Rate Cycles

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Views in this paper are those of the authors and do no represent those of any institutions with which they are affiliated
Motivation & Approach

How does today’s monetary policy cycle fit in the historical context?

What are the implications for monetary policy today?

- New application of business cycle methodology to analyze “rate cycles”
  - Rate cycles consist of a tightening phase and easing phase
  - Based on monthly policy interest rates & QE/QT
  - 24 advanced economies over 55 years
  - Systematic, cross-country database and analysis

- Rich time-series decomposition of shocks behind interest rate movements
  - A FAVAR model with 4 global and 3 domestic shocks
Today’s Monetary Policy Cycle in Historical Context

Different Perspectives

Parable of *The Blind Men and the Elephant*

Source: https://medium.com/betterism/the-blind-men-and-the-elephant-596ec8a72a7d
Key Findings

2020-24 ("pandemic") rate cycle was unprecedented in many dimensions
• Swings in data, delayed response to recovery, most synchronized rate increases & longest hold → largely “caught up”
• Reflected unusual confluence of shocks; dominant role of global demand and supply

But also **important similarities to past cycles**
• Aggressive tightening post-pandemic reversion to pre-2008 cycles
• Demand shocks still explain majority of variation in interest rates

And **continuation of longer-term trend**: role of global shocks increasing over time
• Even greater role for rate cycles than business and inflation cycles
• Global supply shocks becoming more important, but global demand shocks still dominate
1. Introduction/Summary
2. Defining the Rate Cycles
3. Characteristics of Rate Cycles
4. Global Synchronization of Rate Cycles
5. Shocks Driving Rate Cycles
6. Exiting a Rate Cycle: Holds, premature exits, divergence
7. Implications for Monetary Policy Today
Rate Cycles: Identification and Characteristics
Methodology and Data

Adapt business cycle methodology identifying local peaks/troughs
- Use BBQ algorithm proposed by Bry and Boschan (1971) and developed in Harding and Pagan (2002)
- Set key parameters (allow long cycles, but short phases)
- Incorporate announcement of new asset purchase programs
- Additional criteria, largely to address long periods with no change in policy rates

Sample: 24 advanced economies, data from Jan 1970 – May 2024
- Individual euro area countries through 1998, euro area (ECB) from 1999

Result: series of “rate cycles”, consisting of easing & tightening phases
- 212 distinct phases (111 tightening; 101 easing)
- Useful tool for future research
Rate Cycles in the Euro Area

Notes: Purple/red are start of hiking/easing phases. Orange/blue are dates of QE/QT announcements.
Rate Cycles in the United States

Notes: Purple/red are start of hiking/easing phases. Orange/blue are dates of QE/QT announcements.
Characteristics of Rate Cycles

Series of statistics across countries & phases
- **Duration**: length of phase
- **Amplitude**: total change in rates
- **Number of in-sync rate changes**
- **Pace**: average size of in-sync rate adjustments
- **Initial velocity**: rate change over 1st 6 months

Many comparisons
- Across countries
- Across easing and tightening phases
- Relationship to macroeconomic variables (activity, labor markets, inflation)
- Changes over time

**Duration of Rate Phases**
January 1970-May 2024

- Range (10 - 90 percentile)
- Mean
- Median
Pandemic Cycle vs. Historical Cycles

Cycle Characteristics

- **Number of Rate Changes**
  - 1970-1984
  - 1985-1998
  - 1999-2007
  - 2008-2019
  - 2020-2024 (May)

- **Initial Velocity**
  - (rate change over 1st 6 months, in percentage points)

- **Amplitude**
  - (total rate change, in percentage points)
Pandemic vs. Historical **Tightening Phases**

*Policy Interest Rates*

**Median Policy Interest Rates Tightening Phases**

Pandemic vs. Historical Tightening Phases

*Macroeconomic Variables*

- GDP Growth
- CPI Inflation
- Employment Growth
- Core Inflation
Rate Cycles: Synchronization and Drivers
“Waves” of Synchronization in Rate Changes

Share of Economies with Changes in the Policy Interest Rate or QE

Recent “tsunami”: most synchronized period of rate increases in sample
Methodology and Data

**Dynamic factor model**: to analyze importance of global factor in driving rate cycles
- Monthly data, 1970-2024, 24 advanced economies

**FAVAR model**: to understand shocks behind interest rate movements
\[
B_0 Z_t = \alpha + \sum_{i=1}^{L} B_i Z_{t-i} + \varepsilon_t \\
\varepsilon_t \sim N(0, \Sigma_t),
\]
- \(Z_t\): global interest rates, global inflation, global output growth, oil price growth, domestic interest rates, domestic inflation and domestic output growth
- **Rich set of shocks**
  - 4 global shocks: demand, supply, monetary policy, oil prices
  - 3 domestic shocks: demand, supply, monetary policy
- Monthly data on shadow interest rates, 1970-2023, 5 major advanced economies (G5)
Role of Global Shocks Increasing over Time

- 2020-23: first period global shocks explain >50% of variation in interest rates
- Even greater contribution of global shocks to tightening phases, (explains 75% of rate increases since 2020)
Largest Contribution from Global Demand Shocks Also Increased Role for Oil/Global Supply

- 2020-23: role of oil and global supply shocks highest in sample
- But global demand shocks continue to outweigh that of other global shocks
Exiting a Rate Cycle
Post-Pandemic Cycle Stands Out

Holding Periods

- **Shortest hold** between actively easing to raising interest rates
- **Longest hold** after raising rates

Median Hold Duration*

<table>
<thead>
<tr>
<th>Period</th>
<th>Tightening Phases</th>
<th>Easing Phases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-1984</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>1999-2007</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>2008-2019</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>1985-1998</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>2020-2024 (May)</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

* Hold defined as period with no rate changes and no asset purchases
Today’s Holding Period in Historical Context

- Short, widespread hold after Highly Synchronized Tightening is typical
- As of May 2024: longer and more synchronized global hold (for now)
Exits from “Highly Synchronized Tightening”

- Often substantial divergence in timing of first rate cut
- US is often, but not always a “first mover”
- “Early easers” had similar activity (GDP growth/IP) but much lower inflation (CPI and core)
Premature Adjustments Less Common

* Premature adjustments are “out-of-sync” rate adjustments, i.e., raising rates during an easing cycle or cutting rates during a tightening cycle.
Summary and Implications for Policy Today
What the Paper does NOT do

“Rates” based on policy interest rates
– Supplemented with information on QE/QT
– Does not measure the monetary policy stance, neutral rate

Does not adjust for changes in monetary targets, tools & frameworks
– Have been important changes in many economies over time

Focus on advanced economies (IMF/WB definitions)
Back to the Blind Men and the Elephant

Best comparison? Depends on perspective:
- Unprecedented?
- Similar to pre-2008 cycles?
- Reflects slower moving changes over time?

Answer: all the above
Implications for Monetary Policy Today

Recalibration of rates going forward should be **cautious and gradual**

- Normalizing, but uncertainty if rate cycle will continue to follow pre-2008 patterns
- Adjustments will reflect domestic circumstances, potential for substantial divergence

Monetary policy decisions will increasingly be **influenced by global shocks**

- In order to achieve mandates focused on domestic inflation

**Increasingly important to differentiate between global demand and supply shocks**

- “Global” shock ≠ global supply shock
- May imply different monetary policy responses
Thank you!
Contribution of Shocks to Variation in Interest Rates vs. Inflation \textit{(All Phases)}

![Graph showing the contribution of shocks to variation in interest rates and inflation. The graph includes bars for oil and supply, demand, and MP, with data points from 1970-84, 1985-98, 1999-07, 2008-19, and 2020-23.](image-url)
Contributions of Shocks to Interest Rates

Tightening Phases

Easing Phases

- Oil and supply
- Demand
- MP
Interest rates are now more “globalized” than output growth and inflation by most measures.
Post-Pandemic Tightening Phase Stands Out
Even Compared to Highly Synchronized Tightening Periods
Preliminary Adjustments