Inflation dynamics and inflation expectations in Thailand

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Abstract

Acting in parallel with changes in Thailand's inflation dynamics, the fall in inflation and inflation variability is a worldwide phenomenon that has coincided with accelerating globalisation. This paper explains that global factors have played an important role in changing the dynamics of inflation in Thailand. It also shows that the country's monetary policy has been effective in helping to keep inflation low and stable via well anchored long-run inflation expectations**.**

Keywords: Inflation dynamics; inflation expectations; inflation measurement; monetary policy; globalisation

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1. Introduction

Inflation in Thailand has remained remarkably low and stable since the Bank of Thailand adopted a flexible inflation targeting framework in May 2000. The average annual consumer price inflation has stayed at the level below 3%.

Low and stable inflation dynamics are a global phenomenon. Since the mid-1980s, the level and volatility of international inflation rates have significantly declined, especially in the advanced economies. Furthermore, the degree of co-movement in headline inflation dynamics worldwide has increased. The trend of globalisation is one of the key factors in explaining this "new normal" of inflation dynamics.

Nevertheless, a high correlation between inflation rates across countries is mainly applied to the headline figure, while core inflation rates are less subject to global factors and mostly influenced by domestic factors. Thus, some argue that low and stable inflation is, in part, a result of improvements in monetary policy effectiveness, which have helped to anchor public inflation expectations (Ball (2006); Mishkin (2008)).

To assess the changing dynamics of inflation, this paper analyses the extent to which inflation in Thailand is influenced by either global or domestic factors. The organisation of this note is as follows. After this introduction, Section 2 presents the measurement of Thai inflation. Section 3 describes the development of inflation dynamics in Thailand. Section 4 presents the role and characteristics of inflation expectations in Thailand. The last section concludes and outlines the monetary policy implications.

2. Measurement of Thai inflation

The Bank of Thailand has conducted its monetary policy under a flexible inflation targeting framework since May 2000. At the outset, the Bank targeted core inflation, a measurement that excludes transitory shocks from fresh foods and energy components. However, core inflation has increasingly lost its capacity to reflect the real cost of living as the dynamics of headline and core inflation increasingly diverge. This is due mainly to structural changes in energy price dynamics, and diminished cost pass-through effects as a result of price administration, increased retail competition and well anchored inflation expectations (Pongsapan and Mallikamas (2005)). Thus, in 2015, the Bank of Thailand altered its target for headline inflation to 2.5% with a tolerance band of ±1.5%. Since headline inflation better reflects the cost of living and public inflation expectations, this in turn should help enhance the effectiveness of monetary policy in anchoring inflation expectations.

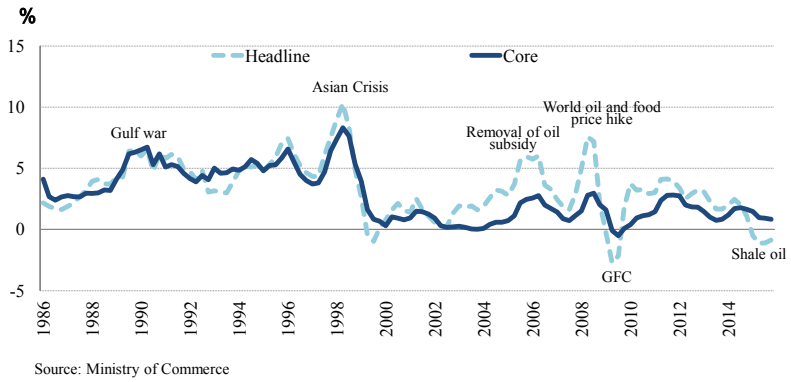
However, inflation dynamics are also affected by factors beyond the scope of monetary policy, such as transitory shocks, government measures and housing rent. For example, Thailand's inflation rate has been influenced by government measures aimed at easing the high cost of living, particularly in Q4 2008, and an increase in the excise tax on alcoholic beverages. Moreover, there is continued downward pressure from housing rent due to its high degree of price persistence and its dominant share, of 21%, in the core inflation basket.

The Bank of Thailand constantly monitors core inflation, excluding government measures and rent, as the key underlying inflation indicator. In addition, the Bank also uses other underlying inflation indicators, such as the symmetric trimmed mean, asymmetric trimmed mean and principal component, to help gauge real inflationary pressure.

3. Inflation dynamics in Thailand: changes and causes

Inflation in Thailand has been remarkably low and stable. As shown in Graph 1, Thailand's CPI headline and core inflation rates have slowed sharply since the early 2000s. Thailand's headline inflation averaged 2.6% in 2000–14, in welcome contrast to the average of 4.5% in 1986–1999. In addition, the volatility of core inflation, as measured by the standard deviations of annual inflation rates, fell from 1.6% in 1986–1999 to 0.9% after 2000.

Thailand's inflation rates — Graph 1

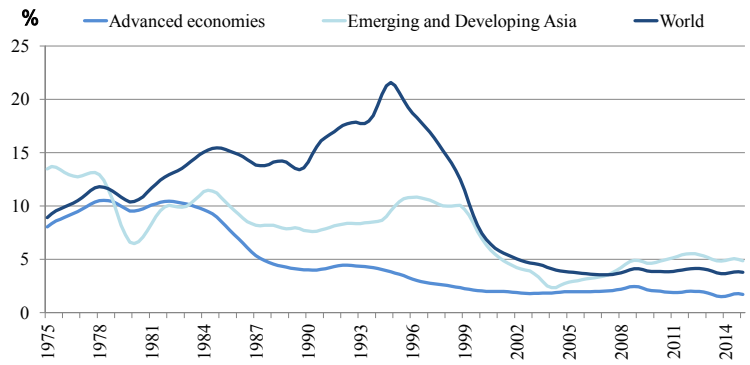


Source: Ministry of Commerce

In part, at least, Thailand's experience echoes inflation dynamics around the world. Graph 2 shows that the mean of worldwide headline inflation rates had fallen drastically by the year 2000, led first by a group of advanced economies in the late 1980s and followed by developing countries from 2000 onwards.

The significant fall in worldwide inflation rates in 2000 in fact coincided with the drastic rise in economic integration or globalisation, particularly the growing integration of emerging countries into the global supply chain. Thus, the global factors underlying the process of globalisation have considerable weight in explaining the inflation dynamics of many countries.

Worldwide headline inflation mean Graph 2



Note: Using five-year rolling window
Source: IMF International Financial Statistics Database

Global factors

Influences from globalisation

As Thailand is a small and highly open economy, with its degree of trade openness rising continuously since the 1990s and currently exceeding 100%, the country's inflation dynamics have been influenced by globalisation, which has helped to keep inflation low through various channels.

The entry of lower-cost producers to the global trading system enhances price competition, making consumer price markups more difficult (Binici et al (2012)). Pongsapan and Mallikamas (2005) and Manopimoke and Direkudomsak (2015) show some evidence for increasing competition in Thailand's consumer product markets. Firms' profit margins have been on a declining trend as the degree of trade openness has increased. Moreover, the widespread adoption of technology from global integration tends to increase productivity and lower production costs and good prices.

Many studies use the global output gap to control for these global influences on domestic inflation dynamics. Manopimoke and Direkudomsak (2015) find that the global output gap is responsible for Thailand's inflation dynamics and those of its top trading partners. The global output gap has gained more importance in explaining Thailand's inflation dynamics, while the influence of the domestic output gap has declined over time. This phenomenon is also well documented by the flattening of the Phillips curve in the wake of globalisation in 2000.

Role of commodity prices

Movements in global commodity prices have a significant impact on Thai inflation. The main effect is through oil prices as Thailand is a net energy importer. The weight of the energy component in Thailand's CPI basket is significant, accounting for 11.4%.

Despite their transitory impact, global commodity prices have played a major role in explaining overall price movements since 2000. Prime examples include the large swings in commodity prices during the global financial crisis in 2008–09 and the recent collapse in global oil prices.

Globalisation, especially since 2000, has led to greater co-movements of worldwide headline inflation rates, and has amplified global commodity price cycles. Inflation in Asian developing countries has been heavily influenced by swings in global commodity price cycles, particularly those of food and oil (Jongwanich and Park (2008)). Khemangkorn et al (2008) explain that changing world commodity prices have important implications for Thai inflation dynamics. Furthermore, Manopimoke and Direkudomsak (2015) find that the oil price movement has been a dominant driver of Thai inflation since 2007.

Government measures have also influenced retail oil prices in Thailand. An oil fund levy and fuel excise taxes have been used as instruments to stabilise domestic oil prices. However, in some episodes, such adjustments have led to a large fluctuation in retail oil prices, as was the case with a sudden large increase in the oil fund levy following an oil price freeze in 2005. Recently, the government has attempted to restructure domestic fuel pricing by reducing price subsidies as well as setting energy prices to better reflect actual costs. This has caused domestic oil prices to move more closely with global prices.

Domestic factors

Role of monetary policy

Carney (2015) states that, although the commodity super-cycle has increased correlation between headline inflation rates across countries, core inflation dynamics have become more dispersed. In other words, domestic economic conditions, which can be influenced by domestic monetary policy, still matter. In Thailand, Khemangkorn et al (2008) and Manopimoke and Direkudomsak (2015) suggest that globalisation might have helped exert inflationary pressure, but disciplined and well anchored monetary policy has also played an important role in keeping the inflation trend low and stable.

An evident and important shift in the policy framework first observed in advanced economies since 1990s is the adoption of inflation targets, which helped ease the high inflationary pressures of the 1970s. Based on the success of advanced economies in achieving low and stable inflation, many developing countries including Thailand adopted the same type of framework in the early 2000s.

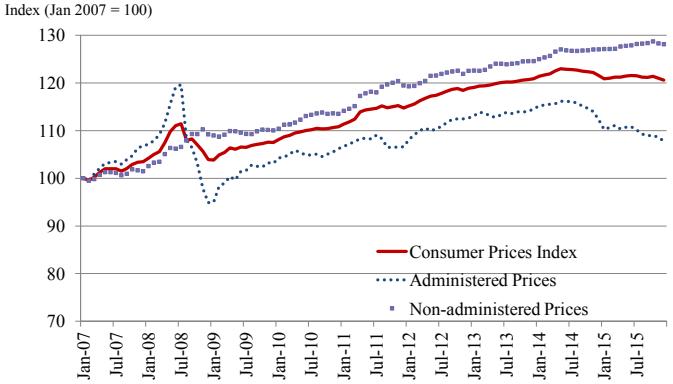
Inflation expectations in Thailand have been stable during the inflation targeting regime, particularly with respect to long-term expected inflation. The country's inflation dynamics have also become more resilient to supply and demand price pressures originating both domestically and abroad because well anchored inflation expectations help control the second-round effect from excessive swings in commodity prices and lower inflation persistence (Chantanahom et al (2008), Manopimoke and Direkudomsak (2015)). This limited second-round effect implies that a temporary shock to the price level disappears rather quickly, so that the effects of global commodity price shocks on core inflation have significantly declined.

Price administration

In addition to monetary policy, government measures to influence the cost of living have partly contributed to Thailand's low and stable inflation. Overall, goods and services for which prices are administered by the government to varying degrees account for approximately 35% of the CPI basket. The most prominent administered items are in the energy and public transportation categories, accounting for 13% of the CPI basket. That said, most of the administered prices are not under the total control of the government, although they are constantly monitored.[2.]

Graph 3 shows that administered prices played a part in cushioning living costs and thus curbing inflation during the implementation of the six government measures to lessen the impact of the spike in global oil prices in Q4 2008.[3]

Administered prices — Graph 3



Sources: Ministry of Commerce, Calculated by the Bank of Thailand

Exchange rate pass-through

A number of studies find that the degree of exchange rate pass-through is very low in many countries (White (2008); Dramane and Kempf (2010); Devereux and Yetman (2014)). This also holds true for Thailand. Generally, exchange rate movements directly and principally affect Thai consumer prices through retail oil prices, which account for 7.5% of the CPI basket. Indirectly, they affect other goods in the CPI basket through the costs of imported inputs for domestic production, given that the import content in accounts for 16% of the CPI.[4]

[2] The government classifies administered goods and services into three main categories. They are "watch list", "priority watch list", and "sensitivity list" in which prices of goods and serviced are monitored every two weeks, twice a week and every day respectively.

[3] These measures include reducing oil excise tax rates, free fares for third-class trains and buses, subsidising electricity and water fees, and preventing increases in household LPG prices.

[4] Using the 2005 Input-Output table compiled by Office of the National Economic and Social Development Board (NESDB).

An empirical study shows that a 1 percentage point fall in the exchange rate increases headline inflation by 0.06%. This change in headline inflation breaks down into a 0.04% component mostly via changes in retail oil prices, while the remaining 0.02% is attributable to core inflation. Further analysis also suggests that the exchange rate pass-through is not symmetrical for Thailand, having a larger effect when the currency depreciates. Previous studies have found that the degree of exchange rate pass-though is lower when (i) domestic competition is high; (ii) inflationary pressures are low; and (iii) monetary policy gives due weight to price stability (Buddhari and Chensavasdijai (2003); Styrin and Zamulin (2012); Ito and Sato (2007)).

Recently, the 5.3% depreciation in the annual average exchange rate in 2015 increased Thailand's headline CPI by about 0.2%. However, this amount could not offset the impact of the large fall in global oil prices, resulting in overall negative inflation of –0.9% in 2015.

4. Inflation expectations in Thailand

Former Federal Reserve Chairman Paul Volcker said "Inflation feeds in part on itself". This means that public inflation fears may become self-fulfilling if inflation expectations become unanchored. The effectiveness of monetary policy in anchoring inflation expectations is the key concern of most inflation targeting central banks.

Stylised facts about inflation expectations

The Bank of Thailand closely monitors inflation expectations from various sources, such as the survey-based inflation expectations from the Business Sentiment Survey and Consensus Economics forecasts. However, market-implied inflation expectations from inflation-linked bonds (ILB) are not yet a reliable indicator, as the inflation-linked bond market is still relatively illiquid. Therefore, the Bank extracts inflation expectations from a macrofinancial term structure model based on a new Keynesian macroeconomic framework and an arbitrage-free affine term structure model (see Table 1).

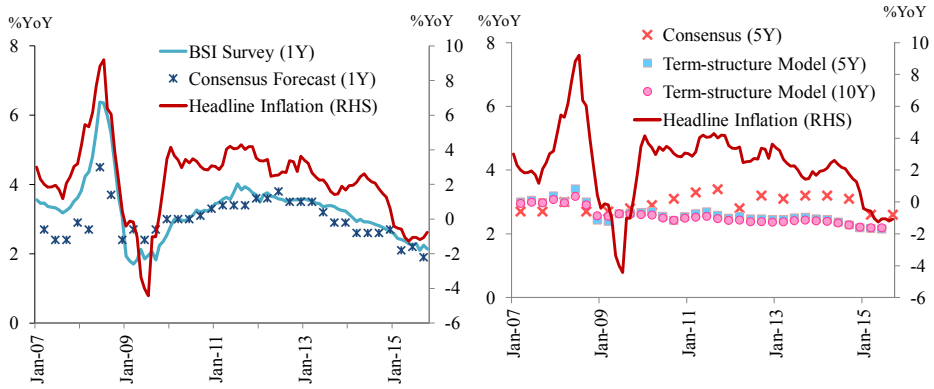
Inflation expectations used by the Bank of Thailand — Table 1

Inflation expectations	Conducted by	Data sources	Expectation horizon		Data frequency
			Short-term	Long-term	
Consensus Economics	Asia Pacific consensus forecast	Professional forecasters	Yes	Yes	ST: quarterly since 2004/ LT: every Apr. and Oct. since 2001
Business Sentiment Survey (BSI)	Bank of Thailand	Business enterprises	Yes	Yes	ST: monthly since 2007/ LT: quarterly since 2014[1]
Term-structure model	Bank of Thailand	Model-based	–	Yes	LT: quarterly since 2011

[1] The BSI long-term inflation expectations model is in an early stage of development.

Short-term inflation expectations are more volatile due to transitory supply or demand shocks, such as the global oil and food prices hike in 2008, the post-GFC collapse in global oil prices, and the six government measures to lower the cost of living in Q4 2008. Short-term inflation expectations were unaffected by most of the one-time and expected shocks, such as the rise in excise tax for diesel oil fuel in 2005 and an increase in minimum wages in 2013. Graph 4 (left panel) shows the relationship between short-term inflation expectations and headline inflation.

Inflation expectations and actual inflation — Graph 4



Source: Ministry of Commerce, Consensus Economics, Business Sentiment Survey and BOT's Calculations

For long-term inflation expectations, the year-on-year change in headline inflation and five-to-ten-years inflation expectations from survey-based and model-based sources are plotted in Graph 4 (right-hand panel). These rates are less volatile, despite the massive supply or demand shocks in 2008, the flood crisis in 2011, and political unrest in 2014. Remarkably, even after the recent oil price shocks occurred, driving Thai headline inflation into negative territory in 2015, long-term inflation expectations have hovered at around 2.5%, the mid-point of the official inflation target. As well as the credibility of the monetary policy framework, this reflects the public's awareness that the recent global oil price shock was transitory.

The role of inflation expectations and their anchoring

To understand ***the role of inflation expectations in inflation dynamics***, the Phillips curve is used to find the relationship between Thailand's inflation[5] and its drivers, which include cost, economic slack and inflation expectations. Using long-term (five-to-ten-years) inflation expectations from the term-structure model and short-term (one-year) inflation expectations from Economics Consensus, Table 3 shows that inflation expectations could partially explain the domestic inflation process. These results are in line with the theoretical evidence that inflation expectations should play a role in contemporaneous price-setting through the public's perceptions of future inflation.

[5] Using headline inflation excluding government measures and quarterly data from Q3 2001 to Q3 2015.

Thai inflation determinants

Table 3

Determinants	Model 1	Model 2	Model 3
Lag of inflation	0.34*** (0.09)	0.35*** (0.08)	0.37*** (0.08)
Farm prices	0.05*** (0.16)	0.05*** (0.14)	0.05*** (0.14)
Dubai oil prices	0.04*** (0.004)	0.04*** (0.004)	0.03*** (0.003)
Exchange rate	0.06* (0.02)	0.06** (0.02)	0.06** (0.02)
Domestic output gap[1]	0.00 (0.0003)	0.00 (0.0002)	0.00 (0.0002)
Inflation expectations			
– One-year ahead – Five-year ahead – Ten-year ahead	0.001** (0.0003)	0.001** (0.0003)	0.001** (0.0003)
Adjusted R^2	0.76	0.77	0.76
DW	2.3	2.3	2.3

Note: The values in parenthesis are standard deviations.

*, **, *** denote significance at 10%, 5% and 1%, respectively.

1 Empirical results showing insignificant domestic output gap is consistent with a number of previous studies. They report that the sensitivity of inflation to the domestic output gap declines, whereas that to the foreign output gap is higher (IMF (2006); Pain et al (2008); Manopimoke (2015)). The results are robust even after excluding inflation expectations variables. In addition to the globalisation impact, Roberts (2006) and Mishkin (2007) argue that the changing relationship might also be due to the endogenous outcome of effective monetary policy that has become more focused on the control of inflation.

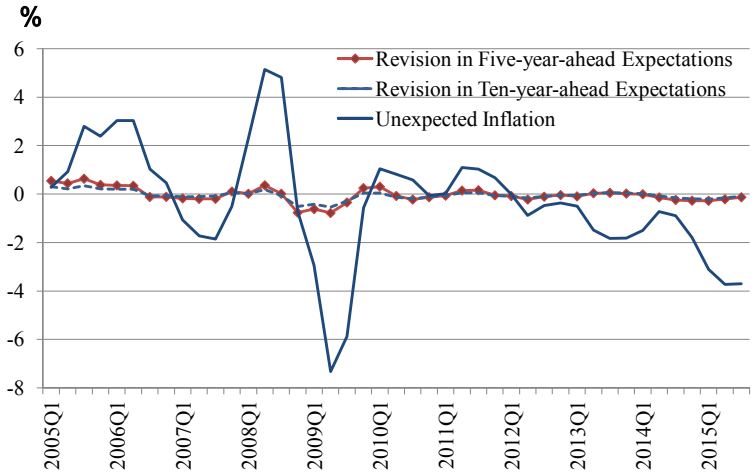
In order to show how well ***inflation expectations were being anchored in Thailand***, this note calculates the sensitivity of expected inflation to current shocks or inflation. If expectations are well anchored, the current shock effect should be small. As mentioned above, movements in current inflation or short-term expected inflation may be affected by a number of factors irrelevant to monetary policy. Thus, one should focus on long-run inflation expectations, which are less affected by short-run transitory shocks, to measure the anchoring of expected inflation. Long-run inflation expectations should coincide with the inflation policy framework and monetary policy actions.

Manopimoke and Direkudomsak (2015) find that the shift to an inflation targeting regime significantly reduces the level and volatility of long-term inflation expectations. Long-term inflation expectations have been stable at around 2.4% since 2001, consistent with the mid-point of the Bank of Thailand's current inflation target. Moreover, Pongsak et al (2015) apply inflation expectations computed by a market-based approach, and find that monetary policy actions affect short-term as well as long-term inflation expectations.

Following the methodology of Davis (2012), Graph 5 shows unexpected components and revision in five-to-ten-years inflation expectations derived from a

term-structure model.[6] The changes in revision series have been minimal despite the significant changes in unexpected components, possibly reflecting the anchoring ability. Moreover, the smaller revision in inflation expectations over time might indicate that the capacity of monetary policy to anchor long-term inflation expectations has improved.

Long-run inflation expectations and unexpected shocks Graph 5



Source: Author's Calculations

5. Monetary policy implications

The implementation of Thailand's inflation targeting framework has successfully lowered and stabilised inflation, as is reflected by well anchored long-term inflation expectations since 2000. Currently, even with negative headline inflation and downside risk factors to the inflation outlook, the Bank of Thailand assesses deflationary risks to be low, as negative headline inflation is primarily caused by supply side factors, especially plunging oil prices. Meanwhile, core inflation remains positive throughout the forecast period, while inflation expectations remain close to the inflation target. This anchoring ability is very important in shielding the economy against shocks and avoiding any downward price spirals.

Global disinflation is a concern in many countries. The persistent decline in world energy prices amidst the weak and uncertain global economic recovery adds to the downward pressure on inflation. Central banks thus face challenges in achieving their policy targets.

It is vital that long-term inflation expectations remain anchored if price stability is to be maintained. Although key measures suggest that Thailand's long-term

[6] Unexpected components are calculated as the difference between the actual inflation rates over the past year and one-year-ahead expected inflation rate one year earlier. Revision to long-run inflation expectations is the difference between five- or 10-year inflation expectations at particular time and five- or 10-year expected inflation one year earlier.

inflation expectations are still well anchored at around 2.5%, the Bank of Thailand is closely monitoring developments in inflation dynamics and the global oil price structure.

Targeting headline inflation should be more in tune with the general public's understanding of what constitutes the cost of living, which should help improve the efficiency of the Bank of Thailand's communications to the public as well as the anchoring of inflation expectations. Maintaining the credibility of the policy target is still a focal challenge for central banks, particularly in today's volatile global environment.

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