BofA SECURITIES

Global Economic Viewpoint

Don’t take disinflation for granted

Geopolitical conflicts bring major inflation risks

A large share of disinflation has been driven by goods and headline, in contrast with sticker core and services. Energy and food prices could then become a headwind. Geopolitical risks, which intensified amid the Israel-Hamas war, bring upside risks to oil prices, while weather events, including El Nino, remain a risk. We study the cross-country sensitivity to energy and food prices, and their policy and asset pricing implications.

EMEA most exposed to oil, EM Asia to food

We find EEMEA to be most sensitive to energy prices. Similarly, EM Asia would be most exposed to food prices. Most DMs, including the US, are generally less sensitive to food and energy prices, somewhat limiting inflation risks. But the Euro Area’s total exposure to energy and food prices put it closer to the average EM.

Risks to oil prices are asymmetric

In contrast to the lone historical "Saudi put", we believe Brent benefits from three "puts": the traditional OPEC+ cuts, a big increase in China coal production costs, and the likely refill of the US SPR. This is likely to put a floor on prices. In contrast, upside risks have significantly intensified amid risks of regional escalation of Israel-Hamas conflict.

El Nino brings inflationary risks to many EM

El Nino can impact inflation via food prices and second-round effects. Using a VAR, we find Colombia, Peru, and Brazil to be most exposed in LatAm, and Egypt and South Africa in EEMEA. In EM Asia, we find an impact on food prices, but not headline inflation. Amid ongoing or likely approaching monetary easing, El Nino could become a headache.

Crop prices to remain high for longer

Besides El Nino, we believe a combination of factors will likely keep crop prices high for longer. Geopolitics, including around the Black Sea grain deal, also grant attention, even if we think the potential impact of a prolonged suspension would likely be contained.

Diverse implications for central banks

While central banks should in principle look through transitory supply shocks, this may not be the case if these impact inflation expectations. We believe some central banks may be more cautious than others to prevent inflation from getting entrenched.

Asset prices to be driven by policy, terms of trade

Market underpricing of inflation risks favors steepeners in US real rates, while the sensitivity to shocks and Fed vs ECB reaction functions favor Euro vs US duration. Oil shocks particularly negative for EUR, JPY. Stay cautious EM amid challenging backdrop.

Refer to important disclosures on page 44 to 46. Analyst Certification on page 43. 12616651

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Don’t take disinflation for granted

Consensus forecasts and market pricing seem to indicate that inflation dynamics are expected to converge seamlessly towards the respective central bank targets. As we will elaborate, this trend seems to be broad based across countries, despite some divergence in growth dynamics. For the most part, central banks seem to agree with that view, and some of them are already cutting interest rates (in some cases somewhat aggressively).

However, rising geopolitical tensions since the onset of the Israel-Hamas war, including heightened risks of a regional conflict, are reminding markets and policymakers about potential cracks in the disinflationary process. A potential regional escalation poses significant upside risks to oil prices and commodities more broadly. For food prices, weather events, including El Nino, are another important risk. In a nutshell, we see global risks to energy prices and food prices, which have a direct impact on inflation.

As we will discuss, the recent highs in oil prices have been driven by tight supply conditions and risks slowing the disinflationary process, and geopolitical factors are also a concern. For food prices, the effects of El Nino can be relevant for inflation, especially across EM. Furthermore, crop yield dynamics and the Black Sea grain deal are all important factors which we will dive into.

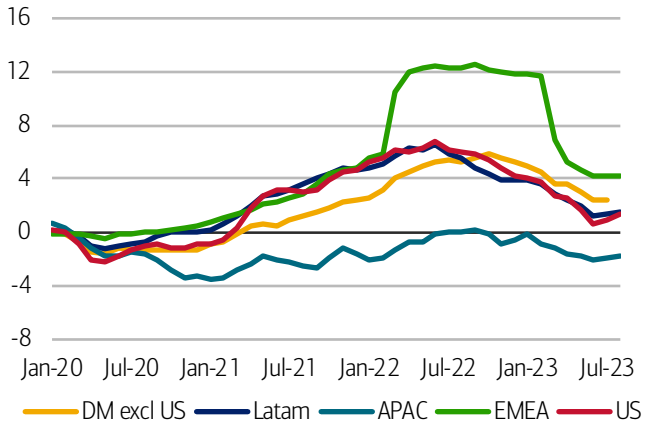
Technically speaking, commodity price shocks should affect relative prices rather than overall inflation. However, given its first-order influence on inflation expectations, not all central banks have the leeway to ignore them. Instead of looking through them, some central banks may need to be more cautious than otherwise to prevent inflation from getting entrenched at a time inflation remains elevated.

Given this heterogeneity across central banks, we also examine how policy responses to such shocks may differ across countries. Despite similar disinflationary dynamics across countries, we find some well-defined differences in monetary policy responses across central banks. Accordingly, asset pricing implications could also be diverse. We explore the potential implications of these negative shocks to our baseline scenarios, trying to find efficient hedges or ways to express those risks across different asset classes.

Less synchronized post-pandemic global growth

As the dust from the pandemic settles, divergences in economic dynamics have emerged across countries and regions, especially in the growth front. The policy response to the pandemic was sometimes heterogeneous across countries, and the exposure to the subsequent energy shocks also varied (see Around the world in 5 questions report).

Exhibit 1: Inflation spiked across the globe
Cumulative inflation since 2020, regional average (%)



Source: BofA Global Research, Bloomberg

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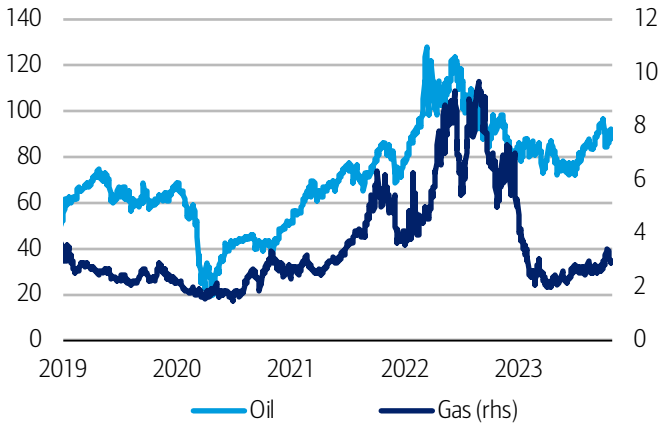
Exhibit 2: Oil and gas spiked in 2022
Oil (Brent) and gas prices



Source: BofA Global Research, Bloomberg

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With the big exception of China, where economic growth has been weaker than expected, most countries in the world have had stronger growth than we envisioned a year ago. Within developed markets (DM), the US has been a clear outperformer relative to the Euro Area (see What is different between the US and the Euro area? report), and Japan is also showing stronger dynamics than originally envisioned.

Inflation has been trending down quite broadly

In contrast to growth dynamics, abstracting from China's risks of deflation and Japan's stronger-than-expected inflation and inflation expectations, inflation dynamics have been more homogenous across countries (Exhibit 1). In most countries, there has been a continued decline in inflation, even if timing has differed somewhat.

However, a large part of the disinflation observed across countries was driven by goods and started with the stabilization in energy prices in the later part of 2022 (Exhibit 2), showing most strongly on headline inflation. In contrast, core inflation has been more stubborn as services inflation has tended to move lower only gradually (Exhibit 3).

But central banks have not been so aligned

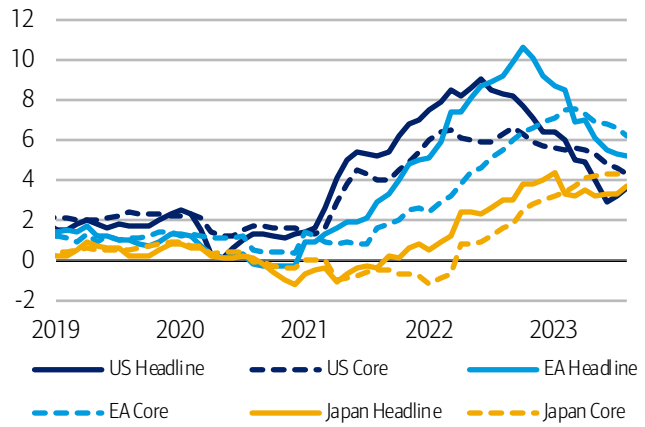
Along the way, the monetary policy response to the inflationary shocks was quite dissimilar between developed and emerging markets (EM). In our view, EM central banks were cognizant about their lack of enough credibility to look through the supply shocks as transitory and hope that inflation expectations would remain well-anchored. In contrast, the Fed and the ECB took this approach, which translated in EM central banks starting their hiking cycle almost a year earlier (Exhibit 4).

In a similar vein, this approach has allowed select EM central banks to begin their easing cycles, with Chile and Brazil taking the lead. Still, many EM central banks remain on a hawkish hold, as it is challenging to cut rates while the Fed is still hiking and some may be waiting for clear signals of the Fed being done before making a move.

Risks to energy and food prices are back on the table

The sharp drop in headline inflation globally coincided with stabilizing oil prices in the latter part of 2022. However, the recent highs in oil prices driven by tight supply conditions risk bringing part of the disinflationary forces to a halt, and may even pose an important upside risk if the move were to continue (Exhibit 2). Gas prices have also shown an uptick, but not as marked. In this context, the Israel-Hamas conflict and the potential risks of a regional escalation make risks to oil prices highly skewed to the upside (see Economic implications of Israel-Hamas conflict report).

Exhibit 3: Core and services inflation have been stickier
Headline and core inflation for US, EA, Japan (%)



Source: BofA Global Research, Bloomberg

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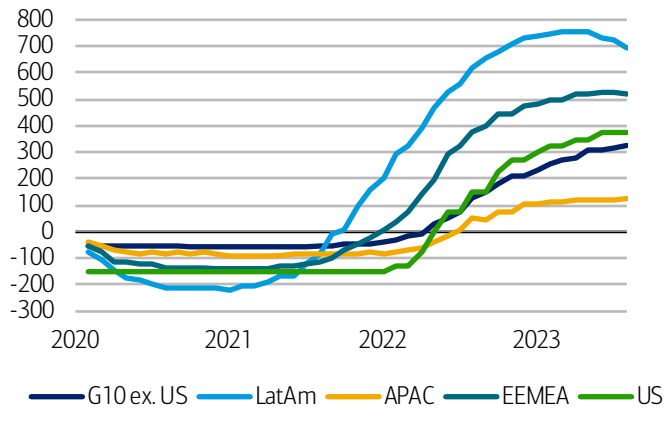
Exhibit 4: EM central banks started hiking a year before the Fed
Cumulative policy rate hikes by region (bp)



Source: BofA Global Research, Bloomberg

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For EM, El Nino is another source for concern that can have a first-order impact on inflation in countries that are most exposed, mainly via the food prices channel but also through second-round effects. Besides El Nino, we believe that a combination of factors including supply-demand dynamics, crop yields, and weather conditions will likely keep crop prices high for longer. Geopolitics, including developments around the Black Sea grain deal, also grant attention.

In our view, this could spoil disinflationary dynamics, particularly in EM countries and to a lesser extent Europe, where energy and food have a higher incidence on consumption baskets. Still, oil prices are likely relevant across DM, including the US and the Fed, as some academic research suggests they are an important driver of inflation expectations. While we do not expect oil prices to be a first-order driver of monetary policy in the short term, we believe they could be yet another source of higher-for-longer risks.

A closer look at the risks

In this report, we dig deeper into the risks surrounding the outlook for energy and food prices, and how these may affect macro policies in the quest to reach inflation targets. First, we look at cross-country differences in the composition of their consumption baskets. In this regard, EM and Europe seem to be most exposed to energy and food price shocks, as energy and food represent a larger share in their respective consumption baskets. Second, we discuss the asymmetric risks on energy prices. In our view, while the downside to oil prices seems floored, an upside cap on prices is less evident, more so amid current geopolitical risks in the Middle East.

Diving into food prices, we then do a deep dive on the potential impact of El Nino across countries and regions and show that the phenomenon tends to be quite relevant for select EMs, with a potentially meaningful impact on inflation. In contrast, we find El Nino not to be a first-order concern for any DM. We also discuss the recent price fluctuations in grains, as well as their likely evolution, and why grain prices are likely to remain supported, before looking at the balance of risks around the Black Sea grain deal.

Lastly, we look into country-specific factors and the cross-regional policy and asset pricing implications that energy and food price shocks could bring. Most prominently, while many central banks are likely to look through commodity price shocks in the current juncture, we believe others may be more cautious to prevent inflation from becoming entrenched. We try to find efficient hedges or ways to express those risks to the baseline across different asset classes.

Headline risks tilted to energy and food

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Amid the inflation dynamics outlined above, a large setback from energy or food prices would be a significant risk, as both energy and food make for a relevant share of CPI baskets across countries and base effects will no longer be driving inflation prints lower.

Exhibit 5 shows the CPI weights for food and energy components across countries. In some cases, the sum of both categories approached 40%, underscoring that risks to inflation stemming from energy and food prices can be material even without accounting for second-round effects.

In a similar vein, Exhibit 6 shows the cross section of weights for the energy components in the CPI across countries for each region, which in some cases may reach well over 10%. Similarly, Exhibit 7 shows the weights for combined food categories, which can reach over 30% of the CPI basket in several EMs.

Most countries have a share of energy in the consumption basket that tends to range between 5 and 10 percent. However, within EM, EEMEA has a disproportionately large exposure to energy, while the Euro Area seems the most exposed region in DM. This may

Exhibit 5: Food and energy make up a very significant share of the CPI across countries
CPI weights for food and energy (% share)

Country	Food (total)	Food at home	Food away from home	Energy
North America				
USA	12.3	7.5	4.8	7.2
Canada	15.6	10.0	5.6	7.2
Europe				
Euro Area	23.2	15.6	7.6	10.8
United Kingdom	17.6	8.7	8.9	6.6
Developed Asia				
Japan	23.4	18.8	4.6	8.8
Australia	16.0	9.2	6.8	6.8
New Zealand	16.3	11.3	5.0	8.6
EM Asia				
China*	20.3	20.3	6.6	5.0
India	44.6	39.1	5.6	9.0
Indonesia	28.7	20.1	8.7	12.7
Korea	27.1	14.4	12.7	6.9
Malaysia	28.4	16.9	11.5	11.7
Philippines	44.3	34.8	9.5	9.1
Singapore	20.7	6.4	14.3	4.8
Taiwan	23.7	13.9	9.8	4.7
Thailand	38.1	31.4	6.7	12.4
Vietnam**	36.1	27.1	9.1	7.1
EEMEA				
Czechia	21.3	16.1	5.1	11.0
Egypt	38.7	34.5	4.2	6.1
Hungary	26.4	19.6	6.8	13.3
Israel	16.7	13.6	3.1	14.5
Poland	29.2	24.6	4.5	18.3
Saudi Arabia***	18.8	18.8	-	-
South Africa	19.6	17.1	2.5	8.4
Türkiye	30.8	23.8	7.0	13.5
LatAm				
Brazil	19.8	13.9	5.9	11.3
Chile	23.0	17.1	5.9	7.5
Colombia	23.1	13.9	9.2	6.9
Mexico	32.0	24.5	7.4	10.0
Peru	36.5	21.0	15.5	4.8

Source: BofA Global Research, Haver
Notes: * Estimated from China's 2021 household consumption survey. **Energy estimated from official commentary. ***Includes food and beverages.

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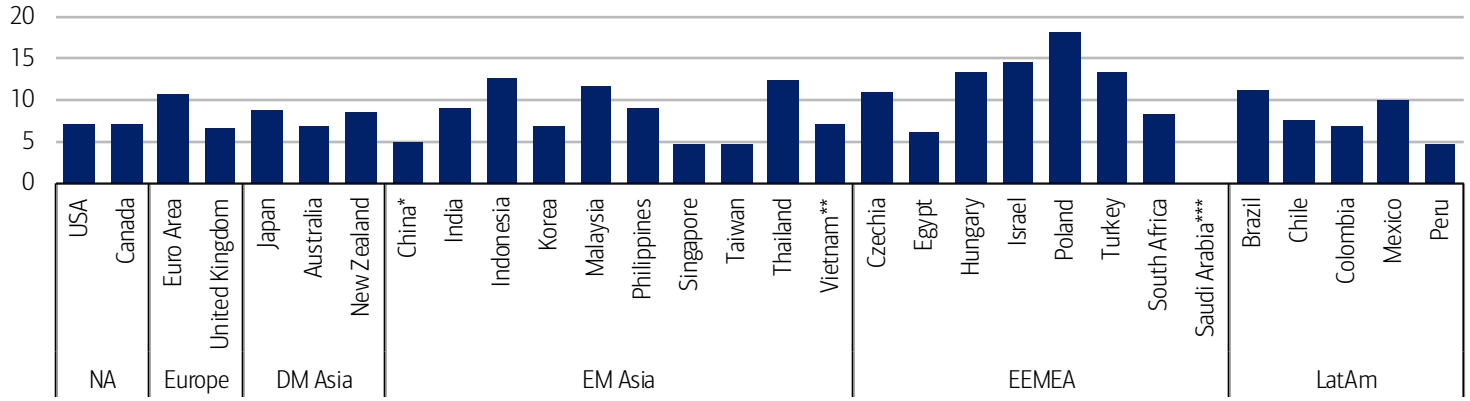
argue for some additional caution when evaluating risks on energy prices for these countries.

For example, as Exhibit 6 shows, a 10% increase in energy prices would lead to a 0.7-0.9% increase in the headline CPI for most DM, or just north of 1% for the Euro Area. In contrast, for several EM countries, and in particular in EEMEA, a similar energy price shock could lead to a CPI increase way beyond that. Most notably, for Poland, Israel, and Türkiye, such a shock could impact prices by 1.8, 1.4, and 1.4%, respectively. In Asia, Indonesia, Thailand, and Malaysia are in principle most exposed to energy price shocks.

Regarding food, the data clearly shows rich countries devoting a smaller share of their consumption basket to food as opposed to developing economies. While some developed nations devote just north of 10% of their CPI basked to food items, it is the norm for EMs to have a share of food above 20% of the CPI, sometimes reaching over 40% (Exhibit 7).

Interestingly, while EEMEA is clearly the most sensitive region to energy price shocks, a regional separation across EM is less evident for food prices. While some specific countries have particularly large food shares in the CPI basket in EM Asia, for the

Exhibit 6: EEMEA has a larger CPI on energy prices than any other region in the world
Energy share in the CPI (%)



Source: BofA Global Research, Haver
Notes: * Estimated from China's 2021 household consumption survey. **Energy estimated from official commentary.

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majority of countries across EM, the relevance of food in the consumption basket seems relatively homogenous.

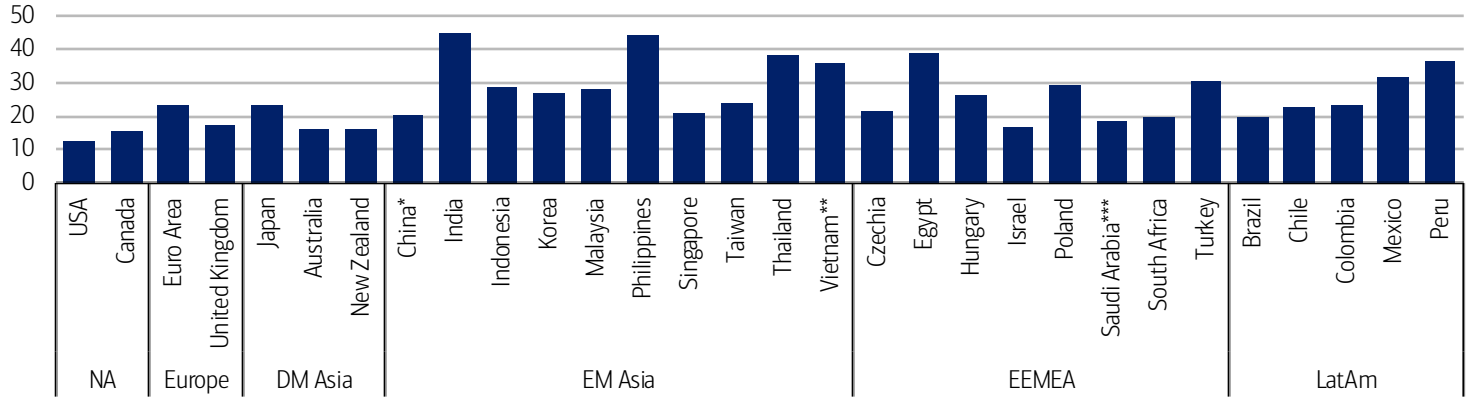
More specifically, as shown in Exhibit 7, India and the Philippines seem to be the most sensitive countries to food price shocks, where a 10% increase in food prices could translate into more than 4% inflation. Following closely, such a shock may lead to 3-4% inflation in Egypt, Thailand, Peru, Vietnam, Mexico, or Türkiye. For most EM, the impact would generally lie somewhat above 2%. In contrast, except for the Euro Area and Japan, the impact across DM would be closer to 1.5%.

Overall, risks to inflation coming from energy and food prices can affect all countries, but their immediate consequences seem more immediate for EM, and for the Euro Area within DM, as their consumption baskets are more tilted to food and energy (Exhibit 8).

Looking at the aggregates in Exhibit 8 confirms the conclusions drawn above. Within EM, EEMEA would be most sensitive to energy prices, with an average share in the basket of 12.2%, well higher than any other region. Similarly, emerging Asia would be most affected by food prices, with an average share over 30%, above any other region.

Among DM, the aggregates confirm a lower sensitivity to food and energy prices relative to EM. But interestingly, the Euro Area itself is most exposed to energy price shocks

Exhibit 7: Food is a more important component in the CPI for EM relative to DM
Total food share in the CPI (%)



Source: BofA Global Research, Haver
Notes: * Estimated from China's 2021 household consumption survey. **Energy estimated from official commentary. ***Includes food and beverages.

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Exhibit 8: EM are more exposed to food and energy prices than DM
Average share of food and energy in CPI basket (%)

Region	Food	Energy	Food and Energy
North America	14.0	7.2	21.2
Europe	20.4	8.7	29.1
Developed Asia	18.6	8.1	26.6
EM Asia	31.2	8.3	39.6
EEMEA	25.2	12.2	37.3
LatAm	26.9	8.1	35.0

Source: BofA Global Research, Haver

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among DM, and also one of the most sensitive to food prices (second only to Japan), making the Euro Area's total exposure closer to the average EM than to most other DM.

With this exploratory analysis in mind, we now dig deeper into the different risk factors that risk becoming a headwind to the global disinflationary dynamics.

Energy prices strike back

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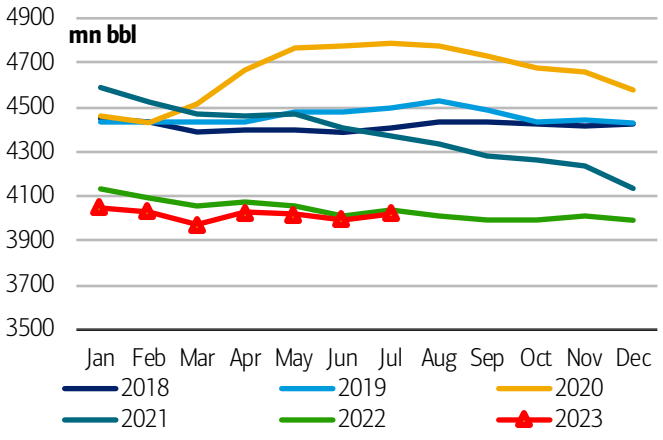
First, we start by characterizing the outlook and main dynamics driving oil and gas prices. As we hinted before, this is mostly a supply-side driven story.

Energy downside is floored, while upside cap less certain

Concerns over Russian supply losses that pushed Brent crude oil to a high of $139/bbl in 2022 have long since faded, with economic headwinds related tied to higher interest rates taking their place during 1H23. More recently, market expectations around peak interest rates marked a macro shift back into commodities, with CTAs and multi-asset allocators turning long the asset class during 3Q23.

Meanwhile, micro energy sector fundamentals have improved too, with supply dynamics triggering a rally in energy prices from crude oil (see Oil wants to break free) to refined products (see Diesel weasels out of a cyclical downturn) to global natural gas to thermal coal (see Thermal coal looks for a floor). Within the oil complex, crude strengthened on Russian exports coming off in 3Q, Saudi Arabia continuing to deliver deep crude oil production curtailments, and a fresh wave of geopolitically driven risk premium.

Exhibit 9: OECD total inventories (commercial and government)
Macro monetary headwinds persist but micro fundamentals remain constructive with total OECD oil stocks at the bottom of the range



Source: IEA

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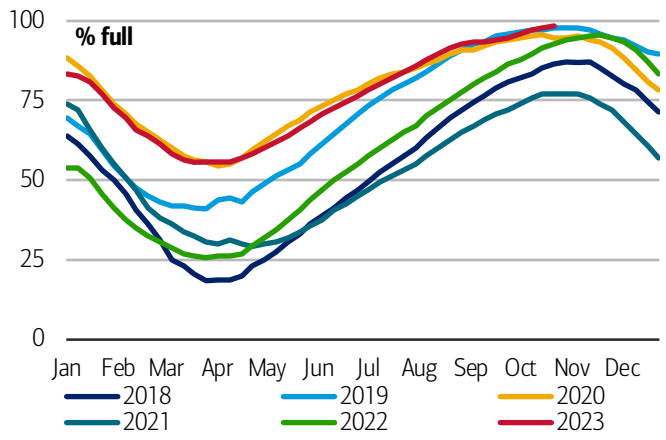
Exhibit 10: Europe natural gas storage
The threat of supply outages continues to support global gas prices even though European natural gas storage levels are high



Source: Bloomberg

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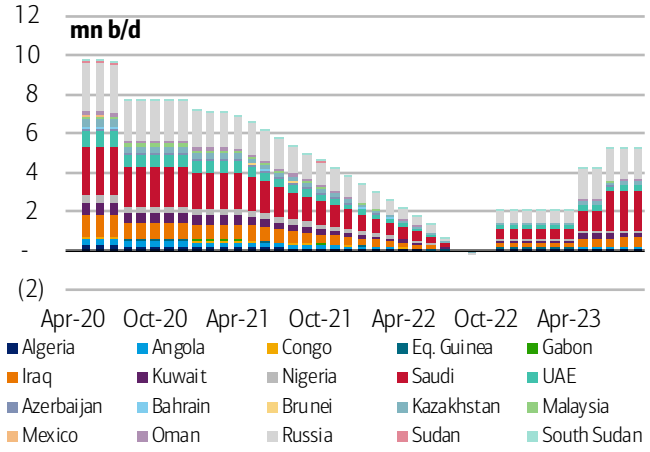
Exhibit 11: OPEC+ production cuts
OPEC+ production increases of 2021 and early 2022 are reversing and setting the stage for further stock draws



Source: OPEC, BofA Global Research estimates

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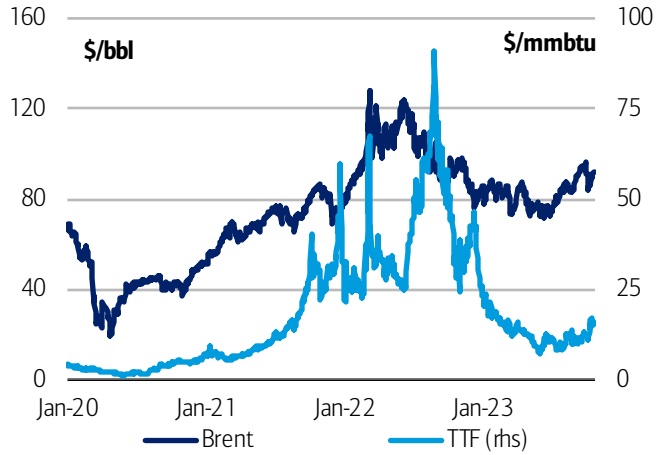
Exhibit 12: Brent crude oil and TTF natural gas prices
Improved demand conditions or more supply disruptions are needed for a sustained move above $100/bbl in Brent or above $20/MMBtu in JKM/TTF



Source: Bloomberg

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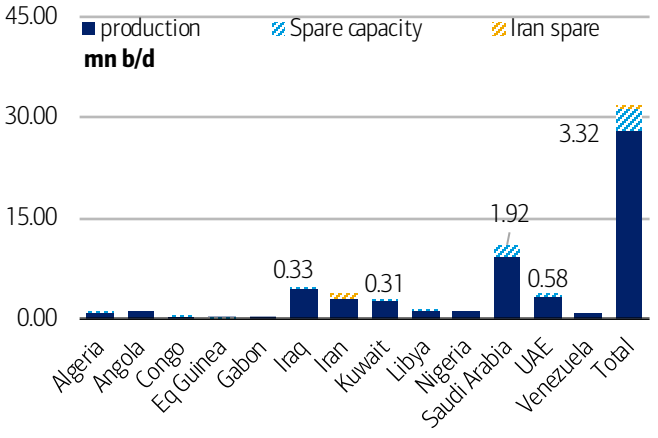
Meanwhile, refinery margins remained buoyant too due to lower-than-expected refinery runs and low inventories (Exhibit 9). In global gas, LNG imports into Europe had already come down materially on the back of the earlier collapse in TTF prices. But fears of supply disruptions, along with energy security concerns, have continued to support global gas prices despite high inventories in Europe (Exhibit 10). So, supply reductions (real, announced, or potential) helped push energy prices higher during 2H23.

Supply concerns have pushed up energy prices recently

For now, Russia and Saudi Arabia have shown a strong alignment in providing support to the oil market between $80 and $100/bbl Brent. Yet the political calculus could start to change above $100/bbl. With the US presidential election approaching and geopolitical tensions rising in the Middle East, internal OPEC+ dynamics could make a big difference to the oil price outcome over the coming year.

On the one hand, another spike in energy prices risks reigniting inflation fears around the world, higher interest rates, and eventually financial turmoil. On the other, the

Exhibit 13: OPEC production and spare capacity
OPEC+ now has more spare capacity due to the deep cuts it just implemented



Source: IEA, BofA Global Research estimates

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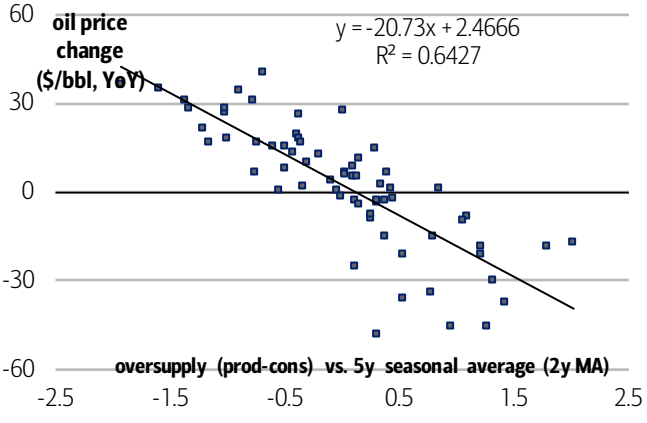
Exhibit 14: Brent crude oil price changes vs. global oil oversupply
To offset a partial unwind (500k b/d) of the Saudi "lollipop cut" next year would likely require global GDP growth of 3.5% to 4% in 2024



Source: Bloomberg, IEA, BofA Global Research estimates

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downside to oil prices may be limited. In contrast to the lone historical "Saudi put" in the oil market (Exhibit 11), we believe Brent now benefits from three "puts" going forward at $70-75/bbl: the traditional OPEC+ cuts (now joined by Russia), a big increase in China coal production costs (pricier global energy) (see China coal floors global gas report), and the likely refill of the US Strategic Petroleum Reserve.

Yet a sustained rally from here needs better demand or less supply

Recession risks have eased but not disappeared and high nominal and real interest rates globally will increase refinancing risks in the next year. Thus, we maintain our Brent and WTI forecasts of $90/bbl and $85/bbl for next year. With oil supply and demand likely to remain roughly balanced in 2024, a sustained run up in Brent oil prices above $100/bbl would thus depend on deeper oil supply cuts by OPEC+ (unlikely), unplanned supply disruptions (uncertain), or much better demand conditions (unexpected).

Current turmoil in the Middle East epitomizes the concept of energy fragility. Since 1973, Israeli-Palestinian conflicts were mostly contained and thus had a limited impact on energy prices. The key question for energy is whether the conflict broadens regionally or not. If it does, oil prices could climb above $130/bbl on the risk of a Persian Gulf shutdown. If shipments through Hormuz, a choke point for nearly 20% of the world's oil and LNG, were to shut down for a meaningful period, oil may spike above $250/bbl and LNG may surpass $50/MMBtu. But even if the conflict does not broaden, the US may enforce Iranian oil sanctions, curbing global oil supply by 1-1.5mn b/d in 2024, likely pushing Brent prices above $100/bbl and LNG above $20/MMBtu.

While Saudi Arabia has >2mn b/d of spare capacity and could make up for lost Iranian barrels, recent signaling suggests Saudi is unlikely to unless oil exceeds $100/bbl. In terms of potential impact of higher energy prices globally, we note resource-poor Europe and Japan would likely suffer most. US energy independence means America is less sensitive to an external energy price shock, although the US SPR has been greatly depleted during the Ukraine war. Higher oil prices would stoke US inflation too. As the world's biggest energy importer, China may also be hurt, but their growing strategic oil stockpiles can help them temporarily cope with minor Middle East supply disruptions.

El Nino poses upside risks to inflation

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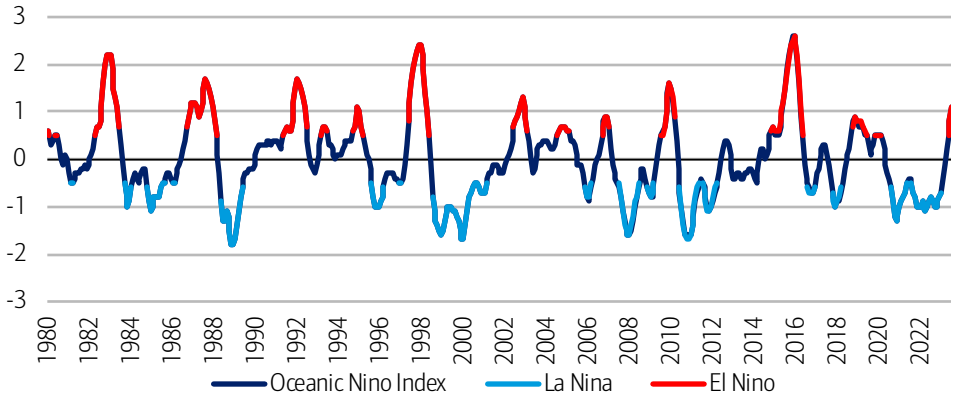
We now tackle one of the main risks for food prices, which is of particular importance for EM countries: the macroeconomic impact of El Nino.

El Nino Southern Oscillation (ENSO) is a natural phenomenon that leads to changes in temperature in the Pacific, causing higher average temperatures worldwide. El Nino episodes typically last between 9 to 12 months, tend to develop between March and June, peak between December and April, and start weakening between May and July. In contrast, periods of lower temperatures give rise to La Nina, which is more persistent.

The Oceanic Nino Index (ONI) measures the average sea surface temperatures across the equatorial Pacific Ocean. El Nino is defined by periods when ONI temperature levels are over 0.5 degrees above normal, while the opposite defines La Nina. Exhibit 15 shows a long-term time series of ONI, including past episodes of both El Nino and La Nina.

While temperatures started rising earlier in the year, and experts starting warning about a high likelihood of El Nino emerging, the most recent ONI readings corroborate these earlier projections. Since May, sea surface temperatures have been above average, with ONI crossing the 0.5°C threshold in June and reaching 1.1°C in August. Severe El Nino episodes tend to reach peak temperatures over 2°C above average, and while we may not reach a severe episode, temperatures do not show any sign of peaking yet.

Exhibit 15: Temperatures have been rising and now stand clearly above average
Oceanic Niño Index of oceanic temperature (3mma)



Source: BofA Global Research, US National Oceanic and Atmospheric Administration (NOAA)

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El Nino could be associated with rainfall or natural disasters that may affect agricultural production, electricity generation, and have important macroeconomic consequences. As a result, with El Nino taking place, there are also growing concerns abouts its potential impact on food prices, energy prices and ultimately inflation. At a time when an important fraction of disinflation has come from goods and energy prices, a pickup in price growth across these categories could stoke inflation to become stickier.

Measuring the impact of El Nino

We upgrade our approach to measure the impact of El Nino to better incorporate a wider set macroeconomic variables and apply it to a wider set of countries globally. While we have already approached the question about the impact of El Nino on headline inflation (see El Nino may complicate disinflation report), we also expand our scope to evaluate the potential impact on GDP, as well as food and energy prices.

A VAR approach

We use a Vector Autoregression (VAR) to describe the dynamic relationships between El Nino and economic variables over time, including GDP, inflation, interest rates, and fluctuations in the real exchange rate. This wider scope allows to better parse out the impact of El Nino from the impact of the evolution of other macroeconomic variables that should also impact prices and economic activity.

Furthermore, this approach is useful to build Impulse Response Functions (IRFs) that evaluate the cumulative impact of how a given temperature shock may translate over time onto macroeconomic variables.

Using quarterly data from 2004-2023[1], we run the following regression (VAR)

$$y_t = \delta + \sum_{i=1}^{2} \beta_i y_{t-i} + e_t \ (1)$$

where $y_t = [Nina_t, ONI_t, REER_t, \pi_t, i_t, GDP_t, Oil_t]$, is the vector of the endogenous variables, δ is a vector of intercepts, β_i is a matrix of coefficients, and e_t are error terms.

In this specification, GDP_t stands for the quarter-on-quarter GDP growth, ONI_t is the latest observation of the ONI, π_t and $REER_t$ are the 3-month average percent changes in the CPI level and the real effective exchange rate, and i_t is the 3-month change in the average policy rate. Similarly, Oil_t is the average 3-month change in the trend

[1] For Peru, our sample starts in 1996. For Mexico, we end the sample in 2015 when using energy inflation (see below).

component of Brent prices, computed using a one-sided HP filter. This allows us to avoid assigning an impact to El Nino which could be due to oil prices per se. Lastly, we include the dummy variable $Nina_t = ONI_t * \mathbb{I}(ONI_t < 0)$ as a control variable to properly measure the impact of El Nino as the marginal effect of ONI_t when temperatures are positive. We include two lags of y_t in our specification.

Importantly, we restrict the coefficients β_i such that the weather block of the specification can only depend on past values of the weather variables ONI_t and $Nina_t$, but not on other macroeconomic variables. In other words, while El Nino may lead to higher inflation, inflation does not lead to changes in temperature. As a result, in our specification, the first two variables $Nina_t$ and ONI_t are only affected by their lagged values, but not by economic policy changes. We do the same for oil prices, which we consider to be an exogenous shock, an assumption that works particularly well for small open economies, in our view.

El Nino does not seem to materially impact GDP growth

El Nino can give rise to natural disasters that may have a negative impact on GDP growth via agricultural production. For example, in regions where El Nino brings excessive rainfall causing flooding and damage to crops, output growth could suffer. At the same time, other countries may benefit from higher temperatures, so the impact could differ across countries.

Exhibit 16: El Nino does not seem to have a material impact on GDP growth
Cumulative response of GDP growth to a 1 standard deviation El Nino shock (%)

	Impact	Cumulative Response After							
		1Q	2Q	3Q	4Q	5Q	6Q	7Q	8Q
North America									
United States	0.02	-0.18	-0.27	-0.25	-0.17	-0.07	0.02	0.08	0.11
Canada	0.18	-0.03	-0.07	0.03	0.09	0.11	0.13	0.12	0.11
Europe									
Euro Area	0.28	0.08	0.08	0.12	0.10	0.11	0.11	0.11	0.12
United Kingdom	0.28	0.12	0.13	0.16	0.19	0.23	0.27	0.29	0.31
DM Asia									
Australia	0.12	0.14	0.06	0.03	0.02	0.01	0.01	0.02	0.03
Japan	0.06	0.00	0.08	0.03	-0.06	-0.08	-0.05	0.00	0.04
New Zealand	0.18	0.12	0.02	-0.07	-0.15	-0.17	-0.16	-0.13	-0.10
EM Asia									
China	-0.17	-0.38	-0.45	-0.40	-0.37	-0.32	-0.34	-0.34	-0.35
India	0.47	0.13	0.10	0.29	0.33	0.29	0.32	0.33	0.33
Indonesia	0.19	0.20	0.25	0.32	0.36	0.36	0.36	0.35	0.34
Korea	0.07	0.05	0.15	0.30	0.37	0.32	0.19	0.05	-0.03
Malaysia	0.09	0.05	0.40	0.39	0.39	0.49	0.45	0.48	0.47
Philippines	0.33	0.39	0.54	0.74	0.84	0.85	0.79	0.72	0.67
Singapore	-0.24	0.00	-0.10	-0.08	-0.18	-0.27	-0.34	-0.36	-0.36
Taiwan	0.01	-0.02	-0.27	-0.53	-0.71	-0.81	-0.82*	-0.75	-0.67
Thailand	0.31	0.54*	0.56	0.47	0.32	0.20	0.15	0.14	0.17
Vietnam	0.09	-0.71	0.04	-0.12	0.05	-0.51	-0.15	-0.64	-0.15
EEMEA									
Czechia	0.50	0.31	0.19	0.38	0.57	0.70	0.86	1.01	1.13
Egypt	0.00	0.11	0.09	0.04	-0.01	-0.02	-0.01	0.00	0.01
Hungary	0.18	0.30	0.13	-0.07	-0.12	-0.17	-0.24	-0.25	-0.24
Israel	-0.05	-0.25	-0.21	-0.10	-0.06	-0.04	-0.04	-0.05	-0.06
Poland	0.31	0.22	0.63	0.55	0.61	0.48	0.47	0.39	0.42
South Africa	0.19	-0.04	-0.11	-0.10	-0.16	-0.18	-0.15	-0.13	-0.12
LatAm									
Brazil	0.10	-0.08	-0.33	-0.34	-0.23	-0.10	0.00	0.05	0.06
Chile	0.01	0.07	0.02	-0.11	-0.09	0.02	0.10	0.11	0.08
Colombia	0.14	-0.02	-0.18	-0.23	-0.32	-0.40	-0.42	-0.43	-0.43
Mexico	0.42	0.10	0.02	0.05	0.07	0.09	0.11	0.12	0.11
Peru	0.33	-0.17	-0.40	-0.46	-0.58	-0.58	-0.53	-0.48	-0.43

Source: BofA Global Research, Bloomberg, Haver
Note: * and ** denote significance at 90% and 95% bootstrapped errors, respectively

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Exhibit 16 shows the cumulative impulse response of GDP growth to a one standard deviation shock in ONI_t up to eight quarters ahead, as implied by the estimation of the VAR in (1). Overwhelmingly, we do not find any significant results, so we conclude that El Nino does not seem to materially impact GDP growth, at least in the aggregate.

However, it is worth noting that even if, in aggregate, we do not find a statistically significant impact on GDP, production in specific sectors of the economy may indeed be significantly impacted, particularly agriculture.

But poses significant risks to inflation in some countries

A first order concerns about El Nino, particularly in the current high inflation environment, are its impact on prices, which may be impacted most directly via food prices, but also energy prices or second-round effects. In this sense, our methodology confirms that El Nino has historically had a significant effect on inflation in some countries. And as we have warned before, El Nino may complicate disinflation if a severe episode were to materialize, something that our refined methodology tends to confirms.

Exhibit 17 shows the cumulative impulse response of headline inflation to a one standard deviation shock in ONI_t up to eight quarters ahead. In this case, our results show that El Nino has a statistically significant impact on headline inflation in several countries. The shock leads to a temperature increase of 1.3 degrees Celsius (Exhibit 18).

Exhibit 17: El Nino poses largest risks to inflation in Colombia, Brazil, Egypt, South Africa
Cumulative response of headline inflation to a 1 standard deviation El Nino shock (%)

	Impact	Cumulative Response After							
		1Q	2Q	3Q	4Q	5Q	6Q	7Q	8Q
North America									
United States	-0.04	-0.12	-0.12	-0.07	0.01	0.07	0.11	0.13	0.12
Canada	0.02	0.02	0.07	0.13	0.18	0.21	0.20	0.19	0.17
Europe									
Euro Area	-0.04	-0.12	-0.15	-0.16	-0.13	-0.07	-0.01	0.04	0.07
United Kingdom	-0.01	0.00	0.06	0.14	0.22	0.28	0.33	0.35	0.36
DM Asia									
Australia	0.08	0.01	0.00	0.04	0.11	0.16	0.19	0.20	0.19
Japan	-0.01	-0.04	-0.06	-0.11	-0.17	-0.23*	-0.26*	-0.27*	-0.26
New Zealand	-0.03	-0.08	-0.10	-0.08	-0.02	0.03	0.07	0.08	0.06
EM Asia									
China	0.05	0.12	0.15	0.24	0.32	0.37	0.37	0.36	0.34
India	0.02	0.00	-0.07	-0.11	-0.15	-0.19	-0.24	-0.26	-0.27
Indonesia	0.03	-0.08	-0.08	-0.01	0.12	0.25	0.35	0.40	0.41
Korea	0.01	-0.03	0.00	0.04	0.09	0.12	0.12	0.12	0.10
Malaysia	0.01	-0.23	-0.30	-0.52*	-0.66**	-0.7*	-0.71*	-0.66	-0.61
Philippines	0.04	0.05	0.06	0.09	0.14	0.18	0.21	0.23	0.23
Singapore	0.05	-0.06	-0.06	0.04	0.17	0.27	0.32	0.32	0.30
Taiwan	-0.03	-0.01	0.06	0.13	0.15	0.14	0.11	0.09	0.08
Thailand	0.09	0.09	0.14	0.25	0.36	0.40	0.36	0.29	0.23
Vietnam	0.06	-0.20	-0.24	-0.09	0.19	0.26	0.32	0.25	0.28
EEMEA									
Czechia	-0.04	-0.11	-0.26	-0.45	-0.62	-0.73	-0.81	-0.85	-0.88
Egypt	0.00	-0.05	-0.05	0.04	0.17	0.34	0.54	0.73	0.86
Hungary	-0.13	-0.34	-0.45	-0.53	-0.56	-0.54	-0.53	-0.53	-0.55
Israel	0.03	-0.06	-0.07	0.00	0.09	0.15	0.16	0.12	0.07
Poland	-0.05	-0.25	-0.41	-0.51	-0.52	-0.53	-0.52	-0.54	-0.56
South Africa	0.01	0.05	0.10	0.15	0.16	0.15	0.14	0.12	0.12
LatAm									
Brazil	0.00	0.14	0.26	0.30	0.27	0.20	0.13	0.09	0.08
Chile	-0.03	-0.02	-0.02	0.00	0.04	0.11	0.17	0.22	0.24
Colombia	0.09**	0.25**	0.46**	0.64**	0.76**	0.83**	0.86	0.87	0.88
Mexico	-0.01	-0.04	-0.12	-0.23**	-0.3**	-0.32	-0.31	-0.28	-0.25
Peru	0.04	0.11*	0.21*	0.3*	0.35*	0.38*	0.39	0.39	0.38

Source: BofA Global Research, Bloomberg, Haver
Note: * and ** denote significance at 90% and 95% bootstrapped errors, respectively

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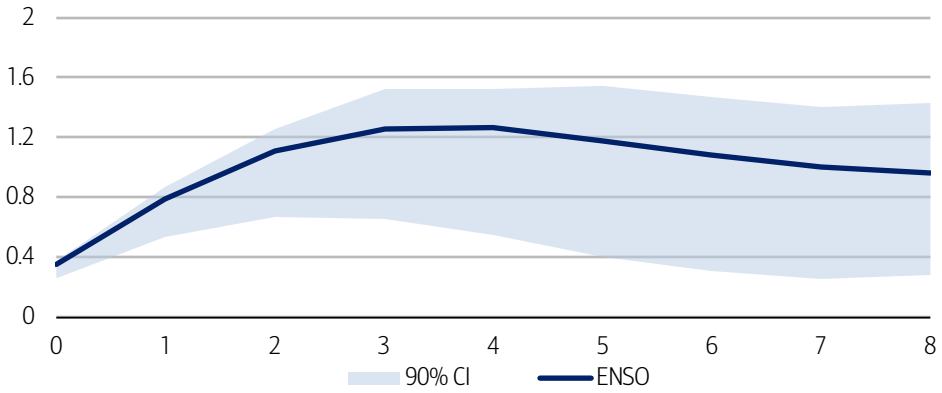
Exhibit 18: A one std shock leads to a cumulative temperature increase of 1.3 degrees
Cumulative response of Oceanic Nino Index to a 1 std El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver

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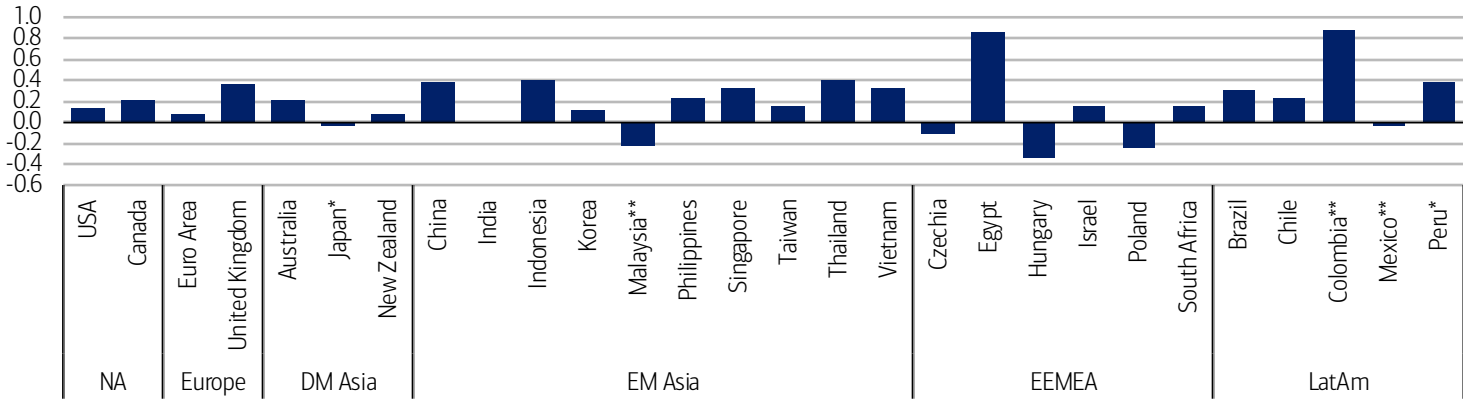
In LatAm, Colombia and Brazil are the most affected countries. In EEMEA, we believe Egypt is most affected, even if the VAR does not yield conclusive results. For the most part, we find that headline inflation in EM Asia tends to be relatively safe from El Nino. Lastly, we do not find a significant impact on headline inflation across DM.

To have a more graphical view of the cross-sectional impact, Exhibit 19 shows the maximum cumulative response of inflation to a 1 standard deviation shock for each country (i.e. the largest value in each row in Exhibit 17). We find that El Nino seems to have the largest statistically significant impact on headline inflation in Colombia and Peru, while Egypt also may also be quite sensitive (see Egypt is most exposed to El Nino). However, highly volatile inflation may be rendering the results less conclusive.

While we would have expected Brazil and South Africa to be impacted ex-ante, the effect on headline inflation seems to be contained. According to our findings in Exhibit 19, a 1 standard deviation increase in temperature could increase inflation up to 0.9% in Colombia or Egypt, 0.4% in Peru. These impacts would roughly double for a severe El Nino episode, which tends to be characterized by a cumulative temperature increase of over 2 degrees Celsius (Exhibit 15).

In China, if anything, El Nino does not seem to play a key role. Furthermore, and perhaps unsurprisingly, developed economies seem to be mostly isolated from the impact of El

Exhibit 19: Colombia and Brazil in LatAm, and Egypt and South Africa in EEMEA, tend to experience the largest inflationary boost from El Nino
Maximum cumulative response of headline inflation to a 1 standard deviation El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver
Note: * and ** denote significance at 90% and 95% bootstrapped errors, respectively

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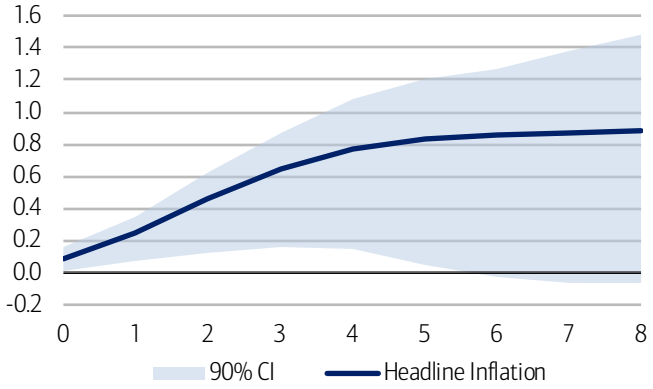
Exhibit 20: Colombia is the country most affected by El Nino in LatAm
Cumulative response of headline inflation to a 1 std El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver

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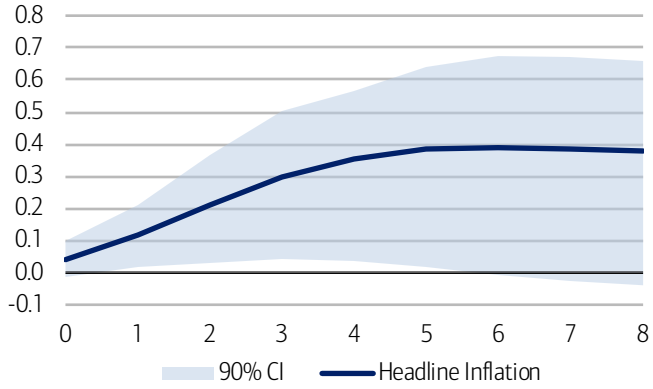
Exhibit 21: Peru is other of the most impacted countries
Cumulative response of headline inflation to a 1 std El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver

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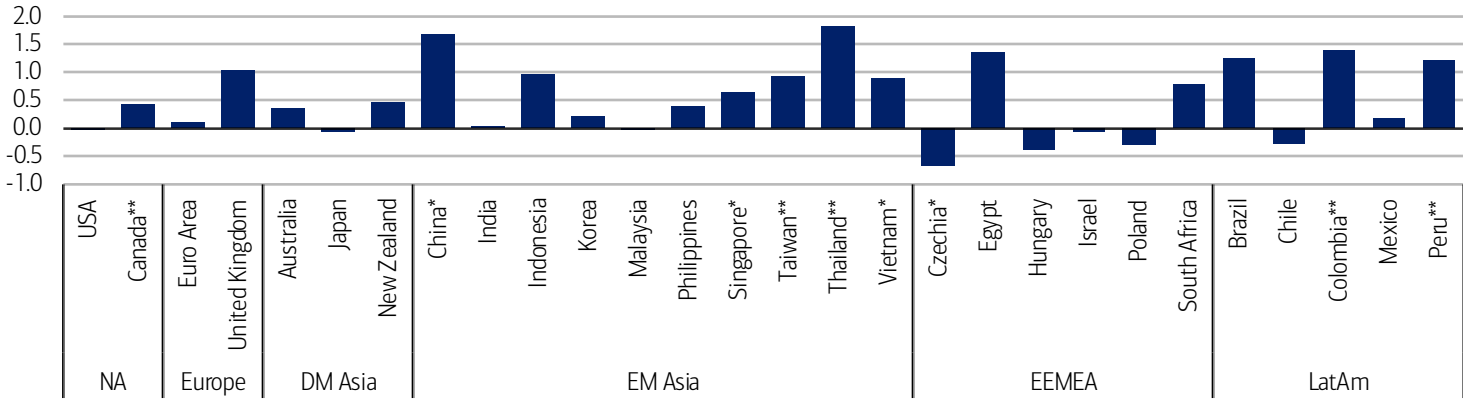
Nino in terms of inflation. Lastly, we do not find El Nino to have a significant impact on inflation in India, which is in line with other previous work and a consequence of the policy mix (see How relevant is El Nino for India macro? report).

In line with Exhibit 17, and Exhibit 21 show the impulse responses of headline inflation to El Nino shock in Colombia and Peru, respectively. Importantly, noting that a severe El Nino episode is characterized by a shock of about 2 standard deviations, we point that the inflationary impact could reach up to 1.8% higher inflation in Colombia or 0.8% in Peru. In a context where monetary easing is already taking place or may be approaching and inflation remains high, a severe El Nino could become a headwind.

Our estimates are likely to be on the conservative side

One caveat worth noting is that, while we are measuring the cumulative observed change in headline inflation, our approach does not allow us to parse out any "non-results" which could be driven by official policy responses. For example, export bans or food subsidies may mute the impact of an inflationary shock, leading us to conclude that El Nino does not impact inflation while in reality this is being eclipsed by the policy mix. In this sense, we could consider our results as conservative estimates. We believe that India may be an example in this sense (see How relevant is El Nino for India macro? report).

Exhibit 22: Food inflation seems most sensitive to El Nino in Brazil, Colombia, Egypt, South Africa, but also Taiwan and Thailand
Maximum cumulative response of food prices to a 1 standard deviation El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver
Note: * and ** denote significance at 90% and 95% bootstrapped errors, respectively

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Exhibit 23: El Nino seems to affect food prices in LatAm, EEMEA, EM Asia to different degrees
Cumulative response of food prices to a 1 standard deviation El Nino shock (%)

	Impact	Cumulative Response After							
		1Q	2Q	3Q	4Q	5Q	6Q	7Q	8Q
North America									
United States	-0.04	-0.01	-0.01	-0.06	-0.16	-0.27	-0.39	-0.48	-0.53
Canada	0.09	0.28**	0.42**	0.45*	0.41	0.33	0.25	0.20	0.18
Europe									
Euro Area	-0.07	-0.10	-0.13	-0.12	-0.07	-0.01	0.05	0.09	0.12
United Kingdom	0.02	0.11	0.22	0.36	0.54	0.72	0.87	0.98	1.04
DM Asia									
Australia	0.12	0.03	-0.05	0.07	0.26	0.35	0.35	0.31	0.27
Japan	-0.08	-0.11	-0.08	-0.05	-0.06	-0.13	-0.19	-0.22	-0.22
New Zealand	-0.03	-0.01	0.08	0.20	0.33	0.42	0.46	0.47	0.46
EM Asia									
China	0.27	0.57*	0.83*	1.24*	1.54*	1.69*	1.68*	1.61	1.54
India	-0.19	-0.15	-0.02	0.05	-0.08	-0.26	-0.38	-0.45	-0.49
Indonesia	0.07	-0.03	0.03	0.28	0.58	0.82	0.96	0.99	0.96
Korea	-0.05	-0.16	-0.04	0.01	0.05	0.10	0.15	0.20	0.22
Malaysia	-0.05	-0.09	-0.02	-0.06	-0.10	-0.07	-0.04	-0.02	0.00
Philippines	0.09	0.13	0.12	0.14	0.21	0.29	0.35	0.38	0.38
Singapore	-0.01	0.12	0.31*	0.49*	0.6*	0.64	0.61	0.56	0.50
Taiwan	-0.01	0.31	0.63**	0.86**	0.94**	0.9**	0.79*	0.69*	0.63*
Thailand	0.18	0.42*	0.88**	1.34**	1.68**	1.82**	1.8**	1.68*	1.56*
Vietnam	-0.29	-0.22	0.12	0.53*	0.78*	0.93*	0.91	0.87	0.77
EEMEA									
Czechia	-0.3*	-0.69*	-1.13*	-1.51*	-1.74*	-1.79*	-1.73*	-1.63	-1.56
Egypt	0.34	0.31	0.22	0.35	0.49	0.69	0.95	1.19	1.37
Hungary	-0.18	-0.40	-0.59	-0.75	-0.88	-1.03	-1.22	-1.43	-1.62
Israel	0.01	-0.05	-0.11	-0.12	-0.10	-0.10	-0.11	-0.14	-0.16
Poland	-0.10	-0.17	-0.26	-0.29	-0.20	-0.02	0.19	0.36	0.49
South Africa	-0.10	0.05	0.38	0.66	0.79	0.79	0.71	0.61	0.53
LatAm									
Brazil	-0.14	0.12	0.51	0.95	1.22	1.26	1.12	0.93	0.76
Chile	0.02	-0.29	-0.66	-1.06	-1.39	-1.57	-1.54	-1.31	-0.97
Colombia	0.03	0.35*	0.8**	1.15*	1.36*	1.42*	1.39	1.32	1.25
Mexico	-0.08	0.19	0.09	-0.12	-0.29	-0.37	-0.37	-0.33	-0.28
Peru	0.04	0.30	0.66**	0.96**	1.16**	1.22**	1.2**	1.13*	1.05*

Source: BofA Global Research, Bloomberg, Haver
Note: * and ** denote significance at 90% and 95% bootstrapped errors, respectively

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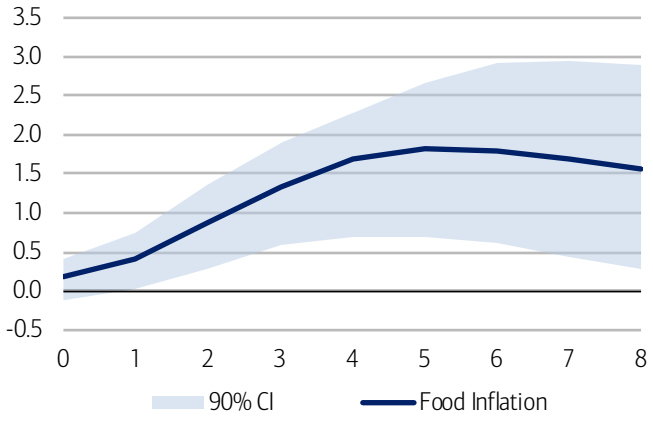
Food prices react more than headline, including in EM Asia

As mentioned above, food prices are believed to be one of the main transmission channels from El Nino to inflation. El Nino could be associated with unusual levels of rainfall, potentially causing floodings or excessive droughts, both of which may be detrimental to food production. Similarly, El Nino could alter fishing output given the changes in sea temperatures.

To explore this issue, we run the same VAR in (1) using changes in the food component of the CPI instead of headline inflation. We find that El Nino has a statistically significant impact on food inflation in a larger set of countries than the analog exercise for headline inflation. Exhibit 22 shows the maximum cumulative impact on food inflation driven by a 1 standard deviation shock in temperature, while Exhibit 23 shows full results.

In particular, EM Asia seems to experience higher levels of food inflation during episodes of El Nino. Even though the magnitude of the impact is somewhat smaller than in other countries, we find a statistically significant impact in Thailand, Taiwan, Vietnam, and Singapore. Furthermore, results are also indicative of a significant impact for food prices in China. We find that a 1 standard deviation shock in temperature leads to 1.8% food inflation in Thailand (Exhibit 24), and 0.9% for Taiwan (Exhibit 25) or Vietnam.

Exhibit 24: A moderate El Nino can push food prices 1.8% in Thailand
Cumulative response of food prices to a 1 std El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver

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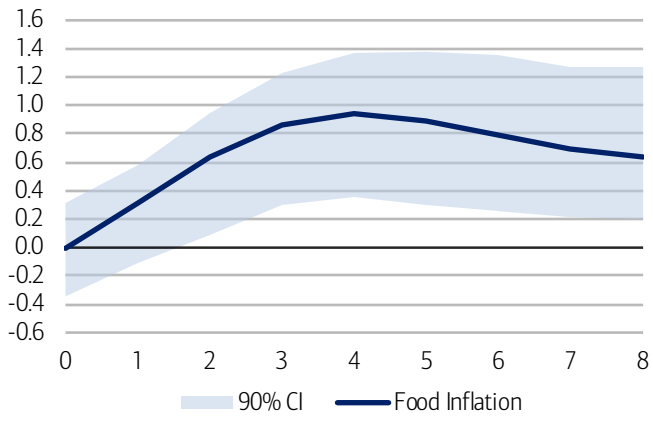
Exhibit 25: While in Taiwan the impact could reach over 0.9%
Cumulative response of food prices to a 1 std El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver

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In LatAm, we continue to find that Colombia and Peru are most affected, with an impact of about 1.4 and 1.2% on food inflation, respectively. In conjunction with our results on headline, where headline inflation seems more than twice as sensitive in Colombia, we believe this could be indicative that second-round effects or the impact of El Nino on food prices are likely stronger in Colombia than Peru. For food prices, we also find a relatively large impact for Brazil, though not statistically significant.

In EEMEA, we find Egypt and South Africa to be the most impacted countries, even if results are not as conclusive. We find that food inflation in South Africa may rise by

Exhibit 26: Energy prices do not seem to be widely affected by El Nino
Cumulative response of energy prices to a 1 standard deviation El Nino shock (%)

	Impact	Cumulative Response After							
		1Q	2Q	3Q	4Q	5Q	6Q	7Q	8Q
North America									
United States	-0.22	-0.65	-0.38	0.10	0.35	0.39	0.32	0.22	0.15
Canada	-0.07	-0.48	-0.24	0.12	0.36	0.50	0.49	0.40	0.28
Europe									
Euro Area	-0.02	-0.09	0.14	0.53	0.93	1.18	1.20	0.99	0.64
United Kingdom	0.23	0.44	0.69	1.03	1.30	1.41	1.36	1.20	1.02
DM Asia									
Japan	-0.15	-0.27	-0.45	-0.67	-0.85	-0.97	-0.98	-0.88	-0.76
New Zealand	0.11	0.06	0.10	0.15	0.24	0.32	0.37	0.38	0.38
EM Asia									
China	0.02	0.09	0.07	0.03	0.01	0.00	-0.01	-0.02	-0.02
Korea	0.11	0.36	0.14	-0.14	-0.53	-0.87	-1.16	-1.33	-1.38
Philippines	-0.04	-0.18	-0.04	0.20	0.52	0.79	0.93	0.96	0.92
Taiwan	0.20	-0.03	-0.43	-0.74	-0.91	-0.93	-0.85	-0.75	-0.67
Thailand	0.11	-0.54	-1.26	-1.63	-1.74	-1.72	-1.73	-1.82	-1.93
EEMEA									
Czechia	0.71	0.33	0.11	0.35	0.57	0.40	0.56	0.59	0.53
Hungary	0.10	0.29	0.83	1.35	1.66	1.66	1.63	1.68	1.67
Poland	-0.10	-0.61	-1.06	-1.46	-1.70	-1.98	-2.25	-2.56	-2.81
South Africa	0.19	0.27	0.45	0.74	0.98	1.14	1.21	1.23	1.23
LatAm									
Brazil	-0.40	-0.59	-1.17	-2.06	-2.83	-3.29	-3.46	-3.42	-3.30
Chile	0.10	0.21	0.42	0.41	0.38	0.56	0.79	0.93	1.03
Colombia	0.42*	0.64**	1.03**	1.29**	1.28**	1.11*	0.90	0.73	0.65
Mexico	-0.05	-0.21	-0.43	-0.69	-0.81	-0.74	-0.60	-0.46	-0.35
Peru	0.06	0.02	-0.03	-0.04	-0.18	-0.28	-0.34	-0.33	-0.30

Source: BofA Global Research, Bloomberg, Haver
Note: * and ** denote significance at 90% and 95% bootstrapped errors, respectively

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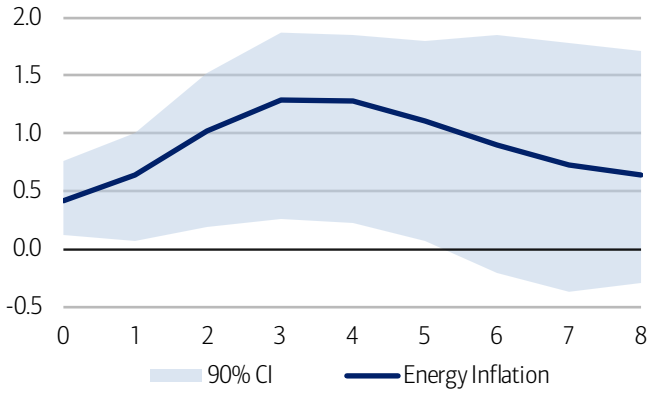
Exhibit 27: El Nino seems to drive up energy prices in Colombia
Cumulative response of energy prices to a 1 std El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver

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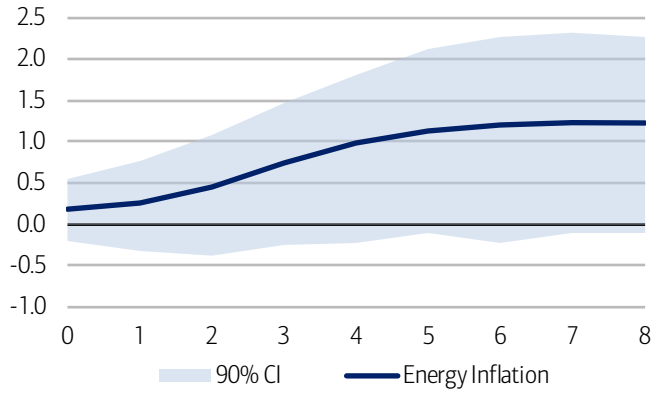
Exhibit 28: Energy prices are also affected by El Nino in S. Africa
Cumulative response of energy prices to a 1 std El Nino shock (%)



Source: BofA Global Research, Bloomberg, Haver

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0.8%, in line with some Asian countries. Interestingly, Czechia seems to experience lower food prices during El Nino events.

Unsurprisingly, the impact of El Nino on food inflation is generally larger than that on headline inflation. El Nino affects food production most directly, and since food is just one (even if large) of the components of the CPI basket, the impact on food prices would be expected to be larger than on headline even in the presence of second-round effects.

Impact on energy prices is more ambiguous

Another potential effect of weather fluctuations caused by El Nino could have to do with electricity generation. Consequently, we run our methodology using changes in the energy component of the CPI across countries, where data is readily available.

In contrast to the impact on headline inflation and food prices, we find the effect on energy prices to be more diffuse. Exhibit 26 shows our full set of results, where, for the most part, we do not tend to find statistically significant effect. Furthermore, the signs seem to be quite ambiguous, suggesting that, if anything, while some countries may experience higher energy prices because of El Nino, the opposite seems true for others.

However, it is worth noting that El Nino seems to significantly impact energy prices in Colombia (Exhibit 27) by about 1.3% for a one standard deviation shock. In South Africa, there also seems to be some sensitivity of energy prices to EL Nino (Exhibit 28).

In contrast, other countries may even tend to see lower energy prices, but we do not find conclusive evidence. In our view, this may be due to the diverging impact of fluctuations in temperature and rainfall for different latitudes. These could both impact energy generation or energy demand behavior for some countries.

Crop prices staying high for longer

Steve Byrne, CFA
BofAS

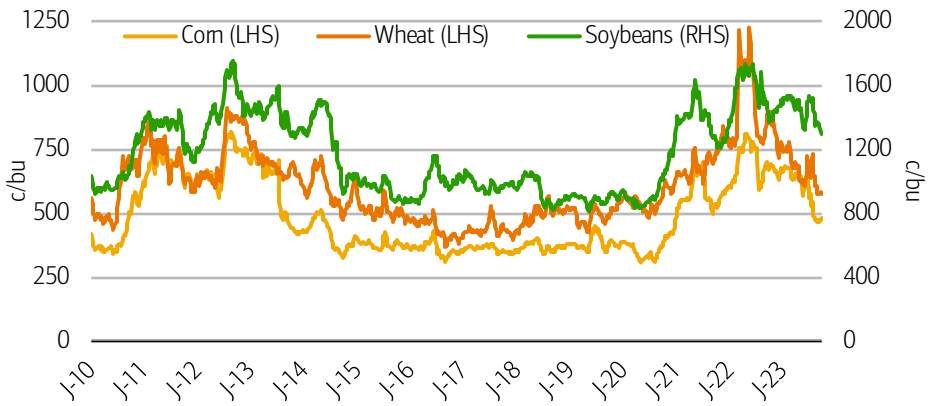
Salvator Tiano, CFA
BofAS

Another important risk factor for food prices is the price of soft commodities, including grains. In this regard, climate change affects crop yields and therefore crop prices.

Despite 2023 declines, crop prices remain elevated

Major crop (corn, soybean, and wheat) prices have dropped precipitously this year, driven by improving supply in key regions such as the US and Brazil. High crop prices over the past year incentivized farmers to increase planted acreage, with the US planting a near-record 94.1mn acre corn crop, and Brazil continuously growing its soybean acreage. That being said, crop prices remain elevated by historical standards. That is especially true for

Exhibit 29: Corn, soybean, and wheat prices
Crop prices have dropped in 2023 but remain elevated



Source: Bloomberg

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soybeans, whose protein content is an important component of poultry and swine feed, and its oil is used widely in human foods.

Elevated prices seen through 2026

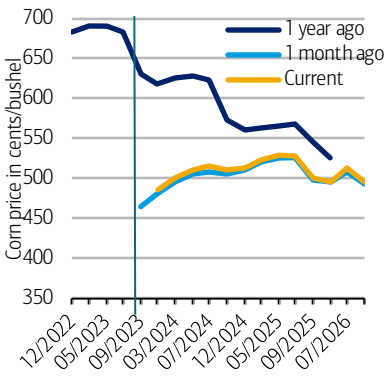
Meanwhile, the market expects prices to remain at high levels through 2026. The charts below show the corn/soybean/wheat forward curves. Except for soybeans, the forward curves have moved quite lower. But now the market forecasts that both corn and wheat prices in the US are likely to be flat-to-up from current levels over the next 1-2 years.

BofA forecasts – not out of the woods yet

We currently forecast US corn yields of 176 bushels/acre, although the recent return of hot/dry weather in the cornbelt is creating downside risk, with several consultants looking at 171-173 bushels (the USDA projects 175.1 bu vs 181.5 initially). Similarly for soybeans we project yields of 51.5bu/acre, likely to move lower, vs the USDA's 49.5 (initial expectations were for 52bu/acre).

Net-net supply of corn will be ample this year driven by 94.1mn planted acres, however current economics incentivize a switch to soybeans next year and as such we expect ~90mn acres to be planted in the 2023/24 season. By our estimates, even with conservative demand forecasts, yields would have to be over 177 (a record) next year to further increase the ending stocks/use (STU) ratio. Meanwhile, soybean prices should benefit from strong domestic demand growth as US crushing capacity expands.

Exhibit 30: Corn forward curve
Prices seen at ~$5/bu through 2026



Source: Bloomberg

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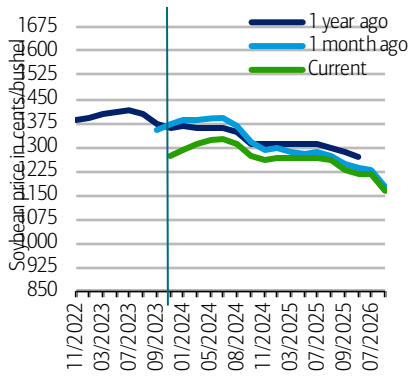
Exhibit 31: Soybean forward curve
The soybean curve remains largely unchanged



Source: Bloomberg

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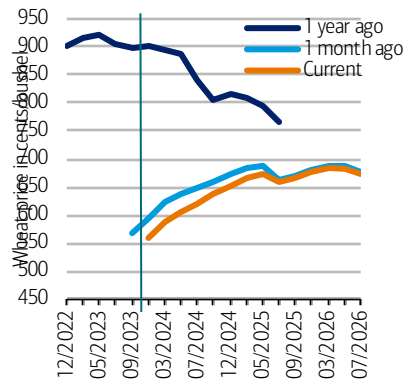
Exhibit 32: Wheat forward curve
Wheat prices are seen increasing through 2025



Source: Bloomberg

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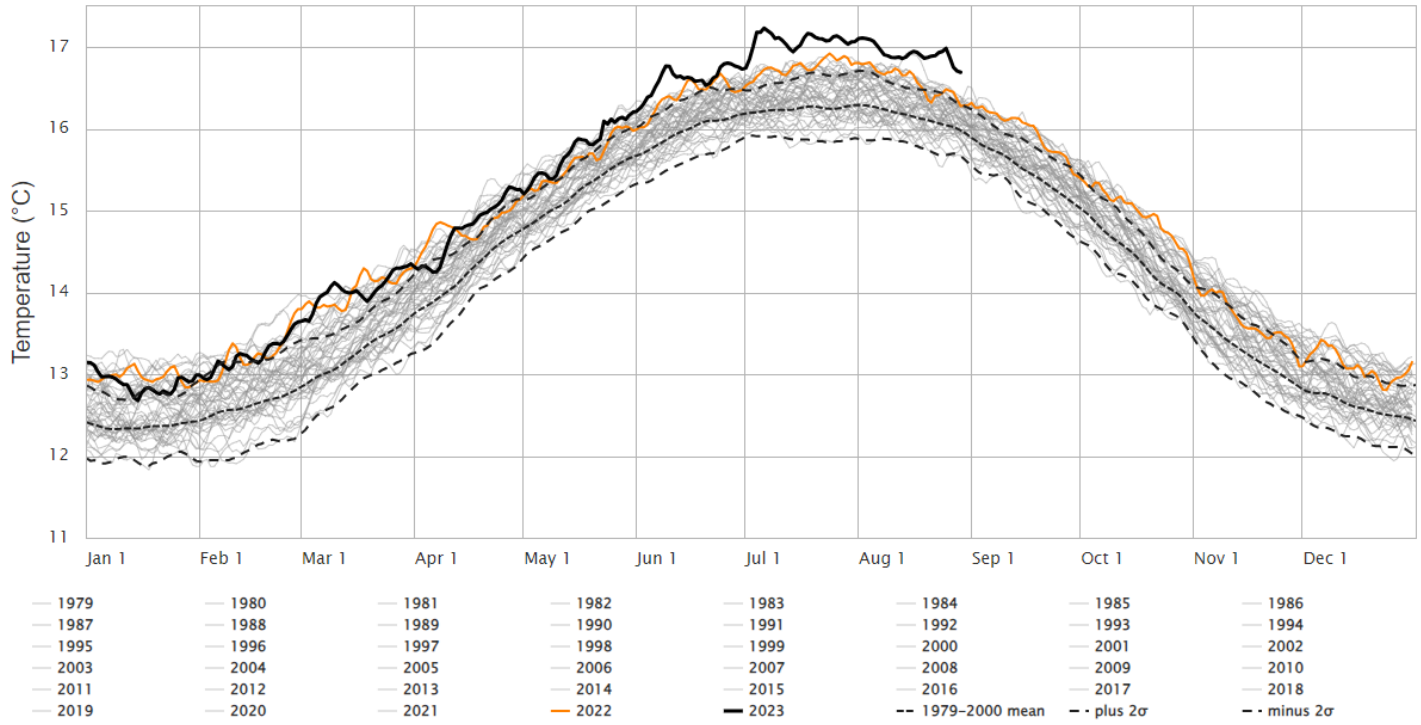
Exhibit 33: Global air temperatures since 1979
So far in 2023 air temperatures have exceeded their long-term averages by over two standard deviations



Source: Climate Change Institute, University of Main, ClimbateReanalyzer.org

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Weather is a risk

The USDA has lowered its yield forecasts vs its initial Spring estimates for major crops both in the US and globally. The main reason for that is the extremely hot and dry summer we're experiencing, with temperatures in June/July/August the highest in decades (if not on record). But this is not a one-off phenomenon. Last year both corn and soybean yields in the US were impacted by dry conditions, while South America has been suffering drought since 2020. Argentina has been the hardest-hit country, with their 2022/23 soybean crop halved vs initial expectations.

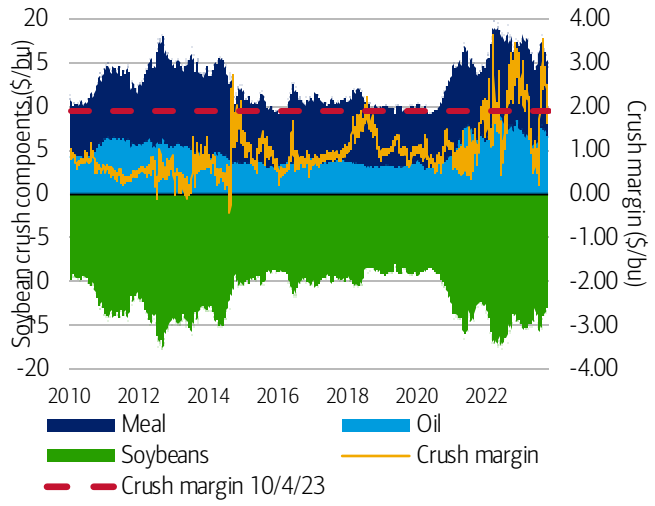
The chart above shows the average global air temperature on a daily basis. It is clear than both 2022 and even more so 2023 ytd have been outliers, with temperatures more than two standard deviations above long-term averages.

Downstream margin expansion exacerbates inflation

Supply tightness is apparent across the entire value chain, not just on the ag/crop side. This has been exacerbated by increasing demand for renewable fuels which are competing for feedstock with food end-markets. In the US, soybean crush margins (i.e., the profit from crushing one bushel of soybean and selling the end-products of meal and oil) is recently rose to $3/bushel and now stands close to $2, vs ~$1 for the better part of the prior decade.

This expansion has mainly been the result of higher soybean oil prices, now at roughly double their historical level. Moving even further downstream, we also track prices of refined vegoils – largely used in food but more recently in fuel applications too. While coming off their highs, the spreads between refined and crude soybean and palm oil (the latter being the most commonly used vegoil) are well above levels seen pre-2020.

Exhibit 34: Soybean crush margin components
The US soy crush margin has widened significantly



Source: Bloomberg, BofA Global Research

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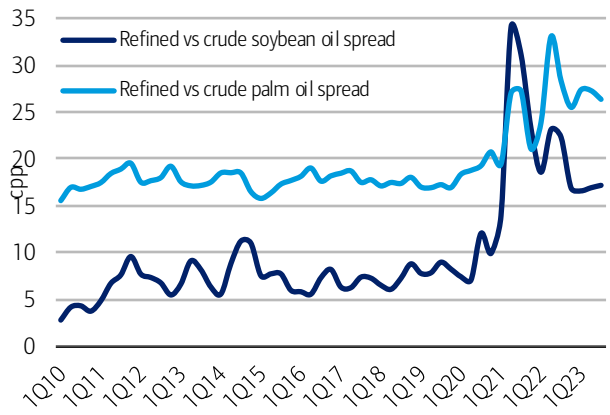
Exhibit 35: Refined vs crude vegoil prices
The spread between refined soy/palm and crude oil prices have widened



Source: Bloomberg, BofA Global Research
Notes: Soybean spread: Delta between refined soybean oil spot New York delivered price and CBT crude soybean oil contract. Palm spread: Delta between refined palm oil spot New York delivered price and Bursa Malaysia crude palm oil contract.

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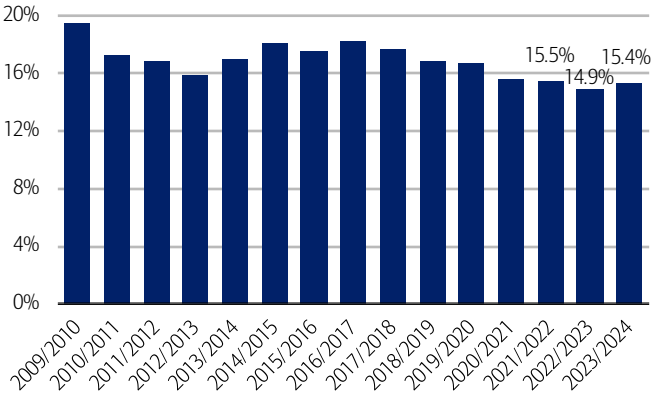
Global grain S/D balance remains tight

Looking outside the US, grain supplies remain tight, which is lending additional support to US corn prices. The USDA projects that the global grain STU ratio will decline by 20bps in the 2023/24 marketing year (starting in Sept 2023). That is despite expectations of a bumper US crop and a strong rebound in Argentina (assume their multi-year drought comes to an end), with declines seen in China, Russia, and the EU. Excluding China, the STU ratio is projected to increase by 50bps, but still remain at its second lowest level over the past 15 years.

Brazil is filling the oilseeds gap

In oilseeds, the situation is the exact opposite of grains. We are witnessing extremely low US production as farmers shifted heavily to corn, which will undoubtedly take its toll on US exports. The gap however can be filled by additional Brazilian acres, such that in 2023/24 the STU ratio should increase to 21.2% from 19.6% (and to 20.4% from 18.2% excluding China) according to the USDA. Increasing demand from renewable fuels, mainly in the US but also globally, could however, lead to an upside surprise in demand.

Exhibit 36: Global ex-China grains stocks/use ratio
Ex-China, the global grains STU ratio is expected to increase by 50bps



Source: WASDE, BofA Global Research

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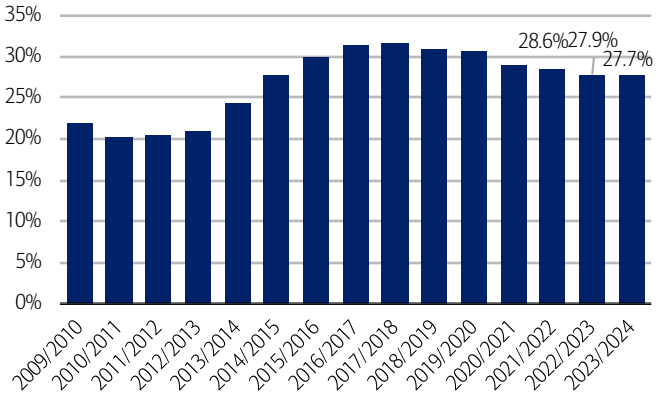
Exhibit 37: Global grains stocks/use ratio
The global grains STU ratio is expected to decline further in 2023/24



Source: WASDE, BofA Global Research

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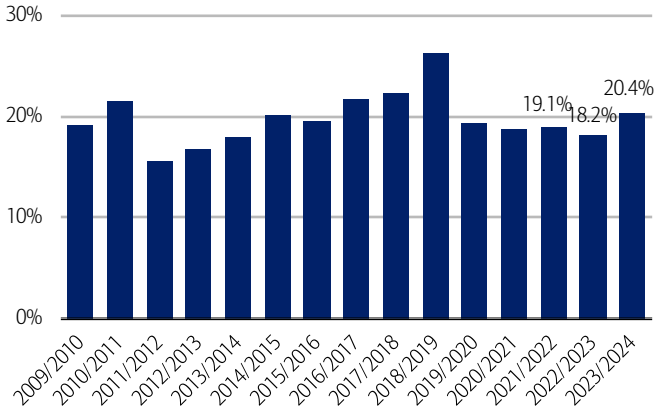
Exhibit 38: Global ex-China oilseeds stocks/use ratio
Ex-China, the global oilseeds STU ratio is expected to increase by 220bps



Source: WASDE, BofA Global Research

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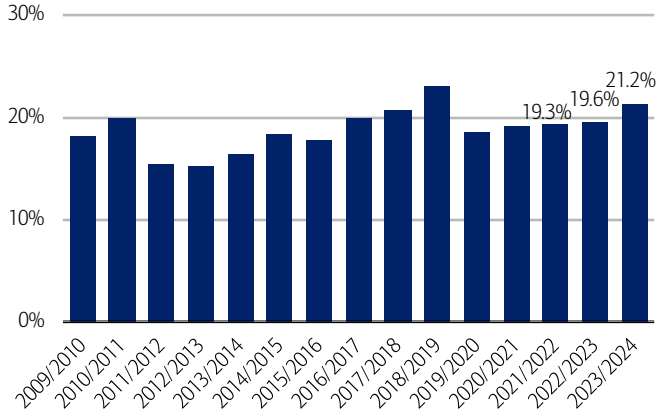
Exhibit 39: Global oilseeds stocks/use ratio
The global oilseeds STU ratio is expected to increase by 160bps



Source: WASDE, BofA Global Research

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Black sea geopolitics lingers

Vladimir Osakovskiy >>
Merrill Lynch (DIFC)

Concerns over supply out of the Black sea region were one of the key drivers for the global food market back in 2022. Such concerns loom again in 2023 on the back of Russia's suspension of its participation in the UN/Turkiye mediated Black Sea grain initiative on July 17, 2023. However, we think that even if the deal will remain suspended, the potential market impact will likely be much less than in 2022 given much lower export potential of Ukraine in this marketing year as well as continued and rising supplies from Russia. On top of that, we also note remaining chances for the resumption of the deal given high attention to it from regional and international players.

On and off...

Black Sea grain deal was signed back on July 22, 2022 to allow for secure shipments of grain out of blocked Ukrainian ports. According to the UN, the deal allowed for some 32.9Mt of grain to be supplies to global markets. The news of the deal have helped to cut wheat and corn prices in July of 2022 by 20-30% and keep them way below 2022 highs for the rest of the year and into 2023. After several extensions the deal was suspended by Russia in July 2023. The suspension has created by some volatility of market prices, but have largely failed to lift them to above this year lows.

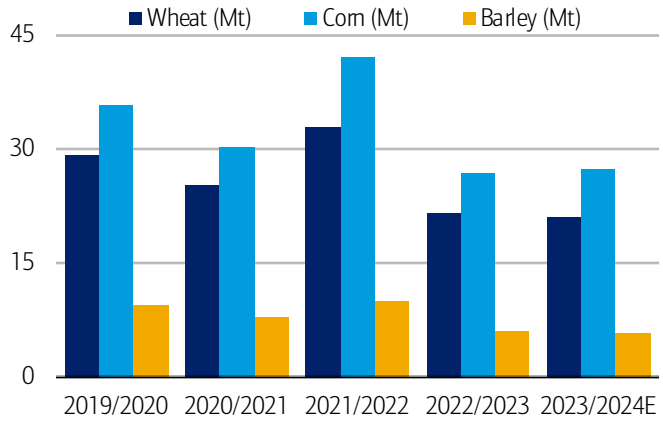
But impact is lower now, vs 2022

We think that such much lower market importance of the deal in 2023 should be attributed to a material decline of Ukrainian grains output and more importantly of its export potential. Thus, in the 2022/2023 marketing year the importance of the grain deal was compounded by the fact that shipment suspension took place on top of massive stocks after record 2021 harvest. Thus, according to USDA estimates, at the end of the 2021/2022 marketing year Ukraine had well over 16Mt of stocks from the previous harvest. However, by 3Q23 total stocks have largely been depleted to a more normal 2.5-3Mt. On top of that, total grains output of Ukraine will most likely remain some 1/3 lower than 2021 level, at least due to lower planning acreage.

Existing logistics may be sufficient

On July 25, 2023, the EU Agriculture Commissioner Wojciechowski has stated that the EU has the logistics capacity to export all grain export needs of Ukraine using "solidarity lanes" created since May 2022. Such "solidarity lanes" transport Ukrainian cargo to EU

Exhibit 40: Ukraine production declined since 2022
Total output is expected at some 1/3 lower vs 2021 harvest



Source: USDA

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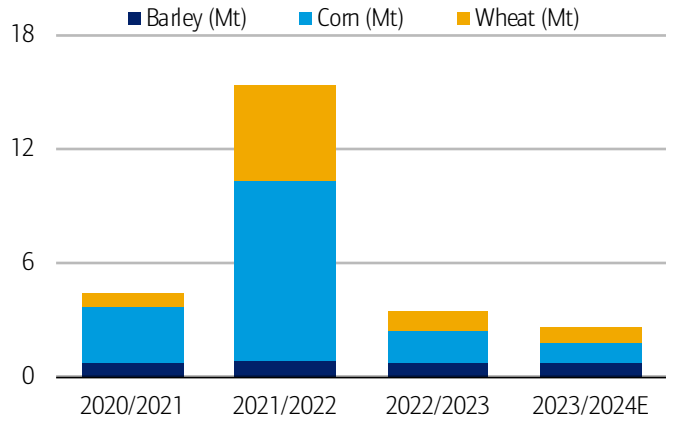
Exhibit 41: Export needs is much lower in '23 vs '22
In 2Q22 Ukraine needed to export record stocks from 2021 harvest



Source: USDA

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ports via existing land connections, which had a capacity to export some 4Mt of grains per month already back in November 2022. We note that given lower export capacity of Ukraine in 2023/2024 marketing year, this should indeed be sufficient to transport most of country's exports this year. On top of that, Ukraine was also able to ship some of the grain cargoes via traditional Black Sea routes even without the deal

Note Russian supplies as well

We also note that an overall market importance of the likely lower Ukrainian grain shipments this year may be further constrained by continued robust supplies from Russia. During the Russia-Africa summit in July President Putin has explicitly suggested higher Russian supplies to needy countries as a replacement to the grain deal. We also note that according to the US State Department statement there are currently no G7 sanctions imposed against Russian food and fertilizer exports, as unlike Ukrainian shipments, Russian supplies are not logistically restricted by the conflict. Meanwhile, according to the USDA estimates, which do not include output from the Russia-controlled territories in Ukraine, Russia may reach a record wheat, sunflower and rapeseed harvest this year. According to the same source, 2023/2024 harvest will likely remain materially above 5Y averages.

Geopolitics could still unlock the deal

We note high geopolitical focus on the deal from the UN as well as number of countries, mainly Turkiye, which could still unlock the deal later this year. So far, Russia side denied intentions to revive the deal unless its conditions as part of the deal will be implemented. However, the deal was extended several times in 2022-2023 under similarly hawkish Russian stance, which may leave doors for a political deal.

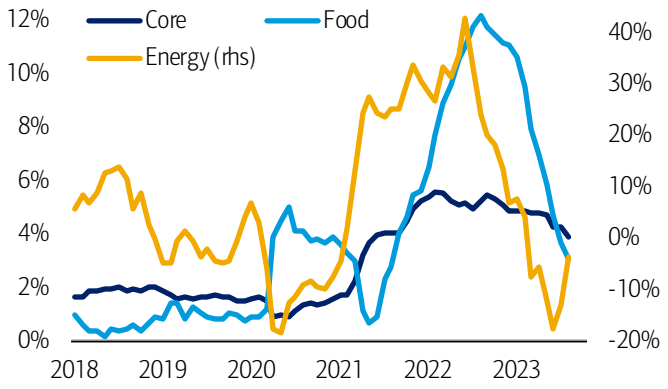
Not all central banks react the same way

US: Fed to look through non-core shocks

Aditya Bhave
BofAS

Although the Fed officially targets 2 percent PCE (personal consumption expenditures) inflation, it often looks past shocks to non-core components because they generally do not reflect the state of underlying demand. The idea is that monetary policy mainly impacts aggregate demand, not supply. So, leaning against an inflationary supply shock would offset the impact on inflation, but would exacerbate the headwind to economic activity.

Exhibit 42: Core and non-core PCE inflation (% y/y)
The shock to non-core inflation from the war in Ukraine was layered on top of a large increase in core inflation



Source: Bureau of Economic Analysis

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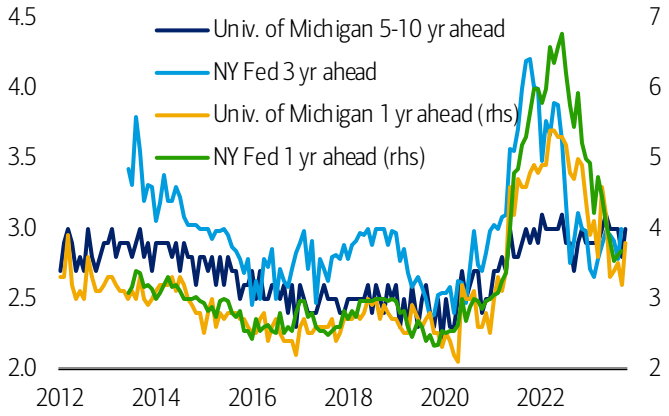
Exhibit 43: Survey-based measures of inflation expectations (%)
In recent months, inflation expectations have been stable or declining



Source: University of Michigan, Federal Reserve Bank of New York

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Last year, however, food and energy inflation were an important point of focus for the Fed, and likely contributed to the outsized hikes from May to December (two 50bp hikes that bookended four 75bp hikes). What changed, and what are the implications for the Fed's response function going forward?

In our view, the Fed was more responsive to non-core inflation last year for three reasons. First, the shock from the war in Ukraine was to both food and energy prices. And the resulting inflation was substantial: PCE food inflation peaked at 12.2% y/y in August 2022 and PCE energy inflation peaked at 42.8% y/y in June 2022.

Second, the shock to food and energy prices was layered on top of a significant pickup in core inflation. In fact, core PCE inflation peaked at 5.6% y/y in February 2022, when the war started (Exhibit 42). Over the rest of the year, core goods inflation dropped fast as supply chain disruptions eased, but core services inflation, which is typically sticky, picked up. From the Fed's perspective this was a more worrying dynamic. The bottom line is that the Fed was already behind the curve in its response to core inflation last spring and summer, so the rise in non-core inflation increased the urgency to tighten policy.

Third, there were growing concerns that inflation expectations were de-anchoring last year. Whether or not non-core prices actually played a role in the uptick in short- and long-term inflation expectations, the point is that the Fed had little choice but to err on the side of caution by hiking aggressively.

On all of the above fronts, we think the situation today is different. First, we do not expect much of a shock to food prices in the US. As discussed above, El Nino is unlikely to materially impact US inflation. Even higher crop prices would have a limited effect because raw materials account for less than 10% of the cost of food at home, and a much smaller share of the cost of food away from home (which is included in core inflation). A big driver of food inflation last year was the surge in wage inflation, which was particularly severe in the leisure & hospitality sector. With the labor market cooling off, wage inflation slowing down, labor cost driven food inflation is much less of an issue.

Even the energy shock has been much smaller this time around. At the time of this writing, gasoline prices are up just a small 0.8% from the early July trough. Gasoline prices have eased in October which might provide some relief in the next report. Our strategists see some likely upside to crude oil from current levels, but unless gasoline prices increase significantly further, say above $4/gallon, we do not think the Fed will be particularly concerned. In fact, Chair Powell was asked about energy prices at the September FOMC press conference, and he said the Fed would look through the shock.

The other reason for Powell's sanguine take on the energy shock is that the rest of the inflation complex – core and food inflation – is moving in the right direction. If anything, core inflation has eased faster than expected in recent months. Within the components, core goods deflation is continuing to become more broad based. Despite the upside surprise in September CPI, given the declines seen in asking rent inflation and the increase in multifamily supply, we do think that housing inflation will moderate towards its pre-pandemic trend over time. This leaves the core services ex housing component which continues to remain sticky and still needs some more cooling in the labor market and wage inflation to return to its pre-pandemic trend. But overall, with the core PCE running at 3.0% and 2.2% annualized on a six- and three-month basis, respectively, the Fed has the luxury of taking the rise in energy prices in its stride.

Finally, it helps that measures of inflation expectations have either stabilized or eased (Exhibit 43). Note that five-to-ten year inflation expectations in the University of Michigan's survey dropped to 2.8% in the final reading in September from 3.0% in the previous three months. That is just one data point, but it suggests that inflation expectations might not be as sensitive to an energy price spike when inflation is slowing in other components of the consumer basket. In the preliminary October report, the five-to-ten year inflation expectations are back up to 3.0%. The pickup in expectations could attract some attention from the Fed, however, this is only the preliminary read, and we would wait for the final October print to determine the impact from the signal.

Putting everything together, our takeaway is that Fed policy is unlikely to be impacted by either food or energy inflation in the short term. But if energy prices were to rise meaningfully further and remain elevated for several months, the Fed might be pushed into staying on hold for longer. So, whereas our base case calls for cuts to start in June 2024, a large energy shock could push the Fed to wait until next December or possibly later to start cutting.

Canada: BoC could hike if above-target inflation lingers

Carlos Capistran
BofAS

The Bank of Canada (BoC) hiked its policy rate from 0.0% to 5.0% to fight high inflation. Inflation responded and in June 2023 it was 2.8% yoy, the first time it was below 3.0% in more than two years after peaking above 8.0% in 2022. However, inflation rebounded to 4.0% in August. The BoC has not closed the door to further rate hikes and the rebound in inflation set the alarms for further increases in the policy rate. The inflation rebound happened mostly through an increase in gasoline prices driven by higher oil prices and gasoline taxes. But core inflation also rebounded in August to 4.0% from 3.8% in July (average of two core measures) which was the main concern for the BoC. September brought a respite with headline and core inflation both falling back to 3.8%.

We expect the BoC to remain with the overnight rate target at 5.0% for the rest of the year and the first half of 2024 but still high and volatile inflation puts upside risks to our baseline call. We estimate that the output gap has peaked, and the unemployment rate has bottomed out, so we do not believe the BoC needs to increase the policy rate again. But risks remain to the upside, particularly given the persistence of core inflation. The BoC is likely to keep the door open to further hikes for several months which will keep risks for the policy rate skewed to the upside.

The BoC will most likely look through the increase in inflation driven by non-core inflation. But if the increase in non-core continues or even accelerates it could be one factor that leads the BoC to hike again. Neither higher oil prices nor higher food prices have a large impact on CPI inflation in Canada, mostly because inflation in Canada remained around the 2% target for many years. But the current context of inflation persistently above the target and a still tight labor market could change the BoC's response this time around, if medium-term inflation expectations begin to move to the upside in response to higher gasoline or food prices.

How might the ECB react to a persistent oil price shock?

Ruben Segura-Cayuela
BofA Europe (Madrid)

Ahead of the ECB September meeting, we had a strong conviction that the September hike would be the last and that rate cuts would need to wait until June 2024 at the earliest. Then brent move higher and, with that, our conviction moved lower.

Indeed, after incorporating most of the oil move in our inflation forecast, we now expect 4Q23 headline inflation 20bp above what the ECB expects. It could be even more than that if oil keeps moving higher. The ECB internal debate on "more" has already started. Hawks like Nagel, Holzmann and Elderson have been musing on the need thereof this week. Centrists like Villeroy de Galhau and doves like Lane and de Cos seem to be pushing back, arguing that current rates held for a long time should suffice for inflation, and are perhaps as much as the real economy can take.

In other words, the probability of another hike is far from zero. But it is not our base case for at least three reasons. First, we have a very benign view on sequential core inflation for the remainder of the year. If it materialises (and the September print is consistent with that), that should be enough for the ECB to look through the recent move in oil. Second, wage growth seems to have peaked throughout 1H23, even in Germany (see Wage spirals that don't happen, policy debates that shouldn't happen 29 September 2023).

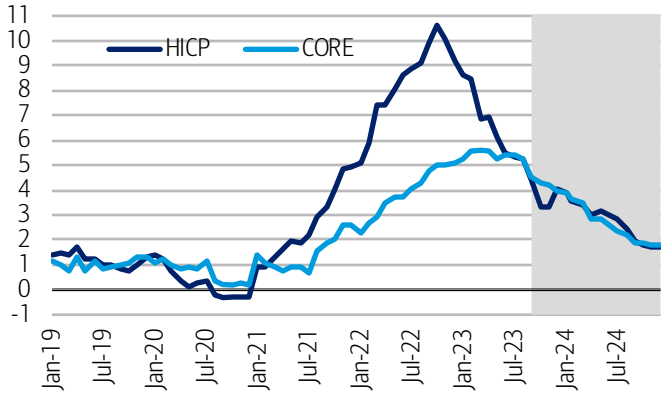
Third, and very importantly, not all energy price shocks are alike. Energy price shocks have a direct effect (the cost on consumers' energy consumption), an indirect effect (i.e. through an increase in input prices for everything else, which gets to final consumer prices with a lag), and second-round effects (that work through expectations and wage formation). Indirect and second-round effects were negligible in the 2010s, with margins being the main variable of shock absorption. This was not the case throughout 2022 and 2023.

Demand conditions matter for the strength of indirect effects and hence, the passthrough of exogenous energy price shocks into core inflation. Post-Covid, pricing power was strong in the goods, weak in the services sector, although it then recovered during the last leg of leisure and hospitality normalisation. As the energy crisis hit, but services activity normalised, margins for both sectors have returned to normal. We saw very strong and fast pass-through of the energy price shock last year. We tend to think this oil shock is likely to be treated eventually as a "normal shock". Expecting a strong passthrough of oil prices in these conditions seems difficult.

But the shock can easily lead to later cuts than we expect. Remember that our call is for the first cut from the ECB to happen in June 2024, with risks of more in December. We see as the threshold for cuts the ability of the ECB to claim the job is almost done, which we interpret as being able to forecast inflation durably back at target within a year. A persistent oil price move could delay the achievement of that milestone.

An additional element comes into play. The ECB would likely want reassurances that wages will be well-behaved in 2024 before starting to cut rates. The recent move in oil (and headline inflation) is a risk for future negotiating rounds. They might also want to see proof of wage growth not only having plateaued but actually moving convincingly lower, before starting the path towards more neutral policy. That puts a lot of onus on next year's wage negotiations, many of which take place only in spring. Again, that makes June the very earliest time for a cut. If there were signals of a strong reaction from wages to the oil-induced additional headline inflation, we could actually even end up seeing more hikes around that time or no hikes at all throughout 2024.

Exhibit 44: We expect Euro Area inflation to undershoot by end-2024
Observed inflation and BofA forecasts (%)



Source: BofA Global Research, Eurostat

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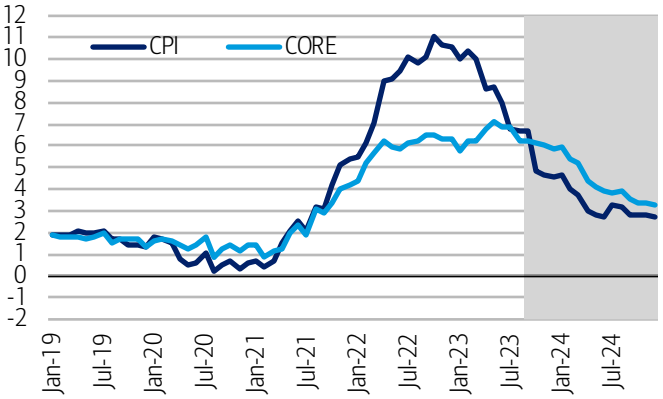
Exhibit 45: We expect UK inflation to reach 3.0% by end-2024
Observed inflation and BofA forecasts (%)



Source: BofA Global Research, ONS

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How might the Bank of England react to a persistent oil price shock?

We expect the Bank of England (BoE) to keep rates on hold at 5.25% through 2024 with four cuts in 2025. The minutes of their latest policy decision suggest the BoE is shifting emphasis. First, away from 'late cycle' indicators of inflation pressure, like wages and inflation, and towards lead indicators like slack and growth. And second, away from further hikes to rein in inflation and towards holding rates at this level for longer. The BoE is making this shift as headline and core inflation fall and growth weakens. The BoE's shift in emphasis leads us to expect little reaction to the recent rise in oil prices.

Based on the oil curve to 18 October we expect headline CPI inflation to drop from 6.7% in September to 4.6% by year end and 3.0% at end-2024. Above the 2% target but falling consistently. Utility price base effects should comfortably dominate higher oil prices at this stage. Producer Price Inflation suggests large falls in food and non-energy goods inflation ahead, although of course that could change to degree if higher oil costs feed through the supply chain. Still, for the size of oil price rises so far we would not expect a large impact on UK inflation.

Of course, if oil prices rise far enough they could concern the BoE. But it seems to us that such rises would need to be well above our central forecasts before oil became a significant factor in policy decisions. The more salient risk, in our view, is that even a further modest extension of the time it takes inflation to return to 2% target could further destabilise UK inflation expectations. Among developed market economies we see UK inflation expectations as arguably the least well anchored. But we doubt the BoE will react to that in the near-term with inflation expectations surveys well below their peaks from the past couple of years.

Asia's energy shock buffered by administrative measures

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The upside risks from recent uptick in oil prices are indeed well acknowledged by the majority of central banks in Asia-Pacific. That said, by our estimates, 10% rise in oil price would push CPI inflation only modestly higher by 25bp in Asia on average (Exhibit 46), as administrative measures across Asian economies help buffer the impact from such energy shock.

First, prices of household utility and retail fuels are heavily regulated throughout Asia, which tends to smooth any spike in global energy price. For example, the stated-owned utility company in Korea tends to smooth spike in global energy prices into gradual utility fee hikes over years. In Malaysia and India, there are long-standing price controls on retail fuel prices. Meanwhile, governments, notably in South Asia, offers various subsidies for energy-related expenditure. in Indonesia, the government provides subsidies on petrol fuel expenditure. In Singapore, the government recently rolled out a cost of living package, including cash transfers, to ease household burden on energy expenditure.

However, the Philippines, where energy shocks are most impactful by our estimates, is also least buffered by administrative measures. Fuel and electricity prices are deregulated and unsubsidized. Even worse, the government also resists to reduce taxes imposed on this expenditure, for fear of revenue loss. At such, households are most prone to rising oil prices.

El-Nino risks largely tilt towards South Asia

While North Asia and Oceania are relatively insulated from an El Nino shock, its macro impact could be more profound in ASEAN and India, given the greater importance of agriculture to the real economy, as well as reliance on hydropower.

The El Nino shocks to growth largely stem from reduced output in agricultural sector, which plays a larger role in South Asia (Exhibit 47). Within this region, India appears most vulnerable to El Nino shocks, given that agriculture accounts for ~20% of GDP, followed by Indonesia, Vietnam, Philippines (10-15%), then Malaysia & Thailand (>10%). That said, the eventual impact may not necessarily follow this "pecking order". Several micro factors will have to be considered, such as the mix of crops, crop seasons/cycles, existing water dam levels as well as government & industry responses. Accounting for these, the El Nino shock on overall growth has been manageable in South Asia, consistent with the VAR results.

On the other hand, El Nino exerts upward pressure on inflation, most directly food prices. The Philippines and Thailand appear most vulnerable to food price shocks, with raw food accounting for more 30% of the respective CPI basket. This is followed by India (30%), Vietnam (27%), Indonesia and Malaysia (close to 20%), and Singapore (7%).

Exhibit 46: Macro impact of rise in oil price on Asia
The Philippines and Thailand are most vulnerable to an oil price shock

	Impact of 10% rise in oil price		
	CPI (bp)	GDP (bp)	CA balance (% of GDP)
Philippines	80	-20	-0.40
Thailand	50	-20	-0.50
Australia	30	0	0.00
China	25	-10	-0.20
Taiwan	25	-10	-0.30
India	23	-16	-0.20
Indonesia	20	-10	-0.30
Japan	20	-10	-0.15
Korea	15	-10	-0.30
Singapore	15	-10	-0.40
Malaysia	15	10	0.10
Hong Kong	5	-5	-0.30

Source: BofA Global Research estimates

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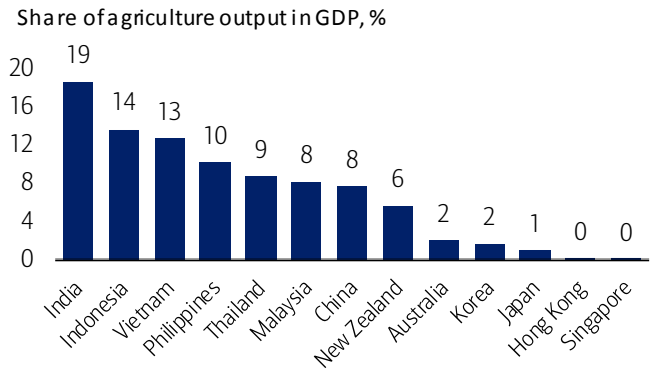
Exhibit 47: Agriculture, forestry, and fishing, value added (% of GDP)
Macro impact of El Nino more profound in ASEAN & India, given the greater importance of agriculture to the real economy



Source: BofA Global Research

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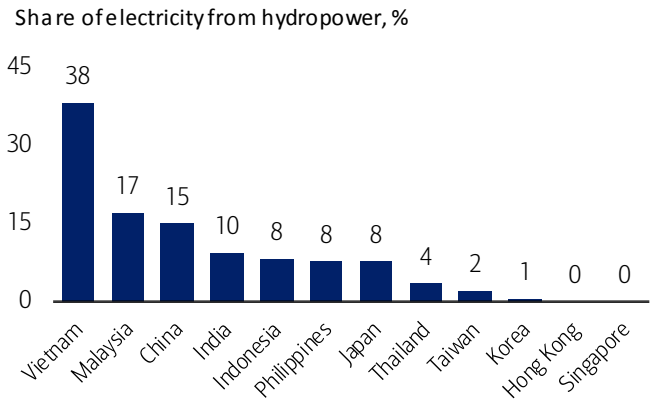
Exhibit 48: Share of electricity from hydropower
Hydroelectricity accounts for almost one-third of power supply in Vietnam



Source: BofA Global Research estimates, Our World in Data

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Meanwhile, its impact on energy inflation is more nuanced. We expect risk of supply shortages to be more apparent in Vietnam, where hydropower accounts for almost one-third of electricity supply (Exhibit 48).

El-Nino risks highly alerted, but unlikely a repeat of 2014-16

Given the experience of 2014-16, central banks across South Asia are vigilant of upside risks to inflation. Nonetheless, we do not think the spillover will be as severe as that happened in 2014-16. First, we do not expect the El Nino itself as intense as in 2014-16. The National Oceanic and Atmospheric Administration (NOAA) projects the peak impact to take place earlier in 4Q23, and "Strong" El Nino to fade off by 1Q24.

Second, the rising El Nino risk comes at a particularly sensitive time across the region and could spur greater policy urgency to address cost-of-living issues. Indonesia will hold general elections in Feb '24, while unity governments in Malaysia and Thailand will need to shore up broad public support. In Singapore, any escalation in food prices may compound effects of larger-than-usual administrative price hikes and the planned 1ppt increase in GST over the coming months.

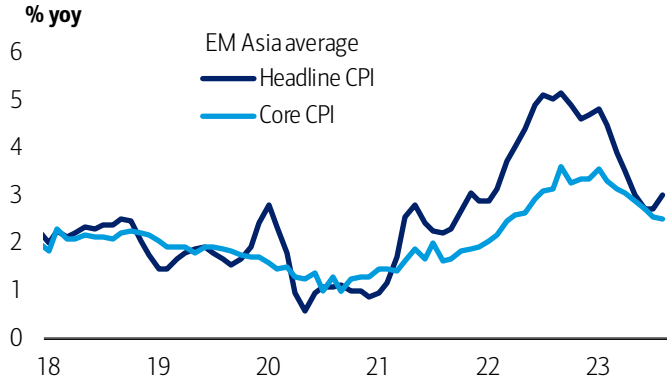
Third, the level of preparedness and awareness is higher. Structural improvements over the years have enhanced management of food supply and prices in these economies. For example, Indonesia has strengthened the coordination between national and regional food supply, and the Philippines has enacted law to raise rice supply. In India, retail fuel prices are capped which also mitigates the impact on food prices, given fuel is an input cost in form of transportation.

Commodity risks could deter early cuts, but unlikely trigger further hikes

Overall, we believe the combined risk from oil price and El Nino risks may prompt central banks to reconsider rates cut in 2024, but they are unlikely to trigger further hikes. First, compared to other EM regions, CPI inflations are relatively contained in Asia, and are getting closer to central banks' targets. On average, headline CPI inflation peaked at above 5% yoy in late 2022 and retreated to below 3% in August (Exhibit 49), while core CPI has been also trending downward. Second, downside risks to growth remain, especially for regional exporters, as external demand wane on China weakness and slowing demand in developed markets (Exhibit 50).

Across North Asia and ASEAN, we expect most central banks to head steady with the current stance alongside hawkish Fed in the near term. Going into 2024, central banks in Korea, Indonesia and the Philippines could start easing cycle when Fed starts considering rate cuts, and when there is more certainty on the impact of El Nino for the latter two. In China, we expect PBoC to remain accommodative amid sluggish growth

Exhibit 49: Inflation in EM Asia
Headline inflation has retreated from peak in late 2022



Source: Haver, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 50: Regional exports growth
Central banks in Asia are also cautious on the drag from weaker external demand in China and developed markets

Source: Haver, BofA Global Research

BofA GLOBAL RESEARCH

momentum. Going south, we expect RBA to hold through 2024 with a new Governor, and RBNZ is likely to cut in the second half of 2024 as inflation eases.

Under our base case, we expect only three central banks in Asia-Pacific to further tighten in 2023, but to a large extent unrelated to commodity price shocks. In Japan, we expect the BoJ to end the negative interest rate policy (NIRP) in Dec this year, as we are bullish on underlying inflation momentum. In the Philippines and India, we expect BSP and RBI to have one more 25bp hike in 4Q respectively, on Fed hawkish and still elevated CPI inflation respectively.

Taken together, we think the rise in global commodity factors is certainly a risk to the region, but not yet significant enough to alter monetary policy paths.

EEMEA: Egypt and SA most affected by non-core CPI risk

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Zumrut Imamoglu
MLI (UK)

Tatonga Rusike
MLI (UK)

Jean-Michel Saliba
MLI (UK)

CEE: oil brings more nuisances than El Nino, but only Czech rate cuts affected

We see the renewed upside to global oil and food prices not affecting monetary policy thinking in Hungary materially, but it could delay the first rate cut in Czechia until February 2024 from our call for cuts to start in 2023, and may lead to rate hikes in Poland vs our call for no change. We currently expect YE2024 policy rate to fall to 4.0% in Czechia (-300bp), 6.5% in Hungary (-575bp), and 5.50% in Poland (-25bp).

Oil to impact CEE CPI more than El Nino

Higher oil prices will likely affect inflation relatively more in Hungary and Poland than Czechia due to higher fuel weight in CPI in the former two (8.1%, 6.5%, and 3.3%, respectively). Oil price in local currencies have risen by around 30% since June. In Poland, fuel prices were below market prices before the elections on 15 October. We expect a catch-up afterwards. In Hungary, the impact of higher oil price is exacerbated by the fact that Hungary is in the process of substituting Russian oil for more expensive Brent, together with a significant increase in transport fees. But PM Orban has warned fuel companies to keep prices under control, or the government will intervene.

Meanwhile, our VAR analysis above and our investigation of food inflation patterns since 2000 suggest limited evidence of El Nino in CEE food prices. The high levels of crop storage and retailers' profit margin should also provide cushions to any material upside risks to food inflation. Czechia is generally less exposed to food commodity price swings, thanks to a relatively smaller food share in the CPI basket vs other EEMEA countries.

CNB may delay cuts, NBH unlikely to be swayed by food/oil, NBP may hike

The cutting cycle by National Bank of Hungary (NBH) is unlikely affected much by non-core inflation developments. The NBH has a lot of scope to cut rates from 12.25%, with headline inflation likely falling to 7-8% by YE2023 and as the government is targeting higher growth next year.

The Czech National Bank (CNB) may be afraid of cutting rates on 2 November if there are more upside to October CPI, which is already biased upward on base effects (+1pp). Governor Michl may be inclined to cut only after inflation is firmly down to 2-3% in January 2024, in order to strengthen his reputation after heavy domestic criticism of not hiking rates and letting inflation spike to nearly 20% last year.

Meanwhile, in Poland, the National Bank of Poland (NBP) is politically motivated and will likely adopt a more hawkish stance under the new government. We see no change in the base rate in 2024, but would not rule out a temptation by Governor Glapinski to hike rates if headline inflation accelerates next year.

Egypt: inflation shocks to undermine willingness to allow EGP flexibility

The high inflationary backdrop and exposure to soft commodities make Egypt vulnerable. We currently see room for a move forward on FX adjustment in early 1Q24 thanks to favorable inflation base effects, and after the Presidential elections in December. But a further inflation shock could reduce the willingness of authorities to allow EGP flexibility and reduce the ability to return the IMF program back-on-track. Urban inflation stood at 37.4% yoy in August, with food price inflation standing at 68.7% yoy. The weight of food in the CPI is high at 34.4%. Meanwhile, higher oil prices impact inflation (and hence monetary policy) gradually and with a lag given that domestic fuel prices are adjusted quarterly and within a +/-10% range.

Water availability in Egypt could be challenged by El Nino and the completion of the filling of the Grand Ethiopian Renaissance Dam, despite the national strategies prioritizing crops with lower water requirements, modernization of irrigation methods, water consumption saving schemes. Egypt's sensitivity to food prices is further exacerbated by it being the world's largest importer of wheat, most of which comes predominantly from Russia, and to a less extent, Ukraine. The authorities have thus focused on boosting local wheat production, diversification of suppliers, raising trade and multilateral financing to reduce external financing strains emanating from exogenous commodity price shocks.

Israel: oil price and weak ILS major risks on inflation

Inflation has been moderating since reaching a peak of 5.4% in January. BOI expects headline inflation to hit the upper-bound of the target range 3% by 1Q 2024. We see it higher at 3.3% in 1Q 2024 from 3.9% at year-end 2023. Food inflation (excluding fruits and vegetables) has decreased from a peak of 5.9% to 4.1% in September and has a weight of c. 15% in the CPI basket. Results of our study show that on average, episodes of El-Nino could have an adverse effect on food inflation in Israel but at low levels c.0.3%. This is mainly due to agricultural imports, mainly grain and animal feed that impact food prices locally. However, even in extreme cases, our study shows the impact would not be large enough to undermine the moderation in headline inflation this winter. Therefore, we don't expect El-Nino to impact the monetary policy path implied by our forecasts. If Israel harmonizes its food regulation with that of the EU as planned, this might help ease food inflation in the medium term.

Oil price increase effects the headline inflation through fuel, transport, and travel services components. Although fuel prices are subsidized in Israel currently, recent oil price increases have been passed on to fuel prices in August and pushed it up by 1.5%. Further rise in oil prices could weigh on inflation. However, the main factor affecting CPI inflation in Israel is the ILS weakness due to the conflict and strong USD. The ILS depreciated c. 6% since the start of the conflict and we see exchange rate pass-through

at 1.6% for every 10% depreciation. The supply and demand effects on inflation stemming from subdued consumption and potential supply disruptions are still unclear. BOI guidance suggests a hold on rates for now and continued support for the currency through the $30bn intervention program announced early in October.

South Africa: inflation risks could prompt SARB into more hikes

Higher oil and food prices risk CPI breaching 6% target

Rising oil prices have re-ignited higher inflation risks in South Africa. Local fuel prices have increased by 7.5% mom and 4.7% mom in September and October, respectively. We now expect inflation to reach 5.7% in October, close to the 6% upper end of target, largely driven by higher oil. The outbreak of bird flu and El Nino could pressure food prices, pushing headline CPI close to the 6% upper bound of inflation target. In the near term, the outbreak of bird flu causing shortages of poultry products. In the longer term, we expect the impact of El Nino a quarter or two away, potentially leading to lower harvests around March/April 2024. South Africa has been experiencing La Nina, the opposite phenomenon, over the past three years – in effect, above-average rainfall. So that can help mitigate the El Nino phenomenon given some reserves are already in the system. The last El Nino was in the 2015/16 rainy season and largely resulted in higher food prices and inflation exceeding the upper end of the 6% target, from around 5%.

Hawkish SARB likely to hike on inflation risks

We think that higher energy and food prices that push up inflation above target calls a hawkish SARB into action. Our new baseline is 25bp in hike in November to take the policy rate to 8.50%. The SARB is likely to react to first-round shocks to energy prices, especially as estimates may threaten to breach the 6% upper limit. Our alternative scenario sees two more hikes: if inflation were to stay above 6%, there could be another 25bp hike by January 2024, and a new policy rate peak of 8.75%. There are few arguments to do more than 50bp in the future. Cumulative policy rate hikes of 475bp since November 2021 till May 2023 have weakened consumption spending and private sector credit growth. Monetary policy is already restrictive, with policy rate of 8.25%. Inflation at 6% can be accommodated with a policy rate of 8.5-8.75%.

El Nino matters for LatAm

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As noted, the El Niño (EN) changes the weather materially, particularly in tropical areas. The specific economic impacts of El Niño can vary depending on the severity and duration of the event, as well as the resilience of the affected sectors.

Our results – showing Colombia as the LatAm country with the highest sensitivity to El Niño – are broadly consistent with the records from previous shocks and anecdotal evidence. In Colombia El Niño largely implies drought, whereas Peru and Ecuador get heavy floodings along the coast and drought in the Andes/highlands. Given the extent of Brazilian territory, the impact varies among regions being associated with droughts in North and Northeastern regions, and heavier rainfall in the South.

Mexico and Chile do not suffer much influence from the El Nino, and oil prices surge is the main risk threatening inflation.

Brazil: the risks are on non-core inflation

The Brazilian economy can be affected through several channels ranging from agriculture and energy to insurance and logistics sectors. Given the extent of Brazilian territory, the impact varies among regions being associated with droughts in North and Northeastern regions, and heavier rainfall in the South. The cumulative effect of these factors can impact inflation and overall economic growth. In Brazil, we believe the potential impact of this year's El Niño should be mostly concentrated in 1Q24 inflation and should be transitory, as suggested by the VAR results. (For more, see report: El Niño: Bad boy, whatcha gonna do?).

A change to rain patterns has affected Brazilian food inflation in past El Nino episodes. Food at home represented 16% of consumer inflation – when measured by the IPCA, as of December 2022. Indeed, the Brazilian Central Bank (BCB) disclosed the use of a control variable in their inflation forecast models, since December 2021, namely a dummy variable derived from the ONI index. Perennial crops in Brazil (e.g., fruits, vegetables, coffee) can be affected by such extreme weather conditions of El Niño, given they rely on stable and suitable climatic conditions for their growth and production. Indeed, we believe the monthly inflation rates of perishables can be affected, particularly during 1Q24, but they should resume normal seasonal pattern and, therefore, the effect is not incorporated to our forecasts.

Regarding energy, Brazil relies heavily on hydropower for electricity generation, with a large portion of its electricity coming from hydroelectric dams. Reduced rainfall and lower water levels in reservoirs can lead to decreased hydropower generation capacity, which may necessitate the use of alternative sources of energy. Wind power has been growing in importance as a source of electricity generation in Brazil, particularly in the northeastern regions, where strong and consistent winds are prevalent. Our forecasts rely on a stable green flag over nation-wide energy prices until the then of 2025, meaning there shouldn't be any additional costs to energy tariffs.

Oil prices have a direct impact on inflation through Petrobras pricing policy, ie, this is a company discretionary decision. Lack of defined formula gives the company greater flexibility in fuel pricing, but reduces visibility of changes for independent refiners, distributors and producers of sugar and ethanol. As of September 28th, Petrobras was operating with a discount of 7% to international gasoline prices and 16% below parity to diesel prices. Petrobras is expected to be more pressured to readjust diesel prices in October with the fuel and oil boom scenario consolidating.

Despite the highlighted risks, we continue to expect inflation to reach 4.8% in 2023 YE and 3.7% in 2024. Even if the risks materialize, the BCB should not change its course of action in the back of supply shocks to inflation unless they translate into de-anchoring of longer-term inflation expectations. In the last Copom minutes, the Brazilian Central Bank (BCB) discussed potential risks for inflation and already incorporated a small positive impact from El Niño on food inflation. We continue to expect the BCB to reduce rates by 50bp per meeting until reaching 11.75% YE23 and 9.50% in 2024.

Colombia: Economic impact from drought

Our results – showing Colombia as the LatAm country with the highest sensitivity to El Niño – are broadly consistent with the records from previous shocks and anecdotal evidence. History suggests the North Andean countries tend to suffer the largest economic impacts from this weather shock. El Niño is developed in the tropical central and eastern Pacific Ocean. Therefore, it makes sense to see the most visible effects in countries that are located near the equator line and have a Pacific coast. These countries are Colombia, Ecuador, and Peru.

The last severe El Niño in Colombia happened between 4Q2015 and 2Q2016. The previous big shocks were in 1997-98 and 1982-83. One key consideration is that the intensity and timing sometimes doesn't match between Colombia, Peru, and Ecuador. For instance, the 2015-2016 El Niño was huge for Colombia and moderate for Peru.

Likewise, El Niño of 2017 was quite harmful for Peru and Ecuador (more in the former than the latter) but mild in Colombia. Climate scientists make a distinction between the Eastern Pacific El Niño (dubbed *El Niño Costero)* – that hits Peru and Ecuador in particular – and the global phenomenon, whose technical name is ENSO (El Niño Southern Oscillation).

We also emphasize there is a distinction in the nature of the effects among the North Andean countries. In Colombia El Niño largely implies drought, whereas Peru and Ecuador get heavy floodings along the coast and drought in the Andes/highlands. Some structural characteristics of the Colombian economy make it particularly vulnerable to droughts, such as the fact that 70% of electricity is produced from water sources. The latest information published by the company that administers the electricity wholesale market in Colombia, XM, shows water levels in hydroelectric reservoirs were at 73.7% in September 2023, 15.9 percentage points above the levels observed in September 2015 (early stage of Colombia's last severe El Niño). Water levels have been falling, but they are still not at critical levels.

In June, the Governor of the Central Bank said a strong El Niño can increase headline inflation between 100 and 150bp. During the last large shock, 2015-16, the bulk of the pressure on inflation came from electricity and food prices. Electricity supply had to switch to thermal sources (burning of fossil fuels) which are more expensive than hydroelectricity. The Association of Electricity Generation Firms (ANDEG), however, claims that the electricity sector is better prepared to face El Niño in 2023, than in 2015-16, for two reasons. First, the distortionary regulation that used to force thermal energy firms to sell electricity at inadequately low prices (sometimes below cost) was eliminated. And second, the inauguration of the regasification plant in Cartagena – which converts LNG back to natural gas – facilitates the supply of natural gas to thermal generators. It is cheaper to produce electricity with natural gas than with diesel.

Peru: Flooding in coast, drought in Andes

For Peru, we believe El Niño not only has significant effects on inflation, but also on economic activity. The inflationary impact mainly comes in the form of a food supply shocks. On the activity front, the impact cuts across primary, secondary, and tertiary sectors. Arguably, in Peru the effect of El Niño on inflation is usually a bit smaller than in Colombia, but the blow to activity is bigger.

Floodings tend to severely affect the northern and central coast of the country, sometimes cutting off major cities. In 2017 there was no highway/road access between Lima and Trujillo (second largest city) for almost a month. Likewise, landslides in the mountains near the coast cause disruption to transportation, hindering the supply of food and the mobility of people. Heavy floodings ruin crops, mainly fruits (such as lemons), and the poultry industry suffers the consequences of dehydration because of the high temperatures. Drought in the highlands affects the production of staples like potatoes, onions, among many others.

All these effects combine into a food supply shock. We believe a strong El Niño increases headline inflation in Peru by around 100bp, mainly through higher food prices. The electricity effect, described in the Colombia section, also exists, but it is less meaningful because Peru already relies much more on thermal energy (generators supplied by Camisea natural gas field) than on hydroelectricity. The share of thermal electricity is almost 60%.

On economic activity, agriculture suffers because of the flooding in the coast and the drought in the highlands. Rising water temperatures affect fishing stocks (driving anchovies south). Even mining can be affected (in 2017 the Cajamarquilla refinery was disrupted by landslides). Secondary industries – such as manufacturing (Peru is the world's top exporter of fish flour and fish oil produced from anchovies) and construction (particularly in the northern coast where flooding interrupts normal activities) – have been impacted in the past. At the tertiary level (services) it is transportation that bears the brunt.

Mexico: higher oil and food prices are a significant upside risk for Banxico

Inflation in Mexico is particularly exposed to higher oil and food prices, with a combined weight of 45% in the CPI (and not only in non-core, given processed food is also part of core inflation). On energy, Mexico's inflation has some protection as the president has promised that it will not allow gasoline prices to increase in real terms and he has used a tax stimulus and even subsidies to keep his promise.

But food prices could hit inflation hard especially given that Mexico is going through a drought in a large part of its territory and as imports of grains and cereals have increased recently. With MXN weakening any shock to international food prices could be amplified in Mexican inflation. If non-core inflation in Mexico rebounds before the necessary conditions for a cut occur, Banxico could be forced to hike more to control the peso and inflation expectations, although that is not our baseline.

Banxico has kept the policy rate on hold at 11.25% for many months now. On its most recent decision (September) it repeated the forward guidance that "it will be necessary to maintain the reference rate at its current level for an extended period." So Banxico has closed the door to further hikes, but it is nowhere near cutting rates despite inflation falling to 4.5% in September from a peak of 8.7% in 2022. We expect Banxico to remain on hold and only start a cutting cycle in June 2024, after the federal election. Our call is based on our estimates that by then the US Fed would have ended its hiking cycle, the output gap will have peaked, and core inflation will be below 5%, all of which we see as necessary conditions for Banxico to cut. We also believe that it will be difficult for Banxico to cut ahead of the election on FX considerations.

Chile Inflation Risks: from commodity prices to currency pressure

Chile has made significant progress reducing inflation to 5.1% yoy from a 14.1% peak one year ago (though underlying inflation declined more slowly, to 6.6%). This has allowed BCCh to start easing. However, the disinflation faces multiple risks related to commodity prices and CLP weakness due to global and domestic factors. The increase in oil prices is a significant risk for Chile inflation as fuels represent over 3% of the consumption basket (though the pass through follows a gradual formula and doesn't exceed 0.1% incidence a month). Also, Chile imports essentially all the oil that produces (about 3% of GDP) and higher oil prices deteriorate the terms of trade putting pressure on CLP and the current account (deficit likely above 5% of GDP next year). Declining Lithium prices (and to a lesser extent copper) amid China slowdown are also a risk.

El Niño effect has relatively a smaller effect in Chile in terms of domestic food production, as the country is in the coast (excessive rains not a drought). Flooding in August was substantial and put pressure on some agricultural products like potatoes, but inflation overall remained contained (despite fruits and vegetables were up 6.5% in two months). If El Niño has a strong impact on global food commodities, it could have a significant impact on Chilean inflation as the country is an open economy (price taker).

The central bank started easing aggressively on July (100bp rate cut) but it slowed down the cuts to 75bp in September (to 9.5% policy rate). BCCh made clear that is concerned about the excess sensitivity of CLP to interest rate differential as they cut (12% depreciation last three months) and thus we assume they will further slow the pace of cuts to 50bp as soon as in December. We forecast inflation at 4.3% yoy this year and 3.7% ins 2024 (vs 3% target center).

Favor US steepeners, Euro vs US duration

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MLI (UK)

Sphia Salim
MLI (UK)

Meghan Swiber, CFA
BofAS

Market priced to perfection

Our economists are expecting inflation to continue moderating towards target in both the US and Euro Area. Pricing of short-dated inflation swaps (Exhibit 51) and our survey (Exhibit 52) suggest that a decline in inflation towards 2-3% by end of 2024 is a consensus view.

Investors do not appear prepared for upside risks to the inflation outlook. The recent rise in 1y inflation swap pricing is rather underwhelming in the context of rising commodity prices, increased uncertainty, and a higher-than-expected core CPI print in the US.

Inflation risk => chose real rates to express US steepener

A higher inflation risk vs what the market is reflecting argues for expressing one of our highest conviction US rates views, the curve steepener, in real rates.

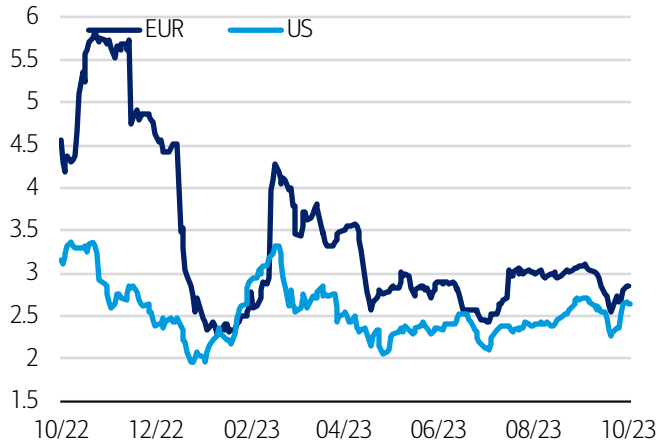
We recommend clients hold a 2s5s real rates steepener (current = -26bps, target = 0bps, stop = -60bps), as discussed in US Rates Alpha, Sep 21st, report. The real yield curve is where the heart of inversion in nominals currently sits and a real yield steepener would be insulated from a bear flattening driven by higher front-end breakevens.

The argument for the trade is also supported from a carry perspective as the expression in TIPS vs nominals would have better carry if CPI fixings are realized and would further benefit if inflation surprises to the upside. The risk to the trade is a significant growth shock that sees commodity prices and inflation expectations crater, a less likely scenario in our economics teams' view.

Divergence in CB reaction functions => US vs EUR trades

Higher oil prices pose different risks to the reaction function of the Fed vs ECB. As noted above, the Fed will be more likely to look through higher energy prices if they do not significantly impact inflation expectations. As shown in Exhibit 53, there is some risk

Exhibit 51: 1y inflation swaps
Inflation is priced below 3% in next 1y for US and Europe



Source: BofA Global Research, Bloomberg

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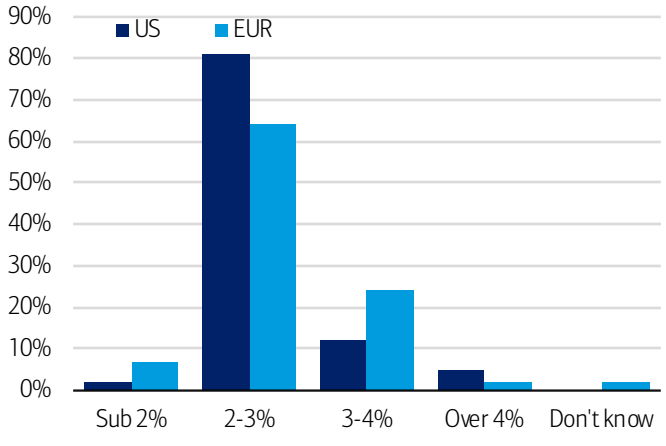
Exhibit 52: Expectations for US & EUR inflation at the end of 2024
Majority of investors expect inflation by end '24 to be <3%



Source: BofA Global Research FX and Rates Sentiment Survey

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that the recent increase is supporting longer-term breakevens and survey expectations, though levels are currently within recent historical ranges.

The ECB however will likely be less inclined to look through energy price shocks: (1) as discussed above, the passthrough to inflation is higher in the Euro Area for both energy and food price shocks, and (2) the ECB appears still more focused than the Fed on actual inflation rather than medium term forecasts. This suggests that:

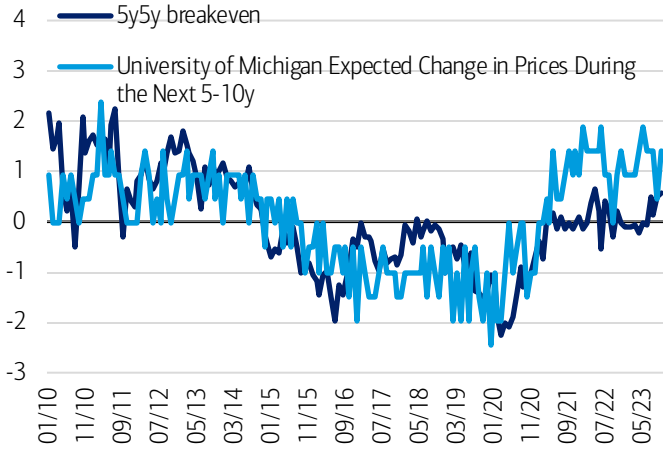
- The ECB would be more inclined to keep policy rates restrictive for a longer period.
- The risk of a hard landing in the Euro Area would be much larger, with both the energy price shock and the tighter monetary policy compounding the economic difficulties already observed relative to the US.

The first point supports our Z3-U4 steepener in EUR (Euribor) vs US (SOFR). We entered this cross-market box in Liquid insight, Sep 25th report (current: 7bp, target: 50bp, stop: 0bp). As Fed cuts have been priced out over the last couple of months, without much change in ECB pricing, the box is now implying the least amount of 2024 Fed cuts relative to ECB cuts since the start of the ECB hiking cycle (Exhibit 54). Higher energy and/or food prices can drive the pricing out of ECB cuts, while a risk-off shock can support a greater rally in US front-end. Indeed, investors continue to see the Fed as the central bank that would be most responsive and deliver the most cuts in the next two years (Exhibit 55). The risks to the trade are further upside surprises in US data relative to Europe, strong forward guidance form the Fed on high for long and/or significant downside surprises in Euro area inflation.

The second point argues for a bullish view on Euro duration versus the US. **We express it in the belly of the curve, via a 2y3y SOFR-€str OIS spread**, as the 2y3y forward could be thought of as a proxy for where the market believes central banks will settle at the end of the cutting cycle. The spread is of 127bp (Exhibit 56). We target 180bp with stop at 60bp. The risk to the trade is a sharp deterioration in US data.

While the position correlates negatively with the Z3-U4 EUR-USD box, we would note that the later appears around 13bp too low (pricing too few Fed cuts vs ECB cuts) even after accounting for the current level of 2y3y US-EUR spread.

Exhibit 53: 5y5y breakeven vs survey inflation expectations (Z-score)
Inflation compensation and inflation expectations tend to move together, both are above average but within historical range



Source: BofA Global Research, Bloomberg

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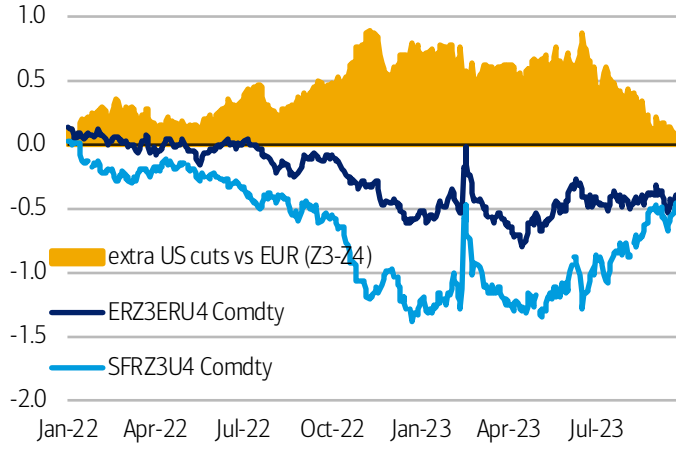
Exhibit 54: Pricing of cuts in US vs EUR, using Dec23-Sep24 futures
As the market priced out cuts in the US but not in EUR, we are pricing in the least amount of extra US cuts vs EUR since Jul-22



Source: Bloomberg, BofA Global Research

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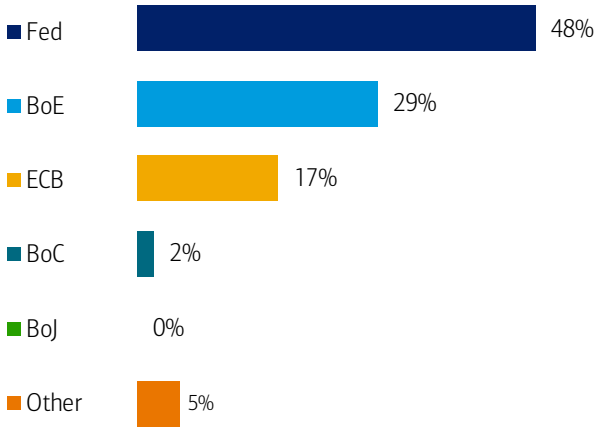
Exhibit 55: In the next 2Y, the major developed market central bank I expect to cut the most:
The Fed is still seen to deliver the most cuts in the next two years



Source: BofA October FX and Rates Sentiment Survey

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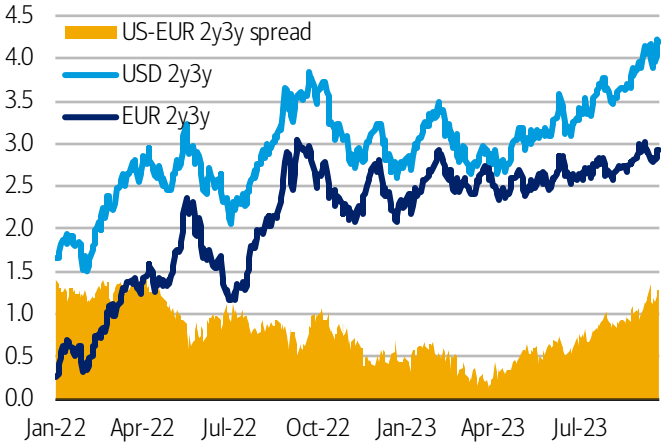
Exhibit 56: The US-EUR 2y3y spread has widened as the market revised the trough in US cutting cycle higher. We expect more divergence
The divergence could also come from a slow grind lower in EUR 2y3y



Source: Bloomberg, BofA Global Research

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How to trade energy shocks with G10 FX

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The strong increase in energy prices last year and their decline earlier this year go along way to explain the inflation dynamics in G10 FX, although is also far from the whole story. Headline inflation has dropped this year as energy prices have declined, in some cases even below core inflation. However, inflation remains very high in most cases (Exhibit 57). The latest trend in core inflation is also not on track towards the 2% inflation target in most G10 economies (Exhibit 58).

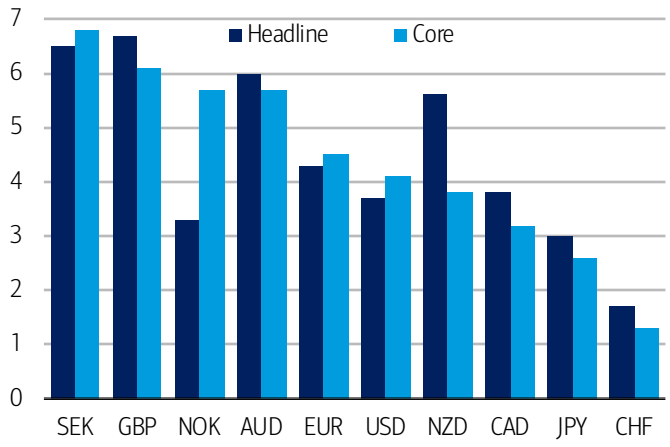
In this context, the increase in energy prices since June and higher risks following the recent instability in the Middle East raise concerns. Oil prices remain well below their last year peak but are well above the levels of the first half of this year. Our commodities team expect oil prices next year to average above the average of this year—90 vs. 85 respectively for Brent. This suggests that that central banks cannot count any more on the "help" from lower energy prices to bring inflation down, and at least in the short-term energy prices are becoming a headwind.

This is particularly negative for JPY and EUR, as indeed recent price action seems to suggest. Japan and the Eurozone import the most energy in G10 as a share of their energy use (Exhibit 59). Japan and the Eurozone also saw the worst deterioration of their terms of trade when energy prices increased sharpy last year and the most improvement when energy prices declined earlier this year (Exhibit 60). These trends have been similar for EUR and JPY, weakening substantially vs. the USD last year and strengthening end of last year and early this year. As energy prices started increasing again since June, JPY and EUR have come under pressure again.

Disentangling supply vs demand driven oil rallies for FX

In a recent publication, we discussed the diverging effects of a demand-driven vs supply-driven crude oil price rally on FX (see Oil supply shock and FX 03 October 2023). Oil rally stemmed from a supply contraction often fosters risk-off, while oil rally from demand expansion is more likely to support risk-on amid improving growth prospects. The latest

Exhibit 57: Headline and core inflation rate in G10 economies
Inflation remains well above target in most G10 economies



Source: Bloomberg, BofA Global Research.

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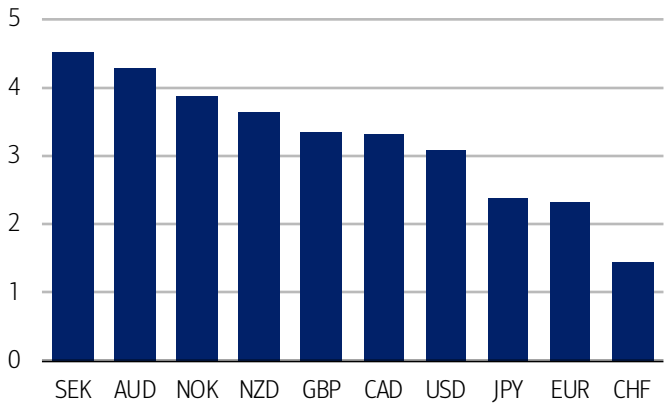
Exhibit 58: 3M average annualized monthly core inflation rate, seasonally adjusted
Core inflation trends still not on track towards target in most G10 economies



Source: Haver, BofA Global Research

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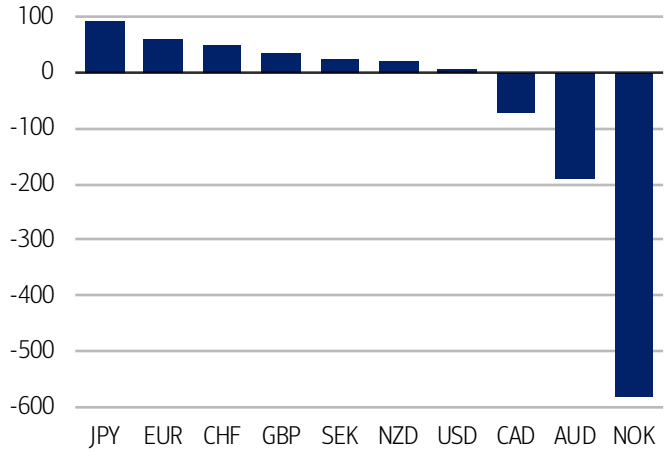
oil price rally occurred due to a supply constraint shock, which was also mostly the case in 2022. As a result, higher energy prices have in fact been more bullish than bearish for the USD over the past two years (Exhibit 61). Global supply constraint benefitted the USD as the US is now a net-oil producer and its terms of trades are now positively correlated with oil price (Exhibit 62).

Elsewhere in G10, a supply shock-induced oil rally is also bullish CAD and NOK, but investors are likely better off expressing bullish views for these commodity-exporting G10 currencies against EUR and SEK (Exhibit 63), which have negative terms of trades correlations with oil price. Evidently, EUR/CAD depreciated by close to 3% in September.

Looking ahead, we believe the broad USD index could stay elevated in the near-term, potentially until end of this year (FX Viewpoint: USD Outlook, 27-Sep-2023). We are constructive on CAD for the near-term (FX Viewpoint: 29 August 2023) and hold a bullish view on the oversold G10 high-beta currencies vs the European majors (EUR, GBP, and CHF; for more details see Liquid Insight: G10 FX RV to end the year 07-Sep-2023).

Exhibit 59: Energy imports, net (% of energy use)
JPY and EUR the most vulnerable to high energy prices



Source: World Bank, BofA Global Research.

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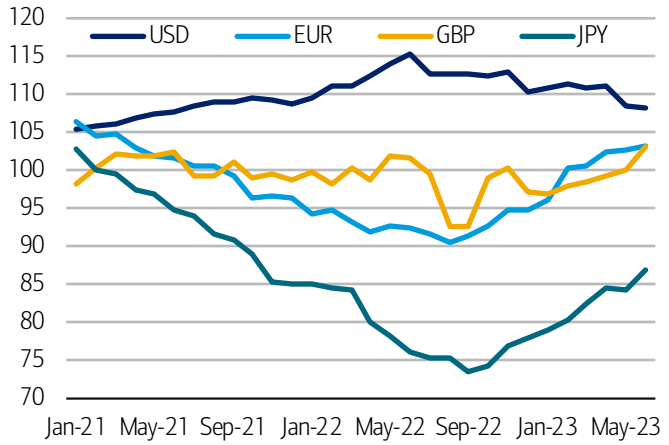
Exhibit 60: G4 terms of trade index
Japan and Eurozone worst deterioration of terms of trade last year, most improvement this year



Source: Haver, BofA Global Research.

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Exhibit 61: Demand factor-driven vs supply factor-driven oil price rallies can have diverging effect on currency TWIs
Correlation between weekly change in crude oil dynamics vs weekly change in TWI for G10 FX since 2021

		TWI FX index correlation vs:		
		Price Brent	Demand Factor	Supply Factor
G10	USD	-23%	-52%	24%
	EUR	-3%	10%	-18%
	JPY	4%	-7%	-6%
	GBP	19%	35%	8%
	CAD	34%	42%	15%
	AUD	28%	46%	1%
	NZD	18%	37%	-6%
	CHF	8%	5%	-6%
	NOK	54%	53%	24%
	SEK	4%	40%	-22%

Source: BofA Global Research, Bloomberg. A rise in the Demand factor means higher oil price as a result of increased demand, and vice versa a decline in the Demand factor means lower oil price as a result of decreased demand. A rise in the Supply factor means higher oil price as a result of decreased demand, and vice versa a decline in the Supply factor means lower price as a result of increased demand. For more see the Federal Reserve Bank of New York Oil Price Dynamic Report.

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Exhibit 62: Crude oil dynamic on country-specific terms of trades have changed over time
Correlation between Brent and each country's terms of trades since 2010 and 2021

		Brent correlation to terms of trades:	
		Since 2021	Since 2010
G10	USD	59%	-26%
	EUR	-33%	-38%
	JPY	-33%	-40%
	GBP	-5%	6%
	CAD	88%	72%
	AUD	22%	11%
	NZD	-44%	-28%
	CHF	-45%	-49%
	NOK	28%	40%
	SEK	-55%	-61%

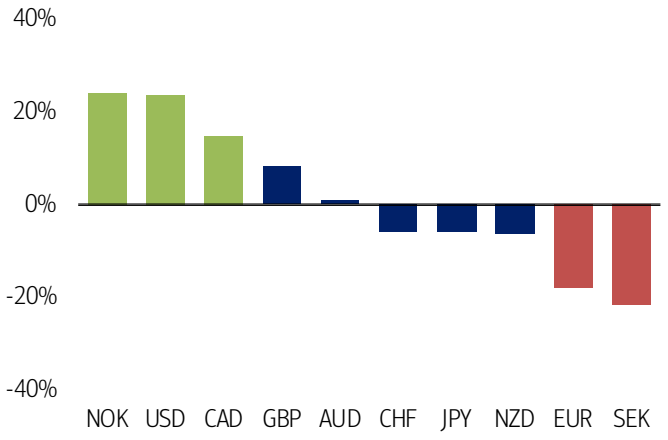
Source: BofA Global Research, Bloomberg

FX vol can rally more on oil demand shock than supply

Running correlation between changes in oil supply and demand factors respectively vs changes in level of FX vol, we find demand shocks (lower oil demand) historically has trigger more pick-up for FX vol than supply shocks (lower oil supply). Indeed, this is how the FX vol market has behaved for the past 3 months. Despite the latest oil price rally, level of FX vol had remained subdued and only started to pick-up in recent days due to other risk drivers such as sharply rising US yields and rising VIX index for the equity market.

Looking ahead, market narrative gradually moving to the risk-off side of the "USD-smile" should lead to higher volatility for the FX market. We have recently discussed owning 3m USDCHF vol and 6m USDJPY skew to hedge (FX Viewpoint: 27 September 2023). The risk to this view is a broad fall in cross-asset volatility.

Exhibit 63: Crude oil rally driven by supply constraint is bullish NOK, USD, and CAD TWIs vs bearish EUR and SEK TWIs
G10 TWI's correlation with crude oil supply factor



Source: BofA Global Research, Federal Reserve Bank of New York. More positive correlation implies stronger currency when crude oil rallies as a result of supply constraint. More negative correlation implies weaker currency when crude oil rallies as a result of supply constraint.

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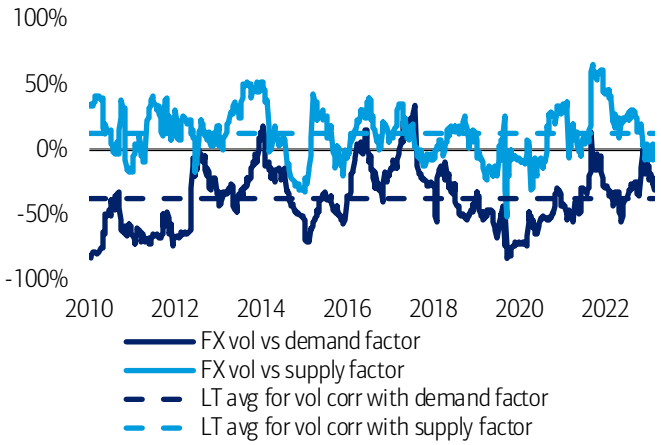
Exhibit 64: Crude oil demand shocks historically has correlated more with a pick-up in vol than supply shock
FX vol correlation with crude oil supply and demand factors



Source: BofA Global Research, Federal Reserve Bank of New York. More positive correlation vs. supply factor implies higher vol when crude oil rallies as a result of supply constraint. More negative correlation vs. demand factor implies higher vol when crude oil falls as a result of falling demand.

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EM strategy: sell FX, buy CDS, nibble rates

David Hauner, CFA >>
MLI (UK)

Stagflation risks for EM debt have been a long-held concern of ours, and unfortunately the latest developments in the Middle East continue to add to this narrative. We worry that markets continue to price in too little risk premium for the geopolitical situation. Moreover, food prices are another risk that should receive more attention as this report argues. The combination of these with global fiscal concerns is toxic for EM.

CDS is the best hedge in EM now as spreads have lagged rates and should be the last domino to fall. Buy a basket of CDS protection on EM sovereigns. Until US 10y has peaked, and US risk assets bottomed, EM sovereign yields are likely to target Oct'22 highs, which then may be an attractive entry into EM for 2024. For now stay short EMFX in CNH, HUF, MXN, TWD, ZAR. EM rates are likely the first asset to buy as long-term valuations are starting to look attractive: we like BRL and MXN (hedged with US) rates.

Sell FX: CNH, HUF, MXN, TWD, ZAR

We have been bearish on the crowded EM carry trade since July and have already closed several short recommendations after the recent sell-off, including in CLP and PEN. However, we worry that further USD strength and the worsening growth-inflation trade-off facing central banks in many EM are likely to put more currencies under pressure.

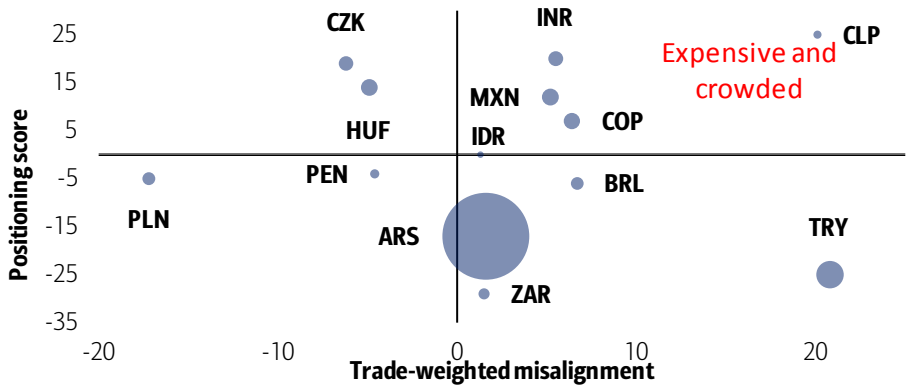
Looking at valuations and positioning, MXN now stands out as particularly concerning (Exhibit 65). We believe that it will depreciate more meaningfully whenever the US labor market weakness accelerates. We are also short ZAR vs EUR as we expect EUR-funded carry trades to come under pressure as well. Finally, we are long USD against CNH and TWD as we expect further USD strength, JPY weakness and a policy preference for a weaker Chinese currency, notwithstanding recent pushback against rapid depreciation.

Buy CDS protection

We think EM credit spreads will widen with a lag to rates, much like rates took a while to react to higher oil; the transition from rates to spreads will occur through concerns about global growth. For now, EM credit spreads remain remarkably benign.

We prefer to focus on CDS rather than outright yields as they are already attractive and, accounting also for the carry, present long-term buying opportunities. In investment grade EM sovereign credit, yields are near the 20-year highs (except Lehman), while spreads remain tight. In high-yield, where much of the index is distressed, yields are

Exhibit 65: LatAm currencies and INR score as particularly expensive and crowded
Trade-weighted misalignment (BofA Compass model) vs positioning (BofA Liquid Cross Border Flows)



Note: Size of the bubble represents FX carry/roll ratio. **Source:** Bloomberg, BofA Global Research

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Exhibit 66: EMBI-G spread should be at least 100bp wider compared to manufacturing PMIs
EMBI-Global spread vs ISM manufacturing new orders

Source: Bloomberg, BofA Global Research

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almost at Lehman period levels, but—again—spreads have upside.

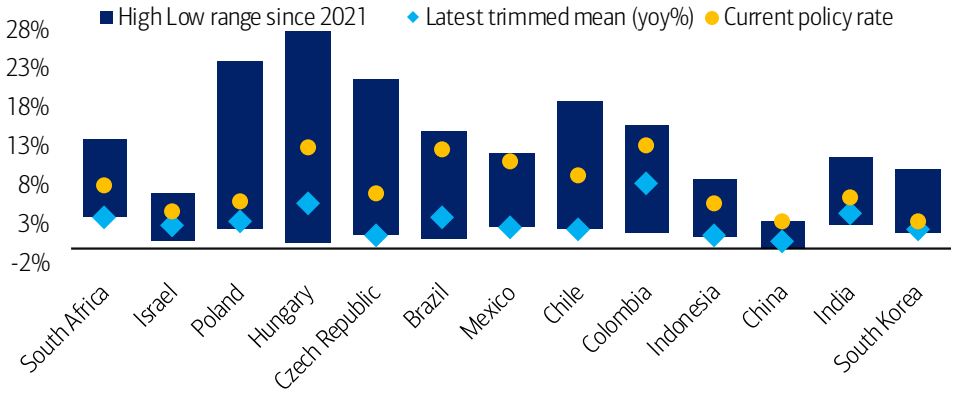
Similarly, the relationship with global growth (proxied by ISM new orders) says the EMBI-G index spread should be at least 100bps wider, about the highs in this cycle so far, reached in October 2022 (Exhibit 66). We like buying a basket of 5y CDS protection for several of the liquid index proxies (EM Alpha from 8th September).

Nibble at rates

EM rates have blown out with US rates, but many local rates markets are starting to look attractive. Exhibit 67 shows the concept of "trimmed momentum" where we annualize the past six month-over-month prints excluding highest/lowest month. Real rates based on this measure are high, including in Brazil (9%), Mexico (8%), Chile (8%), Hungary (7%) and Czechia (5%). This suggests that eventually many central banks could cut a lot.

We prefer the belly of the curve and prefer swaps to bonds due to fiscal concerns. Some fiscally more challenged EM already trade with a significant yield premium, reflecting the risk of sovereign rating downgrades, eg Brazil, Mexico and South Africa (Exhibit 68). However, in a downturn, bond yields are likely to underperform vs swaps as the credit risk increases. Moreover, EM local bond spreads over AAA-rated sovereigns (ie Germany rather than the US) aren't actually that wide yet, similar to our view on credit spreads.

Exhibit 67: Underlying real rates are extremely high in Brazil, Mexico, Chile, Hungary, Czechia
Trimmed inflation momentum (annualized 6 months of MoM rates ex highest/lowest) vs policy rates



Source: BofA Global Research, Bloomberg, Haver

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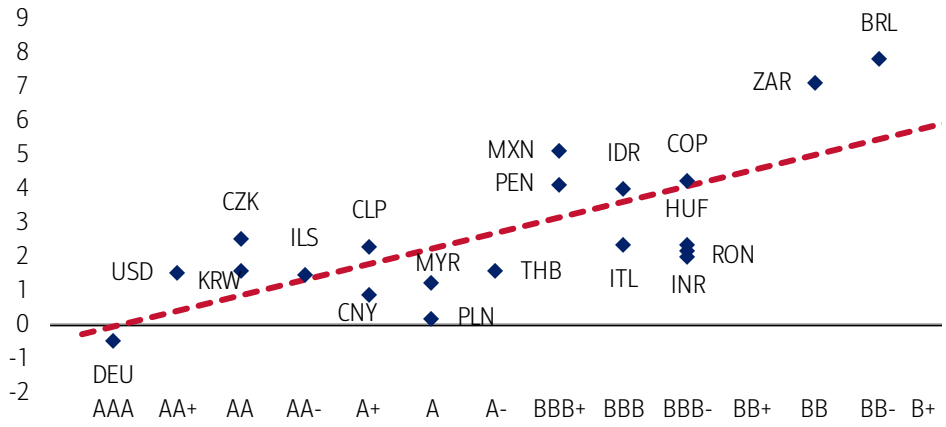
Exhibit 68: Brazil, Mexico, South Africa 10y local bonds already trade at lower implicit credit ratings
Real 10-year yields based on our 2024 CPI forecasts vs sovereign ratings



Source: Bloomberg, BofA Global Research

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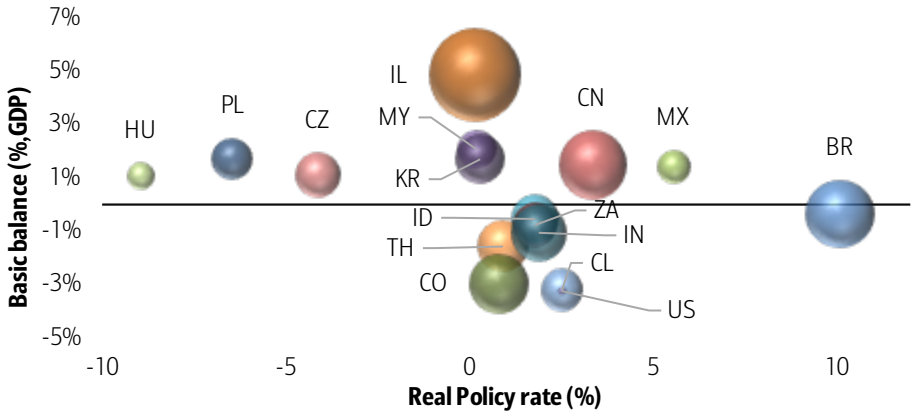
However, in EM even many swap markets can trade with a significant credit component during risk-off situations. Thus, we prefer to receive rates in markets which are relatively insulated in this respect. Exhibit 69 shows a scorecard of reserve coverage (bubble size), real rates and basic external balance (current account+ FDI). It suggests that Brazil, Czechia and Mexico are relatively well placed in this sense. These are the markets where we currently have active recommendations to receive rates.

Exhibit 69: Relatively resilient to credit stress in rates markets: Brazil, Czechia, Israel, Mexico
Scorecard for USD funding stress vulnerability real rate (x), BoP (y), and reserve coverage (bubble)



Source: Haver, BofA Global Research

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Analyst Certification

We, Meghan Swiber, CFA and Sphia Salim, hereby certify that the views each of us has expressed in this research report accurately reflect each of our respective personal views about the subject securities and issuers. We also certify that no part of our respective compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Disclosures

Important Disclosures

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