Shock identification and optimal monetary policy responses in an uncertain and complex environment

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60th SUERF Anniversary & 50th OeNB Annual Economic Conference “Monetary policy in uncertain times: Towards robustness and resilience”

The views expressed are those of the presenter and not necessarily those of the BIS.
Outline

● Shock identification: Which tools worked?
  ▪ Primitive analytical frameworks and indicators gave signal before the inflation surge in a complex environment

  □ Very basic empirical demand-supply framework gave signal that the inflation surge was driven by strong demand hitting tight supply conditions (Eickmeier/Hofmann 2022)

  □ Money growth predicted the inflation surge (Borio/Hofmann/Zakrajsek 2023)

● Policy responses: How did we get here?
  ▪ Cumulative effects of sequential policy responses can take policies to the limit (Carstens 2023)
Shock identification: Which tools worked?
A primitive framework to identify demand and supply indicators (Eickmeier/Hofmann 2022)

- Basic economics
  - Supply expansion boosts economic activity and lowers inflation
  - Demand expansion boosts economic activity and pushes up inflation

<table>
<thead>
<tr>
<th></th>
<th>Economic activity</th>
<th>Inflation</th>
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<tbody>
<tr>
<td>Supply</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>Demand</td>
<td>+</td>
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- Sign restrictions applied to factor loadings to identify demand and supply factors from a dataset with a large number of inflation and real activity measures
Demand and supply factors in the U.S. 1970-2022
Demand and supply factors in the euro area 1999-2022
Money growth gave signal, too (Borio/Hofmann/Zakrajsek 2023)

A. Money growth helps predict the inflation surge...

\[ \hat{\beta} = 0.29 \text{ (SE=0.089)} \]

\[ R^2 = 0.33 \]

\[
\begin{array}{c}
\text{Average annual inflation, \% (Q4 2020 to Q3 2022)} \\
\text{Excess broad money growth, \% (Q4 2019 to Q4 2020)}
\end{array}
\]

B. ...and helps explain inflation forecast errors\(^2\)

\[ \hat{\beta} = 0.15 \text{ (SE=0.054)} \]

\[ R^2 = 0.21 \]

\[
\begin{array}{c}
\text{2021 and 2022 average inflation forecast error, \% pts} \\
\text{Excess broad money growth, \% (Q4 2019 to Q4 2020)}
\end{array}
\]
possibly reflecting the dependence of the link on the inflation regime

A. Inflation is closely linked to money growth...²

\[ \hat{\beta} = 1.00 \text{ (S.E. = 0.036)} \]

\[ R^2 = 0.98 \]

B. ...but only in countries and in times of high inflation³

Below / Above the specified inflation threshold:

- Estimate
- 95% confidence interval
Policy responses: How did we get here?
Monetary and fiscal policy in historical perspective

Policy rates and central bank balance sheets

Fiscal deficits and government debt

Lhs: Total central bank assets:
- Median
- Interquartile range

Policy rate:
- Interquartile range (nominal)
- Median (real ex-post)

Lhs: Fiscal deficit:
- Median
- Interquartile range
- Median (primary)

Rhs: Government debt:
- Median
- Interquartile range
- Median (primary)
More accommodative policy responses over the cycle

Short-term interest rate

Cumulative change in government debt

Years around recessions

% of GDP

Quarters around recessions

%
Conclusions

- Simple analytical frameworks and indicators gave signal of demand/policy-driven inflationary pressures building up

- Cumulative effects of policies should be taken into account in policy conduct
  - Policy responses were always compelling in each point in time, but cumulatively pushed policies to the limit
  - Need to look beyond the challenge of the day and preserve policy buffers over the cycle
References

