Comments on Bordo and Siklos, “Central Bank Credibility: An Historical and Quantitative Exploration”

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Paper deals with

- Empirical measures of central-bank credibility
- Historical narrative from 11 countries
- Credibility and institutional factors
- Credibility and financial crises (currency, banking, sovereign debt)
- Credibility and the size of economic shocks, monetary policy regime, and policy errors
Outline of comments

- Credibility, definitions and measures
- Inferring inflation target from reaction-function intercepts (Kozicki-Tinsley)
Central-bank credibility 1

- General definition: Competence, “a safe pair of hands”
- More narrow definition: “Expected to achieve target”
  - Presumes an explicit (or known implicit) numerical target
  - Presumes measure of expectations of future target variable
  - Credibility: Proximity to target of expectations of future target variable

- Inflation target $\pi^*$, inflation expectations $\pi^e$
  - Credibility: $\pi^e \approx \pi^*$

- Exchange-rate target (target zone): $s^*$, $[\underline{s}, \overline{s}]$
  - Credibility: $s^e \approx s^*$, $s^e \in [\underline{s}, \overline{s}]$
Central-bank credibility 2

- Distinguish target credibility from target achievement
  - Inflation-target achievement: Use $\pi_t \approx \pi^*$?
  - No, imperfect control of inflation!
    - Some deviations from inflation target are unavoidable, unanticipated shocks
  - No, flexible inflation targeting (dual mandate): without prejudice to price stability, also stabilize real economy (employment or unemployment around long-run sustainable rate)
    - Some deviations from inflation target are deliberate, the result of compromise with other objective, “balanced approach” to mitigate deviations

- Inflation-target achievement: Longer-run average of inflation equal to target
Central-bank credibility 3

- Bordo-Siklos definition of credibility:

\[(\pi_{it} - \bar{\pi}_{it})^2 = \Theta Z_{it} + \phi_i (\pi_{i,t-1} - \bar{\pi}_{i,t-1})^2 + u_{it}\]

- Small squared deviation from inflation target

- But this is an imperfect measure of inflation-target achievement, rather than a measure of credibility

  - Achievement rather than credibility, since outcome rather than expectations
  - Imperfect, because it includes unanticipated shocks (which differing across economies and time) as well as deliberate deviations under flexible inflation targeting
Example 1
Riksbank target achievement: Not good
Example 2
Bank of Canada target achievement: Excellent
Example 3: Riksbank target credibility: Good
Inflation expectations close to target, in spite of average inflation below target

(5-year moving averages)
Example 3
Riksbank graph: "Inflation target credible"
Inferring inflation target from reaction-function intercept? (Kozicki-Tinsley)

\[ \pi_t - \pi_t^e = -\gamma (u_t - u^*) \]
\[ u_t - u^* = \theta (r_t - r^*) \]
\[ r_t = I_t - \pi_t^e \]
\[ i_t = r^* + \bar{\pi} + \alpha (\pi_t - \bar{\pi}) \]

- Take unconditional mean and combine:
  \[ \pi - \pi^e = -\gamma \theta (r - r^*) = -\gamma \theta [(\bar{\pi} - \pi^e) + \alpha (\pi - \bar{\pi})] \]
  \[ \pi = \frac{1 + \gamma \theta}{1 + \gamma \theta \alpha} \pi^e + \frac{\gamma \theta (\alpha - 1)}{1 + \gamma \theta \alpha} \bar{\pi} \]

- We have \( \pi^e > \pi > \bar{\pi} \) or \( \pi^e < \pi < \bar{\pi} \), or equality
- If \( \pi = \pi^* \) and \( \pi^e > \pi^* \), then \( \pi^e > \pi^* = \pi > \bar{\pi} \)
- Sweden: If \( \pi^e = \pi^* \) and \( \pi^* > \pi \), then \( \pi^e = \pi^* > \pi > \bar{\pi} \)
- If high inflation expectations, higher real interest rate needed to fulfill inflation target (which implies a lower \( \bar{\pi} \))
Summing up

- Distinguish target achievement and target credibility
  - Riksbank: Target achievement bad, target credibility good
  - $\pi < \pi^* = \pi^e$: Higher unemployment, higher real debt
- Measures of credibility are regime-dependent (target variable(s) different for different regimes)
- Examine each regime separately, break up into subsamples
- Measures of expectations essential (surveys, professional forecasts, break-even inflation rates, expected exchange rates from UIP…)
- Probably not enough old data
Extra slides
### Average inflation in some countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Target</th>
<th>Index</th>
<th>Period</th>
<th>Average</th>
<th>Deviation</th>
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<tbody>
<tr>
<td>Sweden</td>
<td>2 (1995-)</td>
<td>CPI</td>
<td>1997-2011</td>
<td>1.4</td>
<td>- 0.6</td>
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<td></td>
<td>2 (1995-)</td>
<td>CPI</td>
<td>1997-2007</td>
<td>1.3</td>
<td>- 0.7</td>
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<td>Australia</td>
<td>2-3 (1993-)</td>
<td>CPI</td>
<td>1997-2011</td>
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<td>0.2</td>
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<td>Canada</td>
<td>2 (1995-)</td>
<td>CPI</td>
<td>1997-2011</td>
<td>2.0</td>
<td>0.0</td>
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<tr>
<td>UK</td>
<td>2.5 (1992-2003)</td>
<td>RPIX</td>
<td>1997-2003</td>
<td>2.4</td>
<td>- 0.1</td>
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<td>2 (2004-)</td>
<td>CPI</td>
<td>2004-2007</td>
<td>2.0</td>
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<td></td>
<td>2 (2004-)</td>
<td>CPI</td>
<td>2008-2011</td>
<td>3.4</td>
<td>1.4</td>
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<tr>
<td>Euro zone</td>
<td>(&lt; 2) (1999-)</td>
<td>HICP</td>
<td>2000-2011</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>(≤ 2) (2000-)</td>
<td>core CPI</td>
<td>2000-2011</td>
<td>2.0</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>core PCE</td>
<td>2000-2011</td>
<td>1.9</td>
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</table>
Example 3: Riksbank target credibility: Good
Inflation expectations close to target, in spite of average inflation below target

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The graph illustrates the inflation expectations compared to the CPI inflation over time. The lines represent different inflation expectations from Prospera (1-yr and 2-yr) and Household 1-year expectations. The CPI inflation is shown with a grey line. The graph spans from 1995 to 2015, with significant fluctuations in inflation expectations and CPI inflation.
Example 4:
Riksbank establishing credibility of inflation target 1993-95

Target announced | Target applies | Credibility achieved
Sweden: Average inflation below target has led to higher average unemployment 1997-2011

\[
\pi_t = 6.8 - 2.70 (u_t - u_{t-1}) - 0.75 u_{t-1} + \varepsilon_t
\]

(0.73) (0.18)

\[
\pi = 6.8 - 0.75 u
\]

0.6 p.p.

0.8 p.p.
Credibility of Riksbank forward guidance 1
Success!
February 2009
Credibility of Riksbank forward guidance 2
Failure!
September 2011

Cont.