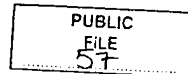

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19 January 2012

Mr Geoffrey Gleeson
Director, Operations 3
International Trade Remedies Branch
Australian Customs and Border Protection Service
Customs House
5 Constitution Avenue
CANBERRA ACT 2601

Dear Mr Gleeson

Public File Copy

ATM Correspondence 2012/01 - HSS exported from China, Korea, Malaysia, Taiwan and Thailand – Investigation No. 177 – Government of Thailand influence on steel prices

I refer to the above investigation involving exports of certain hollow structural sections ("HSS") exported from China, Korea, Malaysia, Taiwan and Thailand. This letter addresses relevant factors to Customs and Border Protection's assessment of a particular market situation in respect of HSS sold in Thailand.

OneSteel ATM Pty Ltd's ("ATM") application asserted the existence of a market situation in respect of HSS sold in Thailand. ATM's claims were based upon the Government of Thailand's ("GOT") control of hot rolled coil ("HRC") prices that have not altered since 2 March 2009. HRC is listed on as one of nine items on the GOT's "Priority Watch List" (See Non-Confidential Attachment 1).

I understand that ATM has conveyed to you how GOT's Priority Watch System operates. In support of this understanding, the following news items highlight the sensitivity associated with steel price rises in Thailand:

- Extract from www.steelguru.com dated 19 May 2008 indicating that in advance of potential steel price increases, GOT was concerned that steel inventories would increase prior to a likely price increase (Non-Confidential Attachment 2);
- Extract from National News Bureau of Thailand dated 5 June 2008 outlining that steel suppliers were "not allowed" to increase prices outside of GOT approval (Non-Confidential Attachment 3).

The impact of the price control on HRC is to suppress domestic prices for HSS in Thailand. Comments that support this position are included in the Bank of Thailand's Discussion Paper (dated January 2009 – refer Non-Confidential Attachment 4) where it is stated[1] that the Bank of Thailand specifically excludes goods that are the subject of GOT price control from the basket of goods that measure the effects of inflation over a given period. It is recognized that the inclusion of goods the subject of price control would "distort" an accurate representation of inflation.

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[1] Refer Bank of Thailand Discussion Discussion Paper, Pages 11 (Paragraph 2) and 14 (Paragraph 2).

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The Bank of Thailand's acknowledgment that it excludes goods that are the subject of price control, supports ATM's position that the GOT's control of HRC prices suppresses HSS prices Further evidence is observable in the absence of a price increase for HRC in Thailand since March 2009. Global steel prices have increased by levels exceeding 10 per cent since March 2009.

Finally, ATM refers Customs and Border protection to the National News Bureau of Thailand article dated 10 January 2012 in respect of the Thai Commerce Ministry's proposal to control prices for food (refer Non-Confidential Attachment 5). The news release provides insight into the process of securing price control on any given good (or category of goods) – a process that HRC would have been the subject of prior to inclusion on the GOT's Priority Watch List.

If you have any questions concerning this letter and attachments please do not hesitate to contact me on (07) 3342 1921.

Yours sincerely

John O'Connor
Director

Cc **Stephen Porter, General Manager Sales – OneSteel Manufacturing**

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NNT NATIONAL NEWS BUREAU OF THAILAND
PUBLIC RELATIONS DEPARTMENT.
สำนักข่าวแห่งชาติ กรมประชาสัมพันธ์

Commerce Ministry to consider appropriate prices for food

BANGKOK, 10 January 2012 (NNT) - In light of many people complaining about the rising ready-to-eat meals, the Commerce Ministry has prepared to set the suggested prices for some food so that sellers can price those items appropriately.

According to the Internal Trade Department, the change of climates has adverse effects on agricultural produce, which is the raw material of food products as well as ready-to-eat meals. With farmers being able to harvest fewer crops a year; the crop prices have gone up, resulting in more expensive food.

The Department is looking to come up with suggested prices for 20 types of ready-to-eat food. Rice with fried eggs, and rice with stir-fried chicken or meat with basil leaves, for example, should be priced at 25-35 baht per dish, said the Department.

In the meantime, the Department will also organize blue-flag fairs to distribute reasonably-priced goods to help reduce living expenses of the people.

Concerning the consumer product prices, the International Trade Department has stated that a committee considering the appropriate prices for products and services will convene a meeting to review the prices before proposing the price change for products and services on the control list to the Cabinet within this month.

News ID: 255501100004

Reporter : Nuttaporn Chanchokpong
News Date : 10 January 2012

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DP/01/2009
(English Version)

BANK OF THAILAND DISCUSSION PAPER

ข้อคิดเห็นที่ปรากฏอยู่ในเอกสารวิจัยนี้เป็นความเห็นส่วนตัวของผู้เขียนโดยเฉพาะ
ซึ่งไม่จำเป็นต้องสอดคล้องกับนโยบายของธนาคารแห่งประเทศไทย

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Monetary Policy and Underlying Inflation Pressures: The Essence of Monetary Policy Design*

by

Atchana Waiquamdee, Pranee Sutthasri, and Surach Tanboon

Bank of Thailand

Abstract

This paper offers a justification for and assurance of the efficiency of a monetary policy design that is based on using core inflation as the policy target. Illustrated in a New Keynesian framework where the microeconomic foundation with rigidities of various types is the central feature, the paper starts with an important reminder of the reason why central banks need to focus on inflation as their primary objective. Once the mandate of price stability is established, the next question that follows is: Which measure(s) of inflation, according to theory, is most relevant to the conduct of monetary policy? While the literature broadly suggests that, under certain assumptions, stabilizing a target index that puts more weight on the stickier prices is a better policy, it has mostly come to a conclusion that the monetary authority should be mindful of developments in a broad variety of prices. As a result, while the choice of the policy target in the case of Thailand comes down to core inflation, in its implementation of the inflation targeting framework, the Bank of Thailand also looks at several indicators that help gauge as accurately as possible underlying price pressures.

1. Introduction

The run-up in oil and other commodity prices of late has called into question the decision made by the Bank of Thailand in 2000 to choose a measure based on the CPI excluding fresh food and energy ("core inflation") as the inflation target. Between the first quarter of 2004 and the third quarter of 2008, whereas CPI inflation ("headline inflation") averaged 4.0 percent, the average core inflation registered 1.5 percent. During that period core inflation had been consistently lower than headline inflation in every quarter. Among the several questions raised by policymakers, the most crucial one is: Given such a divergence, was core inflation still pertinent to the conduct of monetary policy as the target measure? Other relevant questions included: Why has the central bank chosen core inflation in the first place and what does theory say?

This paper offers a justification for and assurance of the efficiency of a monetary policy design that is based on using core inflation as the policy target. Illustrated in a framework where the microeconomic foundation with rigidities of various types is the central feature, the first part of the paper starts with an important reminder of the reason

*Paper prepared for the Deputy Governors Meeting on "Monetary Policy and the Measurement of Inflation" at the Bank for International Settlements, February 5-6, 2009. The authors are grateful to Amporn Sangmanee and Ashvin Ahuja for many helpful discussions and comments. The views expressed herein are those of the authors and do not necessarily reflect the views of the Bank of Thailand. Corresponding addresses: pranesu@bot.or.th (P. Sutthasri), suracht@bot.or.th (S. Tanboon).

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why central banks need to focus on inflation as their primary objective. Instability of the general price level leads to undesired variation in the relative prices of goods, and, given the presence of price rigidity, renders only some subset of prices to adjust freely. These relative price distortions lead to inefficient resource allocation.

Once the mandate of price stability is established, the next questions are: Which measure(s) of inflation, according to theory, is most relevant to the conduct of monetary policy? Should the monetary authority stabilize the general price level or a narrower price index? In addition to prices of goods and services that are consumed by households, should other prices such as wages or asset prices be taken into consideration?

While the literature broadly suggests that stabilizing a target index that puts more weight on the stickier prices is a better policy, it has mostly come to a conclusion that the monetary authority should be mindful of developments in a broad variety of prices. For example, if, in addition to prices, wages are not free to adjust, then price stabilization may not be a good approximation of the optimal policy, and in this case monetary policy need to stabilize wage inflation as well as price inflation. Another example occurs in the open economy context in which the monetary authority must decide between stabilizing headline inflation or a narrower measure that is restricted to domestic inflation. Domestic prices are intrinsically stickier than the overall price level, as exchange rate fluctuations naturally cause import prices and hence the general price level to be more volatile. Here the key factor in deciding whether domestic price stabilization is optimal depends on the assumption of exchange rate pass-through. If the pass-through is full and immediate, then optimal policy requires that domestic inflation be fully stabilized. However, if the pass-through is imperfect, then strictly stabilizing domestic inflation is suboptimal. In this case the general price level cannot be adjusted flexibly, rendering price-setters to look into the future movements in the overall price level and not just the domestic price level when making their decision. In essence, *while theory has established that optimal monetary policy from a welfare-theoretic analysis is one that targets the rate of changes in sticky prices, that conclusion also depends on other features of the economy* such as the degree of wage rigidity and exchange rate pass-through. As a result, while the choice of the policy target in the case of Thailand comes down to core inflation, the central bank needs to take into consideration developments in various aspects of the economy, especially when core inflation and headline inflation deviate from each other for some extended length of time.

In its implementation of the inflation targeting framework, the Bank of Thailand also looks at several indicators that help gauge underlying price pressures as accurately as possible. The first type of indicators is designed to separate noises from underlying inflation signals based on different methodologies. Indicators based on smoothing and/or reweighting the general price level time series have proved especially useful not only during the previous episodes of rising oil prices, but also at the present time given unintended price distortions caused by a heightened extent of government price controls. Moreover, with the government reducing the prices of certain public utilities temporarily (or setting to zero in certain instances) to help low-income households, the central bank needs to be alert in adapting the existing inflation indicators and in looking for new ones so as to accurately measure underlying price pressures. The second type of inflation indicators are those from the labor market such as movements in wages and unit labor costs as well as wage setting behavior. Third, as inflation expectations are central to inflation dynamics and given that anchoring inflation expectations is one of the most important objectives of monetary policy, indicators of inflation expectations—for example, those obtained from surveys and financial markets—play an important role in the

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formulation of monetary policy. All three types of indicators are closely monitored by the Bank of Thailand.

The rest of the paper is organized as follows. Section 2 briefly sets the stage by emphasizing the importance of price stability using the recent ideas that are grounded in the New Keynesian framework or the so-called "new consensus in macroeconomics." Once price stability is firmly established as the central bank mandate, section 3 subsequently focuses on the appropriate measure of inflation that needs to be stabilized in theory. Section 4 then looks at various indicators of underlying inflation and measures of inflation expectations that are used in practice. Section 5 explores an outstanding issue in the analysis of inflation in Thailand, namely, price controls and their implications for the conduct of monetary policy. Section 6 concludes. The appendix describes details on the construction of the consumer price index in Thailand.

2. The importance of price stability

Price stability, generally considered to be the primary objective of monetary authorities, is broadly characterized as an environment in which inflation is "so low and stable over time that it does not materially enter into the decisions of households and firms" (Greenspan, 2002). Indeed, as noted by Woodford (2003), a notable feature of recent developments in monetary theory and policy is the increased emphasis given to maintaining a low and stable rate of inflation. The motivation of recent theoretical work comes from the inability of some input suppliers (especially households which supply labor) as well as producers of goods and services to adjust wages and prices for a period of time in response to various shocks prevents the economy from producing at the efficient level *in the short run*.

From a public policy point of view, there are at least two approaches to solving this inefficiency. One is to remove structural inflexibility in wages and prices through, for example, an elimination of protracted wage-price contracts. This approach is perhaps not always possible in the real world. The other is to create an environment for firms in which they are content with existing prices, even though they cannot change their prices due to the structural constraints. This is what monetary policy aims to achieve. This approach, now more or less a consensus, posits that inflation has a deadweight loss—that is, it causes inefficient allocation and utilization of resources through relative price distortion. The loss arises when individual prices, which signal supply and demand by the household and business sectors, cannot adjust freely and instantaneously while the general price level changes. Consequently, the profitability of producing goods and services no longer reflects the relative social costs of producing them, which in turn yields a suboptimal allocation of resources[i] (see endnotes for technical details). Under this view, the central bank should use monetary policy to simulate a flexible-price environment by generating and committing to price stabilization.[ii]

3. Which measure of inflation to stabilize in theory?

3.1. Stabilizing movements in sticky prices

Given the constraint on price adjustments and the consequent relative price distortions caused by inflation, recent research shows, in a simplified setting abstracting from such frictions as the downward nominal wage rigidity or the zero lower bound on nominal interest rates, that monetary policy should aim to engineer zero inflation. In reality, with imperfect inflation measurement and other rigidities and constraints, monetary policy

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should aim to obtain a low and stable (i.e., near zero) inflation trend. In particular, it should aim to stabilize sticky prices—rather than a broader price index that puts much weight on prices that already can adjust frequently.

An analytical framework can be constructed such that prices in one sector are more rigid than those in the other sector; within this framework, it can be shown that society benefits more if monetary authorities place more emphasis on stabilizing inflation in the sticky-price sector. To be precise, *the welfare loss function puts a higher weight on variations in the sticky price sector relative to those in the flexible price counterpart.*[*] In a simplified setting of Aoki (2001), imperfection in price adjustments that is the root cause of relative price distortions is located in the sticky price sector only and not in the flexible price sector. In such an environment, complete stabilization of an aggregate price index is not optimal; instead, stabilization of inflation in the sticky-price sector is a better policy.[†] In a related setting Benigno (2004) considers a case of a monetary union consists of two countries, which can be interpreted as a two-sector closed economy with completely segmented labor markets, to show that a policy that is nearly optimal is characterized by targeting an inflation index that puts a higher weight on inflation in the region with a higher degree of nominal rigidity.

In this simplified framework, theory suggests that optimal monetary policy should focus on stabilizing a measure of sticky prices which is interpreted as core inflation. Central banks should not lose sight of other developments in the economy, however, especially those that have the potential to affect expectations formation of the public. For instance, if the rate of change in the price of a weighty item excluded from the CPI measure deviates from its trend over an extended period of time, perhaps on account of a large persistent shock, then overall inflation can trend away from the central bank's core measure and core inflation would appear an inadequate measure of underlying inflation. According to Mishkin (2008a), "[A] prolonged divergence between core and headline measures of inflation could complicate central bank communications with the public, because core inflation would require some adjustment before it would provide a clear gauge of underlying inflation." During those episodes, in the interest of expectations management that is crucial to a central bank's inflation trend anchoring, central banks have to work hard to ensure an effective communication with the public about the underlying price pressures in the economy going forward to avoid the so-called second-round effects that are prone to occur during such episodes.

Similar questions regarding the choice of stabilizing a narrow or broad price index also arise in the open economy context. In an open economy, movements in foreign import prices and exchange rates result in a difference between domestic inflation and the overall price inflation. Gali and Monacelli (2005) use the Phillips curve to show that the dynamics of domestic inflation in their open-economy model can still be described by an equation analogous to that associated with a closed economy. However, the determinants of the real marginal cost, in addition to domestic output and technology, are also foreign output and the terms of trade, as changes in foreign demand affects domestic resource utilization while changes in the terms of trade affect the relative price of foreign goods with respect to domestic goods. As the welfare loss function in this setting depends on variations in domestic inflation and not overall inflation—imperfection in price adjustments is exclusively located in the domestic sector and not in the foreign

[†] In reality, regulated prices by the authorities are present in some economies and are no doubt very sticky. However, such prices respond differently to economic fundamentals compared with freely determined prices. Given that regulated prices are artificially sticky, and not rationally set by profit-maximizing firms, the notion of stabilizing sticky prices obtained from the basic New Keynesian model cannot be construed to include regulated prices.

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counterpart—*optimal policy requires that domestic inflation be fully stabilized, while allowing headline inflation, and implicitly the nominal exchange rate, to adjust as needed in order to reproduce the response of the terms of trade that would be obtained under flexible prices*.[iv] In short, this finding in the open-economy context has a fundamental idea that is consistent with targeting the inflation rate of the sector that has more nominal inertia, and also resonates with the economic interdependency and increased globalization of late. Fluctuations in oil prices—as reflected in the erstwhile upswing caused by surging demand from a large and rapidly growing Asian economy, or in the recent collapse in oil prices caused by an ongoing slowdown in activity in many foreign economies especially in the world's largest one—result in the overall price level of any small open economy possibly not accurately reflecting underlying price pressures. In such circumstances the monetary authority should look through headline inflation and focus instead on domestic inflation.

Nevertheless, it is important to note that Gali and Monacelli abstract from several channels that potentially render a strict domestic inflation targeting policy suboptimal. For example, in the case where foreign commodity prices have a distinct trend or the exchange rate pass-through is not immediate and full, both the domestic price *and* the general price level are rigid—the latter now inherits inertia from the external economy in addition to the domestic price that is intrinsically inflexible. In this case, responding to movements in the general price level may be appropriate. In all, no matter what assumptions are made regarding the degree or speed of foreign inflation pass-through, monetary policy should focus on a measure of inflation that reflects nominal rigidities that give rise to inefficiency in resource allocation.

3.2. Stabilizing movements in other prices?

Wages. In the presence of sticky prices *and* sticky wages, various theoretical works such as Erceg, Henderson, and Levin (2000), Giannoni and Woodford (2003), and Woodford (2003) have shown policies that focus exclusively on stabilizing price inflation to be suboptimal. Intuitively, in addition to variations in the output gap and price inflation, fluctuations in wage inflation, subject to the sluggish response of nominal wage, bring about relative wage distortions that result in an inefficient allocation of labor and a consequent welfare loss. As a result, given wage rigidities, strict targeting of price inflation is no longer optimal, and theory suggests that central banks should target a weighted average of price and wage inflation, with the weights proportional to the degree of rigidity.[v] Nevertheless, problems in the measurement of labor costs may partly explain a small role of wages, relative to prices, in many central banks' price stability objective. Bernanke (2008) observes that in the U.S. compensation per hour in the nonfarm business sector, a commonly used measure of labor cost, "displays substantial volatility from quarter to quarter and year to year, is often revised significantly, and includes compensation that is largely unrelated to marginal costs." Several problems can also be found in the Thai wage data. For example, wages in the public sector turn out to be higher than those in the private sector. Hence, *although theory suggests wage inflation should be explicitly included in their target, data availability and data quality—let alone confidence in various functional forms and accuracy of calibrated/estimated structural parameters—possibly prevent central banks from having done so in practice*. Although this leaves out wage inflation as a primary target of central banks, we regularly monitor various measures of labor market pressures so as to gauge as accurately as possible the overall price pressures in the economy.

Asset prices. Although a bursting asset price bubble potentially has deleterious effects on the economy, several arguments have been put forward against an explicit inclusion of asset price inflation in monetary policy rules. First, a central bank need to identify the

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existence of a "bubble"—whether asset prices have moved away from their equilibrium level to such an extent that asset price fluctuations affect output and inflation. Identification is not an easy task. Furthermore, as Mishkin (2008b) notes, attempts to influence asset prices when the central bank is uncertain about the presence or extent of a bubble can interfere with the role of asset prices in allocating resources. Second, once a bubble is large enough to be identified reliably, argues Bean (2007), it is perhaps especially difficult for the central bank to predict the timing and strength of monetary policy transmission from interest rate changes to asset price inflation compared with the effects of the interest rate on CPI inflation. As bubbles are departures from normal behavior, impacts of the usual tool of monetary policy—that is, the setting of overnight interest rates—are not exactly clear and to a certain extent can be "blunt." Instead of including asset price inflation as a monetary policy target, Goodhart (2007) suggests using another instrument in response to asset price fluctuations, namely, countercyclical prudential regulations that are restrictive during an episode of asset price bubbles and stimulative during an episode of asset price downturns.

4. Indicators of Underlying Inflation and Measures of Inflation Expectations

4.1. CPI as a proxy for the general price level

Given that households and firms in Thailand appear to use CPI inflation, which is transparent and well understood by the public, to index wages, salaries, pensions, and long-term contracts, and that data on CPI inflation are timely, regularly published, and not subject to revision, the Bank of Thailand considers CPI inflation as a reliable measure of the change in the general price level and uses it to form a basis for calculation of underlying inflation, which ideally approximates movements of changes in sticky prices in the economy. The other available proxy for the general price level is the GDP deflator (in Thailand the price deflator for personal consumption expenditure is not available). However, the GDP deflator is released only on a quarterly basis, with the difference between inflation based on the CPI and the GDP deflator being relatively minor, except during the period in which the economy experiences large terms-of-trade shocks such as the 1997 currency crisis, as shown in figure 1.

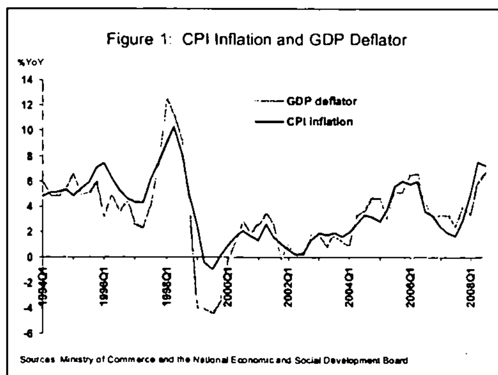

Figure 1: CPI Inflation and GDP Deflator

Sources: Ministry of Commerce and the National Economic and Social Development Board

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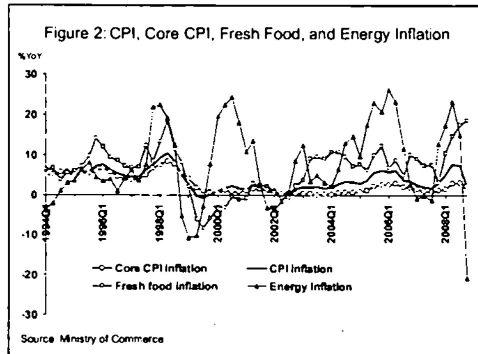
4.2. Official target: core inflation based on fixed-item exclusion

In calculating underlying inflation, the Bank of Thailand has used the fixed-item exclusion approach—that is, excluding the prices of fresh food and energy from the CPI. The rationale behind the exclusion is that these prices are the most volatile relative to other prices in the CPI, as illustrated in figure 2.



Core CPI inflation has been a monetary policy target in Thailand since the adoption of the inflation targeting framework in May 2000. There have been criticisms about whether core inflation is an appropriate target, particularly in the past few years during which headline inflation and core inflation drifted apart given continuous rises in food and energy prices; see Khemangkorn et al. (2008) for details. Consequently, the BOT has not placed a sole emphasis on developments in core inflation but instead on a variety of underlying inflation indicators.

4.3. Measures of underlying inflation other than core inflation

4.3.1. Measures based on price inflation

According to Roberts (2005), there are two broad approaches to construct measures of underlying inflation. The first is to estimate underlying inflation by a theoretical model with economic restrictions (e.g., Quah and Vahey, 1995). The second is based on statistical methods such as reweighting or smoothing as described below.

Table 1: Underlying inflation indicators

	No reweighting *across items*	Reweighting *across items*
No smoothing *across time*	- CPI	- Fixed-item exclusion (core CPI) - Trimmed mean
Smoothing *across time*	- Simple averaging; moving averaging - Exponential smoothing	- Unobserved component model

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Table 1, adapted from Brischetto and Richards (2007), shows underlying inflation indicators currently monitored by the Bank of Thailand. As mentioned above, the CPI forms the basis for the calculation of underlying inflation. Smoothing the changes in the CPI across time while leaving the weights given to the price of each CPI component unchanged gives, for instance, simple averaging, moving averaging, and exponential smoothing. Reweighting the CPI components permanently or period by period gives core CPI inflation or trimmed mean inflation. One can also both reweight each CPI component and smooth the resulting trend across time to obtain a measure of underlying inflation using an unobserved component model. Details on construction, advantages, and disadvantages of these methodologies are given in Khemangkorn and Tanboon (2007) and Sutthasri (2008), which are summarized as follows.

Fixed-item exclusion measure. This approach gives zero weights to items in the CPI basket whose prices are considered most volatile—usually prices of unprocessed foods and energy. Sometimes the excluded items are of the fresh food category only. Occasionally, not only food and energy but also mortgage interest payments are left out. A caution is in order. This approach relies on an assumption that prices of the excluded items are the most volatile in every period. If this assumption does not hold at any time, such an indicator may fail to capture accurately underlying inflation, especially when price movements of the excluded items exhibit a distinct trend following persistent demand shocks, thereby leading to bias over the long run.

Trimmed mean inflation. To ensure that prices of the excluded CPI components are indeed the most volatile in each period, this approach constructs a weighted average based on the ranked distribution of price changes of all CPI components. This is in contrast to the fixed-item exclusion above because the present methodology does not permanently exclude the same items in every period. Trimming can be symmetric or asymmetric depending on the distribution of price movements. However, one problem with the trimmed mean inflation measure involves communication with the public because the excluded items vary over time. In addition, it is subject to revision, especially when the index is constructed on the month-on-month basis, as new data may alter the seasonal factors and consequently the rate of change in the price of each CPI component.

Kalman-smoothed inflation measure. Given that underlying inflation is unobserved, one way to estimate it is to use the unobserved component model with the Kalman filter. This methodology is based on Bryan, Cecchetti, and Sullivan (2002) whereby movements in the price of each CPI component depend on changes in the common trend and an idiosyncratic shock specific to that CPI component. An advantage of this methodology is that it accords policymakers with the judgment to alter the signal parameters when the economic environment changes. However, the problem of this leeway is the difficulty in communicating with the public and the possibility of revision following changes in the signal parameters.

Results for Thailand

Figure 3, which shows indicators of underlying inflation constructed by Sutthasri (2008) based on the concepts outlined above, illustrates the necessity of having inflation measures other than a single core inflation indicator. One policy challenge drawn from the Thai experience is that core inflation possibly reflects pressures in economic activities only partially during certain episodes.

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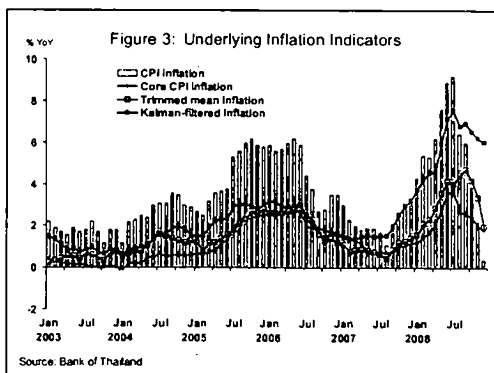
In particular, during 2003–2005, just after the Thai economy came out of the crisis, there were greater inflationary risks as a result of higher economic growth, credit expansion, a tightening labor market—not to mention a continued rise in oil prices. Meanwhile, the trend in core inflation at the time did not reflect any inflationary pressures. This was due to a decline in rent, which constitutes 21 percent in the core CPI basket and 16 percent in the CPI basket. Consequently, a larger negative contribution of rent weighed down on core inflation to a level close to zero, which is the lower bound of the target range. In this case, the potential failure of core inflation to accurately gauge pressures in the economy necessitates the Monetary Policy Committee to look for alternative indicators of underlying price pressures with more flexibility to capture the changing dynamics of the economy. By either fully or partially excluding rent from overall inflation, measures of underlying inflation such as a trimmed mean are more appropriate for inflation analysis.

Another instance in which measures of underlying inflation other than core inflation serve as a more accurate inflation gauge is when prices of permanently excluded items in the core CPI basket exhibit a distinct trend. For instance, between January 2004 and July 2008, the gap between CPI inflation and core Inflation was persistently large. On the contrary, the counterparts for the indicators based on trimming or filtering were smaller, as these indicators did not miss an upward inflation trend in the excluded items—arguably resulting from demand pressures rather than supply shocks—that is left out in the calculation of core inflation. Consequently, by looking at core inflation alone, we may fail to detect accurate inflationary pressures.

The problem with exclusively focusing on core inflation also becomes more apparent especially recently, when there are extreme price distortions caused by the ongoing government measures that involve price controls and extensive subsidies in response to rapid increases in the general costs of living and, more recently, to a subsequent slowdown in economic activity (more on the implication of price controls for the conduct of monetary policy below).

Figure 3: Underlying Inflation Indicators



Source: Bank of Thailand

4.3.2. Measures based on wage inflation

Wages have the potential to play a crucial role in inflation dynamics. Given that the key variable that drives inflation dynamics in the New Keynesian Phillips curve is real

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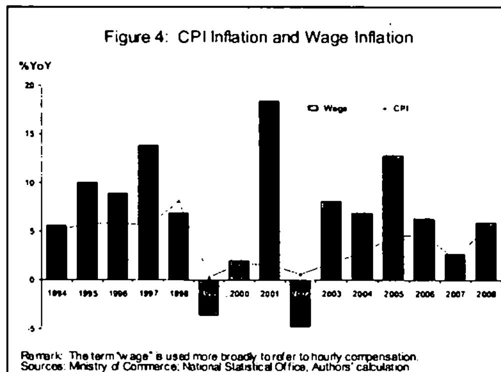
marginal cost, which in turn is primarily driven by real wage, labor markets provide vital information about the future path of inflation. Data in Thailand are less than perfect, unfortunately, given that the large informal sector within the country and the continuous inflow of (legal and illegal) migrant workers from neighboring countries render the measurement of labor market pressures especially difficult. Nevertheless, the Bank of Thailand attempts to extract signals from labor market data and regularly monitors the following measures.

Wage and hourly compensation. Hourly compensation is defined as all payments made directly to workers that include wages, salaries, overtime premiums, as well as bonuses and employee benefits. (For ease of exposition, in what follows we use the term "wage" more broadly as hourly compensation). As shown in figure 4, on average wage inflation is higher than CPI inflation in almost every year except during 1998–1999 owing to the financial crisis and devaluation of the baht. CPI inflation and wage inflation in Thailand appear to move together in the past 15 years, with the correlation coefficient over 1994–2008 equal to 0.44. It should be noted that the National Statistical Office modified survey questions in 2001, rendering data before and after 2001 not on the same compilation basis. Consequently we calculate correlation between CPI inflation and wage inflation over 2002–2008 and find the coefficient to be 0.64. A positive correlation means that in a period of rising inflation wage inflation increases as well. In order to meaningfully gauge pressures in the labor market and their subsequent effects on prices, we need to examine whether the higher growth in *real* wage *net of changes in productivity* is increasing. Under that circumstance firms are bearing an increase in costs that is not due to an increase in productivity, and that makes firms likely to pass on the higher costs to consumers. Here, the notion of unit labor costs is useful as an indicator of price pressures.

Figure 4: CPI Inflation and Wage Inflation



Remark: The term "wage" is used more broadly to refer to hourly compensation.
Sources: Ministry of Commerce; National Statistical Office, Authors' calculation

Unit labor costs. Computed as wage divided by output per hour, the (nominal) unit labor cost is a widely known indicator of labor market pressures. Intuitively, given that costs associated with labor represent a majority of input costs, rising wages will eventually pass on to prices.[1] A related notion, the real unit labor cost, which is

[1] However, Banerji (2005) finds a weak relationship between inflation and the nominal unit labor cost, using the Bry–Boschan peak-trough procedure on the 6-month smoothed annualized rate of growth in

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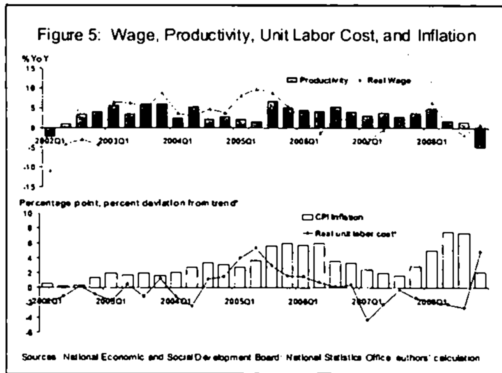
computed as real wage divided by output per hour, is a potentially useful measure of inflation because it provides a direct comparison between real wage and labor productivity: if real wage rises faster than labor productivity, then firms are worse off and need to raise prices if they can. Empirical results in Woodford (2001) and Sbordone (2002) suggest that real unit labor cost, which proxies real marginal cost, is the driving variable in the New Keynesian Phillips curve (and is a better explanatory variable for inflation relative to the output gap). This structural relationship forms a basis for our analysis of inflation. The top panel of figure 5 shows the components of the real unit labor cost, namely, real wage and labor productivity. The bottom panel attempts to portray the relationship between inflation and the real unit labor cost (the latter is shown in terms of percent deviation from trend). A quick calculation shows correlation between the two variables to be 0.08. We also find that the real unit labor cost leads inflation two quarters, with a correlation coefficient around 0.35.

What we have learned from looking at pressures in the labor market is that there appears to be a very small degree of pass-through of labor market pressures to prices. That the degree of pass-through is not full and immediate is perhaps not surprising given there are several factors that can affect firms' pricing powers, such as economic conditions, the degree of competitiveness in both domestic and foreign markets, and, especially in the case of Thailand, the extent of price controls by the authorities (more on this on section 5). For instance, over 2004-2005 when the real unit labor cost was rising given that real wage grew faster than labor productivity, with the economy expanding, firms could pass on the higher costs to prices, and here we witnessed rising inflation over this period. In contrast, during 2008 when the real unit labor cost was rising again given that productivity grew at a negative rate in the fourth quarter following a significant slowdown in the world economy, firms were unlikely to raise their prices even the real unit labor cost was on the rise but instead cut employment in order to reduce labor costs. Here we see that there are other factors at play that can affect the pass-through of labor market pressures onto prices, and simply looking at wages will not be enough.

Figure 5: Wage, Productivity, Unit Labor Cost, and Inflation



Sources: National Economic and Social Development Board; National Statistics Office; authors' calculation

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the CPI and the unit labor cost (as well as the Employment Cost and the Average Hourly Earnings Indices). Banerji concludes that labor cost inflation cannot be relied upon as an accurate predictor of cyclical movements in general consumer price inflation.

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Minimum wage. Another important indicator of labor market pressures is the minimum wage. Although only 7 percent of the labor force actually earn the minimum wage, the rest of the labor force earn wages that move in line with movements of the minimum wage to some extent. The Central Wage Committee is a tripartite minimum-wage-setting panel consisting of employers, employees, and state authorities (including a representative from the central bank). The collective bargaining process reveals an important feature of the wage-setting process in Thailand that is rather backward looking: the minimum wage is generally adjusted only once a year and is indexed to the previous year's inflation rate. Even in the periods of high inflation such as during 1994−1996 and 2008, wage setting is still conducted in a backward-looking manner (although resetting can occur during the year). In terms of the pricing power of labor, wage setters in Thailand do not have much bargaining power, in part because of the presence of (illegal) foreign labor and weak labor unions. Regulations by the authority feature prominently in Thailand to the extent that only part of requested increases in wages is granted by the tripartite committee.

4.4. Measuring and assessing inflation expectations

Inflation expectations of households and firms are a key factor in determining the actual behavior of inflation. As inflation results from the aggregate consequences of purposeful price-setting decisions by forward-looking firms, today's inflation depends critically on current marginal cost and particularly on expected future inflation. Given that the traditional Phillips curve explains only a modest part of inflation fluctuations, policymakers have focused on measuring and assessing inflation expectations.[§]

In Thailand, we primarily rely on two sources in assessing inflation expectations, namely, surveys of businesses and information gathered from financial markets. With regard to survey-based measures of expectations, two important points are as follows. First, respondents appear to give estimates based on recent and past inflation instead of future inflation; such a behavior in effect gives rise to expectations that are formed in a rather backward-looking manner. Second, the survey previously asked respondents about the range in which year-ahead inflation was expected to lie so as to facilitate responses. Given an important drawback that the only information we gain from the survey is how the proportions of firms with different inflation projections change (see figure 6), we have recently modified survey questions to elicit specific point estimates and hope to obtain a more accurate measure of inflation expectations.

With regard to measures of inflation expectations based on information from the financial markets, we look at movements of implied forward interest rates as indicators of changes in financial market expectations of future inflation. We estimate the term structure of interest rates using government bond yields; the estimated term structure allows us to extract the implied forward rates at various points in the future. By assuming in the following equation

$$\Delta i_t = \Delta r_t + \Delta \pi_t^e + \Delta \eta_t$$

[§] Inflation expectations also have the potential to affect inflation persistence. Once instance is during 1971−1976 when the increase in inflation in Thailand was due to temporary supply shocks. However, inflation continued to be elevated for several years afterward over 1977−1980. Khemangkorn et al. (2008) find that such a persistent effect was in part explained by a monetary policy that was too accommodative at the time, owing to the pegged exchange rate regime that obliged domestic monetary policy to follow the loose monetary policy stance of the U.S. Their finding, based on a Taylor-type rule, shows that inflation persistence tends to increase in an environment of too loose a monetary policy.

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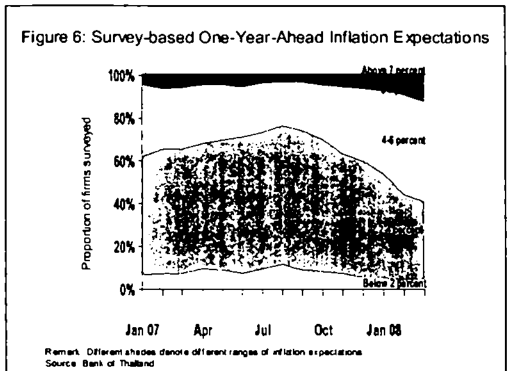
that real interest rates are stable ($\Delta r_t = 0$) and that changes in the risk premium is relatively small ($\Delta \eta_t = 0$) in the long end, changes in the implied forward curve in the long end can be taken to approximate changes in inflation expectations ($\Delta i_t = \Delta \pi_t^e$).

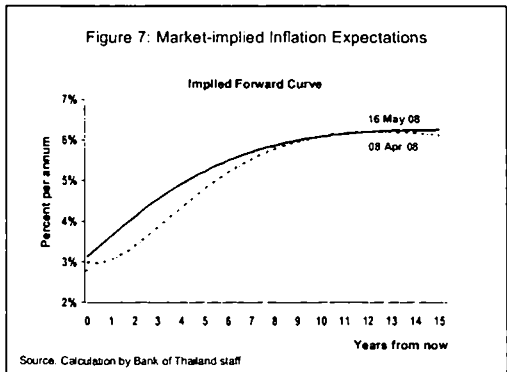
How the above inflation expectations indicators are used in the conduct of monetary policy can be illustrated as follows. During the first half of 2008 when commodity prices were on the rise, figures 6 and 7 show that, although the survey-based one-year-ahead inflation expectations are found to be increased in line with inflation at that time, the long-term inflation expectations from the implied forward curve remain mostly unchanged.

Figure 6: Survey-based One-Year-Ahead Inflation Expectations



Remark: Different shades denote different ranges of inflation expectations
Source: Bank of Thailand

Figure 7: Market-implied Inflation Expectations



Source: Calculation by Bank of Thailand staff

5. An outstanding issue in Thailand: price regulation

In addition to closely monitoring the prices of over 200 items in both the consumer and producer baskets since 2005, with the weights of the regulated items in CPI and core CPI

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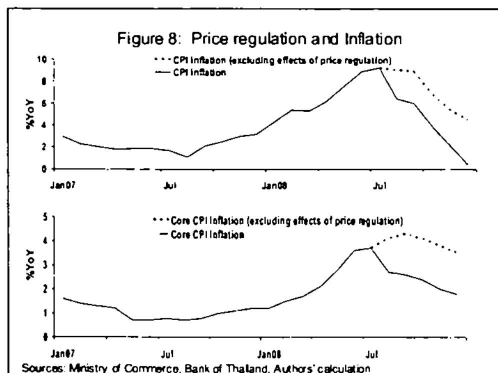
baskets around one third, the Thai government subsequently introduced a new package of six measures designed to benefit low-income households effective from August 2008. These measures essentially entail free or reduced prices in household uses of tap water, electricity, and public transportation if consumed within certain limits, with the government takes up the shortfall in revenues. While the weights of these utilities in the CPI and the core CPI baskets may look like a small portion in the baskets—approximately 9 and 2 percent respectively—but when those prices are reduced by 36–100 percent, the impacts of these government measures can be significant, with the CPI and the core CPI falling immediately by 3.4 and 1.7 percentage points in August 2008 on a year-on-year basis.

An important implication for the conduct of monetary policy of these government measures is that the monetary authority needs to look for appropriate measures of underlying inflation pressures. The above government intervention inevitably obscures measures of broad inflationary pressures and confounds seasonal patterns in various prices—the latter in effect distorts the construction of underlying inflation indicators. The Bank of Thailand consequently excludes the effects of these regulated prices and finds that, absent of the government measures, CPI and core CPI inflation are significantly higher as shown in figure 8. At the same time, the trimmed mean and Kalman-filtered inflation measures appear to provide a more accurate picture of underlying inflationary pressures that is not distorted by artificial reduction in prices controlled by the authority.

Figure 8: Price regulation and Inflation



Sources: Ministry of Commerce, Bank of Thailand, Authors' calculation

6. Conclusions

In the New Keynesian framework monetary policy has a unique role in rectifying resource misallocation caused by price rigidity. Given that firms cannot adjust their prices as often as they wish, the average markup will vary over time in response to shocks and thus can be different from the optimal markup firms want to charge if prices were flexible. Consequently, given the predetermined prices, the goal of monetary policy is to stabilize the current value and the future path of marginal cost at a level consistent with firms' optimal markup. If that policy is credible, no firm will have an incentive to change their prices regardless of whether they have the opportunity to do so, because they effectively are charging their optimal markup now, thanks to monetary policy, and will continue to do

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so indefinitely into the future. As a result, the aggregate price level is fully stabilized. Price stability is thus closely associated with optimality at the micro level and the attainment of the efficient allocation.

In theory, with regard to the appropriate inflation stabilization policy—stabilizing core inflation versus headline inflation, domestic inflation versus overall inflation, price inflation versus wage inflation—theory broadly suggests that optimal monetary policy should stabilize inflation in the sticky-price sector, because this is where the restriction on price adjustments that is the source of allocative inefficiency lies in. Consequently, much of the literature points to stabilizing core inflation in the closed economy, stabilizing domestic inflation in the open economy, and stabilizing a combination of price and wage inflation if there are nominal rigidities in both goods and labor markets. Nevertheless, it is important to keep in mind that these theoretical results depend on the model setups and the associated assumptions. For instance, in the open-economy context, if full and immediate exchange rate pass-through is assumed, stabilizing domestic inflation is a better policy. When this assumption is relaxed, so that import prices become sticky, there are now inefficiencies in the markets for imported goods as well as domestic goods. In this environment monetary policy should stabilize prices in both markets by targeting overall inflation. In the end, regardless of the setup and model assumptions, the gist of optimal policy is that the monetary authority should stabilize the inflation measure corresponding to where price rigidity is located.

In practice, once the monetary authority chooses a preferred gauge on inflation, which reflects as much as possible the persistent component of inflation, as policy target to anchor expectations, it also considers a variety of inflation measures as supplementary indicators of price pressures. As is well known, there is no single indicator that perfectly corresponds to what the central bank considers to be the inflation in the sticky-price sector(s) according to theory. The Bank of Thailand recognizes the limitations of core inflation. Furthermore, even though we have been monitoring a number of underlying inflation indicators, there are several factors that have the potential to influence inflation dynamics, and they are consequently under our careful observation. We also keep a close watch on changes in equity and bond prices as well as real estate prices—because such asset prices potentially provide useful information about the inflation outlook—and also on the expansion in credits as it in turn facilitates increases in asset prices. In summary, while our evaluation on inflation pressures primarily focuses on developments of a chosen measure that we consider to best reflect underlying price pressures on average, we are aware of and keep ourselves alert to a variety of prices and costs that directly or indirectly indicate pressures in the economy to ensure that our commitment to maintaining price stability is fulfilled to the best of our ability.

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Appendix. Consumer price index in Thailand

Methodology. The consumer price index (CPI) and the core consumer price index (core CPI) are published by the Bureau of Trade and Economic Indices of the Ministry of Commerce on a monthly basis and usually released on the first working day of the following month. The core CPI is defined as the CPI excluding unprocessed food and energy prices.

The Bureau constructs the CPI as a fixed-weight average of prices of individual goods and services using a Laspeyres formula. In general, the CPI measures the change in the price of goods and services purchased by representative households in some base period. The base period is generally updated every four years. Inflation figures released since January 2004 are based on consumption patterns in 2002, with the weights used in the construction of the CPI obtained from the National Statistical Office based on a household expenditure survey. The new CPI series based on consumption patterns in 2006 will soon be released in the first half of 2009.

Coverage. The CPI and the core CPI cover 374 and 266 items, respectively. CPI and core CPI components are shown in Table A below.

Table A: Disaggregated components in the CPI and the core CPI

Components	Weight	
	CPI	Core CPI
1. Food and beverages	36.06	21.06
2. Apparel and footwear	3.40	3.40
3. Housing and furnishing	23.86	20.12
4. Medical and personal care	6.04	6.04
5. Transportation and communication	21.98	16.68
6. Recreation and education	5.82	5.82
7. Tobacco and alcoholic beverages	2.83	2.83
Total	**100.0**	**75.95**

The overall CPI basket can also be classified into three categories: unprocessed food, energy items, and core CPI with the weights of 15.00, 9.05, and 75.95 percent respectively. Unprocessed food consists of four subcategories: (1) rice, flour, and cereal products; (2) meat, poultry, and fish; (3) eggs and diary products; and (4) vegetables and fruits. Energy consists of three subcategories: (1) fuel; (2) cooking gas; and (3) electricity.

Caveats. As is well known, the CPI is arguably biased. One instance is substitution bias coming from the Laspeyres formula. The formula assumes that households must purchase the same basket of products as surveyed in the base period—which is not necessarily true when households substitute away from the higher-priced products. Another instance of bias in the CPI arises when new products enter the market, as they will not be incorporated into the CPI calculation until the CPI basket has been updated. This type of bias is known as new product bias. Other types of bias are outlet substitution bias and quality bias; see a classic study by Boskin et al. (1996) for further details. The size of bias partly depends on how long the basket has been updated: the longer is the time between the revisions of the basket, the more severe is the bias. The consensus in international findings is that the size of bias is quite small, but most central banks, including the Bank of Thailand, are still interested in finding the size of bias precisely in order to measure inflation as accurately as possible.

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Technical Notes

[i] One may wonder how exactly inflation affects a household's welfare, given that the arguments of household utility functions generally are assumed to be the *quantities* of various goods and services, but not their *prices*. A second-order Taylor expansion of the household's utility around a steady state with constant prices yields the household's welfare loss that is a function of variations in a measure of real activity (i.e., the output gap) and the cross-sectional variance of relative prices—the latter can be shown to increase with inflation. The welfare loss function can be algebraically written as

$$\begin{aligned} \mathcal{W} &= \frac{1}{2}E_0\sum_{t=0}^{\infty}\beta^t\left[\left(\sigma+\frac{\varphi+\alpha}{1-\alpha}\right)x_t^2+\frac{\varepsilon}{\Theta}var(p_{i,t})\right] \\ &= \frac{1}{2}E_0\sum_{t=0}^{\infty}\beta^t\left[\left(\sigma+\frac{\varphi+\alpha}{1-\alpha}\right)x_t^2+\frac{\varepsilon}{\lambda}\pi_t^2\right] \end{aligned}$$

where the second equality has used the fact that price dispersion is directly related to inflation. Focusing on the inflation term, the welfare loss is increasing in the elasticity substitution among different goods (ε) and in the degree of price rigidity (which is inversely related to λ). Intuitively, given price dispersions, the more easily can goods be substituted between each other, the stronger is the degree of resource misallocation and the higher is the welfare loss. Second, the harder can prices change, the higher is the degree of price dispersions, as prices fail to adjust in tandem, leading to a higher welfare loss. As a result, the desirability of minimizing relative price distortions provides a key rationale for monetary policy to promote price stability by targeting inflation.

[ii] Consider a *structural* environment in which firms find it costly to change prices. These firms normally have to stick with "pre-fixed" prices until they have an opportunity to adjust them. Consequently, the *aggregate* price level today will depend on last period's aggregate price level and today's new prices set by those firms which are allowed to change their prices. In other words, there is persistence in the aggregate price level, and this persistence comes from structural inability to change prices freely in response to shocks at any date and state. To maximize a stream of expected future profits, the "rigid-price" firms, when they can, decide on new prices taking as given the prices of all other goods, aggregate demand, and the real disturbances.

Consider now the world in which there is zero inflation *on average*. In this case, when these rigid-price firms actually get a chance to change their prices, it turns out that they will voluntarily maintain their prices at the average of existing prices. They do this only when they can operate with the consistent belief that, on average, other firms behave similarly by keeping their prices unchanged. In aggregate, then, the average of existing prices never changes and so the new "sticky" prices chosen will be the same prevailing prices, thereby making the general price level unchanged. Absent price dispersion, the relative prices among various goods and services are not distorted, and resources can be efficiently allocated even when certain prices cannot instantaneously change in response to shocks.

[iii] Aoki (2001) and Woodford (2003) use a two-sector dynamic stochastic general equilibrium model in which prices are fully flexible in one sector but sticky in the other to show that the period loss function depends on the variations in (1) the rate of inflation in each sector individually; (2) the deviation of the output gap from its efficient level; and (3) the deviation of the relative price between the two sectors from its natural (i.e., efficient or flexible-price) counterpart:

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$$L_t = \sum_{j=1}^{2} w_j \pi_{jt}^2 + \lambda_x (x_t - x^*)^2 + \lambda_R (p_{Rt} - p_{Rt}^n)^2$$

where

$$w_j = \frac{n_j}{\kappa_j} \left(n_1 \kappa_1^{-1} + n_2 \kappa_2^{-1} \right)^{-1}$$

Here w_j, the weight given to the inflation variation in sector j, is increasing in n_j (the share of sector j in national income) but decreasing in κ_j (a smaller value of which indicates a higher degree of price rigidity). It can be shown that a policy that completely stabilizes the price index for the sticky-price sector is optimal, because it achieves the same allocation of resources as would occur under price flexibility. However, *such a policy does not completely stabilize the broader price index. This is because for the relative price, p_{Rt}, to track the natural counterpart while the sticky-price index remains constant, there must be a variable inflation rate in the flexible-price sector insofar as the natural relative price is a function solely of exogenous disturbances.*

[iv] A second-order approximation to the welfare of the representative household in Gali and Monacelli (2005) yields a period welfare loss that is a function of the variances in the domestic output gap and inflation in the home country:

$$L_t = \frac{1}{2}(1-\alpha)\left[(1+\varphi)x_t^2 + \frac{\varepsilon}{\lambda}\pi_{H,t}^2\right]$$

This welfare loss function is almost identical to the closed economy counterpart given in endnote 1, except that domestic inflation, not the overall inflation, being the relevant inflation variable. It should be noted that in the present model several parameters are assumed to take certain values (including the coefficient of relative risk aversion (σ) which is set to 1) so that a second-order approximation to welfare can be easily derived analytically. Furthermore, Gali and Monacelli also abstract from several channels that may potentially render a strict domestic inflation targeting policy suboptimal (e.g., imperfect pass-through).

[v] The mechanics underlying Erceg, Henderson, and Levin (2000) can be described as follows. A second-order Taylor approximation to the household's lifetime utility yields a welfare loss:

$$\mathcal{W} = \frac{1}{2} E_0 \sum_{t=0}^{\infty} \beta^t \left[\left(\sigma + \frac{\varphi + \alpha}{1 - \alpha} \right) x_t^2 + \frac{\varepsilon_p}{\lambda_p} (\pi_t^p)^2 + (1 - \alpha) \frac{\varepsilon_w}{\lambda_w} (\pi_t^w)^2 \right]$$

The presence of sticky wages implies an additional welfare loss that arises because of fluctuations in wage inflation. In the last term of the above expression the contribution of wage inflation volatility to the welfare loss is increasing in the elasticity of output with respect to labor input ($1-\alpha$), the elasticity of substitution among labor types (ε_w), and the wage stickiness (which is inversely related to λ_w). Given the above welfare loss function, for a certain parameterization so that an analytical solution exists, the optimal policy is to target a weighted average of price and wage inflation defined as

$$\pi_t \equiv (1 - \vartheta)\pi_t^p + \vartheta \pi_t^w$$

where

$$\vartheta = \frac{\lambda_p}{\lambda_p + \lambda_w}$$

is the weight on wage inflation that is increasing in the degree of wage rigidity.

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NNT NATIONAL NEWS BUREAU OF THAILAND PUBLIC RELATIONS DEPARTMENT.

Commerce Ministry: Steel prices still maintained

The Director-General of the Department of Internal Trade, Mr. Yanyong Phuangrach (ยรรยง พวงราช), met with steel entrepreneurs to address the potential rising steel prices this afternoon (June 5th). He reiterated that the entrepreneurs are not allowed to increase their steel prices during this period.

Mr. Yanyong says the prices of steel are still the same despite the unofficial information claiming that the steel prices may rise to seven baht a kilogram. He says entrepreneurs are experiencing high production costs, and they need to reduce their outputs.

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Thailand to prevent steel hoarding as prices rise

Monday, 19 May, 2008

The Nation reported that Thailand's internal trade department will soon dispatch officials around the country to check steel inventories in a bid to discourage hoarding, which could aggravate the pain already felt by the construction industry.

The report cited an internal trade department source as saying that "Some suppliers have declined to sell to construction companies saying they are running out of quota. Some steel makers have been stocking up on speculation that the Commerce Ministry will soon approve a THB 7 per kilogram hike in the steel price."

Thailand steel committee has proposed to raise the steel price by THB 3 early this month and by THB 4 in the middle of the month, but the move is still pending Mingkwan Sangsuwan commerce minister's approval.

An industry source said the steel price did not deserve to go up by as much as THB 7. He said that "What steel makers told the Internal Trade Department was not true. They claimed their production cost rose more than USD 1,000 per tonne in line with the increase in billet prices. In reality, they did not use 100% billets as raw material, but mixed it with scrap steel, which is much cheaper. Therefore, the current price of THB 36 a kilogram does not reflect the real production cost. Those steel makers can make a profit even though they quote a price of THB 30."

As per report the price of construction steel has kept rising from THB 18,000 per tonne in August 2007 to THB 35,000 to THB 38,000 at present due mainly to speculation in the global market and high demand in China. Contractors have cried over the steep price increase, which is the major factor pushing up construction costs by 25% in 2008.

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Products under supervisory for 200 items

As of October 2006

Sensitive List (SL) – 5 items		
1. Gasoline Oil 2. Diesel Oil 3. Milk Powder 4. Fresh Milk 5. Wire/Cable		
[illegible]		
1. Sugar 2 Fertilizer 3. Animal Feed 4.Tyre 5.Cement 6. Galvanized Iron 7. Steel Rod 8. Section 9. Steel Sheet(Hot/Cold/Roll and Stainless)		
Watch List (WL) – 186 items		
1. Fresh Chicken	26. sweetened condensed milk	51.Tapioca Flour
2. Eggs	27. Sweetened creamer	52. Thin dried noodle
3. Duck Eggs	28. Instant Coffee	53. Glass noodle
4. Beef	29. Artificial Cream	54. Semi Instant Food
5. Pork	30. Ice	55. Seasoning
6. Tiger Shrimp	31. Soft Drink / Soda	56. Instant Food
7. White Shrimp	32. Drinking water	57. Pepper
8. Short-bodied Mackeral	33. Canned fruit juice	58. Soybean Sauce
9. Catfish	34. Instant Tea	59. coconut milk
10. Nile Tilapia	35. Instant coffee	60. Body Lotion
11. Steamed short-bodied mackerel	36. Seal fruit	61. Cleansing Foam
12. Morning Glory	37. Seal Vegetable	62. Soap
13. Chinese Broccoli.	38. Instant chocolate drink (Water and Powdered)	63. Shampoo
14. Corainder		64. Conditioner
15. Green Onion	39. Salt	65. Hair Gel
16. Chili	40. Cooking oil	66. Hair dye
17. Lemon	41. Fish sauce	67. Air Freshener
18. Noodle	42. Soy sauce	68. Talcum powder
19. Napa cabbage	43. Vinegar	69. Detergent
20. Cabbage	44. Soy bean sauce	70. Cleansing Detergent
21. Mustard Leaf	45. Oyster sauce	71. Stained Remover
22. Clam	46. Ketchup	72. White Bleach
Mussels	47. Chili sauce	73. Softener
23. Rice	48. Sweet Chili sauce	74. Iron Starch
24. Yogurt	49. MSG (Mono Sodium Glutamate)	75. Dishwashing product
25. Soybean milk	50. Flour	

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Watch List (WL) – 186 items (Cont.)		
76. Toilet Cleaner	116. Lubricant Filter	157. Analgesic
77. Floor Cleaner	117. Air Filter	158. Cold Relief Medicine
78. Furniture Cleaner	118. Brake	159. Muscular pain relief
79. Shoe Polisher	119. Motorcycle Tire	160. Wound Solution
80. Toothpaste	120. Bicycle Tire	161. Plastic Adhesive Bandage
81. Toothbrush	121. Battery (use for vehicle)	162. Cotton
82. Sanitary napkin	122. UV protection film	163. Two wheel walk-behind tractor
83. Diaper	123. Motorcyclist Helmet	164. Farm Tractor
84. Cotton bud	124. Wall tile and floor tile	165. Lawn mower
85. Battery (use for electronic appliance)	125. Roof tile	166. Rice Combine Harvester
86. Razor Blade	126. Gypsum Board	167. Water Pump
87. Insecticides	127. Heat protection board	168. Slan
88. Paper Pulp	128. Cement Floor	169. Hoe
89. Craft Paper	129. Mirror	170. Spade
90. Sheet Board	130. Cement Pipe	171. Hand Grass Shears
91. Printing paper	131. PVC pipe	172. Pesticides
92. Proof paper	132. Aluminium Pipe	173. Pesticides sprayer
93. Toilet paper	133. Aluminium extrusion	174. Food Package Foam
94. Notebook	134. Plywood	175. Tin Plate
95. Light bulb	135. Nail	176. Tin Free
96. Hair dryer	136. Painting color	177. Student Bag
97. Electric Fan	137. Rock	178. Student Uniform
98. Rice Cooker	138. Sand	179. Student socks
99. Refrigerator	139. Brick	180. Student shoes
100. Television	140. Light Block	181. Water Filter
101. Electric Kettle	141. Block concrete	182. Cassette Tape Video Tapes
102. Grinding machine	142. Finished Concrete	Compact disc
103. Iron	143. Concrete Floor Product	183. Mobile phone
104. Air Conditioner	144. Tank	184. Mobile phone battery
105. Washing machine	145. Fan screen Tank	185. Filling card
106. Vacuum cleaner	146. Lubricant	186. Gold Ornaments and Gold Bullion
107. Water heater	147. Bunker Oil	
108. Purifier	148. Bio diesel Gas	
109. Tape and CD player	149. Cooking Gas	
110. Microwave	150. Liquefied Petroleum Gas	
111. Pumping machine	151. Plastic Rasin	
112. Passenger car	152. Plastic bag	
113. Small truck	153. Carry Plastic bag	
114. Motorcycle	154. Garbage bag	
115. Bicycle	155. Wrapping plastic bag	
	156. NGV	

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Services under supervisory for 20 items

As of October 2006

Sensitive List (SL) - 1 items
Delivery services (Document, Package and Fax)
Repair service

Watch List (WL) - 18 items

1. Ticket service
2. Flower arrangement
3. Watch, Clock and shoes repair
4. Laundry Service
5. Barber shop
6. Fixing clothes
7. Electronics and Water and Telephone
8. Photocopy service
9. Develop Service
10. Parking service
11. Refill and Changing oil
12. Pet care
13. Gym: swimming pool and tennis /badminton court
14. Barber shop
15. Cassette tapes, Video tape and compact disc
16. Apartment, hotel and accommodation rental
17. Book rental