Hiking Rates in the Name of Financial Stability

Jan Hatzius
Chief Economist
Jan.Hatzius@gs.com
212-902-0394
1. Is there a Big Risk of a Damaging Bust?
   - no: No Response
   - yes: 2. Are Regulatory Tools Effective?
     - no: Unclear
     - yes: 3. Do Higher Rates Reduce Bust Risk?
       - no: Unclear
       - yes: 4. Is the Macroeconomy Ready?
         - no: Unclear
         - yes: Hike Rates
Estimating Bust Risk

• Probit model using quarterly data for 20 OECD countries for 1985-2013.
  
  Equity bust = real 20% yoy decline.
  Recessionary equity bust = equity bust + yoy real GDP decline
  Deeply recessionary equity bust = equity bust + yoy GDP decline of at least 2%
  
  Housing bust = real 5% yoy decline.
  Recessionary housing bust = housing bust + yoy real GDP decline
  Deeply recessionary housing bust = housing bust + yoy GDP decline of at least 2%
  
• Define an “alarm” as any quarter 5-9 quarters before a “bust” quarter.

• Look for economic and financial variables that correlate with an “alarm.”
Dating Busts and Alarms

US Real House Price Growth

- Alarm Quarters
- Initial Drop
- Bust Quarters

Source: OECD. Goldman Sachs Global Investment Research.
<table>
<thead>
<tr>
<th>5-8Q-ahead Alarm</th>
<th>Equity Busts</th>
<th>Housing Busts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>w/ Rec</td>
</tr>
<tr>
<td>Equity Price Growth</td>
<td>11.5</td>
<td>4.1</td>
</tr>
<tr>
<td>(real, 5y % change)</td>
<td>[8.6]**</td>
<td>[3.9]**</td>
</tr>
<tr>
<td>House Price Growth</td>
<td>3.2</td>
<td>2.1</td>
</tr>
<tr>
<td>(real, 5y % change)</td>
<td>[2.1]*</td>
<td>[1.7]</td>
</tr>
<tr>
<td>Credit/GDP</td>
<td>2.2</td>
<td>4.5</td>
</tr>
<tr>
<td>(priv. nonfin., 5y change)</td>
<td>[1.5]</td>
<td>[3.7]**</td>
</tr>
<tr>
<td>Investment/GDP</td>
<td>6.8</td>
<td>6.4</td>
</tr>
<tr>
<td>(GFCF, 5y change)</td>
<td>[4.1]**</td>
<td>[4.3]**</td>
</tr>
<tr>
<td>Current Account</td>
<td>-1.7</td>
<td>0.8</td>
</tr>
<tr>
<td>(% GDP, 1y mov.av.)</td>
<td>[-1.4]</td>
<td>[0.8]</td>
</tr>
<tr>
<td>Real GDP Growth</td>
<td>1.9</td>
<td>-1.1</td>
</tr>
<tr>
<td>(% yoy)</td>
<td>[1.5]</td>
<td>[-1.0]</td>
</tr>
<tr>
<td>Inflation</td>
<td>1.3</td>
<td>-0.3</td>
</tr>
<tr>
<td>(% yoy)</td>
<td>[1.1]</td>
<td>[-0.3]</td>
</tr>
<tr>
<td>Equity Volatility</td>
<td>4.8</td>
<td>-3.8</td>
</tr>
<tr>
<td>(realized, 1y mov.av.)</td>
<td>[4.3]**</td>
<td>[-3.4]**</td>
</tr>
</tbody>
</table>

Observations: 1908 1851 1848 1901 1869 1854
Pseudo R-squared: 0.10 0.05 0.07 0.11 0.17 0.19

Note: brackets denote z-statistics. * and ** denote significance at 5% and 1% level, respectively.
Source: Goldman Sachs Global Investment Research.
False Alarms Are a Big Issue

Share of False Positives when 75% of Crises are Correctly Predicted

Source: Goldman Sachs Global Investment Research.
Trading Off Type I vs. Type II Errors

Forecast Evaluation

Source: Goldman Sachs Global Investment Research.
Probability of a Housing Bust

5-9Q-Ahead Probability of Housing Busts in the US

- All
- With Recession
- With Deep Recession

Source: Goldman Sachs Global Investment Research.
Probability of an Equity Bust

5-9Q-Ahead Probability of Equity Busts in the US

- All
- With Recession
- With Deep Recession

Source: Goldman Sachs Global Investment Research.
Equity Bust Risk Index

5-9Q-Ahead Risk Index of Equity Busts in the US

Source: Goldman Sachs Global Investment Research.
• While some job market measures such as job openings and headline unemployment have tightened a lot, broad measures such as U6 and E/P still show substantial slack.

• The continued weakness of nominal wage growth supports a focus on broad as opposed to narrow slack measures.

• Core inflation remains well below the 2% target, and only some of this is explained by oil and dollar pass-through.

• The risks to global growth and inflation remain on the downside.

• At the ZLB, hiking too early is riskier than hiking too late.

• Uncertainty around r* is an argument for a later (but potentially steeper) liftoff.
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