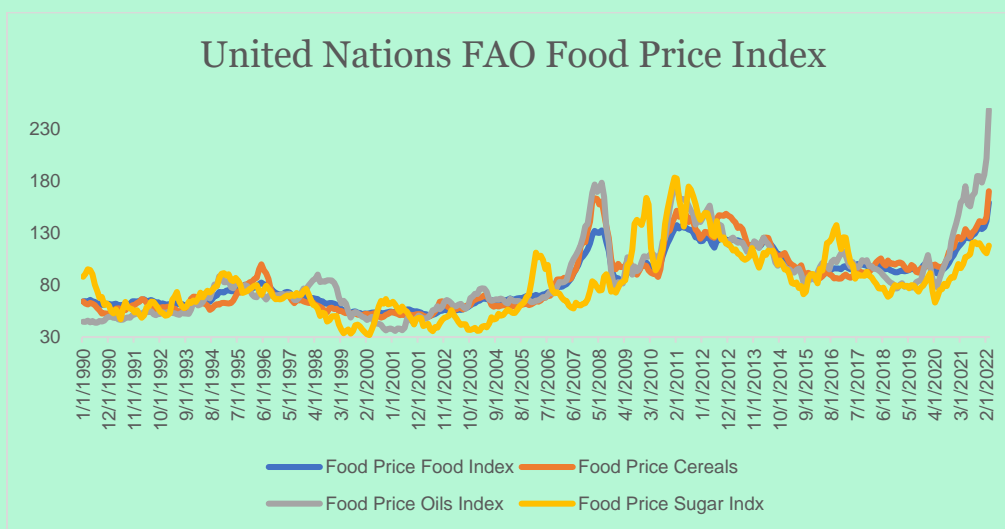


Spotlight: Food

Long before Russian tanks rolled into Ukraine, global food prices were on the rise. The United Nations FAO Food Index had risen nearly 50% between May 2020 and January 2022. In February of this year, when prices had only a few days to react to developments in Eastern Europe, the index rose 4.3% to set a new all-time high. Then in March, as markets had time to digest Ukraine and Russia’s role in wheat markets, the impact of impeded transit in the Black Sea, and potential planting disruptions, the index rose another 12.6% (a five-sigma move) to set a second all-time high in as many months.

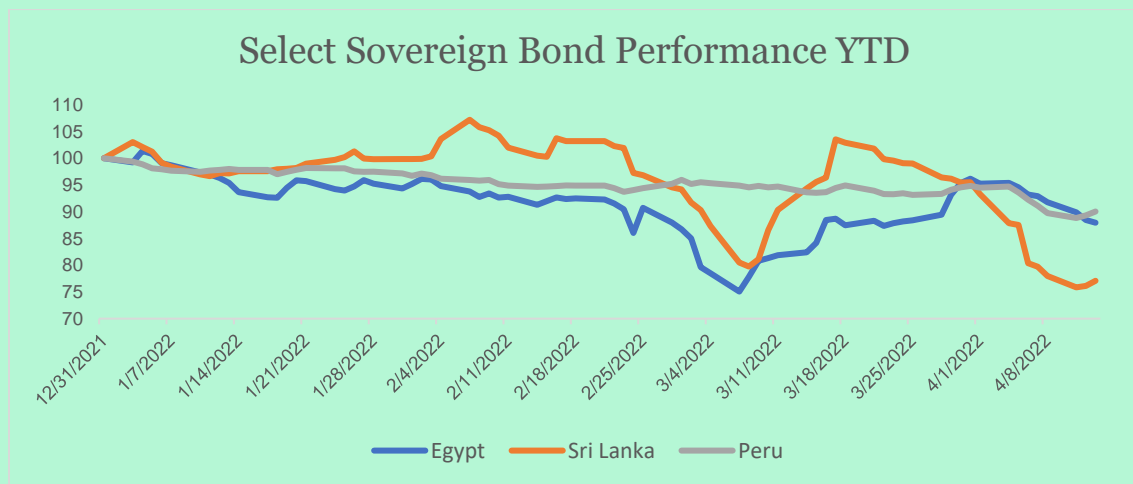
Russia and Ukraine, together, account for 30% of global wheat exports, and Ukraine accounts for 10% of global corn exports. Russia’s role in global oil markets also has knock-on effects on food prices. The Food Oil and Sugar sub-indices have risen 139.1% and 66.1%, respectively, since May of 2020 and 23.2% and 6.7%, respectively, from February to March 2022. Higher petroleum prices drive demand for ethanol, which diverts soy and sugar from food usage to biofuel production. This drives up prices, not only for those foodstuffs and their derivatives, but also for substitutes, such as palm oil or soybean oil. There is also the spillover effect from more expensive crude oil as an energy input to food production, which will continue to put cost pressures on food producers and transporters.

Another source of input cost pressure comes from fertilizer. Together, Russia and Belarus account for approximately 25 million tons – roughly 35% – of the world’s Potash fertilizer production. Potash prices have been on a sharp rise since Belaruskali, one of the world’s largest potash producers, declared force majeure in mid-February (prior to the invasion) in response to US sanctions, saying they would not be able to fulfill their contracts. These prices are unlikely to reverse in the near future, so supply disruptions, substitute shortages, and high and potentially rising input costs will likely conspire to keep food prices elevated and on an upward trajectory.



Today's supply disruptions and price increases have demonstrated the importance of food, energy, and supply chain security. Surging food prices have a history of sparking civil unrest including, for example, the Arab Spring and in Syria. The International Fund for Agricultural Development (IFAD) indicates that the Middle East and North Africa are particularly exposed today, with half the region's cereal imports coming from the Black Sea region.

Other emerging markets, such as Sri Lanka, are suffering from food inflation, despite less direct links to disrupted supplies. Sri Lanka has suspended government bond payments as foreign reserves dwindle. In some, perhaps many, instances the rise in food prices is the proverbial straw snapping the camel's back. Still, (at the risk of mixing metaphors) food security can leave one less match next to a domestic powder keg.



According to data, VC investments in AgTech have been on a strong and steady rise since 2011. The number of deals per year has grown at a compound annualized growth rate (CAGR) of approximately 22% and deal size has grown at a CAGR of roughly 30%. Total deal value in 2021 was \$10.5 billion spread across 751 deals.

AgTech investments have become more interesting given domestic security. Businesses related to the nearshoring of production and increasing yields/efficiency, such as indoor farming and precision agriculture are increasingly interesting. MIT Technology Review recently profiled Smart Acres, a Dubai-based vertical farming company that is helping the desert Emirates grow its own food. In the US, AeroFarms is an example of an indoor vertical farming business, and Gotham Greens is another working to localize food production, placing its greenhouses on the rooftops of buildings in some locations.

On a more industrial scale, precision agriculture increases farm efficiency by employing software solutions and "smart" equipment, broadly. One of the most visible examples of precision agriculture in public markets is John Deere. The company's recent focus has been driving delivery of precision ag solutions, such as automated tillage and weeding. These are merely a few examples of such opportunities, but there are scores more out there, and the interest is only likely to grow as geopolitical and climate security are factored into food supply.