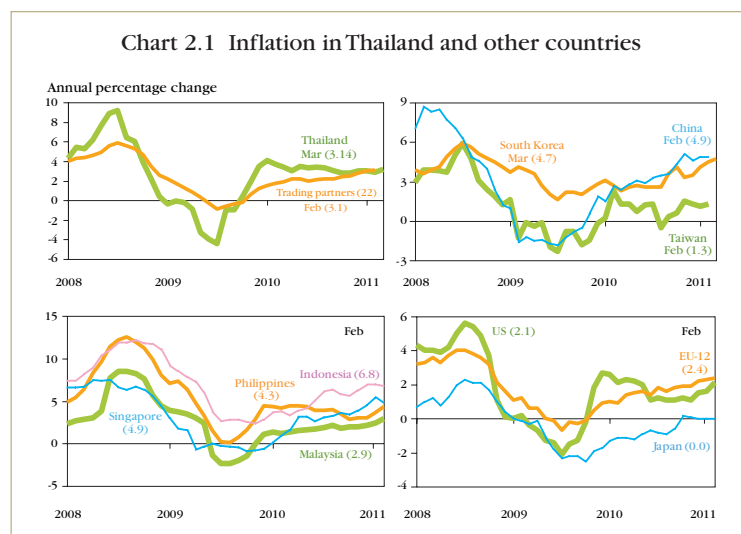


2. Inflation and Economic Conditions

Inflation trends

Rising commodity prices and the continued global economic recovery drove up inflation pressures globally, especially in the strong-growth Asia. Added pressures also came from unfavorable weather conditions, which impaired food production in many countries and pushed up food prices accordingly. Inflation readings for several Asian countries picked up markedly, as their CPI baskets generally contain a higher proportion of food items compared to those of major industrialized economies.

Higher commodity prices and the continued global economic expansion drove up the global inflation pressures.



Source: Various official sources and Bloomberg

Thailand's headline inflation stood at 3.01 percent in 2011 Q1, steepening from the previous quarter partly due to the surge in energy prices in line with soaring global oil prices. Such development was broadly in line with the continued global growth and concerns on supply disruptions due to recent unrests in the Middle East. Core inflation, on the other hand, edged

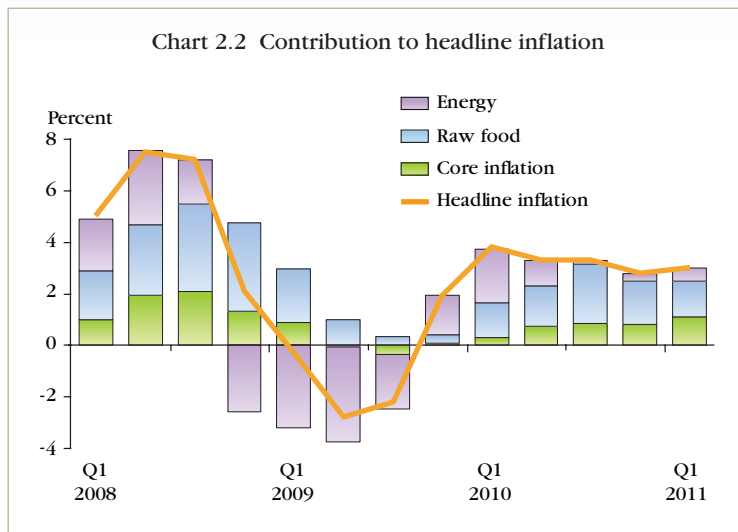
In 2011 Q1, headline and core readings accelerated from the previous quarter to 3.01 and 1.46 percent, respectively.

higher to 1.46 percent as the pass-through of production costs intensified. This was particularly the case for seasonings and condiments and prepared food, which continued to shift up steadily due to the sustained rise in related food costs and robust domestic demand. However, raw food prices slowed down this quarter following vegetable and fruit prices, after weather concerns started to abate.

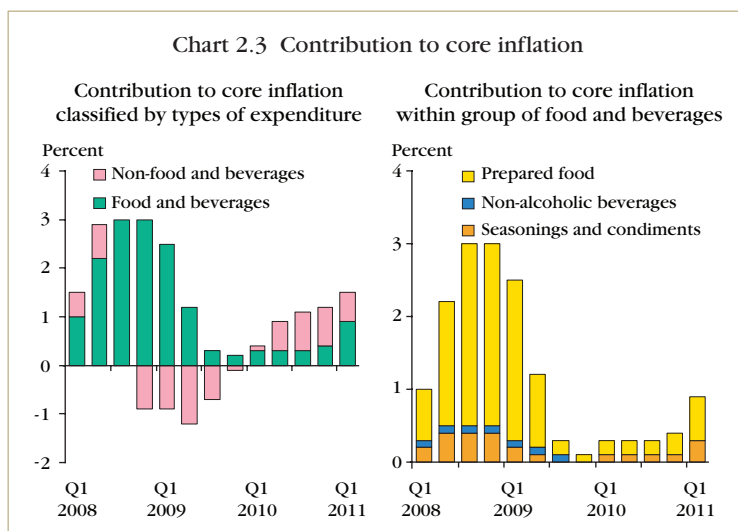
PPI inflation edged higher to 6.4 percent in 2011 Q1, as prices of several manufactured products picked up with global commodity prices - including petroleum products, rubber and plastic products, textiles and textiles products, and basic metals and fabricated metal products. Meanwhile, prices of agricultural products decelerated from the previous quarter in line with the increase in vegetable and fruit produces.

Unit: Percent	2010	2010				2011
		Q1	Q2	Q3	Q4	Q1
Percentage change from the previous year (%ΔYoY)						
- Headline Consumer Price Index	3.3	3.8	3.3	3.3	2.8	3.01
• Core Consumer Price Index	1.0	0.4	0.9	1.2	1.2	1.46
• Raw food	10.3	8.2	9.2	13.8	10.2	8.27
• Energy	9.7	26.3	10.9	1.5	3.2	5.21
- Producer Price Index	9.4	12.0	9.3	10.3	6.3	6.4
• Agricultural products	22.1	21.8	16.4	38.7	14.2	5.7
• Mining products	3.0	11.3	3.1	-1.8	-0.2	4.3
• Manufactured products	6.5	9.7	7.6	4.4	4.5	6.7

Source: Trade and Economic Index Bureau, Ministry of Commerce



Source: Trade and Economic Index Bureau, Ministry of Commerce, and calculations by Bank of Thailand.



Source: Trade and Economic Index Bureau, Ministry of Commerce, and calculations by Bank of Thailand.

Recent slowdown in prices of PPI agricultural products suggested lessened cost pressures on food inflation. However, rising prices of PPI manufactured products, which had yet to fully translate into higher final prices of related products in the core CPI basket, reflected that cost pass-through was limited with firms still bearing a great deal of cost burdens. This was in

Going forward, inflation pressures will build up mainly due to rising costs and demand, together with higher cost and inflation expectations of businesses.

part due to firms' cooperation with the government in keeping their prices unadjusted until the end of March 2011. But after the end of this agreement, cost pressures should build up due to several factors. Pressures from the external front will come from the global economic expansion, which leads to higher demand for commodities, as well as higher risks of global oil supply disruptions due to unrests in oil exporting countries. On the domestic front, added pressures will owe to the lifting of the government's cap on diesel fuel price, currently at 30 baht per liter, together with the plan to gradually float LPG price for the industrial sector in July 2011. In addition, demand pressures from domestic growth will further tighten resource utilization in both the production sector and the labor market. All these factors, coupled with firms' rising cost and inflation expectations, will fuel a greater pass-through in non-food prices over the period ahead.

Aggregate demand in 2010 Q4 and the outlook for 2011 Q1^{1/}

In 2010 Q4, the Thai economy expanded from the previous quarter thanks to private consumption and exports, while inflation pressures rose noticeably.

The Thai economy in 2010 Q4 resumed its momentum and grew at 1.2 percent over the previous quarter, where a contraction of 0.3 percent was noted. The economy was propelled by positive developments in private consumption and exports of goods and services, which grew by 1.2 and 3.6 percent, respectively, over the previous quarter. This was in despite of a temporary slowdown in activity early in the quarter owing to the widespread flood and softened private

^{1/} Data used in assessing aggregate demand in 2010 Q4 were obtained from the National Economic and Social Development Board. Economic indicators used in assessing the 2010 Q4 developments and the outlook for 2011 Q1 were obtained from the Bank of Thailand, except for data on government expenditure, which originated from the Comptroller General's Department and were compiled by the Fiscal Policy Office.

investment after accelerating in first half of the year. On the over-the-year basis, the economy expanded by 3.8 percent in 2010 Q4, decelerating from 6.6 percent in the previous quarter mainly due to the high base in 2009 Q4 where a strong turnaround from the crisis was recorded. Domestic growth, along with rising wages and commodity prices, led to a significant boost in inflation pressures this quarter.

Change from the previous quarter (seasonally adjusted, percent)	2009		2010			
	Q3	Q4	Q1	Q2	Q3	Q4
GDP	2.1	3.6	3.5	-0.4	-0.3	1.2
Domestic demand	1.6	2.0	1.5	2.6	-0.6	0.6
Private consumption	1.2	2.2	0.4	2.5	-0.2	1.2
Private investment	2.9	3.0	4.7	6.1	-0.2	-1.2
Government consumption	3.6	4.0	1.4	-0.5	-1.7	2.0
Public investment	-2.1	-5.7	2.7	0.3	-2.7	-3.2
Exports of goods and services	6.9	5.7	6.5	1.6	-2.4	3.6
Imports of goods and services	3.8	10.7	6.3	2.4	0.5	0.5

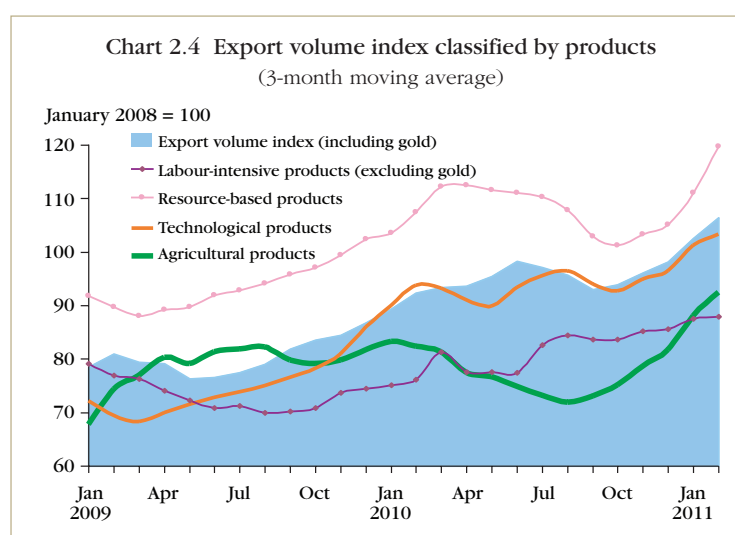
Source: National Economic and Social Development Board, and calculations by Bank of Thailand

Growth momentum is expected to continue well into 2011 Q1 on the back of both domestic and external demand, particularly due to robust merchandise exports. The earthquake and tsunami incidents in Japan during mid March are not expected to affect the Thai economy significantly this quarter, though the effect may become more evident going forward. In addition, the continued expansion in activity will drive up inflation pressures over the period ahead.

Total exports in 2010 Q4 accelerated by 3.6 percent from the previous quarter. Merchandise exports gained in all categories, with exports of agricultural products driven up by rice exports. Meanwhile,

Exports of goods and services continued to grow in 2010 Q4, and are likely to improve even further in 2011 Q1.

exports of resource-based products expanded in line with exports of rubber products and prepared food. High-technology exports, however, softened from the previous quarter but remained robust, particularly for plastic products, electrical appliances, and automobiles. In addition, exports of labor-intensive goods registered a high growth in line with exports of gold thanks to the record-high global gold price. Lastly, exports of services expanded modestly in line with rising tourism revenue.



Source: Bank of Thailand

Exports are then expected to expand well in 2011 Q1, in line with those of other Asian countries. The January-February volume of merchandise exports edged higher in all categories, especially in rubber, plastic products, automobiles and parts, and electrical appliances. On the other hand, exports of services are likely to remain robust this quarter as tourism benefits from the high season. Meanwhile, the impact of Japan's natural disasters on total exports is assessed to be limited, thanks to businesses' inventory accumulation

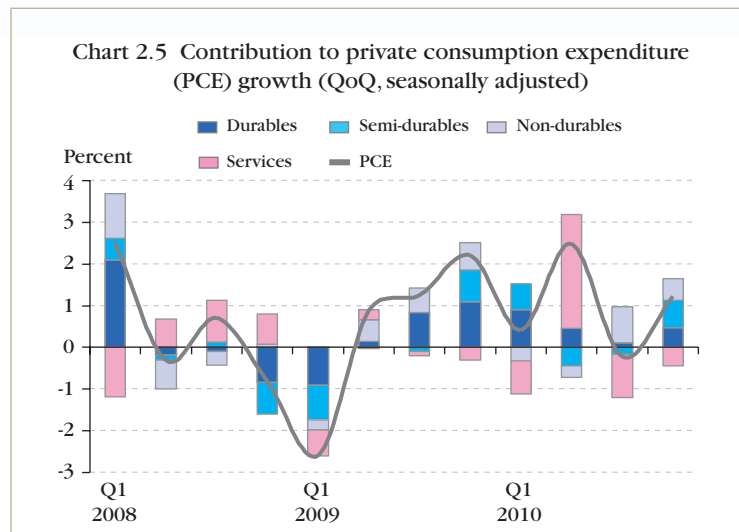
in earlier periods and the fact that most tourists from Japan come from the southern part of the country, which is not directly affected by the incidents.

In 2010 Q4, the widespread flood which worsened during October and November affected consumers' spending and confidence to some extent. Nevertheless, private consumption still managed to grow by 1.2 percent over the previous quarter, or 3.8 percent over the same period last year. The expansion of private consumption took place in all categories, some of which were due to replacements for damaged goods, especially semi-durable goods such as clothes, footwear, and household textiles and utensils. On the other hand, consumption of durable goods decelerated from the previous quarter mainly due to declining sales of automobiles.

Private consumption is likely to grow favorably in 2011 Q1 with support from high income and employment. The support is partly reflected in rising farm income and agricultural prices as well as low unemployment, while the Domestic Order Books Index^{2/}, which reflects domestic demand, also signals an uptrend. However, consumption of durable goods may decelerate somewhat from rising interest rates and inflation pressures. Consumption of households' semi-durable goods is also anticipated to soften, in line with the downtrend in the real estate sector after the strong growth witnessed in 2010.

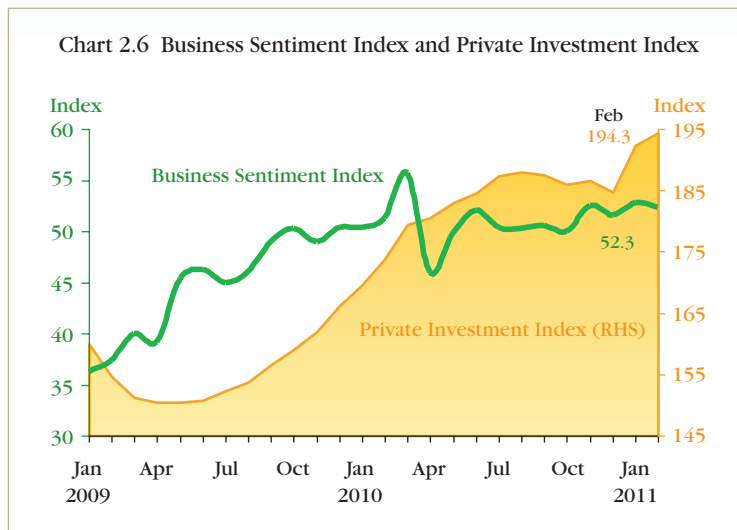
Private consumption sustained its momentum with support from high income and employment.

^{2/} Survey of the business sector conducted by the Bank of Thailand



Source: National Economic and Social Development Board and calculations by Bank of Thailand

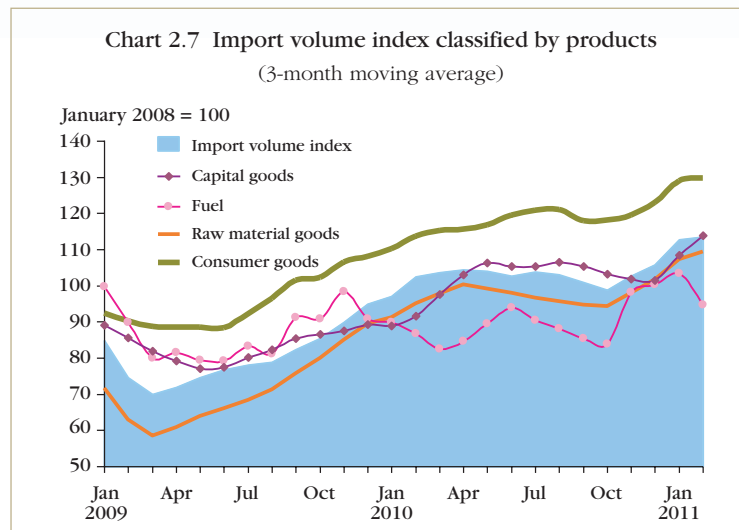
Meanwhile, private investment expanded by 9.2 percent in 2010 Q4 over the same period last year (1.2 percent quarterly contraction), decelerating from 14.6 percent posted in the previous quarter. Investment in machinery and equipment expanded at a dampened pace, as many industries had already stepped up their machinery imports in earlier periods in order to expand their production capacity. Moreover, domestic cement sales moderated partly due to the flood and rising prices of construction materials, which led to some delay in construction projects. Nevertheless, domestic commercial car sales continued to grow, with strong support from higher commercial bank credits to the business sector and higher farm income.



Source: Bank of Thailand

Sustained growth in private investment is expected in 2011 Q1. The Private Investment Index (PII) levels in January and February were higher than the average level recorded in 2010 Q4, in line with the continued expansion of commercial bank credits to the business sector. The anticipated growth in private investment owes mainly to imports of machinery related to export-oriented industries such as electronics, automobiles, electrical appliances, as well as domestic commercial car sales. Investment in the construction sector is also anticipated to grow, thanks to housing construction and repairs after the flood. At the same time, the current and expected Business Sentiment Index (BSI) stayed above 50 indicating robust confidence. Nevertheless, rising costs of production, price adjustment difficulties, and economic and political uncertainties continued to be factors critical to future investment decisions.

Private investment in 2010 Q4 moderated from the previous quarter, but is expected to rebound in 2011 Q1.



Source: Bank of Thailand

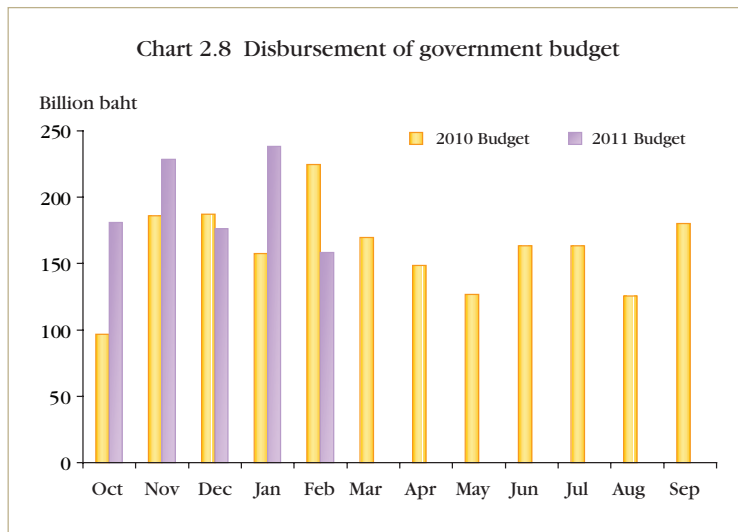
Imports gained in almost all categories in 2010 Q4 and are anticipated to grow steadily in 2011 Q1.

Encouraging developments in private consumption and investment led total imports to grow by 0.5 percent in 2010 Q4 over the previous quarter. Imports of merchandise goods expanded in all categories, particularly raw materials and intermediate goods such as metal and metal products, electronic parts, and chemical products. Furthermore, imports of consumer goods also edged higher in all categories, while imports of fuel and lubricants rose along with crude oil imports. Imports of services, however, contracted from the previous quarter following tourist expenditure. But overall, imports of goods and services are expected to grow in 2011 Q1 along with upward-trending domestic demand.

Government spending rose in 2010 Q4, partly due to the overall budget increase from last year and the continued disbursement.

The fiscal side also remained strong in 2010 Q4, the first quarter of fiscal year 2011. Total government spending rose by 0.2 percent over the same period last year, also 0.2 percent over the preceding quarter. The increase owed partly to the overall budget increase from last year, and also the continued disbursement at a rate of 26.8 percent this quarter, which outperformed

the targeted rate of 20 percent. The higher-than-targeted disbursement followed growth in public construction, most of which was part of the 2012 Strong Thailand economic stimulus package including projects on water resource management, road improvement, and dust-free roads. Construction by state enterprises also improved from the previous quarter partly owing to the ongoing projects, for example: the Mass Rapid Transit (MRT) purple line of the Mass Transit Authority of Thailand; the Eua-Arthon housing project of the National Housing Authority (Phases 2, 3, and 4), which aims to provide housing for the poor; and the Broadband IP expansion project of TOT Public Company Limited. As a result, overall public spending expanded from the previous quarter.



Note: Excluding principal repayments and replenishments of the treasury reserve.
 Source: The Comptroller General's Department, Ministry of Finance

Government spending is expected to continue growing in 2011 Q1, in line with higher disbursement rate and disbursed amount compared to the same period last year, mainly with respect to current

expenditure. Moreover, the disbursement of budget related to government measures is also anticipated to increase, particularly the income guarantee scheme, subsidies for civilians affected by the flood in 2010, and the local government subsidy program.

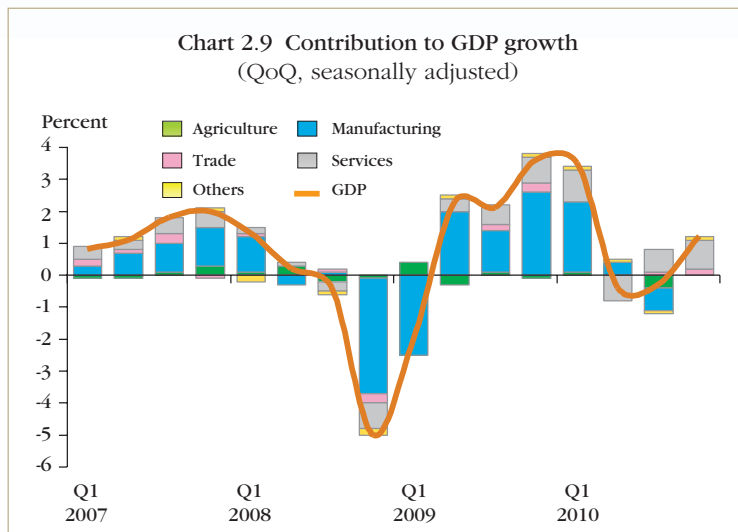
Production and supply in 2010 Q4 and the outlook for 2011 Q1 ^{2/}

Production and supply expanded from the previous quarter and are expected to grow steadily in 2011 Q1.

The overall production and supply in 2010 Q4 grew by 1.2 percent over the previous quarter, thanks mainly to growth in the services sector. Manufacturing production expanded modestly in line with domestic and external demand. Meanwhile, agricultural output remained largely unchanged from the previous quarter, as a result of unfavorable weather conditions in earlier periods as well as the flood situation that aggravated in October and November.

Production and supply are expected to expand in 2011 Q1 in almost all sectors following robust domestic and external demand.

^{3/} Data used in assessing aggregate supply in 2010 Q4 were obtained from the National Economic and Social Development Board. Economic indicators used in assessing the 2010 Q4 developments and the outlook for 2011 Q1 were computed by the Bank of Thailand, except data on the number of tourists and the occupancy rate, which were in part compiled by the Tourism Authority of Thailand. Data on the labor market were obtained from the National Statistical Office.

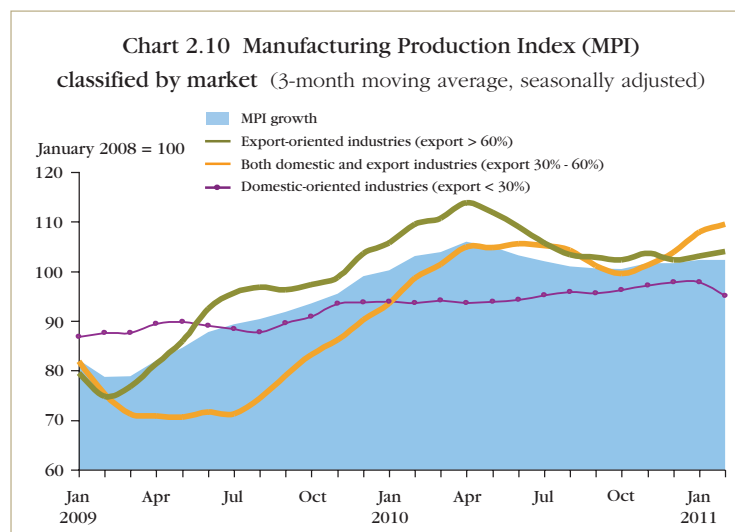


Source: National Economic and Social Development Board

Manufacturing production grew modestly in 2010 Q4. Domestic-oriented industries improved steadily due to the speeding up of beer and tobacco production in preparation for sales during the New Year season, combined with the expectation of an excise tax increase for tobacco. The petroleum industry also expanded in line with rising domestic and external demand. In addition, growth in industries that rely on both domestic and export markets picked up from the previous quarter, in line with boosted production of automobiles to accommodate both domestic and external demand. In particular, demand for small passenger cars remained strong, as reflected in the delivery period of unfilled orders still taking up to several months. Export-oriented industries, on the contrary, contracted from the previous quarter. This owed partly to disruptions to garment production and shipment due to the flood. The decline was also attributable to hard disk drives, provided the already-high level of inventory and the recent decline in exports of hard disk drives to China, which are

Manufacturing production edged higher in 2010 Q4, but is expected to stabilize in 2011 Q1.

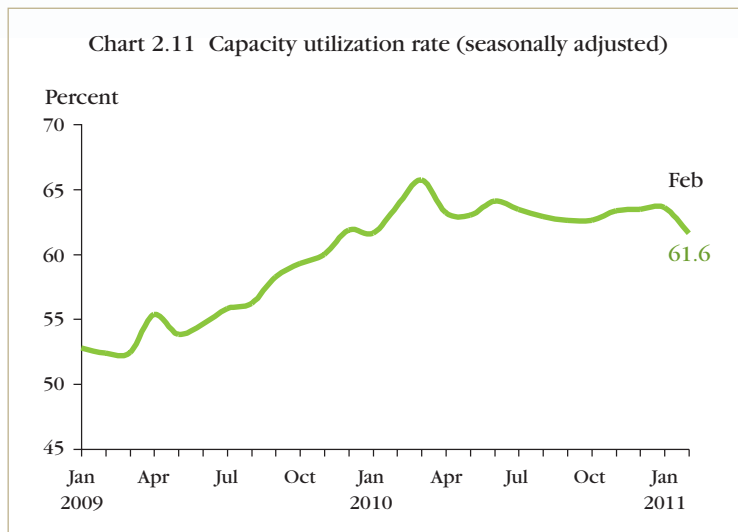
primarily for use in manufacturing intermediate goods to be re-exported to the U.S. market.



Source: The Office of Industrial Economics, Ministry of Industry

The outlook of manufacturing production in 2011 Q1 is likely to improve from the previous quarter. This is partly reflected in the average level of the seasonally-adjusted Manufacturing Production Index (MPI) in the first two months of 2011 Q1, which rose slightly from the preceding quarter. Favorable momentum is expected in industries that rely on both domestic and export markets, particularly the automobile industry. Export-oriented industries are also expected to grow on account of electronics and air conditioners production.

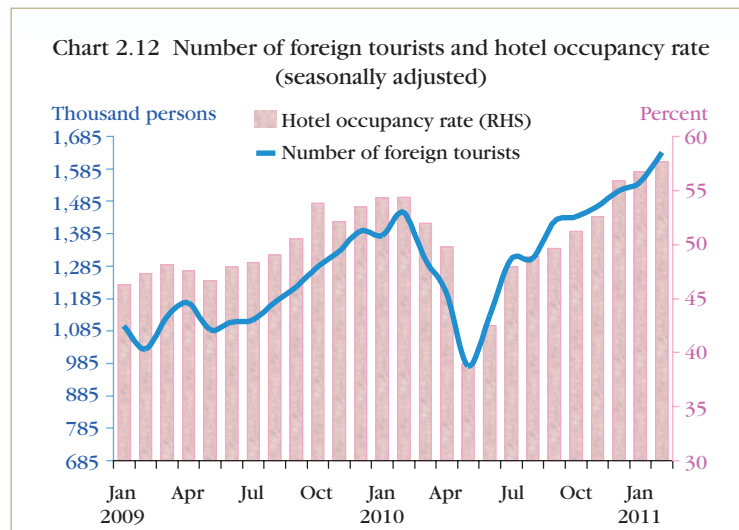
Capacity utilization is likely to stabilize in 2011 Q1 from the preceding quarter. In February, capacity utilization slowed down after picking up in January, mainly due to the temporary shutdown of some large petroleum refineries.



Source: The Office of Industrial Economics, Ministry of Industry

The services sector continued its recovery in 2010 Q4. In this regard, the hotels and restaurants industry grew by 6.3 percent over the previous quarter in line with rising number of tourists. The seasonally-adjusted occupancy rate rose from 48.8 percent in the third quarter to 53.2 percent in this quarter. Moreover, the expansion of the tourism sector led to a modest growth in logistics and transportation services of 1.8 percent over the previous quarter.

The services sector should continue to expand steadily in 2011 Q1. The seasonally-adjusted number of tourists in January and February rose by 1.8 and 5.8 percent, respectively, over the previous month. The occupancy rate also edged higher, with a seasonally-adjusted rate of 57.7 in February. While the widespread flood in late March may weigh on the tourism sector as well as logistics and transportation to some degree, the impact is assessed to be limited and recovery will be swift.



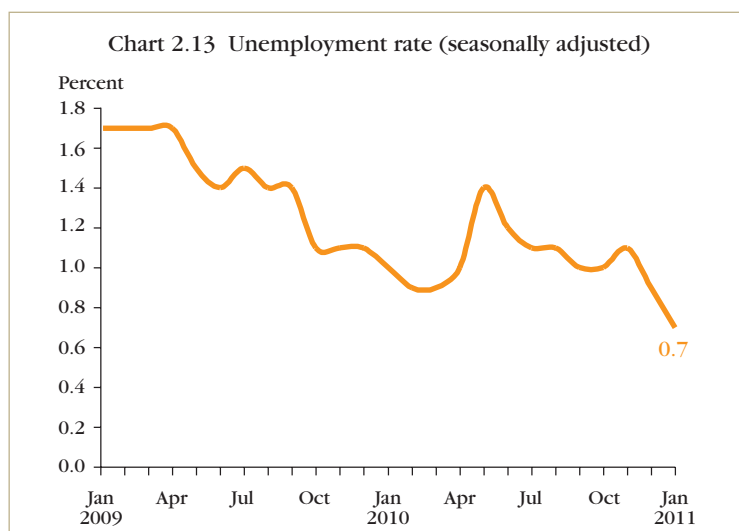
Source: Tourism Authority of Thailand and Bank of Thailand

Agricultural output remained largely unchanged from the previous quarter. During the latter part of the quarter, the widespread flood damaged various types of farm output, particularly rice, and also impeded harvesting. However, the fishery sector expanded by 3.4 percent over the previous quarter, thanks to the early harvest of farm-raised shrimps to avoid flood and diseases. Meanwhile, tightened supply in both global and domestic markets due to unfavorable weather conditions drove prices up significantly. This was particularly the case for material and fiber plants, oily plants, and energy crops, notably rubber, cotton, oil palm, and coconut.

The outlook for agricultural output remains positive in 2011 Q1. The January-February average level of the seasonally-adjusted Crop Production Index moved up by 7.1 percent from that of 2010 Q4. Agricultural output is expected to rise in almost all sectors thanks to improved weather conditions. However, exceptions remain for oil palm, which is likely to contract due to the lingering impact of drought and

flood in 2010, as well as tapioca and coconut, which remain affected by the pest outbreak. Major crop prices will tend upward steadily, in line with rising global demand driven by growth in the automobile industry and demand for bio-fuels. Such rise is particularly the case for rubber, oil palm, sugar, cotton, and corn.

The flood in the southern provinces during late 2011 Q1 may affect agricultural output to some extent, depending on how severe the situation eventually turns out and how fast it resolves.



Source: National Statistical Office, and calculations by Bank of Thailand

Employment conditions continued to improve in 2010 Q4 from the previous quarter. Going forward, the positive outlook of the economy in 2011 Q1 will cause employment to expand steadily. The seasonally-adjusted unemployment rate was 0.7 percent in January, the lowest since 2001^{4/}. Moreover, the recruitment difficulty index in February stood at 40.7, up from 37.1 in the previous month, still reflecting labor shortage that will likely add to inflation pressures over the period ahead.

Tight labor market conditions will add to inflation pressures going forward.

^{4/} The National Statistical Office started to collect monthly employment data since 2001.

Cyclicality and the inflation pass-through

In general, prices of goods are set according to their cost of production, for example, raw materials and wage, and topped up with a profit margin which varies for each good, depending on the level of competition in its respective industry. As a result, when the cost of production increases across many industries, there is an upward pressure on the general price level, leading to an increase in inflation. The degree of such pressure depends on the nature of the change in the cost of production as well as the ability of producers to pass on that cost increase.

When the rise in the cost of production is temporary, producers usually bear such an increase themselves, allowing the profit margin to decline. This is because there is an administrative cost associated with each price adjustment, making frequent changes undesirable. As a result, producers need to base each price adjustment on their expectation about future cost and inflation. When they expect an increase in the cost of production to be temporary, price will be maintained. However, in times when there is a persistent increase in the cost of production, like in the current situation, there is another factor that affects the pass-through, namely cyclicality. Currently, the Thai economy is growing strongly with strengthening domestic demand and rising income. The interplay between the cost of production and the demand factor has the potential to push future cost and inflation expectation up, thereby inducing producers to more readily pass on the higher cost of production to consumers. This setting is different from the one where economic growth is subdued and producers withhold price adjustments due to fears of sales losses.

One way to statistically measure the impact of cyclicality on the inflation pass-through is to model it with the following equations:

$$\pi_t = \alpha \pi_{t-1} + \sum_{j=0}^1 \beta_j m_{t-j} + \omega k_t + u_t \quad \text{for normal demand}$$

$$\pi_t = \alpha \pi_{t-1} + \sum_{j=0}^1 \beta_j m_{t-j} + \eta_t D_t m_t + \omega k_t + u_t \quad \text{for strong demand}^{1/}$$

where π = inflation rate; m = change in the Producer Price Index (PPI); k = Capital Utilization (CAPU) rate; and D = a dummy variable which takes a value of 1 when CAPU is higher than its long-term average level, reflecting pressure from an economic upturn, and 0 when CAPU is equal to or less than its long-term average level. If cyclicality indeed affects the inflation pass-through, the coefficient of this dummy variable, which is an interactive term with the change in PPI, should be positive and statistically significant. Estimating the equations using monthly data from January 2000 - January 2011 yields the following results:

$$\pi_{headline,t} = 0.832\pi_{headline,t-1} + 0.246m_t - 0.194m_{t-1} + 0.003k_t \quad (1)$$

$$\pi_{headline,t} = 0.814\pi_{headline,t-1} + 0.230m_t - 0.182m_{t-1} + 0.026D_t m_t + 0.002k_t \quad (2)$$

$$\pi_{core,t} = 0.887\pi_{core,t-1} + 0.020m_t + 0.003k_t \quad (3)^{2/}$$

$$\pi_{core,t} = 0.893\pi_{core,t-1} + 0.014m_t + 0.010D_t m_t + 0.001k_t \quad (4)^{2/}$$

^{1/} Refers to a period when the economy is growing faster than its long-term average rate.

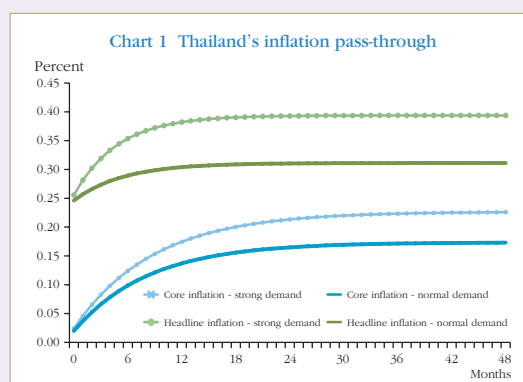
^{2/} In the case of core inflation, the coefficient of the first lag of the change in PPI ($m_{(t-1)}$) is not statistically significant and was removed from the estimation.

From equations (1) - (4) above, the cumulative impact of PPI pass-through to headline and core inflation can be calculated for each period and in the long-run using the Dynamic Multiplier Model^{3/}. Results are shown in Table 1 and Chart 1.

Table 1: Cumulative impact of a one percentage point change in PPI on headline and core inflation

		Immediate	6 months	12 months	Long-run
Headline inflation	Pass-through for normal demand	0.25	0.29	0.30	0.31
	Pass-through for strong demand	0.26	0.35	0.38	0.39
Core inflation	Pass-through for normal demand	0.02	0.10	0.14	0.17
	Pass-through for strong demand	0.02	0.12	0.17	0.23

Overall, it can be seen that the pass-through occurs quite quickly, especially for headline inflation where the impact stabilizes within the first 12 months. Meanwhile, the pass-through to core inflation occurs slightly slower and less in magnitude due to the fact that goods and services in the core Consumer Price Index basket reflect an indirect rather than a direct pass-through. Nevertheless, core inflation



Source: Calculations by Bank of Thailand

is a better indicator of demand-side inflation pressures compared to headline inflation, thus more precisely captures the inflation pass-through of higher production cost. For example, in the case of oil price, its impact on core inflation reflects the pass-through to transportation costs rather than the direct impact on the retail oil price component in the Consumer Price Index basket.

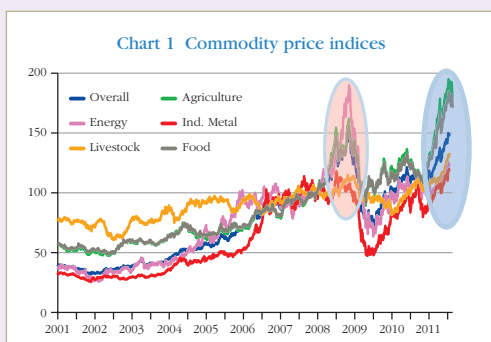
Moreover, it can be seen that cyclicalities affects the pass-through, as expected, whereby in the period of strong demand, the pass-through to both headline and core inflation, measured by its cumulative impact in the long-run, is higher than in the period of normal demand by approximately 0.08 and 0.06 percent, respectively.

To summarize, in the next period when both the cost of production and output are expected to grow strongly, the pass-through will unavoidably be higher, exerting pressure on inflation. The risk that future cost and inflation expectation will edge up also increases. In this regard, the task of monetary policy is not to control market adjustments, but rather to anchor inflation expectation at an appropriate level. This is because price adjustments ultimately depend on the expectation about future cost of production and inflation. Therefore, a well-anchored inflation expectation is important in preventing over-adjustments of prices, which will negatively impact consumers as well as economic stability in the long-run.

^{3/} Disyatat, Piti and Pinnarat Vongsinsirikul, "Monetary policy and the transmission mechanism in Thailand", *Journal of Asian Economics*, 14 (2003).

Global commodity prices: implications on Thailand

Commodity prices, particularly agricultural and food prices, have rebounded strongly since end-2010 (Chart 1). This could imply risks to the macro economy, notably a deteriorating pace of growth, worsening income distribution and rising inflation that could in turn induce monetary policy response to curb price pressures.



Source: USB Constant Maturity Commodity Index (CMCI), Bloomberg (rebased to 2007 = 100).

Looking ahead, commodity prices are expected to remain on an upward trend as well as become more volatile, supported by burgeoning demand from income and population growth.^{1/} Meanwhile, supply is likely to be slow to respond, being constrained by diminishing natural resources. Other supply-side uncertainties also play a role, including global warming, natural disasters, and civil unrests in some North African countries that could spill over to other major oil producers, exerting an upward pressure on crude prices while undermining the investment in and the

expansion of oil fields and crude production. Feedback loops also seem to become more powerful, as reflected by the stronger linkages between price and untraditional factors. These include investment in the commodity futures markets that helps drive price up and in turn invite more speculative investment,^{2/} product hoarding, depreciation of the U.S. dollar that induces commodity exporters to raise prices to preserve revenue in local currency terms,^{3/} and competing demands for bio-fuel and food production.^{4/}

Thailand is vulnerable to higher oil prices but benefits from rising world food prices

Thailand is a net oil importer, with the net value of oil imports in 2010 accounting for as much as 7 percent of nominal GDP. With a very low price elasticity of demand for oil, *ceteris paribus*, a 10 percent rise in oil price will initially dent nominal GDP by about 0.7 percent. The rise in oil price can also create a fiscal burden when the government cuts the excise tax rates, in addition to using the Oil Fund, to subsidize retail oil prices in order to relieve the adverse impact on the macro economy.

Conversely, Thailand appears to benefit from higher prices of agricultural commodities and food.^{5/} In 2009, Thailand's export share of these products in the world markets stood at 2.5 percent, up from 2.2 percent in 2007.^{6/} The value of net exports of these products

^{1/} The income elasticity of demand for food is relatively high for low-income countries. Therefore, the rapid growth of income per capita in developing countries will result in a rapid rise in demand for food and exacerbate the price surge.

^{2/} Evidence on the extent to which non-commercial trades contribute to the rise in commodity prices is still inconclusive. However, according to the Institute of International Finance (February 2011), since 2005, the correlation coefficient between the net long position of non-commercial trade and corn price has been 0.65, while the correlation with oil price has been around 0.37.

^{3/} The Food and Agriculture Organization (2008) found that a 1 percent fall in the U.S. dollar against all currencies would result in a rise in the U.S. dollar denominated agricultural prices by 0.8-0.9 percent.

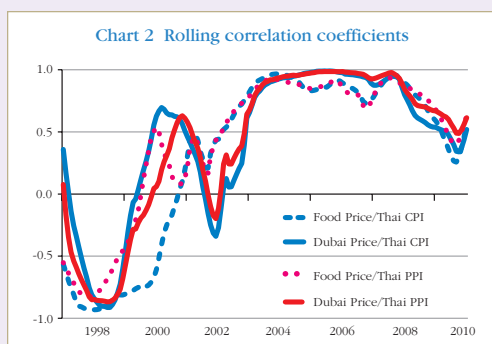
^{4/} According to the World Bank (2010), a 10 percent increase in energy prices is associated with a rise in metal prices, food prices and fertilizer prices by 2.5, 2.7 and 5.5 percent, respectively.

^{5/} Thailand is regarded as a food-secured country, as reflected by the Food Vulnerability Index. The FVI is calculated as $100 - [(0.25 \times \text{GDP per capita}) + (0.5 \times \text{net food exports}) - (0.25 \times \text{share of food in expenditure})]$. The higher the value of the FVI, the higher is the country's vulnerability to rising food prices. The FVI of Thailand is 99.6, ranked 55th from a total of 80 countries. Bangladesh is the most vulnerable country (FVI = 101.5) while New Zealand is the least vulnerable (FVI = 97.7). China's food vulnerability position ranks 22nd (FVI=100.4).

^{6/} Compiled from Trade Map data of the International Trade Center.

accounted for 6.3 percent of nominal GDP in 2010. Given a low price elasticity of demand, *ceteris paribus*, the first round impact of a 10 percent rise in prices would add 0.63 percent to nominal GDP. Such gain, however, cannot fully offset the loss in nominal GDP from the same percentage rise in world oil prices. Hence, in order for Thailand to reap more benefits from the upward trend in world agricultural and food prices and maintain her food-supply security, more emphasis should be placed on technological improvement in agricultural and food production and management as well as on a wider promotion of agricultural and food exports.

The relationships between world commodity prices and domestic producer and consumer prices are becoming stronger

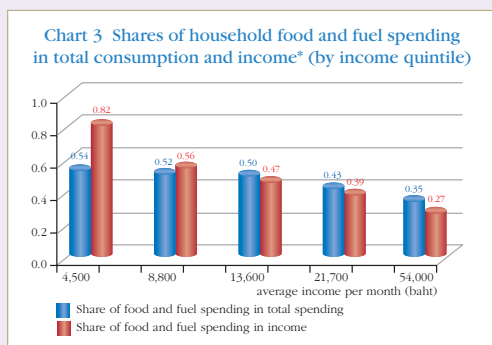


Source: The Bank of Thailand

The rolling correlations between world oil and food prices and domestic producer and consumer prices started rising again as the world emerged from the crisis, led by strong recoveries of emerging economies (Chart 2). This suggests that from now on an increase in world oil and food prices is likely to spill over more rapidly to domestic production costs and inflation. Meanwhile, a persistent rise in oil and food prices has a significant direct impact on households in Thailand as the share of food (raw and processed food) in their consumption basket is as high as

35 percent on average. Looking more closely by quintile groups, households that are most affected by higher oil and food prices are those in the bottom three quintiles (bottom 60 percent of all households) with monthly income of 13,600 baht or less, as their expenses on food and oil items are relatively high, accounting for 62 percent of their total expenditure (Chart 3). As a result, this can potentially worsen the country's income distribution as real disposable income of the low-income groups can erode more rapidly than that of the high-income groups with a smaller share of food and oil in their total spending.

A tighter monetary policy stance may be necessary to dampen upside risks to inflation

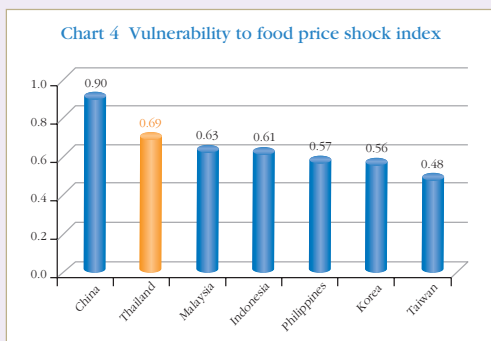


Note: *Fuel covers only items relating to freight and transportation

Source: Data from Socio-Economic Survey (SES) 2010 Q1 by the National Statistical Office and calculations by the Bank of Thailand. Weights of households in each income quintile are used to derive population estimates.

Some people have suggested that a rise in prices of necessity goods with low price elasticity, such as food, already forces households to spend less on other goods as they spend more on food, and thus the effect is merely a change in relative prices. Therefore, monetary policy should not respond to food-induced inflation. However, a central bank in reality has to take the surrounding economic conditions and consumers' spending behavior into consideration when making a decision because these factors can dictate the pass-through of food inflation to other components of the CPI^{7/}. Key considerations include: (1) the

^{7/} According to the BOT's calculation of the variance decomposition of headline inflation, using data from 2000 to 2010, the volatility of oil and food prices contributes to the volatility of headline inflation by 19.5 and 13.9 percent, respectively. In addition, a 1 percent increase in world oil price leads to a 0.25 percent increase in headline inflation, while a 1 percent increase in world food price leads to a 0.42 percent rise in headline inflation.



Source: Citigroup Global Markets and The Bank of Thailand

strength of the relationship between food prices and the overall CPI, with a stronger link suggesting a higher degree of price pass-through; (2) degree of the current economic momentum, as measured by the output gap, with more robust demand conditions also suggesting a stronger price pass-through; and (3) the current monetary policy stance, as measured for example by the difference between a country's monetary condition index and its 10-year average, with a loose monetary policy stance more likely to encourage a surge in inflation pressures overall.

These three considerations should be viewed jointly as they have interacting effects on one another. In particular, a high correlation between food prices and the CPI plus a robust growth in demand and a simultaneously loose monetary policy can greatly increase the chances that food inflation can pose risks to overall inflation pressures. In such setting, there is more need for a central bank to tighten monetary policy.

Indicators for the three aspects above can be used to construct a composite index called the Vulnerability to Food Price Shock Index^{8/}, or VFPSI, to assess which countries are most vulnerable to food price shocks and hence might consider a possible monetary policy response. It is found that the VFPSI for Thailand in 2010 Q3 is rather high, at 0.69, second only to China (Chart 4). This justifies the adoption of a tighter monetary policy even though inflation pressures initially emerged from the rise in food prices.

Similarly, a country's vulnerability to oil or energy price shocks can be assessed using the same method. Given that the correlation between headline inflation and energy inflation is relatively high^{9/} while Thailand's output gap is narrowing and the monetary policy stance is still relatively eased, the country is vulnerable and a monetary policy response can be considered.

Conclusion

Changes in global commodity prices can affect domestic income and prices. Thailand can reap benefits from the rises in world agricultural and food prices as the country is a net exporter of these products. However, production costs and the cost of living would meanwhile increase, lowering the purchasing power of households, especially those in the low-income groups, implying the possibility of deteriorating income distribution.

Monetary policy may need to tighten in response to a sustained increase in food and oil prices, provided there are surrounding conditions that facilitate the price pass-through to other components of the CPI: a robust demand growth and a currently eased monetary policy stance. Other policies, especially supply-side policies, are also crucial to help increase production capacity in the agricultural and manufacturing sectors, improve food supply chain management, and create balance between food and energy crop production. This can be an effective approach to improve food security and increase the opportunity to reap more benefits from the rise in world agricultural and food prices, easing the burden from higher import prices of oil.

^{8/} The index for each country is calculated by normalizing the scores across each country's variables (Z-score (Z)); computing the deviation of the country's Z-score from the group-Max and Min values, which is calculated as $SCORE_{ic} = (Z_{ic} - \text{Min}(Z_i)) / (\text{Max}(Z_i) - \text{Min}(Z_i))$; then adding up the three scores, equally weighted, to obtain the VFPSI. The higher the value of the VFPSI, the more vulnerable the country is to food price shocks and hence justifies a possible monetary policy response.

^{9/} Correlation between Thailand's headline inflation and energy inflation during 2001-2010 is 0.78, while that of headline and food inflation is 0.6.