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RISING FOOD PRICES IN ASIA AND IMPLICATIONS FOR MONETARY POLICY

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Abstract

This paper reviews the recent experience with food price inflation in Asia and discusses its impact on broader price stability. The effect of food price increases on general inflation is estimated by drawing on past experiences from the region. Our findings suggest that the recent increase in food prices could have a significant impact on general price inflation in the Asian economies. At the same time, the expected slowdown in growth along with the global downturn is not likely to bring about a meaningful reduction in inflation without policy tightening in the region. The paper also discusses issues and challenges to the appropriate monetary policy response in the face of the current uptrend in food prices.

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I. BACKGROUND

Global food prices climbed notably in 2007 and in early 2008, with the prices of several agricultural commodities such as wheat, maize and, more recently, rice, surging ahead. Along with heightening social concerns, higher food price inflation has also triggered concerns over broader price stability and called for some delicate weighing of risks by monetary policymakers, at a time of unusually high uncertainties in global growth prospects. This paper aims to give an overview of the food price inflation situation in the Asian economies. The impact on broader price stability is discussed and the impact of food price increases on general inflation is estimated within a simple empirical framework. Finally, some issues regarding the appropriate monetary policy response are discussed.

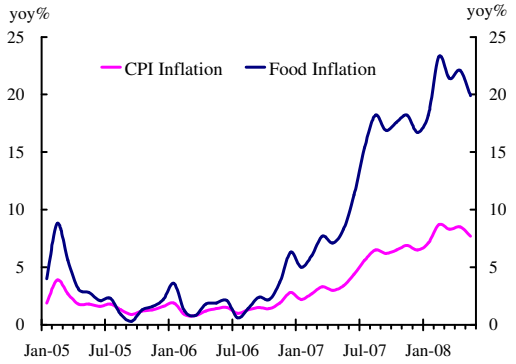
II. FOOD PRICE INFLATION IN ASIAN ECONOMIES

Asian economies, along with many other economies around the globe, experienced elevated food price inflation in 2007 and in early 2008. In many cases, food price inflation outpaced general price inflation to contribute more than proportionately to the headline inflation rate (Chart 1).

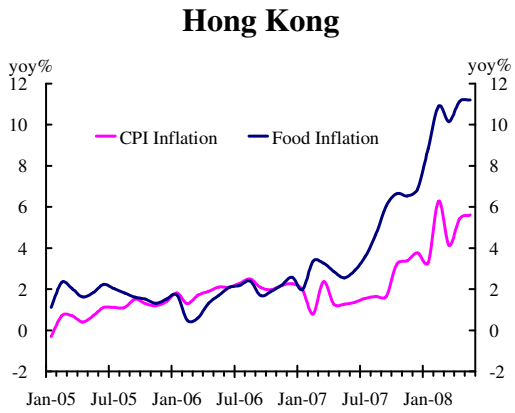
To a large extent, rising food prices reflects global trends. With the IMF commodity, food and beverage price index rising by 43% in the twelve months to May 2008, it is not surprising that food prices in individual economies have been boosted. Food price inflation has also been broad-based, with the prices of different food types such as grains, cooking oils, vegetables and meat all rising to various extents, reflecting in part more intense competition for the same resources in the production of different food products. There are, however, also local factors at work which pushed up the price of certain food types for individual Asian economies. For instance, due to a disease which affected pig supply, the price of meat and poultry in China rose some 35% in 2007 whereas its increase was relatively mild for other Asian economies. On the other hand the price of cooking oil rose faster in Indonesia and Thailand than in other economies (Chart 2).

Chart 1: Food price inflation in Asian economies

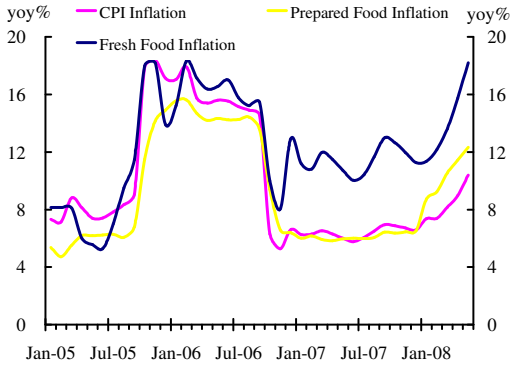
China



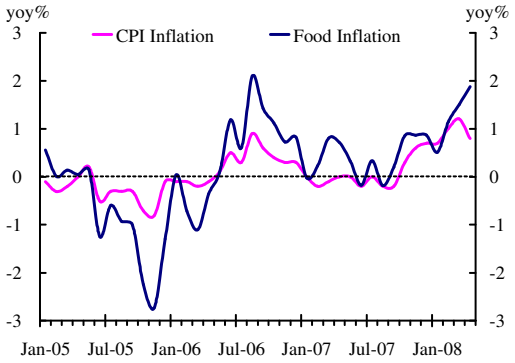
Hong Kong



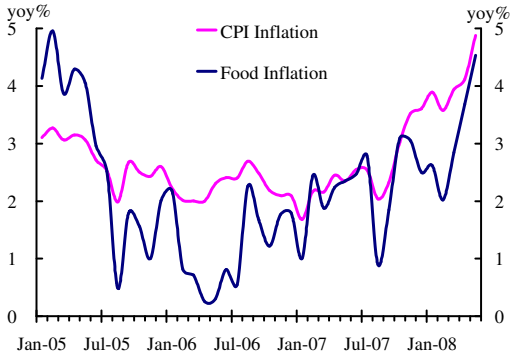
Indonesia



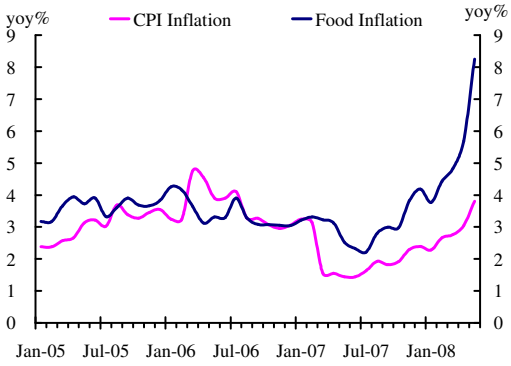
Japan



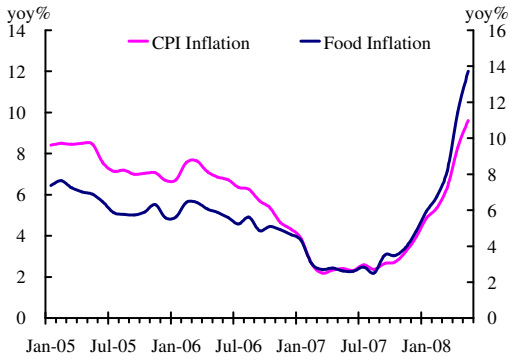
Korea



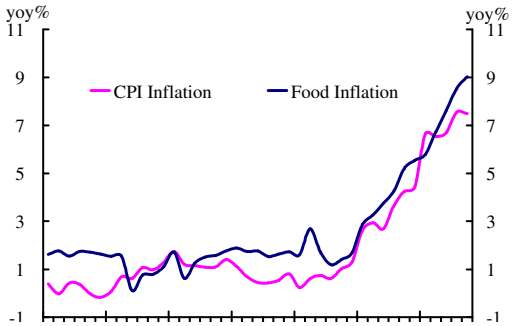
Malaysia



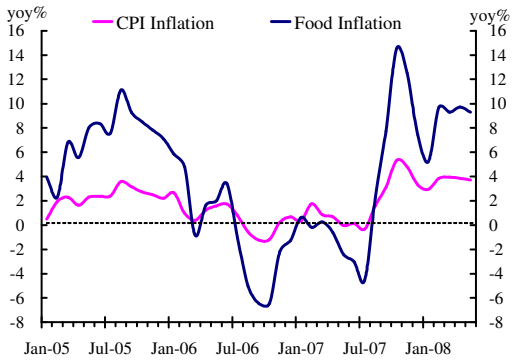
Philippines



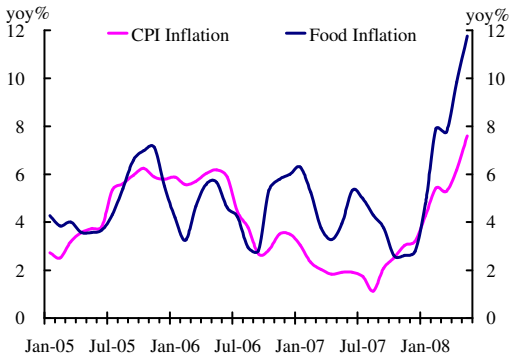
Singapore



Taiwan

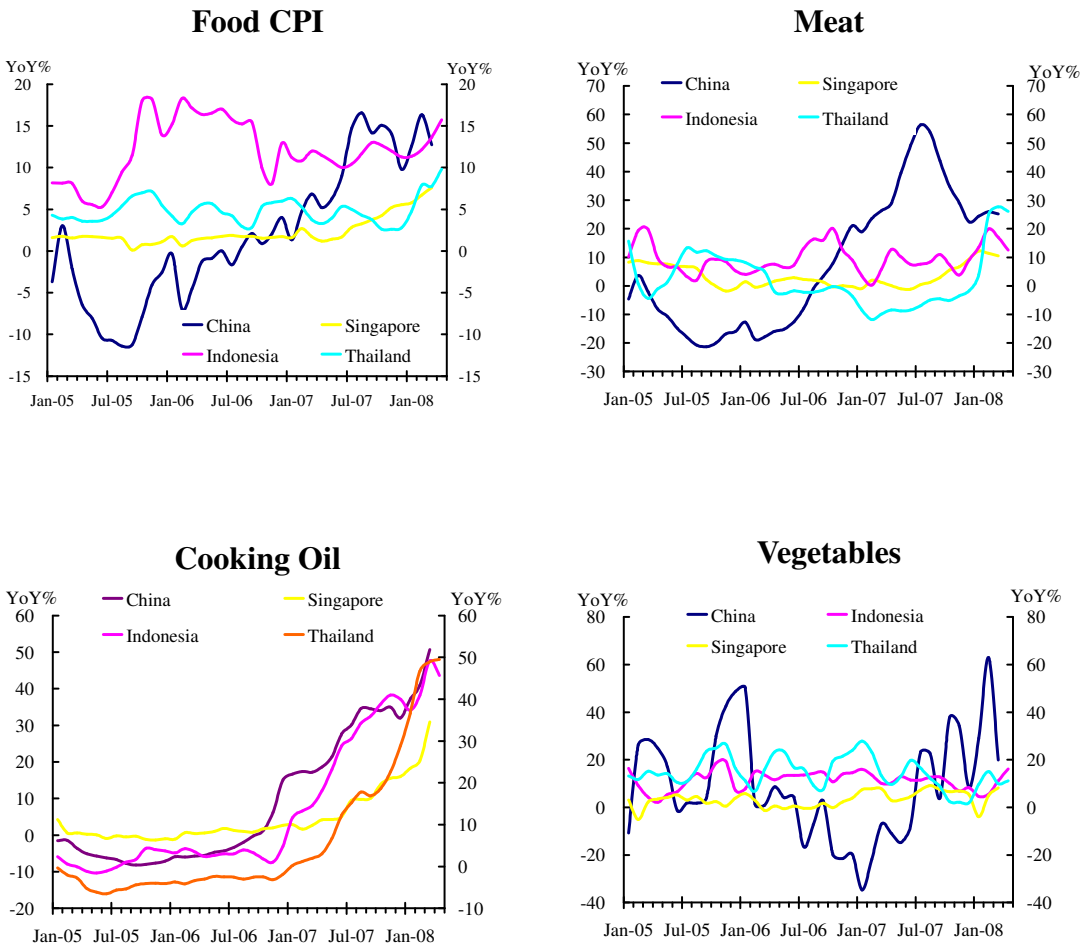


Thailand



Sources: CEIC and Bloomberg.

Chart 2: Food price inflation by food type in selected Asian economies



Source: CEIC.

In general, and among Asian economies, the increase in retail food prices has been more pronounced in developing than in the more developed economies (Chart 1). This may be because a relatively larger proportion of retail food prices in the more developed economies consist of compensation to services such as processing, packaging, and marketing. Also, the demand for individual foodstuffs may be more elastic in more developed economies given the wider choice of food products available. Thus there may be more room and more incentive for the intermediate processor to absorb an increase in food costs in more developed economies, which serves to buffer the final consumer from immediate price shocks.

At the same time, the consumption of food often takes up a larger share of household expenditure in less developed economies, and hence a greater weight of food in the CPI basket. For instance, food (including eating out) makes up just 14% and 19% respectively of the CPI basket in the US and the EU, whereas it accounts for over 20% in many Asian economies, and up to 50% in the Philippines. This, coupled with a faster rate of food price inflation, means that the contribution of food price inflation to headline inflation is higher in emerging markets than in industrial economies (Table 1).

Table 1: Asian economies' CPI and food inflation in May-2008 *

	CPI Inflation (yoy%)	Food Inflation (yoy%)	Weight of Food in CPI	Contribution of Food to CPI Inflation (percentage points)		
					Fresh Food	Eating Out[1]
China	7.7	19.9	0.33	6.6	-	-
Hong Kong	5.6	11.2	0.27	3.0	1.9	1.1
Indonesia	10.4	16.5[(2)]	0.35	5.7	4.5	1.2
Japan	0.8	1.9[(2)]	0.31	0.6	0.5	0.1
Korea	4.9	4.5[(2)]	0.27	1.2	0.7	0.6
Malaysia	3.8	8.2	0.30	2.5	1.8	0.7
Philippines	9.6	13.7	0.50	6.9	-	-
Singapore	7.5	9.0	0.23	2.1	1.2	0.9
Taiwan	3.7	9.3	0.26	2.4	1.6	0.8
Thailand	7.6	11.8	0.36	4.2	3.0	1.2
US	4.2	5.1[(2)]	0.14	0.7	0.4	0.3
EU	4.0	7.2	0.19	1.4	-	-
UK	3.3	5.9[(2)]	0.22	1.3	0.8	0.5

* April 2008 figures are reported for Japan.

1. CPI sub-index that is close to "eating out" in definition is used for several countries: "cooked food" for Singapore, "prepared food" for Indonesia, "prepared food" for Thailand.
2. Weighted-average of inflation rates of fresh food and prepared food/eating out are used for Indonesia, Japan, Korea, the US, and the UK.

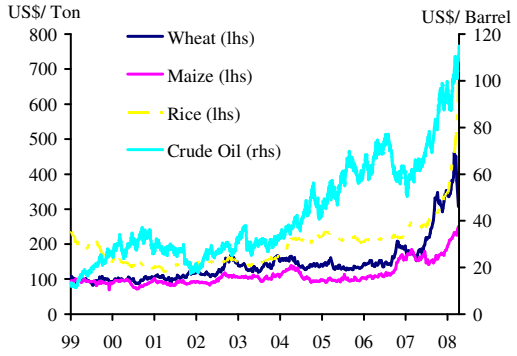
Sources: Bloomberg, CEIC.

III. FACTORS DRIVING FOOD PRICE INFLATION

Several factors, many of which are on the demand side, have helped push up agricultural product prices. One factor has been a change in dietary patterns in developing countries in favour of animal-based protein such as meat and milk, fuelled by rising incomes. According to the Food and Agriculture Organisation (FAO), between 1962 and 2003 the consumption of meat per person in developing countries increased threefold, whereas per capita consumption of cereals increased by only 20%. It is likely that this trend has continued in recent years, given the increase in per capita income in many developing countries. As industrial livestock production is highly grain-intensive, with some estimates indicating that two to five times more grain is required to produce the same amount of calories through livestock than through direct grain consumption, higher meat and dairy consumption has in turn magnified the demand for grain.

Another demand-side factor concerns the rising production of biofuels in the last two to three years, triggered by high energy prices and supported by government incentives. Indeed, energy and agricultural prices have become increasingly intertwined (Chart 3). A fifth of the US maize crop is now used to produce ethanol, and as farmers planted more maize, they reduced acreage of other crops, particularly wheat and soybeans, contributing to a sharp increase in the prices of these crops. Further, decreased soybean production also contributed to a global shortfall of cooking oil, at a time when rising biodiesel production in Europe has also pushed up the prices of vegetable oil. The FAO predicted in late 2007 that biofuel production, assuming that current mandates continue, would increase food costs by 10 to 15%.

Chart 3:
Energy and agricultural prices



Sources: FAO and Bloomberg.

At the same time, supply side factors such as the severe drought in Australia in 2006 – 07 and the snowstorm in China in early 2008, as well as speculative activities in agriculture commodity markets, may have also played a role in the rise of food prices. In the face of rising food prices, some countries imposed export limits on agriculture products in efforts to protect domestic consumers, driving prices on the world market even higher. India, Vietnam, Egypt and Cambodia for instance imposed restrictions on rice exports in March 2008, leading to a spike in world rice prices.

IV. RISKS TO BROADER PRICE STABILITY

Food price inflation affects general price inflation via various channels. It contributes directly to general consumer price inflation with food being a component of the CPI. As noted above, generally food is a larger component of the CPI basket in developing economies, thus the direct contribution of food price inflation is higher than it is in higher income economies. Indeed, for many developing economies and emerging markets, food prices are a larger contributor to general consumer price inflation than are energy prices.

Indirectly, there is also some pass-through from food price inflation to non-food inflation. Higher food price inflation may, for instance, prompt higher wage demands to compensate for rising food costs, thus bringing about some cost-push inflation. Preliminary results from studies found that the response of non-food inflation to food inflation is larger in less developed than in more developed economies. One possible reason for this may be that food takes up a larger share of the consumption basket in the less developed economy, and thus the food element in any cost-push inflation would be higher.

Food price inflation can also feed into non-food inflation by generating higher inflation expectations. Based on higher ex post inflation, consumers may form higher inflation expectations for the future, and set prices and wages accordingly, generating second-round effects on prices. In particular, there is the concern that as food price inflation is highly visible, and constitutes a larger share of household expenditure in lower income economies, inflation expectations may be more easily unmoored, or that

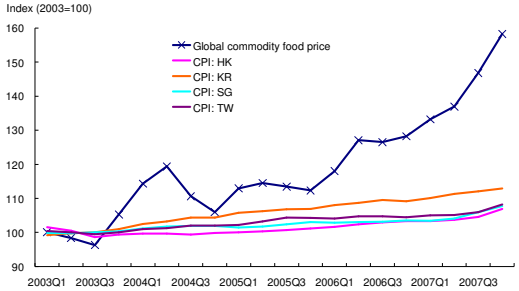
higher inflation expectations more easily built in, than they are in the more developed economies.

A key factor that influences the pass-through from food price increases to general price inflation is the credibility of the monetary policy framework. A price stability objective that is operated within a credible monetary policy framework would help keep inflation expectations well anchored in the face of price shocks. On the other hand, if the authorities' will or ability to rein in inflation is viewed as inadequate, then the wage demands and price setting of households and businesses could become more aggressive.

V. Quantifying the Impact of Food Prices on General Inflation – Implications for Asia

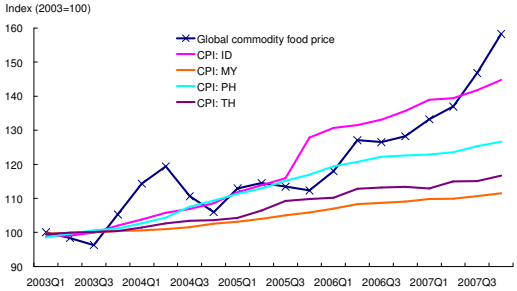
Given the various channels through which rising food prices can affect general inflation as discussed above, to what extent would food prices affect consumer price inflation in the Asian economies? As a background for a more formal statistical analysis, Charts 4 and 5 give a graphical overview of how food prices and consumer prices have been related among the NIEs and the ASEAN economies respectively over the past few years. Charts 4a and b suggest a close long-run relationship between consumer prices and commodity food prices in the ASEAN economies but a lack of obvious long-run relationship between the two price indices in the NIEs. This is not surprising given that the developing ASEAN economies have a larger proportion of food in their consumer baskets than that in the NIEs.

Chart 4a: Long-run relationship between food commodity prices and the CPI in the NIEs



Sources: IMF, CEIC.

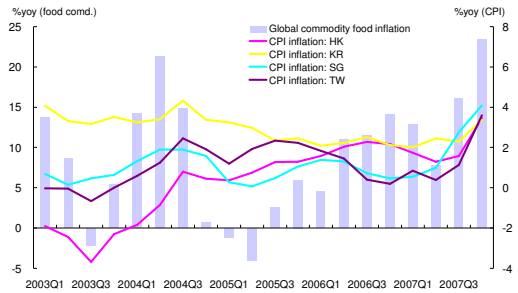
Chart 4b: Long-run relationship between food commodity prices and the CPI in the ASEAN economies



Sources: IMF, CEIC.

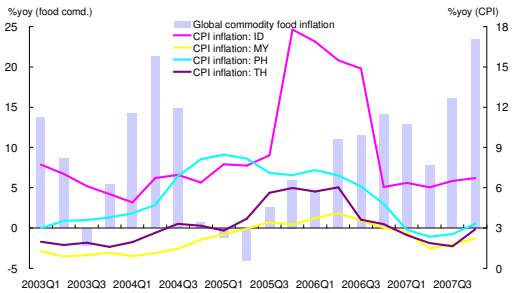
However, the short-run relationship reflected in the year-on-year change in food and consumer prices in Charts 5a and b suggests a different picture. While the peaks and troughs in consumer price inflation tend to track those in food prices in the NIEs, an obvious link between inflation of the two price indices cannot be readily observed in the ASEAN economies. One possible reason is that food prices in the ASEAN economies are subject to price controls and subsidies, while the NIEs have relatively few of these measures. These measures have prevented an immediate increase in consumer price inflation, at least by the same magnitude, along with a rise in food prices.

Chart 5a: Short-run relationship between food commodity prices and the CPI in the NIEs



Sources: IMF, CEIC.

Chart 5b: Short-run relationship between food commodity prices and the CPI in the ASEAN economies



Sources: IMF, CEIC.

To investigate the impact of food price increases on consumer price inflation in the Asian economies in a more analytical framework, we estimate a simple augmented Phillips Curve based on past experience in the region. Apart from the impact of food prices, the model also attempts to answer the widely-discussed question on the extent to which a slowdown in economic activity would counter the upward pressure on prices and bring about a meaningful reduction in inflation in the region. While surging food prices have been the major driver of the current inflationary phase, slowing economic growth along with the US downturn has been expected to ease inflationary pressure.

The Phillips Curve is generally defined as a model relating inflation to the unemployment rate, output gap, or capacity utilisation. An augmented Phillips Curve is used here to analyse the impact of food price increases on general inflation. Here, inflation is expressed as a

function of the output gap as well as supply shocks which include changes in food prices and changes in the real effective exchange rate. Specifically, we estimate the following Phillips curve:

$$\pi_t = \alpha + \beta_1 g_t + \beta_2 food_t + \beta_3 reer_t + \gamma \pi_{t-1} + \varepsilon_t \quad (1)$$

where π_t is the year-on-year headline CPI inflation rate; g_t the deviation of the year-on-year real GDP growth rate from its long term trend[1]; $food_t$ the year-on-year change in the commodity food price[2], and $reer_t$ the year-on-year change in the real effective exchange rate. The inflation rate is expected to increase with past inflation rate, a widening output gap and food prices, but to decrease with an appreciation of the exchange rate. The coefficients β_1, β_2 and γ are thus expected to be positive, while β_3 is expected to be negative. Based on quarterly data of eight Asian economies, we estimate the Phillips curve using a panel generalised method of moments.[3] Table 2 presents the results.

Table 2: Phillips curve estimates

Variable	Coefficient	Estimate
Output gap	β_1	0.062* (0.030)
Commodity food price	β_2	0.015* (0.008)
REER	β_3	-0.021 (0.012)
Last quarter's inflation	γ	0.946* (0.045)
Adjusted R-square = 0.865		

Notes: * implies significance at the 5% level.
Standard errors in the parentheses.

[1] The long term trend is the smoothed series filtered by the Hodrick Prescott filter, with lambda equals to 1600.

[2] To avoid data inconsistency, we use the Commodity Food and Beverage Price Index compiled and provided by IMF as a proxy of commodity food price for all 8 countries. The index is measured in US dollars and so to the extent that the local currency is allowed to appreciate against the US dollar, this would help buffer the increase in local food prices.

[3] These include Hong Kong, South Korea, Taiwan, Singapore, Malaysia, Thailand, the Philippines and Indonesia.

The results are consistent with theoretical expectations, with the commodity food price inflation rate being positively related to the CPI inflation rate. The estimated coefficient suggests that for every one percentage point increase in commodity food price inflation, the CPI inflation rate will increase by about 0.02 percentage points. While the coefficient may not seem large, commodity food price inflation was about 38% in the first quarter of 2008. Therefore, based on our estimates, food price inflation would have increased CPI inflation in the region by almost 0.7 percentage points on average. Or, taking into account the lagged effects, CPI would increase by almost 2.5 percentage points after one year due only to the food price increase in the first quarter of 2008. Given an average inflation rate[4] of around 6% in the region, such a magnitude suggests that the effect of food price increases on general inflation should not be ignored at the current juncture.

At the same time, while the current high inflationary pressure in the region is expected to ease along with a slowdown in economic activity, our findings suggest that a slowdown in the region's growth would not be enough to counter inflationary pressures from rising food and fuel prices. While our results are consistent with theoretical expectations, with the output gap, and the change in import price and inflation in the previous quarter, being positively related to the inflation rate, and thus suggesting that a reduction in excess demand should help ease inflation, the degree of alleviation due to a contraction in demand is small. The findings show that a reduction in the positive output gap by one percentage point would only lower the inflation rate by 0.06 percentage points. Such a magnitude appears to be far from adequate to effectively ease the rapidly rising inflationary pressure.

VI. MONETARY POLICY IN THE CONTEXT OF FOOD PRICE INFLATION

A key question concerning whether and how monetary policy is to respond to higher food prices is how permanent the shock to food prices is. Food price inflation tends to be temporary, with price hikes relating to adverse weather conditions. In such cases, and given well-anchored inflation expectations, monetary authorities have tended to be more concerned with the underlying rate of inflation, often proxied by some core

[4] Simple average of headline CPI inflation rate in NIE-4 and ASEAN-4 economies.

measure of the inflation rate, in their conduct of monetary policy, to avoid bringing about undue volatility in output and employment. However, in the current episode of food price increase, there might be more persistent, or structural, elements at work that would keep food prices elevated, and even rising, for longer. For instance the shift in the structure of demand for food products seems to be developing in a way that may not disappear soon. And while higher food prices would trigger an increase in supply, the supply response may only come gradually, constrained in part by land availability.

A persistent rise in food prices would affect the underlying rate of inflation, and arguably there might be a case for monetary policy to respond. Most Asian economies have price stability as one of their monetary policy goals. Some have adopted an inflation-targeting framework in which to achieve their price stability objective, and inflation has exceeded the upper ceiling of the target range for many economies for several months recently (Table 3). The results based on the above simple model, while necessarily crude and to be interpreted with caution, suggest that the impact of food price increases on general price inflation can not be ignored, and that the slowdown in growth alone would not be enough to resolve the current situation in the region. Policy tightening may be required in order to achieve a significant reduction in the inflation rate in the region.

Table 3: Asian economies' inflation targets and recent inflation data

	Inflation Targeting	Inflation Target	CPI Inflation May 08 (yoy%)
China	No	N.A	7.7%
Hong Kong	No	N.A	5.6%
Indonesia	Yes	5.0 ± 1.0%[1]	10.4%
Japan	No	N.A	0.8%[2]
Korea	Yes	3.0 ± 0.5%	4.9%
Malaysia	No	N.A.	3.8%
Philippines	Yes	4.0 ± 1.0%[1]	9.6%
Singapore	No	N.A	7.5%
Taiwan	No	N.A.	3.7%
Thailand	Yes	0% - 3.5% (core CPI)	2.8% (core); 7.6% (headline)

1. For 2008.
2. Apr 08 figure(s).
Sources: Official websites of the respective central banks and speeches of financial officials; CEIC.

Further, monetary policy has a crucial role to play in managing inflation expectations. In economies where monetary policy is operated within an inflation-targeting framework, as it is in several Asian economies, inflation expectations may be better anchored. For other economies without a monetary anchor, policymakers may have to weigh the risks of dislodging inflation expectations, and hence having to face a less favourable inflation-output combination in the future, versus the risk of unduly slowing growth at the current juncture of increasing global uncertainties.

VII. CONCLUSION

It appears that rising food prices could test emerging Asia's resilience, and rising inflationary pressures could be a more immediate threat to the region than slowing growth. Our analysis based on a simple Phillips Curve model estimated for the Asian economies suggests that given their recent magnitude of increases, food prices could have a significant impact on the region's general inflation. At the same time, historical experience does not indicate a strong correlation between growth and inflation in the region. Our findings show that a reduction in the output gap would not lead to a significant reduction in inflation. Thus, based on this finding, which is necessarily crude and should be interpreted with caution, there may not be a meaningful reduction in the inflation rate without policy tightening in the region. With price stability being a main focus of monetary policy, it may be difficult for policy to be accommodative even though the economy is slowing, especially when structural elements are at work in the current episode of food price increase and when inflation expectations are not very well-anchored.

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