Thai Inflation Dynamics in a Globalized Economy

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Thai Inflation Dynamics

![Graph showing Thai inflation dynamics with key events labeled: Gulf war, Asian Crisis, Removal of oil subsidy, World oil and food price hike, GFC, Shale oil. The graph includes data from 1986 to 2014.]

**Source:** Ministry of Commerce

<table>
<thead>
<tr>
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<th>1985-1999</th>
<th>2000-2014</th>
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</thead>
<tbody>
<tr>
<td>Mean</td>
<td></td>
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<tr>
<td>Headline</td>
<td>4.5</td>
<td>2.6</td>
</tr>
<tr>
<td>Core</td>
<td>4.5</td>
<td>1.2</td>
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<td>Standard Deviation</td>
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<tr>
<td>Headline</td>
<td>2.2</td>
<td>1.9</td>
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<tr>
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<td>1.6</td>
<td>0.9</td>
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Worldwide Inflation Dynamics

Note: Inflation is the year-on-year changes in the headline consumer price index. The mean (LHS panel) and standard deviations (RHS panel) are computed using a five-year rolling window. The horizontal axis marks the date at the end of the rolling sample.
Source: IMF International Financial Statistics Database, Authors' calculations.
The “Good Policy” Hypothesis

- The widespread adoption of implicit and explicit inflation targeting frameworks largely contributed to low and stable inflation.

However, inflation targeting cannot entirely explain the improved inflation performance and increased comovements among inflation rates.

(Ball and Sheridan, 2005; Cecchetti and Debelle, 2005; Wang and Wen, 2006)

The “Good Luck” Hypothesis

- Favorable shocks linked to globalization helped keep inflation low.
- Integration of markets contributed to the enhanced synchronization of inflation rates across countries.
Research Questions

What can explain the changes in Thai inflation dynamics?

- Past work focused on the **good policy** explanation
- What about **good luck** - did globalization play a key role?
- Did the effect of globalization for inflation change over time?
- If global factors are important, does this imply that domestic monetary policy has lost the ability to control inflation?
Empirical Methodology

1. Dynamic Factor Model
   - Preliminary analysis to separate global, regional and country-specific components

2. Unobserved Components Model
   - Main model based on the Open Economy New Keynesian Phillips Curve (Clarida et al., 2002)
   - Gives a trend-cycle decomposition of inflation
   - Incorporates structural breaks to identify dates of structural change
   - Provides estimates of unobserved variables such as inflation expectations and the output gap
[Model 1] Dynamic Factor Model

A system of equations to decompose inflation in each country as:

\[ \pi_{i,t} = \alpha g_t + \beta r_t + z_{i,t} \]

- CPI inflation
- Global factor
- Regional factor
- Country-specific factor

List of countries (i=14)

Regional (Asia Pacific):
- Australia
- Hong Kong
- Japan
- Malaysia
- Singapore
- Thailand
- China
- Indonesia
- Korea
- Philippines
- Taiwan

United States
United Kingdom
EU-18
Prior to 2000 - Regional and Country Components are Important
After 2000 - Global Component Becomes the Key Driving Factor
A Structural Change Occurred in 2001Q1

\[ \pi_{i,t} = \alpha S_t g_t + \beta S_t r_t + z_{i,t} \]

Increases from 0.557 to 1.108
Declines from 0.644 to 0.148
What Drives the Global Factor?

- Commodity Prices
- Import Prices
- Mark-ups
- Producer Costs
- Productivity

Inflation
Capturing these Effects as a ‘Global Output Gap’
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Capturing these Effects as a ‘Global Output Gap’
[Model 2] Unobserved Components Model

Based on the Open Economy New Keynesian Phillips Curve:

\[
\pi_t = \beta \pi^e_{t+1} + k x_t + k^* x^*_t + z_t
\]

Rewrite as:

\[
\pi_t = \lim_{j \to \infty} E_t(\pi_{t+j}) + k \sum_{j=0}^{\infty} E_t(x_{t+j}) + k^* \sum_{j=0}^{\infty} E_t(x^*_{t+j}) + \sum_{j=0}^{\infty} E_t(z_{t+j})
\]

- CPI inflation
- Inflation expectations
- Other factors
- Domestic Output Gap
- Global Output Gap
- Trend Inflation
- Output gap influences
- Inflation Cycle
- Other short-run influences
Trend Inflation or Long-term Inflation Expectations Declined Since 2001

Note: Estimates of trend inflation from an unobserved components model for inflation. The estimated structural break dates are 2001Q1 and 2007Q1 which are obtained from a Kim filter (Kim and Nelson, 1999) based on a three-state Markov-Switching model.
Inflation Cycle Changed in 2001 and 2007

Note: Estimates of inflation persistence (LHS panel) are based on the largest autoregressive root of the $z_t$ process in the unobserved components model for inflation. The relationship between inflation and the domestic and global output gaps (RHS panel) are the estimated coefficients $k$ and $k^*$ respectively.
What Drives the Global Output Gap?

\[ \pi_t = \lim_{j \to \infty} E_t(\pi_{t+j}) + k \sum_{j=0}^{\infty} E_t(x_{t+j}) + k_1^* \sum_{j=0}^{\infty} E_t(x_{1,t+j}) + k_2^* \sum_{j=0}^{\infty} E_t(x_{2,t+j}) + \sum_{j=0}^{\infty} E_t(z_{t+j}) \]

- Direct effects are measured by changes in import prices, real exchange rates, oil prices, non-fuel commodity prices, and term of trade effects.

- Indirect effects may include the effects of enhanced competition, spillover of technology shocks, and increased productivity.
Oil Becomes Important since 2007

Direct Effects (Oil)

Indirect Effects

Note: Estimates of the direct effects (LHS panel) and the indirect effects (RHS panel) are the coefficients $k_1^*$ and $k_2^*$ from the unobserved components model respectively. The direct effects are calculated with the log QOQ changes in the Dubai oil price series.
The Thai Inflation Experience is a Mirror Image of the World ...

- Global Inflation (from the Dynamic Factor Model) depends on global factors in the same way

Note: Estimates of $\beta_{2t}$ (LHS graph) and $\beta_{3t}$ (RHS graph) are from the time-varying parameter model

$$g_t = \alpha_t + \beta_1 g_{t-1} + \beta_2 x^*_t + \beta_3 \Delta o_{il_t} + \beta_4 \Delta p_{wnonf_t} + \epsilon_t$$

where $g_t$ is global inflation, $x^*_t$ is the global output gap, $\Delta o_{il_t}$ is the QOQ changes in Dubai oil prices, $\Delta p_{wnonf_t}$ is the QOQ changes in non-fuel commodity prices, and $\epsilon_t$ is the disturbance term with GARCH(1,1) effects.
Why is Oil So Important?

- Other driving variables of inflation has been pretty stable as of late

Note: Global inflation is estimated from a dynamic factor model for inflation. The global output gap series (indirect effects) is estimated from an unobserved components model for inflation. The direct effects of oil is calculated from the QOQ changes in the Dubai oil price series.
Why Did Indirect Effects Disappear?

- Maturing GVCs may be part of the explanation

Global Value Chain Participation

**Emerging Countries**
- Thai
- Malay
- China

**Advanced Countries**
- US
- European Union
- Japan

Source: OECD
What explains the changes in Thai inflation dynamics?

- The growing importance of the global output gap for Thai inflation enhanced the degree of comovement with global inflation rates since 2001.

- Since 2001, long-term inflation expectations in Thailand has remained low and stable.

- After 2007, while global factors remain important, all the movements in the global output gap can be explained by oil.

- It is too early to tell whether the 2007 structural break will be a new normal for Thai inflation.
Monetary Policy Implications

- Central banks must now pay more attention to external developments and respond to a wider range of shocks.
- The reduced sensitivity between inflation and domestic factors does not necessarily imply that central banks can no longer control inflation.
- Managing long-term inflation expectations is key towards keeping inflation low and stable.
- The impact of globalization may create incentives to inflate - beware of the ‘Lucas Critique’!
Thank you