FEATURE ARTICLE

Rising food prices in Asia and implications for monetary policy

By Lillian Cheung, Jessica Szeto, Chi-Sang Tam and Steven Chan of the Research Department

This study shows that recent increases in food prices could have a significant impact on general price inflation in Asian economies. At the same time, the expected slowdown in growth along with the global downturn is not likely to result in any meaningful reduction in inflation without policy tightening in the region. The study also discusses issues and challenges related to the appropriate monetary policy response to the current increase in food prices.

Background

Global food prices rose notably in 2007 and in early 2008, with the prices of several agricultural commodities such as wheat, maize and, more recently, rice, surging ahead. As well as heightening social concerns, higher food-price inflation has also triggered concerns over broader price stability and led to some delicate weighing of risks by monetary policymakers, at a time of unusually high uncertainty over global growth. This paper gives an overview of food-price inflation in Asian economies. The effect 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.

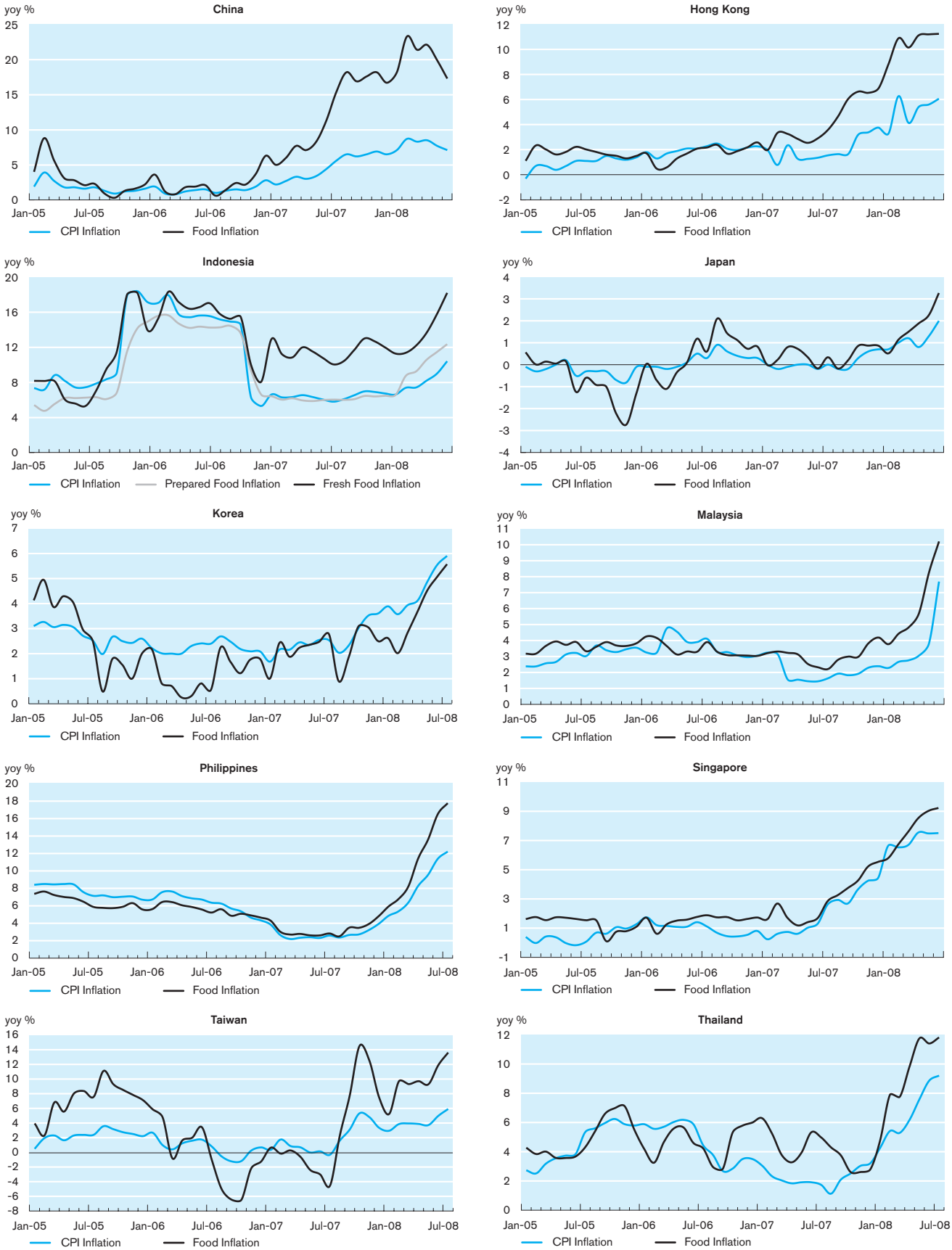
Food-price inflation in Asian economies

Food-price inflation intensified in Asian economies and many other economies around the globe in 2007 and in early 2008, despite some moderation in commodity-food prices in recent months. In many cases, it outpaced general price inflation to contribute more than proportionately to the headline inflation rate (Chart 1).

To a large extent, rising food prices reflect global trends. With the IMF commodity, food and beverage price index rising by 43% in the 12 months to May 2008, it is not surprising that food prices in individual economies have increased. 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 by varying degrees reflecting, in part, more intense competition for the same resources in the production of different food products. However, local factors are also responsible for pushing up prices of certain items in individual Asian economies. For example, due to a disease affecting pig supplies in China, the price of meat and poultry rose some 35% in 2007, although the increase in other Asian economies was relatively mild. And the price of cooking oil rose faster in Indonesia and Thailand than in other economies (Chart 2).

CHART 1

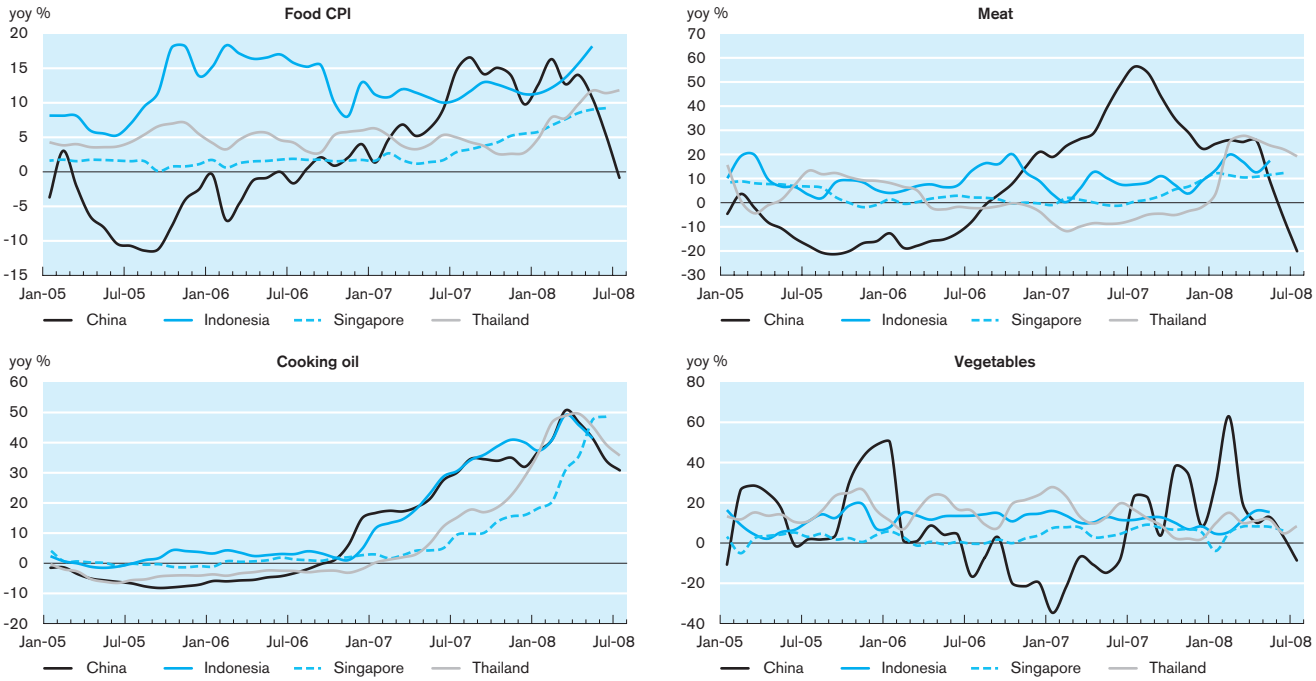
Food-price inflation in Asian economies



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 larger proportion of retail food prices in the more developed economies consists of compensation to services such as processing, packaging, and marketing. The demand for individual foodstuffs may also be more elastic in more developed economies given the wider choice of food products. There may therefore 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, giving food a greater weight in the Consumer Price Index (CPI) basket. For instance, food (including eating out) makes up just 14% of the CPI basket in the US and 19% in the EU, while 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 June 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	7.1	17.3	0.33	5.8	–	–
Hong Kong	6.1	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	2.0	3.3[2]	0.31	1.0	0.9	0.1
Korea	5.9	5.6[2]	0.27	1.5	0.8	0.7
Malaysia	7.7	10.2	0.30	3.1	2.2	0.8
Philippines	12.2	17.8	0.50	8.9	–	–
Singapore	7.5	9.2	0.23	2.2	1.2	1.0
Taiwan	5.9	13.6	0.26	3.5	2.8	0.8
Thailand	9.2	11.8	0.36	4.3	2.6	1.7
US	5.0	5.3[2]	0.14	0.7	0.5	0.3
EU	4.3	7.5	0.19	1.5	–	–
UK	3.8	6.7[2]	0.22	1.5	1.0	0.5

Notes:
* May 2008 figures are reported for Indonesia; July 2008 figures are reported for Korea, the Philippines, Taiwan, and Thailand.
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, and "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 and CEIC.

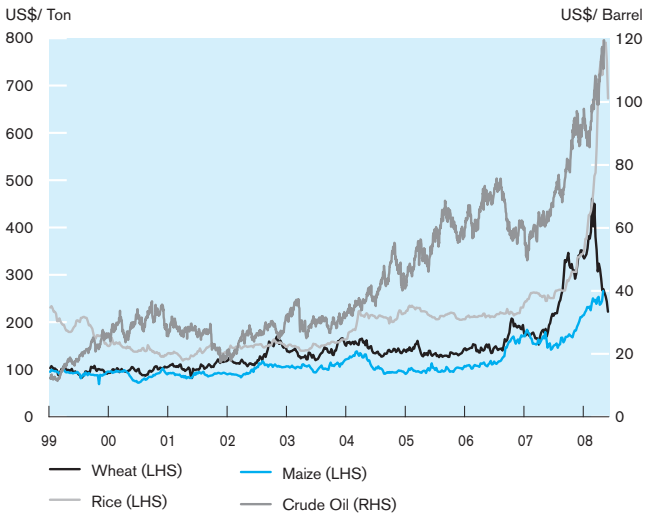
Factors driving food-price inflation

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 Organization of the United Nations (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 past 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

CHART 3

Energy and agricultural prices



Sources: FAO and Bloomberg.

more maize, they reduced acreage of other crops, particularly wheat and soybeans, contributing to a sharp increase in the prices of these crops. The 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%.

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, and speculative activities in agricultural 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 agricultural products in an effort 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.

Risks to broader price stability

Food price inflation affects general price inflation through various channels. It contributes directly to general consumer-price inflation with food being a component of the CPI. As noted above, food is generally a larger component of the CPI basket in developing economies, thus the direct contribution of food price inflation is higher than it is in more developed 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 example, 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 is that food takes up a larger share of the consumption basket in the less developed economies, 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 unleashed, or that higher inflation expectations are 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 helps 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.

Quantifying the impact of food prices on general inflation – implications for Asia

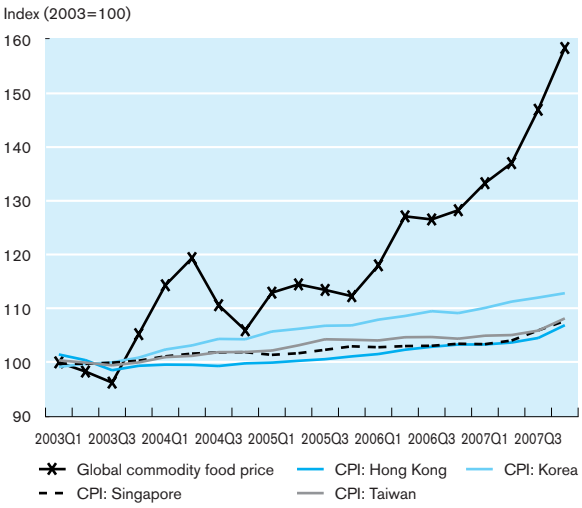
Given the various channels through which rising food prices can affect general inflation as discussed above, to what extent would food prices affect

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 newly industrialised economies (NIEs) and the Association of Southeast Asian Nations (ASEAN) economies respectively over the past few years. Charts 4a and 4b suggest a close long-run relationship between consumer prices and commodity-food prices in the ASEAN economies, but a lack of an 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 do the NIEs.

However, the short-run relationship reflected in the year-on-year change in food and consumer prices in Charts 5a and 5b suggest a different picture. While the peaks and troughs in consumer-price inflation

CHART 4a

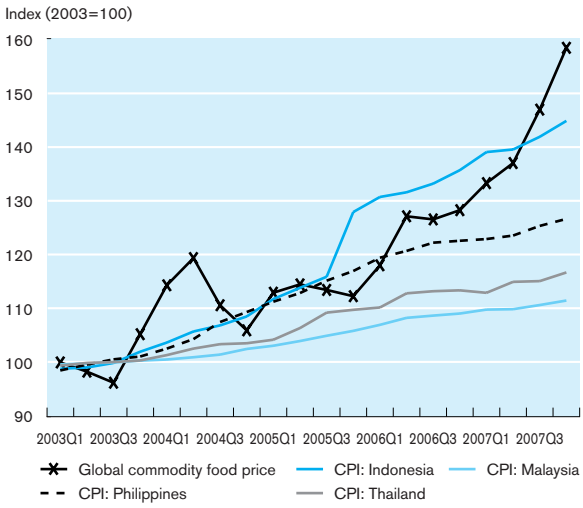
Long-run relationship between food-commodity prices and the CPI in the NIEs



Sources: IMF and CEIC.

CHART 4b

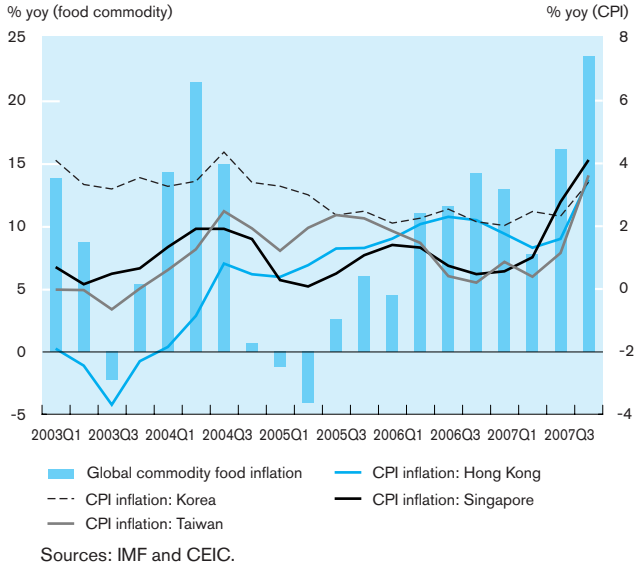
Long-run relationship between food-commodity prices and the CPI in the ASEAN economies



Sources: IMF and CEIC.

CHART 5a

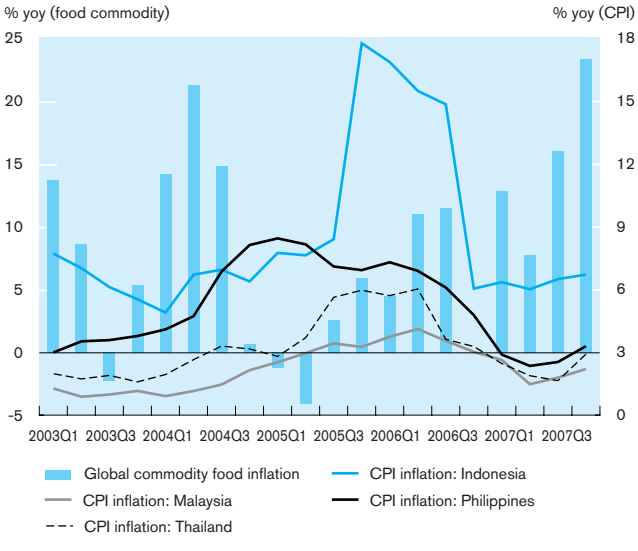
Short-run relationship between food-commodity prices and the CPI in the NIEs



Sources: IMF and CEIC.

CHART 5b

Short-run relationship between food-commodity prices and the CPI in the ASEAN economies



Sources: IMF and CEIC.

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.

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 experiences 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 and supply shocks, which include changes in food prices and changes in the real effective exchange rate (REER), as well as past inflation 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. Based on the quarterly data of eight Asian economies, we estimate the Phillips Curve using a panel generalised method of moments.[1] Table 2 presents the results.

TABLE 2
Phillips Curve estimates

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

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

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[2] 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 this stage.

However, 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

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

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

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.

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 relates to the permanency of the shock to food prices. 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 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 increases, there might be more persistent, or structural, elements at work that would keep food prices high, 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, but inflation has recently exceeded the upper ceiling of the target range for many economies for several months (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 cannot be ignored, and that the slowdown in growth alone would not be enough to resolve the current situation in the region. Therefore, policy tightening may be required in order to achieve a significant reduction in the inflation rate.

TABLE 3

Asian economies' inflation targets and recent inflation data

	Inflation Targeting	Inflation Target	CPI Inflation June 08[1] (yoy %)
China	No	N.A.	7.1%
Hong Kong	No	N.A.	6.1%
Indonesia	Yes	5.0± 1.0%[2]	11.9%
Japan	No	N.A.	2.0%
Korea	Yes	3.0± 0.5%	5.9%
Malaysia	No	N.A.	7.7%
Philippines	Yes	4.0± 1.0%[2]	12.2%
Singapore	No	N.A.	7.5%
Taiwan	No	N.A.	5.9%
Thailand	Yes	0% - 3.5% (core CPI)	3.7% (core); 9.2% (headline)

Notes:

1 July 2008 figures are reported for Indonesia, Korea, the Philippines, Taiwan, and Thailand.

2 For 2008.

Sources: Official websites of the respective central banks and speeches of financial officials, and CEIC.

In addition, 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 a time of increasing global uncertainties.

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. This is especially so when structural elements are at work in the current episode of food-price rises and when inflation expectations are not well-anchored.

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