AGRICULTURE ANALYST

Risks to Agricultural Prices From Food and Energy Security Policy

Lina Thomas
+1(212)902-8376 | lina.thomas@gs.com
Goldman Sachs & Co. LLC

Daan Struyven
+1(212)357-4172 |
daan.struyven@gs.com
Goldman Sachs & Co. LLC

- Global agricultural supply is highly concentrated geographically. Across key crops such as soybeans, corn, rice, sugar, and palm oil, the top three exporting countries account for 60-90% of global trade, making agricultural markets highly vulnerable to localized weather, geopolitical, or policy shocks.
- Because major agricultural exporters increasingly prioritize domestic food and energy security through export restrictions and biofuel mandates, even modest disruptions—or the fear of disruptions—can trigger policies that reduce exportable supply. In highly concentrated markets, the resulting loss of exportable supply can be much larger than the original production shock, amplifying price volatility. Import-dependent countries may in turn respond by stockpiling and pursuing greater self-sufficiency, often accepting higher domestic production costs in exchange for supply security. While these measures are ultimately aimed at improving resilience locally, they also fragment trade, reduce market liquidity, and increase the sensitivity of prices to future shocks.
- We view the risk of protectionist policy responses as a key source of upside risk to crop prices and agricultural volatility, as three near-term supply concerns could trigger precautionary measures even if the underlying disruptions ultimately prove limited.
    - First, El Niño conditions are already present, with a 63% probability of developing into a "super" El Niño. Because many major exporters of staples such as rice, and crops used for biofuels such as sugar and palm oil, are concentrated in regions that historically experience more adverse weather during El Niño episodes, even a modest weather shock—or the fear of one—could trigger precautionary export restrictions.
    - Second, higher energy prices in 2026H1 and concerns about fuel security may encourage governments to increase biofuel mandates, further diverting crops from export markets into domestic fuel production.
    - Third, fertilizer markets also remain exposed to renewed disruptions in the Strait of Hormuz during the critical Q3 procurement season for major nitrogen fertilizer importers ahead of 2H planting.

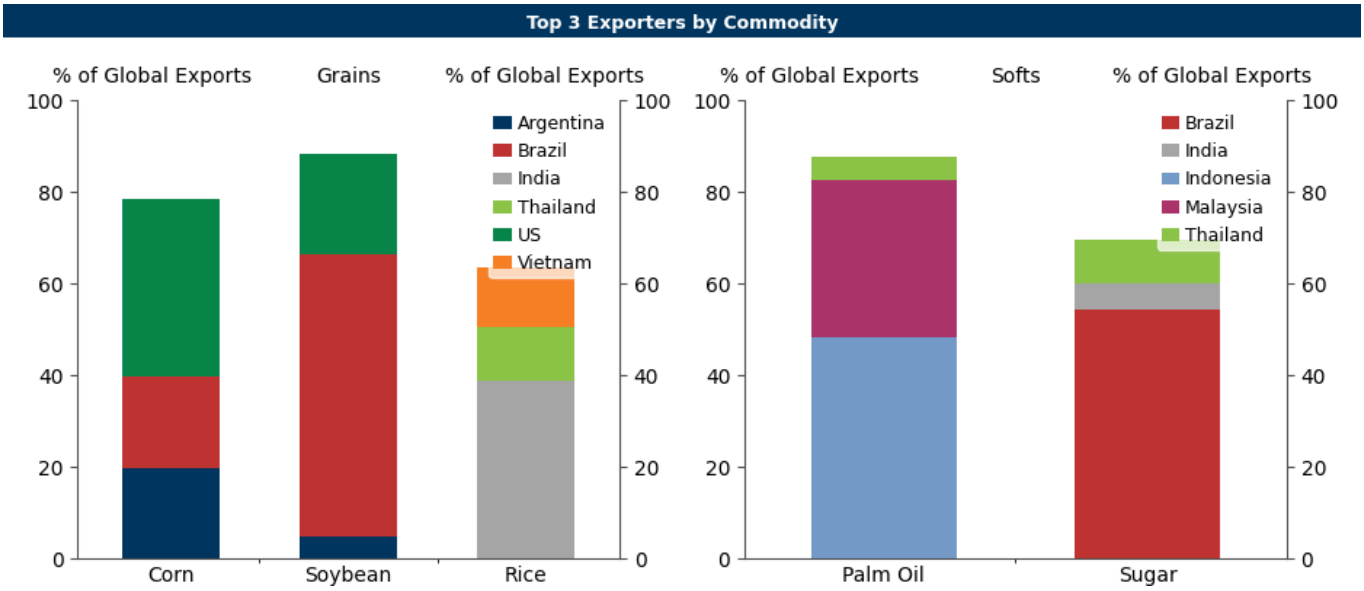
*The authors would like to thank **Samuel Jonsson** — an intern on our commodities research team — for his extensive contributions to this report.*

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Risks to Agricultural Prices From Food and Energy Security Policy

Global agricultural supply is highly concentrated geographically. Across key crops such as soybeans, corn, rice, sugar, and palm oil, the top three exporting countries account for 60-90% of global trade (Exhibit 1), leaving agricultural markets highly exposed to localized weather, geopolitical, and policy shocks.

Exhibit 1: Global Agricultural Supply Is Highly Concentrated Geographically

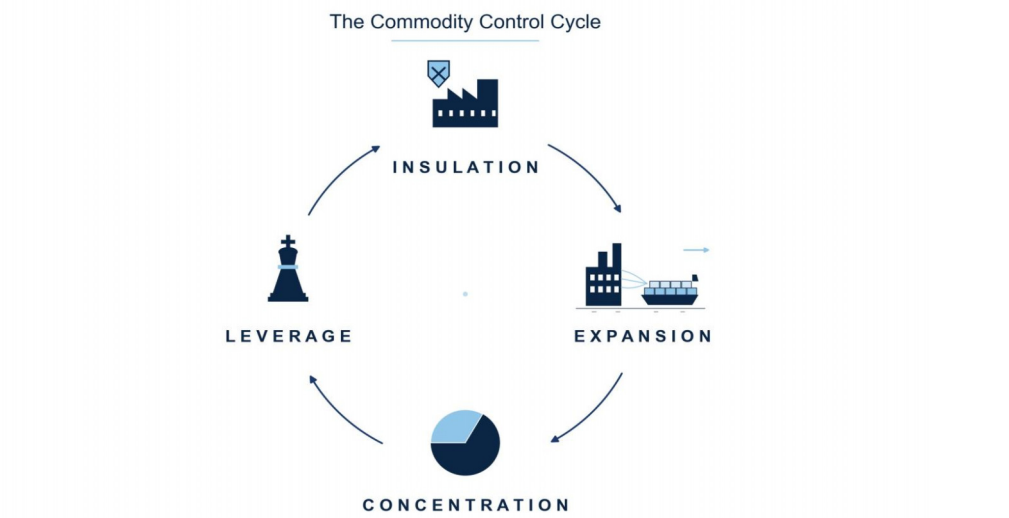


Data sample is 2025.

Source: USDA, Goldman Sachs Global Investment Research

Consistent with our Commodity Control Cycle framework, concentrated supply increases disruption risk because dominant producers can use exports as a source of leverage. High disruption risk, in turn, encourages countries to insulate themselves from external shocks through protectionist policies (Exhibit 2). While these policies may improve domestic resilience, they also fragment global markets, reduce traded liquidity, and may increase price volatility.

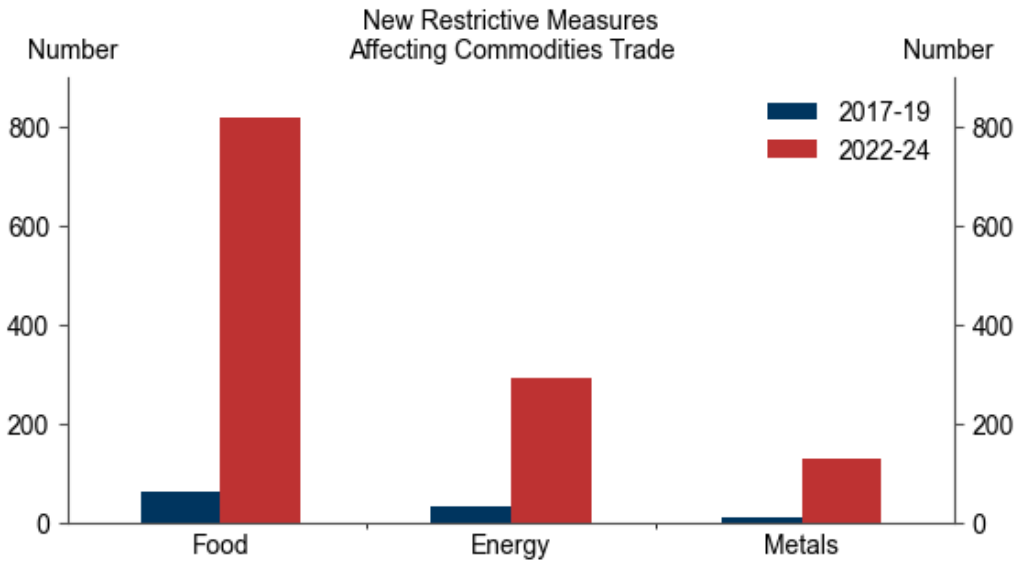
Exhibit 2: Consistent With Our Commodity Control Cycle Framework, Concentrated Supply Increases Disruption Risk



Source: Goldman Sachs Global Investment Research

Since 2022, protectionist measures have increased across commodity markets, likely reflecting lessons from the pandemic, China's 2021 power shortages, and the disruptions to food and energy markets following Russia's invasion of Ukraine. The rise in protectionist measures has been most pronounced in agriculture, where food's essential nature makes supply security likely a political priority (Exhibit 3).

Exhibit 3: The Rise in Protectionist Measures Is Most Pronounced in Agriculture



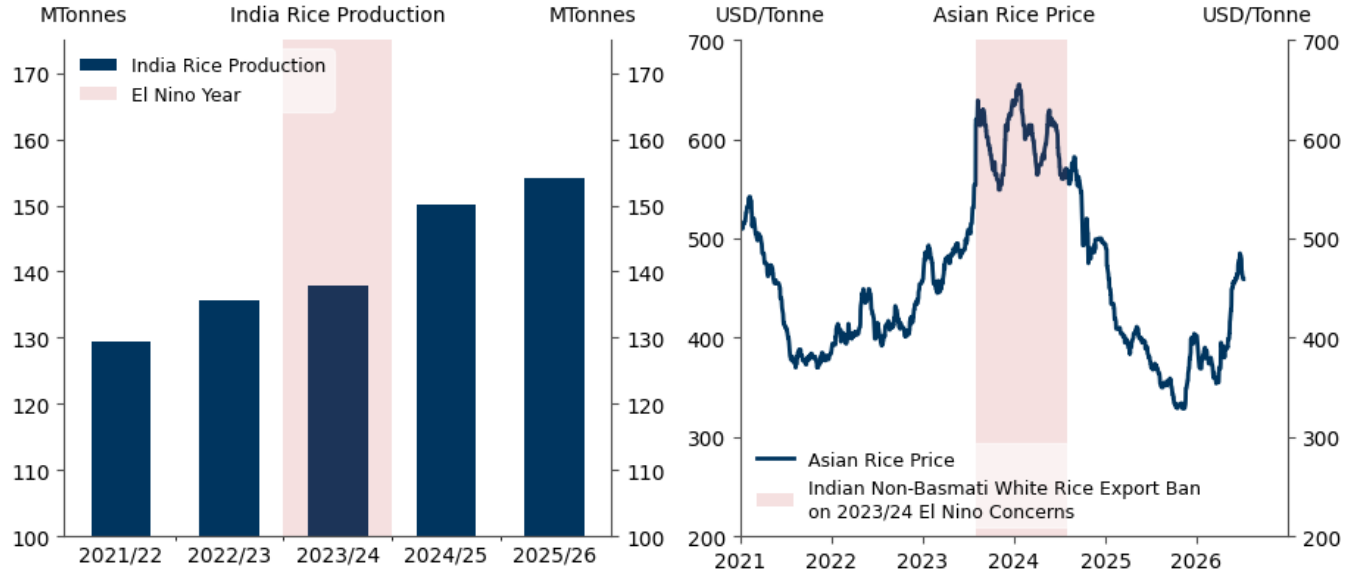
Source: Global Trade Alert, Goldman Sachs Global Investment Research

India (~40% of global rice exports), for example, imposed a precautionary ban on non-basmati rice exports in 2023 ahead of El Niño concerns, despite domestic production ultimately proving resilient, helping drive a sharp increase in Asian rice prices (Exhibit 4).[1] More recently, India has introduced sugar export restrictions amid concerns

[1] Despite strong El Niño conditions, India's rice production increased 1.5% in 2023/24. The ban on

over this year's potential "super" El Niño [2]. As a result, even modest supply shocks can remove disproportionate volumes from global trade and generate price moves far larger than the underlying physical disruption would otherwise warrant.

Exhibit 4: Ahead of 2023 El Nino Concerns, India Imposed a Precautionary Rice Export Ban, Despite Domestic Production Ultimately Proving Resilient



Thailand white rice 5% is the benchmark price for Asian rice prices.

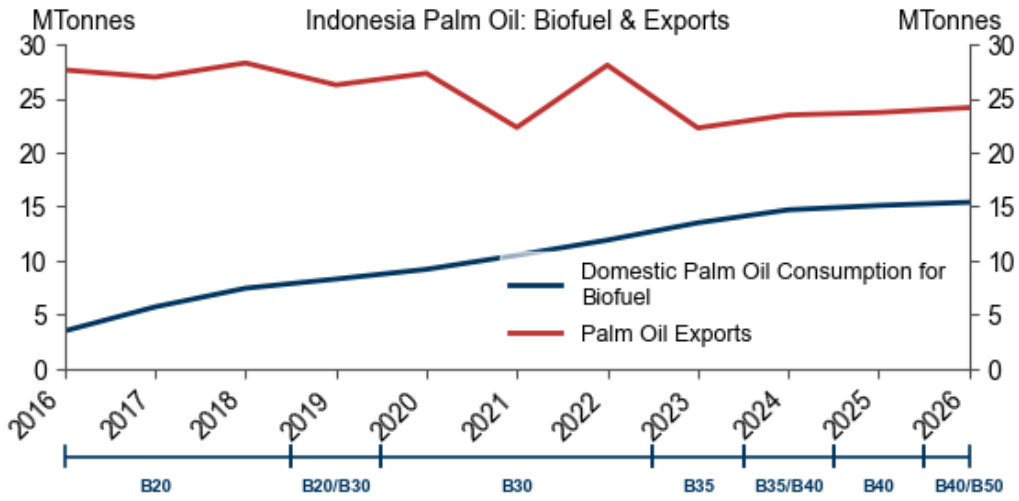
Source: USDA, Bloomberg, Goldman Sachs Global Investment Research

Energy security concerns can also tighten food markets via biofuel policies. Higher biofuel blending mandates may reduce exportable crop supply by diverting soybeans, sugar, corn, rapeseed and palm oil into domestic fuel production. Between 2016 and 2026, Indonesia (~50% of globally tradeable palm oil) raised its domestic biofuel blending mandates from 20% to 40-50%, while its crude palm oil production grew only moderately due to land constraints and stagnant yields (Exhibit 5). The sharp increase in biofuel consumption directly reduced the country's exportable palm oil surplus, tightening global vegetable oil markets and lifting the price floor across the vegetable oil complex as consumers substituted away from what had historically been a low-cost vegetable oil (Exhibit 6).

non-basmati rice exports was in effect from July 2023 to September 2024.

[2] Historically, fears of El Niño production shortfalls have triggered several major trade restrictions: India banned non-basmati white rice exports in anticipation of weaker harvests (July 2023–September 2024), Thailand classified sugar as a controlled commodity requiring approval for bulk exports (October 2023), and during the 2015–2016 drought, Zambia, Malawi and other southern African nations imposed maize export bans amid a 7.9-million-tonne regional cereal deficit.

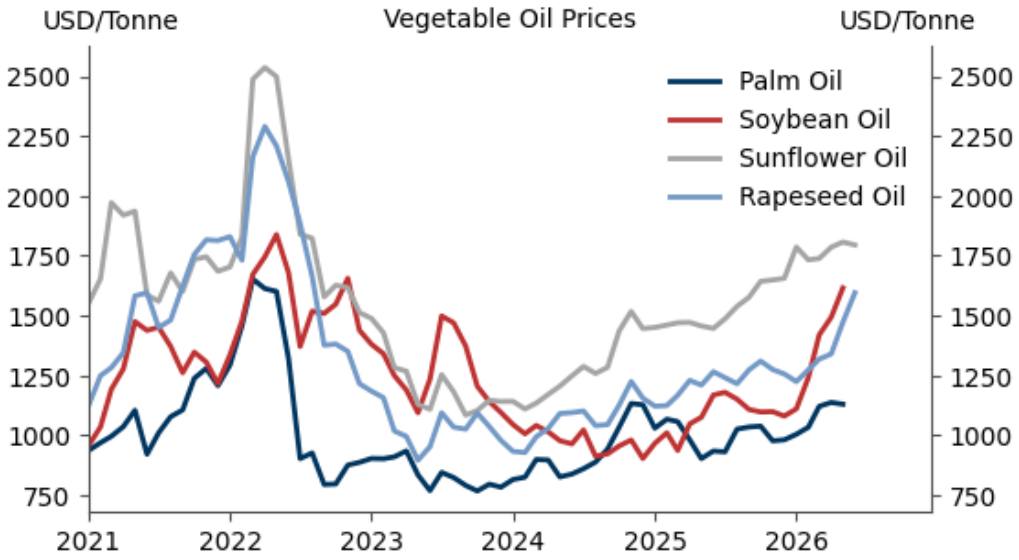
Exhibit 5: The Sharp Increase In Biofuel Consumption Directly Reduced the Country's Exportable Palm Oil Surplus...



BXX denotes a biodiesel blending mandate of XX%.

Source: USDA, Goldman Sachs Global Investment Research

Exhibit 6: ... Lifting the Price Floor Across the Vegetable Oil Complex

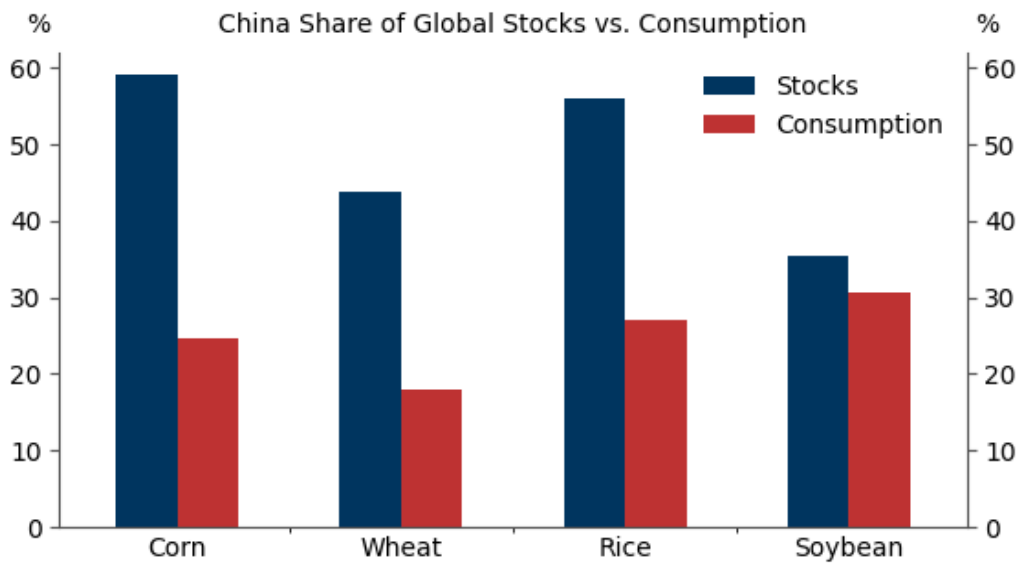


Global Benchmark Prices: BMD Crude Palm Oil, CBOT Soybean Oil Futures, Black Sea Sunflower Oil FOB, European Rapeseed Oil FOB Dutch Mill

Source: IMF, Goldman Sachs Global Investment Research

Import-dependent countries may in turn respond to rising disruption risk by insulating their supply chains. In the near term, this may take the form of stockpiling. Exhibit 7 shows that China accounts for a disproportionately large share of global commodity stockpiles relative to its share of consumption, likely reflecting a deliberate strategy to build domestic supply buffers. Over the longer term, it could involve policies aimed at boosting domestic production and reducing reliance on imports, even at higher production costs.

Exhibit 7: China Accounts for a Large Share of Global Crop Inventories



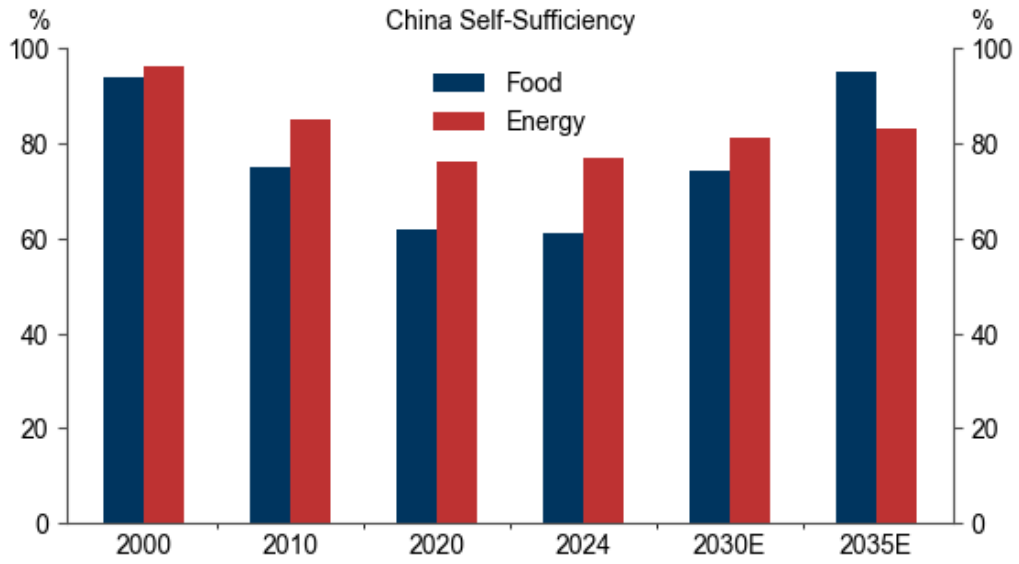
China's share in global ending stocks and consumption for 2025/26.

Source: USDA, Goldman Sachs Global Investment Research

In China, President Xi has repeatedly framed food security as a core national interest, emphasizing that "the Chinese people's rice bowl should be firmly held in their own hands."[3] Consistent with this objective, our equity analysts expect China's food self-sufficiency rising to the mid-90% range by 2035, up from today's low-60% levels—implying that nearly all food consumed domestically would be produced domestically (Exhibit 8). Achieving this self-sufficiency requires support for domestic production through minimum prices, subsidies, land protection policies, and periodic restrictions on fertilizer exports to prioritize domestic agriculture. Much of China's grain production occurs on relatively high-cost land relative to imports from Brazil and the US, implying a willingness to accept higher production costs in exchange for greater food security. India follows a similar approach of food security through minimum support prices for grains farmers, national fertilizer procurement programs, and strategic stockpiles.

[3] (粮食安全是"国之大者"，中国人的饭碗要牢牢端在自己手中)

Exhibit 8: Our Equity Analysts Expect China's Food and Energy Security to Continue Strengthening Over the Coming Decade



We define self-sufficiency as the share of domestic apparent consumption that is met through domestic production. Please see our equity analysts' publication for more information: China Agriculture: China's Food Security – Remarkable Progress Towards an Ambitious Goal

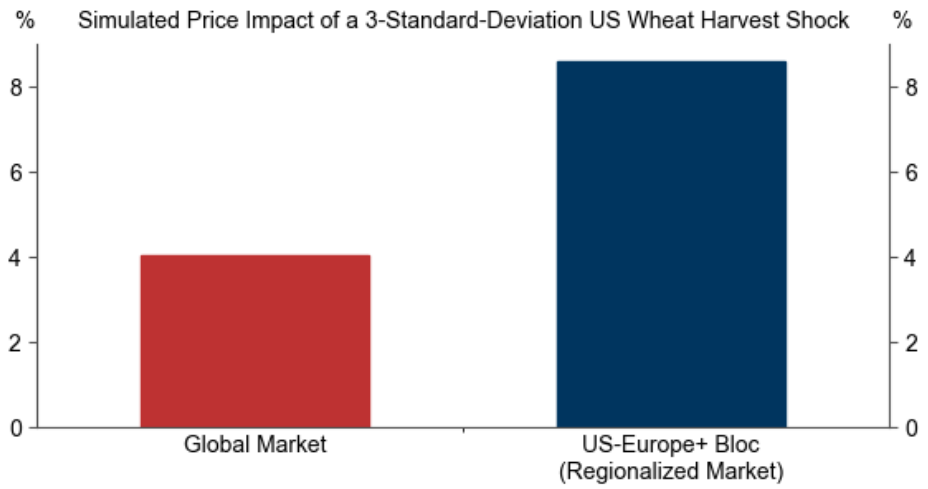
Source: Company Data, NBS, MOA, FAO, USDA, Wind, Goldman Sachs Global Investment Research

While risk-management policies — including tariffs on commodity imports, export controls, forms of state-supported domestic production, and government inventory building — are ultimately aimed at improving domestic resilience, they likely also fragment global markets, reduce traded liquidity and raise price volatility.[4] We estimate that the price impact of an external disruption (e.g. climate change shock in agriculture markets) depends on its size relative to the market that absorbs it; if a regional bloc is half the size of the global market, the same shock delivers twice the price impact compared to a global market (Exhibit 9).[5] Measures that lead to fragmentation can therefore generate outcomes that differ from their intended objective of managing disruption risk.

[4] Particularly for import-dependent countries with limited ability to improve domestic resilience.

[5] The key intuition for the greater price effect in fragmented markets is that the price impact of a disruption is inversely related to the size of the market that absorbs it; if a regional bloc is half the size of the global market, the same shock delivers twice the price impact.

Exhibit 9: The Price Impact of a Disruption Depends on Its Size Relative To the Market That Absorbs It; If a Regional Bloc Is Half the Size Of the Global Market, the Same Shock Delivers Twice the Price Impact



Source: USDA, FAO, IMF, Fally and Sayre (2019), Alvarez et al. (2013), Goldman Sachs Global Investment Research

We view the risk of protectionist policy responses as a key source of upside risk to crop prices and agricultural volatility, as three near-term supply concerns could trigger precautionary measures even if the underlying disruptions ultimately prove limited.

- First, El Niño conditions are already present, with a 63% probability of developing into a "super" El Niño. Because many major exporters of staples such as rice, and crops used for biofuels such as sugar and palm oil, are concentrated in regions that historically experience more adverse weather during El Niño episodes, even a modest weather shock—or the fear of one—could trigger precautionary export restrictions.
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