABS(^2)</th>
<th>Mortgage institutions(^3)</th>
<th>Other financial firms</th>
<th>Non-financial corporations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2</td>
<td>38</td>
<td>7</td>
<td>42</td>
<td>20</td>
</tr>
<tr>
<td>2005</td>
<td>4</td>
<td>59</td>
<td>15</td>
<td>29</td>
<td>12</td>
</tr>
<tr>
<td>2010</td>
<td>2</td>
<td>38</td>
<td>16</td>
<td>23</td>
<td>14</td>
</tr>
</tbody>
</table>

\(^1\) Includes international institutions.  
\(^2\) Asset-backed securities including MBS and covered bonds.  
\(^3\) Mainly the US agencies – Fannie Mae, Freddie Mac and the Federal Home Loan banks.

Source: Dealogic, BIS calculations.
Graph 10

ISSUANCE OF AAA-rated SECURITIES: FIXED-RATE

In billions of US dollars

Sources: DealLogic; BIS calculations.

1 ABS, MBS and covered bonds.
Graph 11

ISSUANCE OF AA-rated SECURITIES

In billions of US dollars

Sources: Dealogic; BIS calculations.

1 ABS, MBS and covered bonds.
Graph 12
MATURITY OF US GOVERNMENT BONDS

Average maturity of issuance\(^1,2\)
Average maturity of marketable debt outstanding\(^2\)
Fed funds rate (lhs)\(^3\)

\(^1\) average; shown at the end.
\(^2\) In months.
\(^3\) In per cent.

\(n\): US Treasury.
### Table 4
Composition of marketable US Federal government debt held by the public

$ billion

<table>
<thead>
<tr>
<th>End of fiscal year (Sept)</th>
<th>Marketable securities (≤ 1 year)</th>
<th>Marketable securities (&gt; 1 year)</th>
<th>Currency &amp; Federal Reserve obligations</th>
<th>Total</th>
<th>Money, Federal Reserve obligations and short-term debt = (a+c) % d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td>1st 2 years of crisis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>955</td>
<td>3474</td>
<td>834</td>
<td>5263</td>
<td>34%</td>
</tr>
<tr>
<td>2009</td>
<td>1986</td>
<td>5002</td>
<td>1780</td>
<td>8768</td>
<td>42.9%</td>
</tr>
<tr>
<td></td>
<td>+1031</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+946</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd year of crisis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010¹</td>
<td>1784</td>
<td>6692</td>
<td>1896</td>
<td>10419</td>
<td>35.5%</td>
</tr>
<tr>
<td></td>
<td>−202</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+163</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latest QE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011 June</td>
<td>1529</td>
<td>7785</td>
<td>2659</td>
<td>11973</td>
<td>35%</td>
</tr>
</tbody>
</table>

¹ Using Monthly Statement of the Public Debt of the United States; Federal Reserve Table H.4.1.
Sources: This is an update of that in Tobin (1963) using US Treasury Bulletin; Federal Reserve Flow-of-Funds.
## Table 5

**Activity in US Treasuries**

Change from 12 November to 30 June 2010

<table>
<thead>
<tr>
<th></th>
<th>$ billion</th>
<th>Average maturity (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Reserve’s portfolio</td>
<td>759</td>
<td>6.9</td>
</tr>
<tr>
<td>Stock of Treasury debt</td>
<td>1303</td>
<td>7.2</td>
</tr>
<tr>
<td>Treasury debt <em>minus</em> Fed’s holdings</td>
<td>544</td>
<td>7.8</td>
</tr>
</tbody>
</table>

Note: This is a summary of issuance of bonds with maturities of two-years or more.  
Source: FRBNY and US Treasury.