

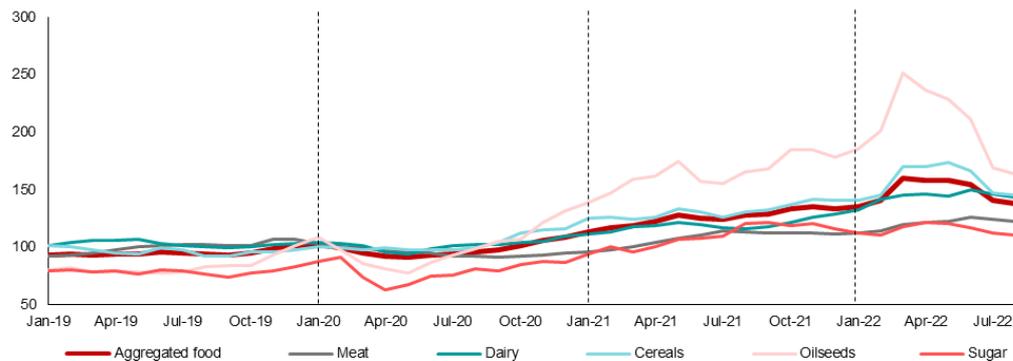
Feeding Inflation in ASEAN+3: The Rising Price of Food¹

September 14, 2022

I. Introduction

1. **Soaring food prices are making global headlines.** The lingering effects of the COVID-19 pandemic, the war in Ukraine, supply chain disruptions, and escalating energy and fertilizer prices are creating a “perfect storm” of global food price inflation. The World Bank’s food commodity price index—which tracks price movements for oils and meals, grains, and other foods—reached a record high in March–April 2022, up by more than 80 percent compared to two years ago ([Baffes and Temaj 2022](#)). The broader food price index compiled by the United Nations Food and Agriculture Organization (FAO) also remains well above its values in 2020 and 2021, despite declines in recent months (Figure 1).

Figure 1. World: Nominal Food Prices by Main Category
(Index, 2014–2016 = 100)



Source: Food and Agriculture Organization (FAO).

2. **High food prices are impacting headline inflation across the world.** In the United States, consumer prices jumped 9.1 percent year-on-year in June 2022, as food costs saw the largest increase since 1981 ([Paris 2022](#)). A similar situation unfolded in the United Kingdom, where rising food prices were the main reason for annual inflation rates surging to

¹ Prepared by Anthony Tan, Chiang Yong (Edmond) Choo, and Megan Wen Xi Chong (all Regional Surveillance); reviewed by Ling Hui Tan, Group Head, Regional Surveillance; authorized by Hoe Ee Khor, Chief Economist. The authors would like to thank Wenxing Pan and Diana del Rosario for useful comments. The views expressed in this note are the authors’ and do not necessarily represent those of the AMRO or AMRO management. For brevity, Brunei Darussalam is referred to as Brunei and Hong Kong, China is referred to as Hong Kong in this note.

40-year-highs in June and July. Inflation in the euro area is also at record highs due to soaring food and energy prices triggered by the war in Ukraine ([Hurst 2022](#)).

3. **This note examines the links between rising global food prices and inflation in the ASEAN+3 region.**² Section II begins with an overview of recent developments in and the outlook for global food prices. Section III discusses food production and food trade in ASEAN+3 economies. Section IV analyzes the impact of global food prices on food price inflation and headline inflation in the region. Section V concludes.

II. What is Driving High Global Food Prices?

4. **The COVID-19 pandemic in 2020–21 caused major global supply chain disruptions, including for food commodities.** Agricultural supply chains—from planting to harvesting to distribution—were constricted by labor shortages and shutdowns of packaging and processing plants as recurring waves of infections led to recurring mobility restrictions ([OECD 2020](#)).

5. **Food prices began to climb across the board towards the second half of 2020, driven mainly by strong global demand as the world emerged from COVID-19 lockdowns.** The unprecedented economic stimulus injected by governments in response to the pandemic added to the surge in demand when restrictions on social mobility (such as dining out in restaurants) were lifted. By the end of 2021, global food prices had increased by 32.4 percent relative to the end of 2019.

6. **The start of the war in Ukraine in early 2022 set off a series of direct and indirect supply shocks to commodity markets, pushing food prices up further.**

- *Corn, wheat, and sunflower oil.* Before the war, Russia and Ukraine accounted for a significant share of global exports of wheat and sunflower oil, and Ukraine accounted for over 14 percent of the world's corn exports (Table 1). Corn and wheat are used not just to produce food items but also as key ingredients in animal feed. The war resulted in sharp declines in Ukraine's agricultural exports which fell by an average of 45 percent year-on-year between March and May 2022.
- *Fertilizers and natural gas.* Russia is a major exporter of fertilizers (required to boost crop yields and agricultural productivity) and natural gas (which is a feedstock for the production of fertilizers). When the war in Ukraine escalated in late February, concerns about supply disruptions led to spikes in global energy and agricultural input prices ([del Rosario and Quách 2022](#)). Fertilizer prices, in particular, have continued to stay high, given still-elevated prices for natural gas and Russia's decision to extend its export quotas on nitrogen and complex fertilizers to the end of December 2022 ([Interfax 2022](#)) (Figure 2).
- *Transport and logistics.* The war and associated sanctions on Russia also had knock-on effects on global shipping, which exacerbated the pandemic-induced supply chain disruptions (Figure 3). The diversion of ships from the Black Sea and blockades of key Ukrainian ports disrupted trade routes and pushed up shipping costs of goods,

² A companion note, Kho and Zhao (forthcoming), examines the impact of rising global energy prices on inflation in the ASEAN+3 region.

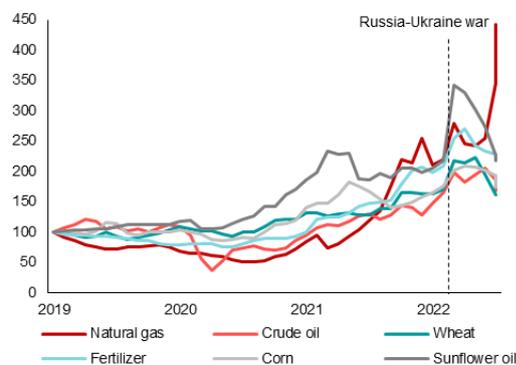
including food. And rising insurance premiums have contributed to even higher freight expenses for food exporters ([Hellenic Shipping News 2022](#)).

Table 1. Russia and Ukraine: Share of Selected Exports in Total World Exports, 2020
(Percent of total world exports of each commodity)

| Commodity | Russia | Ukraine |
|---------------|--------|---------|
| Natural gas | 18.8 | 0.0 |
| Corn/ maize | 1.1 | 14.5 |
| Wheat | 18.8 | 9.1 |
| Sunflower oil | 20.5 | 44.0 |
| Fertilizer | 15.7 | 0.0 |

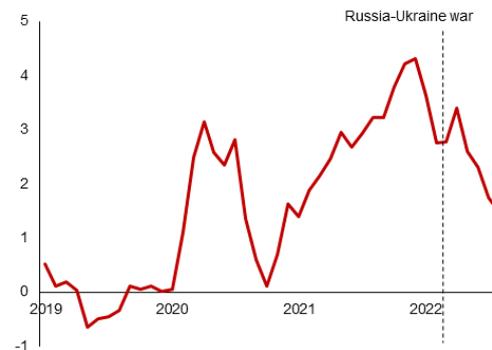
Sources: International Energy Agency (IEA); FAO; and International Food Policy Research Institute (IFPRI)
Note: Data for fertilizer refers to 2019.

Figure 2. Agricultural Input Prices
(Index, January 2019 = 100)



Sources: World Bank; and AMRO staff calculations

Figure 3. Global Supply Chain Pressure Index
(Standard deviation from average value)



Source: Federal Reserve of New York.

Note: Data refer to standard deviations from average value. A higher index denotes higher supply chain pressures.

7. Soaring food prices unleashed a wave of food protectionism across the globe.

According to the World Bank, as many as 135 policy measures affecting trade in food and fertilizers were announced or implemented globally in the first five months of 2022. More than half of the measures were export restrictions and two-thirds of the restrictions were full export bans—such as those on crude palm oil by Indonesia in April, and on wheat and sugar by India in May—which reduced global supply of those commodities, intensified raw food scarcity, and led to higher food prices ([Espitia, Rocha, and Ruta 2022](#)). Indeed, the study shows that export bans on soyabean oil, wheat, and corn have resulted in estimated price increases of 14 percent, 9 percent, and 6 percent, respectively, this year. The ongoing rush by importing countries to shore up stock amid surging food prices is contributing to global inflationary pressure.

8. Besides the COVID-19 pandemic and the war in Ukraine, perennial risks such as extreme weather events and livestock diseases have also affected global food supply and prices in the last two years.

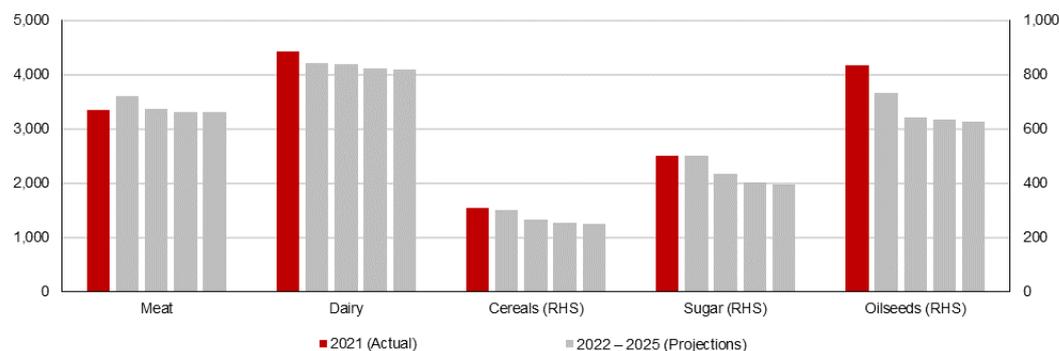
- *Extreme weather.* In India—an important exporter of wheat—cyclones, flooding, and landslides destroyed over 5 million hectares of crop area in 2021 ([Kapil 2021](#)). In the United States, unfavorable weather conditions will continue to limit crop yields this year, particularly for wheat ([Durisin and others 2022](#)). Over in Europe, soaring

temperatures and droughts in parts of France, Hungary, Italy, Spain, and the United Kingdom have caused a decline of 9 percent in corn, sunflower and soya bean yield forecasts for this year ([Harvey 2022](#)). In the ASEAN+3 region, typhoons and torrential rains have damaged millions of acres of crops and interrupted planting in China, Indonesia, Malaysia, the Philippines, and Vietnam.³

- *Livestock diseases.* The avian influenza outbreak that swept through Africa, Asia, and Europe in 2020 has been decimating commercial poultry flocks in the United States since the beginning of 2022 and driving up prices of chicken and eggs worldwide ([Polansek and De La Hamaide 2022](#)).

9. Looking ahead, slower global growth momentum, coupled with the continuing easing of supply chain bottlenecks is expected to lead a gradual moderation of food prices in the near term. In July 2022, the International Monetary Fund downgraded its forecast of global GDP growth this year to 3.2 percent (down from 3.6 percent forecasted three months earlier) ([IMF 2022](#)). Since July 2022, prices of key agricultural commodities such as wheat, corn and sugar have come down from their peaks. The 22 July Russia-Ukraine grain corridor deal enabled more than 500,000 tons of foodstuff to be exported from Ukraine in the first half of August, bringing some relief to food commodity prices ([Elkin and Durisin 2022](#)). Prices of dairy, cereals and oilseeds are expected to moderate in the second half of this year. However, global prices for meat and sugar are expected to remain high (Figure 4).

Figure 4. World: Food Price Projections
(USD per tonne)



Source: OECD-FAO Agricultural Outlook 2022-2031
Note: Forecasts are as of June 29, 2022.

III. Food Production and Food Trade in ASEAN+3

10. The ASEAN+3 region is a major producer of cereals, meat, and edible oils.

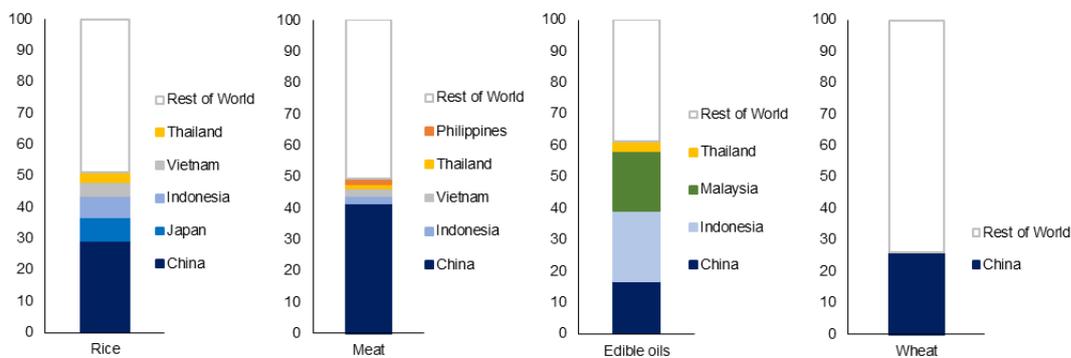
- *Cereals.* The most important cereal produced in the region is rice—a staple food for over half the world's population. According to the FAO, rice accounts for 48 percent of total cereal production in the region, and the region contributes to about half of global rice production (Figure 5). Key rice producers in the region are China,

³ In Henan, China, a "once in a thousand years" downpour in July 2021 damaged 2.1 million acres of crops and interrupted planting of more than 18 million acres of land ([Bloomberg 2022](#)). In the Philippines, Typhoon Rai inflicted damages of about PHP11 billion and across 420,000 hectares of farmland between December 2021 and January 2022 ([Oxfam 2022](#)).

Indonesia, Japan, Thailand, and Vietnam. The region has had relatively good rice harvests in recent years, and this has helped to stabilize cereal prices in the region amid sharp increases in the prices of other grains (e.g., wheat). Apart from rice, wheat is also an important staple crop produced in the region—predominantly in China, which accounts for 26 percent of global wheat production (Figure 5).

- *Meat.* China is the region’s largest producer of poultry, beef, and pork, and among the largest producers globally.
- *Edible oils.* The region is a key producer of edible oils such as palm oil and rapeseed oil, with Indonesia and Malaysia accounting for the largest shares (56 percent and 31 percent, respectively) of global production.

Figure 5. ASEAN+3: Food Production, Selected Commodities, 2021
(Percent of global production)

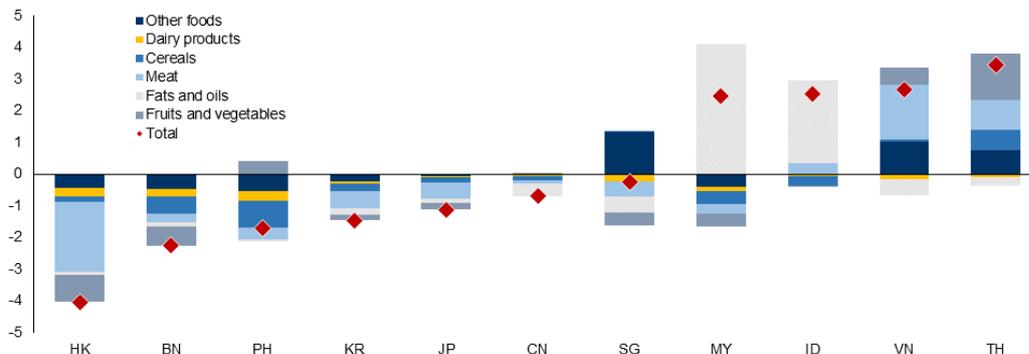


Sources: FAO; and AMRO staff calculations.

Note: “Meat” refers to poultry, beef and pork; “edible oils” refers to palm oil and rapeseed oil.

11. **Yet most economies in the region are net food importers** (Figure 6). Food imports are essential where domestic food production is insufficient to meet the dietary needs of their residents, particularly in economies like Japan and Singapore, which have limited arable land. At the same time, economies that have a higher dependence on food imports (including imported feedstocks/fertilizer for local food production), notably the Philippines, are also more vulnerable to global food price shocks. The main food commodity imports in the region are cereals, meat, and dairy products (Figure 7).

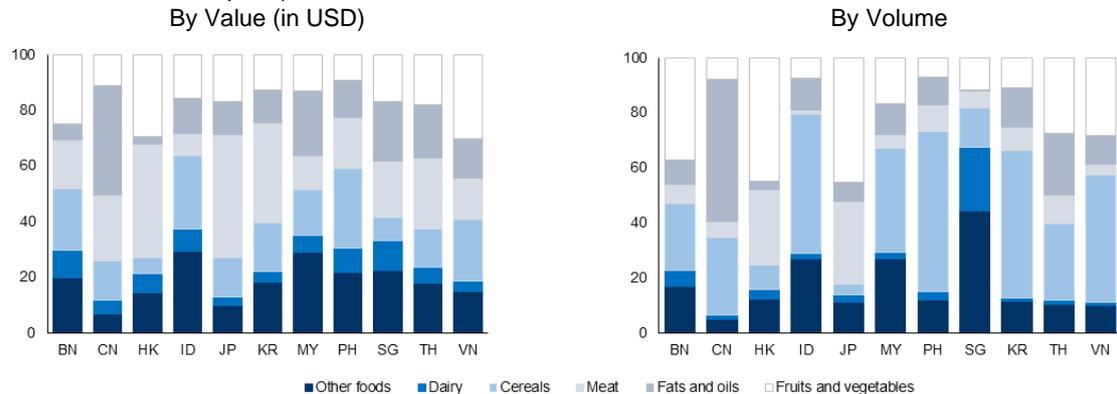
Figure 6. ASEAN+3: Food Trade Balance, 2021
(Percent of GDP)



Sources: Global Trade Atlas; and AMRO staff calculations.

Note: Food refers to HS codes in chapters 01-21, excluding livestock and products of animal origins. Other foods refer to cocoa, coffee, tea, resin and sugar. BN = Brunei; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Data not available for Cambodia, Lao PDR, and Myanmar.

Figure 7. ASEAN+3: Composition of Food Imports, 2021
(Percent of total food imports)



Sources: FAO; and AMRO staff calculations.

Note: Food refers to HS codes in chapters 01-21, excluding livestock and products of animal origins. Volume refers to kilogram (and kilogram equivalents). Other foods refer to cocoa, coffee, tea, resin and sugar. . BN = Brunei; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = the Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Data not available for Cambodia, Lao PDR, and Myanmar.

12. **Only Indonesia, Malaysia, Thailand, and Vietnam are net food commodity exporters** (see Figure 6). These economies have abundant agricultural land suited to tropical crops. Thus, they may be better placed to withstand global food price shocks, as local supplies are generally able to meet domestic needs. For Indonesia and Malaysia, the notable food commodity exports are edible oils. For Thailand and Vietnam, rice, meat, vegetables, and fruits account for a large proportion of their food exports. Thailand in particular, has a large trade surplus for vegetables and fruits, and to a smaller extent, meat and rice. Vietnam has a trade surplus for meat but largely balanced trade for rice.

IV. How Do High Global Food Prices Affect Inflation in ASEAN+3?

13. **In the ASEAN+3 region, food prices have been rising since the start of the COVID-19 pandemic.** Domestic food prices started to increase in early 2020, as movement controls disrupted agricultural production and food supply chains, while changes in consumer behavior (e.g., shifting from dining out to retail grocery purchases and stockpiling) pushed up demand across the region. Food prices remained high 2021–22, due to bad weather, persistent supply chain constraints, and indirect impacts of the war in Ukraine (Figure 8, Figure 9).⁴

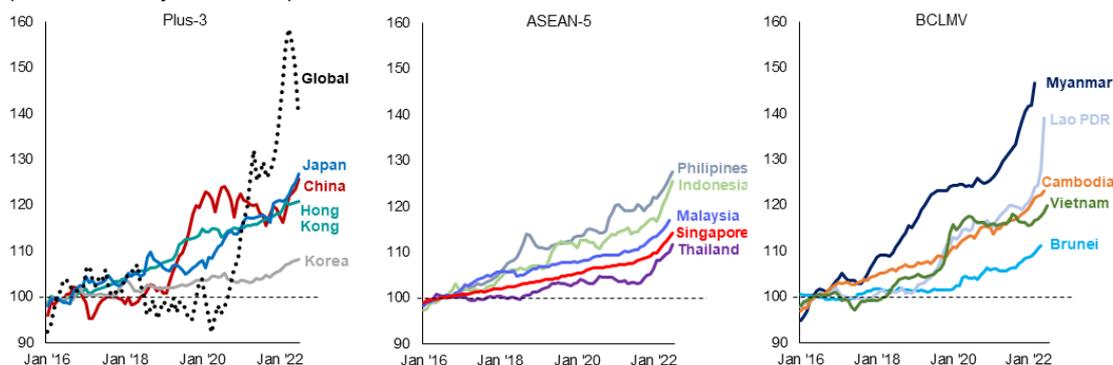
- *Plus-3.* In Hong Kong, food price trends mainly reflected pandemic developments which disrupted economic activities in the first half year. However, despite having one of the highest degrees food import dependence in the region, Hong Kong's supply of staple food has been stable so far, thanks to Mainland China, and this has helped to contain imported food price inflation. In Japan, food price inflation is broadening, with bread (cereals), meat (seafood, beef) and vegetables becoming

⁴ [Hinojales and Zhao \(2022\)](#) argue that for ASEAN+3, the loss of agricultural trade with Russia and Ukraine is unlikely to be large per se—although it would compound existing shortfalls due to other factors (e.g., China's export policy in the case of fertilizers). Instead, the greater hazard for ASEAN+3 is the indirect impact of a reduction in the volume of *world* trade with the two countries, and the resulting increase in food commodity prices in world markets.

more expensive. Japan's consumption of beef in particular, is largely met by imports, and the depreciation of the yen has added to price pressures. Additionally, soaring prices of feedstock are also affecting domestic poultry production. Similarly in Korea, food prices are rising due to higher costs of production—in particular, higher prices of grain imports for animal feed, are directly affecting the price of meat products.

- ASEAN-5.** In Indonesia, Malaysia and Thailand—which are net food commodity exporters, food price inflation has risen to its highest rate in a decade, driven in large part by elevated prices for meat, fish, and seafood, which are mostly imported. In Malaysia, prices of domestic chicken (46 percent of total meat consumption), have gone up due to higher prices of imported feedstock, as well as labor shortages at poultry farms. In Thailand, prices of meat surged by more than 10 percent year-on-year in the first half of 2022. In Thailand, the shortage of domestic pork was due to the outbreak of African swine fever at the start of the year. In the Philippines—where food import dependence is high—food price inflation in the first half of 2022 has trended upwards to 4 percent year-on-year.⁵ Local factors, such as a sugar shortage (due to unfavorable weather conditions as well as import delays) have also compounded the food supply problem. In Singapore, rising transportation and wage costs are also contributing to food price inflation, especially for food away from home (i.e. in eating establishments like restaurants and food centers).
- BCLMV.** In Lao PDR and Myanmar, food price inflation has surged to a multi-year high, mainly on account of soaring prices for imported food. The large depreciation of their currencies has compounded the rising food price inflation. In contrast, food price inflation has been mostly subdued in Vietnam, which has a relatively low dependence on imported food. Domestic supplies of crops and livestock have been abundant, due the favourable weather and good harvests. However, higher production costs from rising prices of feedstock, could weigh on the livestock industry.

Figure 8: ASEAN+3: Overall Food Prices
(Index, January 2016=100)

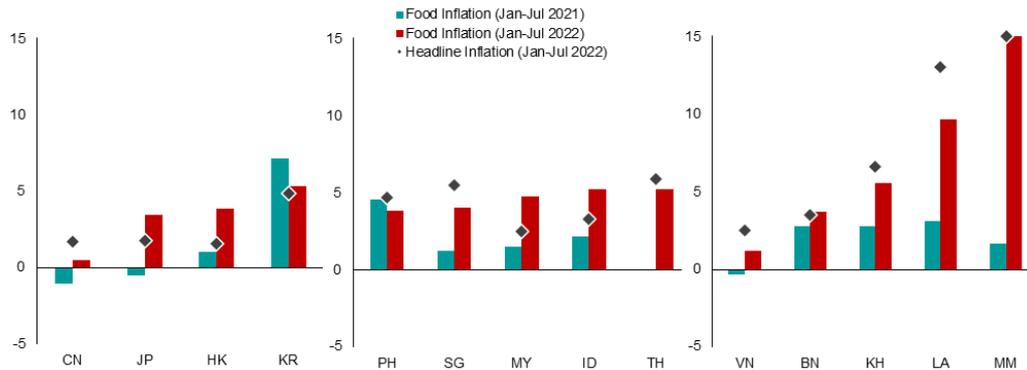


Sources: National authorities via Haver Analytics; and AMRO staff calculations.

Note: Data are up to July 2022, except for Brunei (up to May 2022); Cambodia (up to June 2022); and Myanmar (up to March 2022).

⁵ Food price inflation in the Philippines in January-July 2022 was slightly lower than the corresponding period in 2021, due to high base, as the surge in pork prices in early 2021 led to jump in food inflation of close to 5 percent in January-July 2021.

Figure 9. ASEAN+3: Food Price Inflation
(Percent, year-on-year)

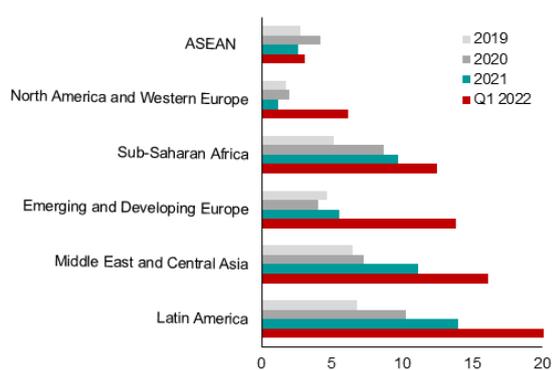


Sources: National authorities via Haver Analytics; and AMRO staff calculations.

Note: Data are up to July 2022, except for Brunei (up to May 2022); Cambodia (up to June 2022); and Myanmar (up to March 2022).

14. **Still, aggregate food price inflation in ASEAN+3 is the lowest compared to other regions in the world so far (Figure 10).** Among the key food items that have recorded sharp price increases in the region since January 2020 are wheat and edible oils. The price of rice, in contrast, has fallen (Figure 11).

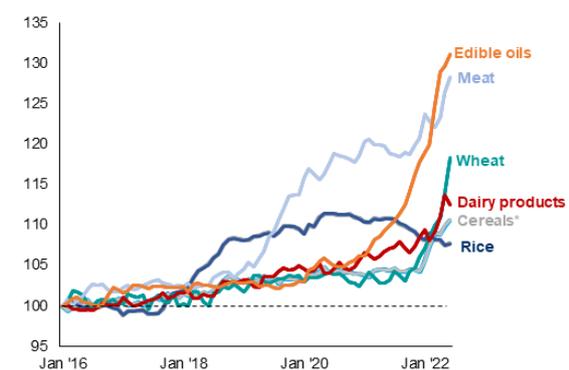
Figure 10. World: Food Price Inflation, by Region
(Percent, year-on-year)



Sources: Haver Analytics, World Bank, and AMRO staff calculations.

Note: Data exclude countries with hyperinflation.

Figure 11. ASEAN+3: Selected Food Prices
(Index, 2016=100)



Sources: National authorities via Haver Analytics; and AMRO staff calculations.

Note: "Cereals*" exclude wheat and rice. Brunei, Lao PDR, and Myanmar are excluded due to data gaps.

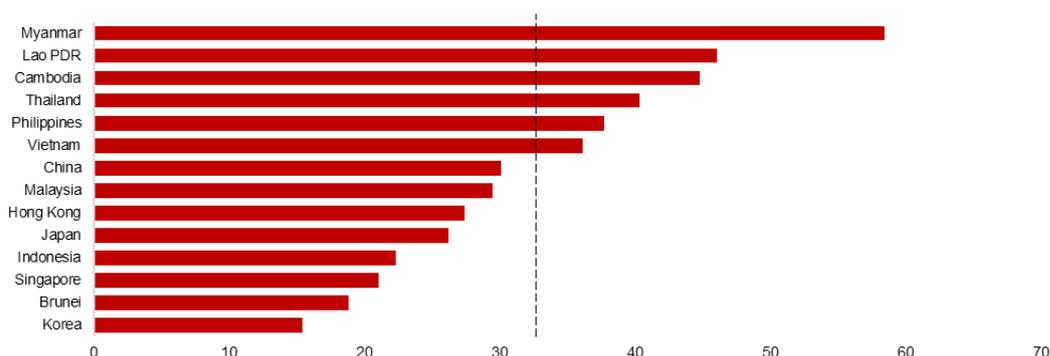
15. **The transmission of global food price shocks to domestic headline inflation also has been generally weak to date.** The extent to which global food prices affect headline inflation depends not just on the extent of food import dependence but also on factors such as the weight of food items in the overall consumer price index (CPI) and the degree of pass-through of food import prices to domestic food prices, including whether there are price controls or administered prices for food, or other policies such as export restrictions on domestic food production.

- *CPI basket weights.* The share of food in the overall CPI basket varies across ASEAN+3 economies, ranging from 16 percent in Korea to 60 percent in Myanmar (Figure 12). Despite relatively similar rates of food price inflation, headline inflation in Indonesia and Malaysia was relatively contained in the first half of 2022 whereas

headline inflation in Thailand has risen substantially to 5.6 percent year-on-year, in part reflecting the larger share of food in its CPI basket (40 percent). Within the food basket, there is also significant cross-country variation. For example, in the Philippines, rice makes up as much as a quarter of the food share in the CPI basket, whereas in Malaysia, it accounts for less than 5 percent.

- *Price controls.*⁶ Many ASEAN+3 economies have policies to keep domestic food prices stable through administered prices and other price stabilization measures such as price caps or ceilings. Such policies have helped to keep food price inflation under control. Brunei, Indonesia, Malaysia, Thailand, and Vietnam, for instance, have price controls to regulate the prices of key essential goods, such as cooking oil, flour, and sugar (Table 2). As food price inflation has broadened to other essential food items, such as meat, eggs, and certain fruits and vegetables in recent months, authorities in some economies (e.g., Malaysia) are moving to introduce more price ceilings for these food items.
- *Export restrictions.* Some food commodity-exporting economies have introduced export restrictions on certain essential food items to ensure an adequate domestic supply and keep their prices under control. Indonesia imposed an export ban on palm oil in April 2022 and Malaysia imposed an export ban on poultry in May 2022. Export bans may help to keep domestic prices of the restricted goods from rising, in some cases.⁷ However, they have adverse spillover effects on other economies that rely on imports of those goods—creating supply disruptions, increasing food price volatility, and exacerbating food price inflation. For example, while Malaysia’s (partial) poultry export ban has helped to stabilize domestic supplies and prices, it has affected poultry prices in neighboring Singapore and Thailand, its largest export markets for chickens (Figure 13).

Figure 12. ASEAN+3: Share of Food in the CPI Basket, 2022
(Percent)



Source: Haver Analytics; AMRO; and AMRO staff calculations.

Note: Dotted line refers to the simple average share for the region (32.5 percent).

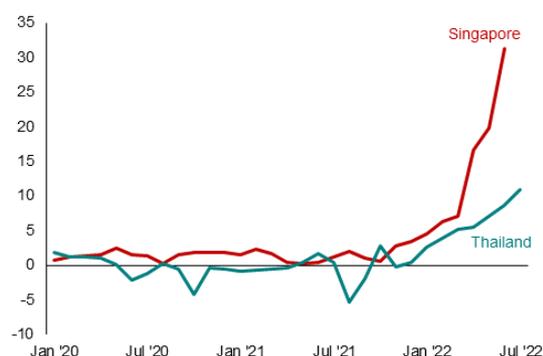
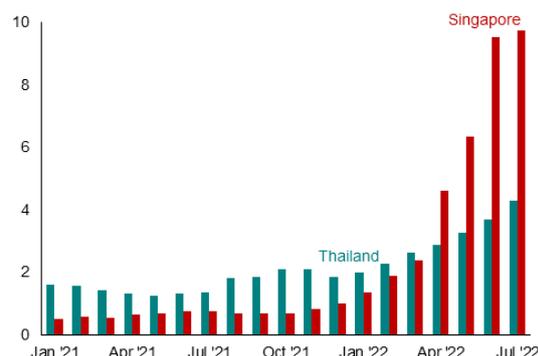
⁶ For many regional economies, price control measures also come with subsidies and other forms of social assistance.

⁷ Indonesia’s palm oil export ban was not very effective in lowering domestic cooking oil prices, partly due to hoarding. The three-week ban managed to bring down the average price of bulk cooking oil from IDR19,800 per liter (on 28 April 2022) to IDR18,500 per liter (on 23 May 2022), which was still above the government’s targeted price of IDR14,000 per liter.

Table 2. Selected ASEAN+3: Policy Measures to Reduce the Impact of High Food Prices on Consumer Price Inflation in 2021-22

| Economy | Policy Measure(s) |
|-----------------|---|
| Indonesia | <ul style="list-style-type: none"> January–March 2022: Retail price caps for packaged cooking oil (IDR14,000 per liter for premium quality; IDR13,500 per liter for second-tier quality). March–April 2022: Increase in domestic market obligation (DMO), i.e., mandatory domestic sales of palm oil from 20 percent to 30 percent. Increase in palm oil export levy maximum rate from USD175 to USD375 per tonne. Price cap on bulk cooking oil (IDR14,000 per liter). April–May 2022: Ban on exports of crude palm oil and refined palm oil products. May 2022: Replacement of palm oil export ban with a 20 percent DMO and bulk cooking oil distribution program. July 2022: Government launch of new cooking oil product at subsidized price of IDR14,000 per liter. August 2022: Market operations to redistribute produce e.g., chili, onions, and eggs, from regions with excess to regions in need (part of Bank Indonesia’s National Movement for Food Inflation Control to help push food price inflation down to 5–6 percent by the end of 2022). |
| Japan | <ul style="list-style-type: none"> October 2022: No change in wholesale price of imported wheat sold by the government to domestic milling companies from level set in April. (The price is revised twice a year—in April and October—based on the average price of wheat that the government imported in the previous six months.) |
| Korea | <ul style="list-style-type: none"> May 2022: Cut in value-added taxes on imports of coffee and cocoa beans until 2023. July 2022: Removal of import duties on seven key food items (e.g. cooking oil, flour, pork). |
| Malaysia | <ul style="list-style-type: none"> August 2021–June 2022: Price subsidies for bottled cooking oil. February 2022: Retail price ceilings for chicken and eggs (e.g., MYR8.90 per kilogram for standard whole chickens, increased to MYR9.40 per kilogram in July 2022; MYR0.43 each for Grade A chicken eggs, increased to MYR0.45 in July 2022). May 2022: Abolition of approved permits for some food imports (e.g., wheat, chicken, coconuts, and milk). June 2022: For some farmers, exports may resume from October after obtaining approval from local authorities. Ban on chicken exports (eased in mid-June, to allow the export of live “kampung” and black chickens). July 2022: Ban on exports of cooking oil in polybags. Retail price ceilings for bottled cooking oil. |
| The Philippines | <ul style="list-style-type: none"> June–December 2022: Tariff cuts on certain food imports e.g., rice, corn, and pork. August 2022: Government appeal to retailers to reduce the price of sugar to PHP70 per kilogram. |
| Thailand | <ul style="list-style-type: none"> May 2022: Increase in import quota and reduction in import tariff rate for corn. June 2022–June 2023: Retention of price controls on essential goods including rice and sugar. Price monitoring of corn products to prevent a price surge. |

Source: AMRO staff compilation.

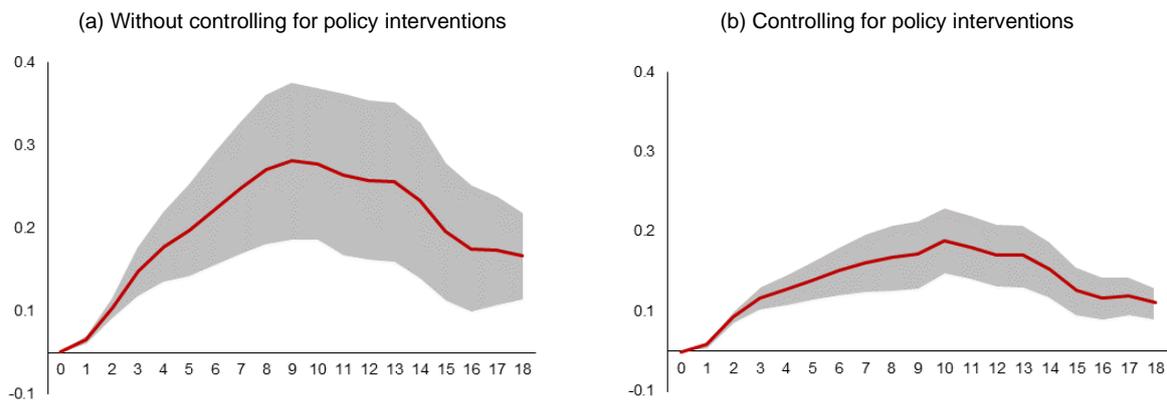
Figure 13. Singapore and Thailand: Impact of Malaysia’s Restrictions on Poultry Exports**Impact on Poultry Price Inflation**
(Percent year-on-year)**Impact on Poultry Price Inflation Volatility**
(12-month rolling standard deviation)

Sources: Haver Analytics; and AMRO staff calculations.

16. However, econometric estimates suggest that shocks to global food prices can have non-negligible, persistent, and statistically significant effects on the region’s headline inflation (see the Appendix for details). A one standard-deviation (approximately 3 percentage points) increase in global food prices typically increases the region’s headline

inflation by 0.21 percentage points, on average, over the next 12 months (Figure 15, left panel). To give a concrete example, between February and March 2022, the FAO food price index rose by 12.6 percent—this would translate to an almost 1 percentage-point increase in the region’s headline inflation, on average, over a year. Based on 90 percent confidence level, the impact on headline inflation peaks after nine months. This result is largely similar to the finding in [Carrière-Swallow and others \(2022\)](#), where the peak effect of a global food price shock on headline inflation is found at seven months for a sample of 46 countries. The impact of a global food price shock on headline inflation is much lower once we control for domestic policy interventions to keep food prices under control—about 0.11 percentage points lower, on average, at its peak (Figure 14, right panel).

Figure 14. Impact of Global Food Price Shock on ASEAN+3 Headline Inflation
(Percentage points)



Sources: Haver Analytics; and AMRO staff estimations.

Note: The graph shows the response of headline inflation to a one-standard deviation increases in global food prices. The solid line is the average impulse response function, and the shaded region indicates the 90 percent confidence interval band. The x-axis shows the months after shock: $t=0$ is the start of the shock. For purposes of comparison, the estimated (average) impulse response function for ASEAN is slightly higher than that of ASEAN+3 (panel a), while still remaining within the earlier 90 percent confidence interval band estimated for ASEAN+3.

V. Conclusion

17. Global food prices remain above 2020-21 levels, and can be expected to stay high in 2022. The FAO food price index has climbed steadily since the middle of 2020, reaching its peak in March 2022. Although prices of some agricultural commodities have since come down from their highs, many of the factors that drove up global prices early this year are still at play. These include persistent supply disruptions and uncertainties from the ongoing war in Ukraine, as well as ever-present risks of unfavorable weather and livestock diseases. As a result, global food prices can be expected to stay elevated for the rest of this year, but may start to ease in 2023 as global demand softens.

18. Food price inflation in ASEAN+3 is expected to peak at the end of this year. As the impact of global food price shocks is transmitted to the region with a lag, our analysis suggests that, all else the same, we can expect the peak effects of the region’s food price inflation and headline inflation towards end of this year. This takes into consideration temporary policy interventions to keep food prices stable or rising too rapidly in some economies. However, it will take some time for strains in global supply chains to fully unwind. Furthermore, as sanctions on Russia are expected to remain in force, some of the supply pressures—such as production shortages and high transports costs—will remain, and will

continue to exert some degree of price pressure on the region's economies, particularly those that are reliant on food imports.

19. **In the meantime, higher food price inflation has triggered concerns over broader price stability and social equity, prompting monetary and fiscal policies to respond.** On the monetary side, the key challenge for policymakers is to maintain a credible monetary policy framework that helps keep inflation expectations well anchored in the face of price shocks. Food price shocks tend to be temporary; but a persistent rise in food prices can affect the underlying inflation rate if higher inflation expectations set off a wage-price spiral. Cognizant of this risk, several of the region's central banks have started to adjust their degree of monetary accommodation—larger policy rate hikes have been seen in ASEAN economies such as Korea and the Philippines, where headline inflation has exceeded the inflation target range for several months. On the fiscal side, the key challenge for policymakers is to protect real household incomes and maintain social stability without endangering fiscal sustainability or hurting trading partners. In the short term, efforts should focus on avoiding hoarding behavior and providing targeted support to needy households, such as temporary cash transfers or subsidies to keep prices from rising too fast. Over the longer term, efforts could focus on enhancing social assistance schemes and increasing the food supply by supporting domestic production and improving food distribution efficiency.

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Appendix. Quantifying the Impact of a Global Food Price Shock on Headline Inflation in ASEAN+3

To quantify the impact of changes in global food price shock on headline inflation, we follow [Jordà \(2005\)](#) and estimate the impulse response functions directly from local projections. For each horizon k , the following equation is estimated using monthly data for all 14 ASEAN+3 economies over the period from January 1990 to July 2022 (Table 1.1):

$$\pi_{i,t+k} = \alpha_i^k + \sum_{j=1}^l \gamma_j^k \pi_{i,t-j} + \sum_{j=0}^l \beta_j^k w_{t-j} + \sum_{j=0}^l \theta_j X_{t-j}^i + D_{i,t} + \epsilon_{i,t}^k$$

where:

k : response horizon in months;

π : year-on-year log change in price index for country i ;

w : month-on-month percent change in global food price in month t ;

α_i^k : country fixed effects;

β_j^k : impact of food prices on domestic inflation over the following k periods;

γ_i^k : persistence of domestic CPI inflation;

X : control variables (share of food in domestic CPI basket, global growth);

D : dummy variable to control for domestic policy interventions (e.g. price stabilization measures) in country i in month t .

The number of lags (l) was chosen to be 12, to control for additive seasonal effects that may exist in the price series. The equation was estimated for each horizon $k = \{0, 1, \dots, 18\}$ using the ordinary least squares estimator. We estimated heteroskedasticity-robust standard errors clustered at the country level to account for cross-sectional dependence in the error term $\epsilon_{i,t}^k$.

The confidence bands were constructed using the standard errors of the β_0^k coefficients estimated for each horizon k .

Table 1.1. Variables, Definitions, and Sources of Data

| Variables | Definition | Frequency | Sources | Notes |
|-------------------------------------|-------------------|-----------|--|--|
| Headline consumer price index | % year-on-year | Monthly | National authorities via Haver Analytics | - |
| Share of food in CPI basket | % share | Monthly | National authorities via Haver Analytics | Data for China and Myanmar are omitted due to data gaps. |
| Global food price index | % month-on-month | Monthly | IMF via Haver Analytics | - |
| Global growth | % year-on-year | Annually | IMF via Haver Analytics | - |
| Domestic policy interventions dummy | 1 if yes, 0 if no | Monthly | National authorities | - |