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Emerging Markets Economics

Emerging Markets El Niño Monthly Tracker

CITI'S TAKE

We are already in "Super El Niño", where beyond above average temperature, the SON season is expected to have below-normal rainfall in parts of Central Americas (Mexico is less affected), ASEAN (especially Indonesia), India, Sri Lanka, and north/NE part of South America, while flooding risk is a concern in Chile and East Africa, the latter going into OND rainy season. Further out, rainfall deficiencies are forecast to spread, covering more EM including southern parts of Africa going into NDJ season. EM Food inflation momentum rose towards its recent averages, with more pronounced pick-up in EM Asia, Nigeria, Chile, while looking very benign in Mexico, CEE, Israel. India is facing deficient rainfall and below-average reservoir levels, which worsened vs a month ago, but we don't see this in Colombia yet. Lake water levels impacting Panama Canal transits are expected to worsen, but is still at much higher levels vs. 2023-24 drought.

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Emerging Markets El Niño Monthly Tracker

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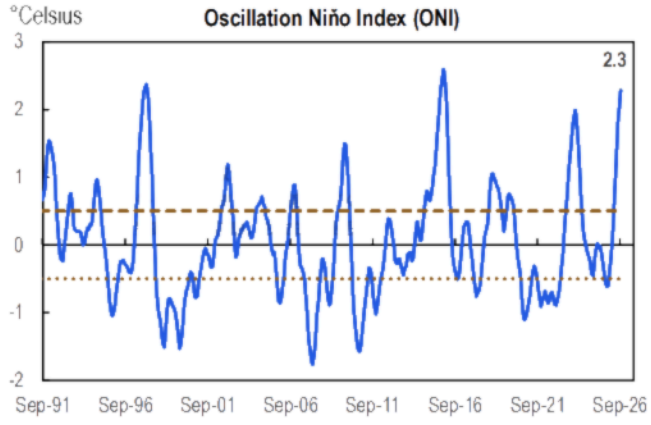
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Predicting vagaries of weather/precipitation impact of El Niño across time and geography is highly complex. In this report, we attempt to track the latest weather/precipitation assessments across key El Nino-affected EM countries and metrics of food-related inflation (we outline various macroeconomic transmissions towards EM in this Emerging Markets Economic Outlook & Strategy: One Shock to the Next – Macro Impact of El Niño on EM) to assess the extent to which this could influence macroeconomic outcomes as well as the conduct of monetary policy. The latter is, of course, dependent on the severity of the inflation shock, where inflation momentum is coming from, the state of the economy, and risks that supply shocks lead to second-round effects.

The Latest El Niño (Meteorological) Assessment

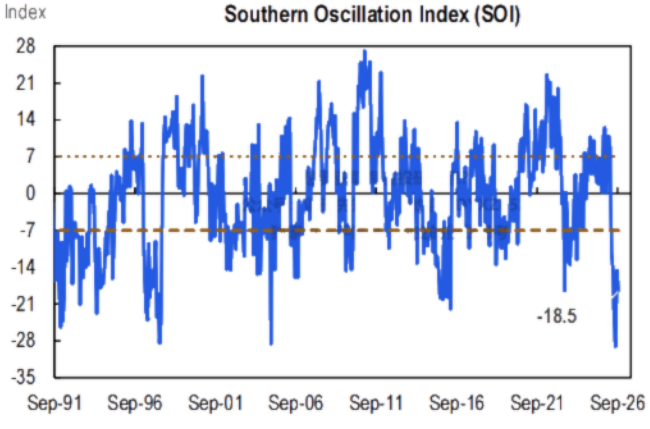
We are now firmly in "Super El Niño" territory. Oceanic Niño Index (ONI) is the primary benchmark used to define El Niño events and is roughly the three-month moving average of Sea Surface Temperature (SST) anomalies in the Niño 3.4 region of the equatorial Pacific. Our estimated early-September ONI reading has risen further to around 2.3°C, well above the 2°C threshold for a "Super El Niño" event and already close to the peaks recorded during previous major episodes (Figure 1). The **Southern Oscillation Index (SOI)**, which captures the atmospheric component of El Niño - Southern Oscillation (ENSO), rebounded in August and early September after reaching its most negative reading on record in July, before falling again to -18.5 on September 13 (Figure 2). More strikingly, our high-frequency tracking shows that daily **Sea Surface Temperature (SST)** anomalies in the Niño 3.4 region of the equatorial Pacific have reached ~3.0°C to September 14, and remain at historically extreme levels since June, with the 2026 trajectory diverging increasingly from the 1991-2020 range and materially exceeding the comparable paths during the 2015 and 2023 El Niño episodes (Figure 3).

Figure 1. ***Oceanic Nino Index indicates we are already in a Strong El Nino event as of early September...***



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Source: US NOAA, AU BoM, Citi Research

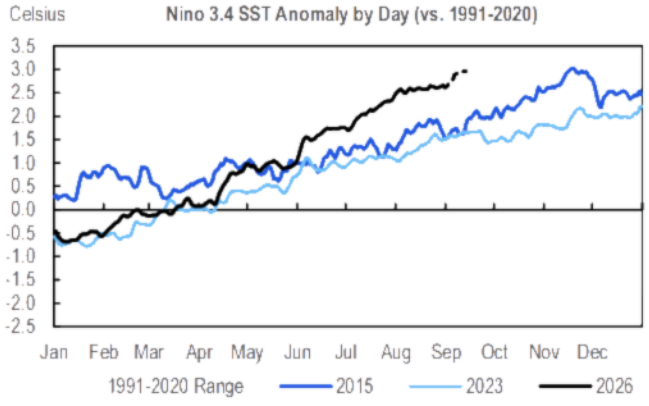
Figure 2. ...with Southern Oscillation Index rebounded in August and early September before falling again.



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Source: Australia Bureau of Meteorology (BoM), Citi Research

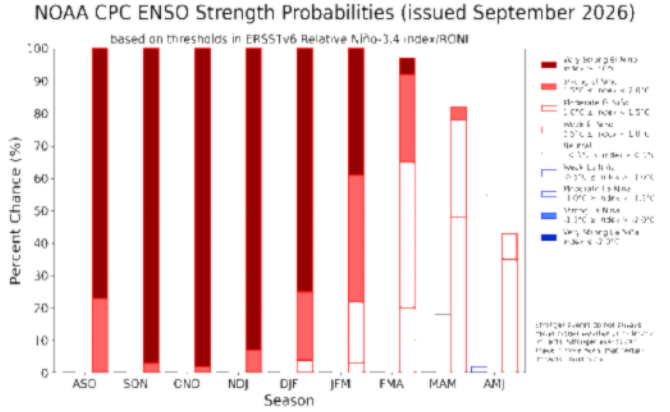
The probability of a historic El Niño event has risen further. The 10 September NOAA assessment sees El Niño strengthening through year-end, with an almost certain probability of the Super El Nino in the current September-November (SON) season and October-December (OND) seasons, and remaining at 93% it extends to November-January (NDJ) season (Figure 4). US NOAA now puts a 75% chance (up from 69% probability in Aug) that the October-December 2026 season will yield a historic event that would exceed the strength of previous El Niño events dating back to 1950 (NOAA, 10 Sep). With El Niño intensifying towards a very strong event and likely persisting through February 2027, the probability of above normal temperatures, extreme heat and significant shifts in rainfall patterns is increasing across much of the world, raising risks of droughts and floods and posing potentially significant threats to agricultural output, water resources and energy supply. (WMO, 3 Sep)

Figure 3. As of Mid-September, sea surface temperature deviated significantly from normal level



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Source: US NOAA, University of Maine,, Citi Research

Figure 4. NOAA CPC – ENSO Strength Probabilities (September 2026 report)



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Source: US NOAA CPC, Citi Research

The Indian Ocean Dipole (IOD) remains neutral. The Australia Bureau of Meteorology (BoM) continues to forecast that it will turn positive during the Southern Hemisphere spring (September-November), although there is still uncertainty in the strength and duration of the event. The latest weekly IOD index increase to +0.65°C as of September 13 , back above the positive IOD threshold of +0.4°C, after 4 weeks in the neutral range (BoM, 15 Sep). The India Meteorological Department's (IMD) now expects neutral IOD conditions to persist through the end of the Southwest Monsoon season (September) but sees a high likelihood of a positive IOD emerging during September–November (SON) (IMD, 31 August). A positive IOD would typically bring rainfall in India and East Africa, while increasing the risk of hotter and drier conditions in Australia and Southeast Asia.

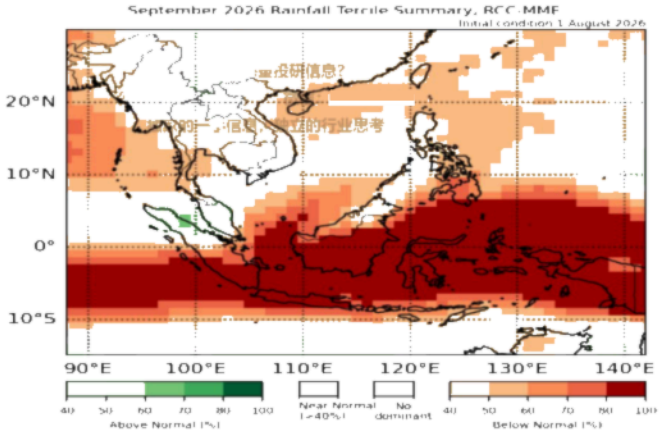
Europe's exceptional summer heat and wildfire season extended into early September. Renewed blocking high-pressure system drawing very warm air from North Africa. These conditions also maintained extreme wildfire danger across EU. As of September 14, around 666,000 hectares had burned across the EU in 2026, roughly twice the 20-year average at this point in the season, though still below the record area burned in 2025 (EFFIS, Sep). The prolonged heat is not directly attributable to El Niño, but rather due to persistent high pressure, reinforced by exceptionally warm Mediterranean and Atlantic sea surface temperatures (Copernicus Climate Change Service, 13 Aug).

Regional meteorological discussions

CHINA: Chief climate forecaster of the National Climate Center (NCC) expects above average rainfall is expected in most areas along and south of the Yangtze River in autumn, with particularly high precipitation and increased risk of extreme rainfall in Southwest China, alongside above average temperature in Southwest and South China in September. However, he forecasts winter is expected to be warmer than average (China Daily, 6 Sep). We assume the worst of weather-related activity disruption for this year is behind us in August, and some improvement will materialize in September. One risk to monitor is the severity of September's typhoon season, where after the damaging typhoon Saudel, two to three more typhoons are expected to impact China significantly in September (Xinhua, 3 Sep) Chinese meteorologists noted that unusually strong typhoons are closely linked to ocean warming and that El Nino conditions have shifted typhoon formations further eastward, leading to stronger and longer-lasting typhoons, two recent cases being Super Typhoons "Bavi" and "Baihaitun", lasting 13 and 15 days in July and August, respectively (Global Times, 4 Sep).

SOUTHEAST ASIA: According to the ASEAN Specialised Meteorological Centre (ASMC), below-normal rainfall is predicted over most of the Maritime Continent, with the highest probability of below-normal rainfall over the southern half of the Maritime Continent (i.e. Indonesia, Timor-Leste), with Indonesia already battling what authorities are saying its most intense wildfire in 11 years (SCMP , 10 Sep) and is significantly degrading air quality. Only the northwestern Maritime Continent (i.e. Malaysia & Singapore), models find a slight increase in chance of above-normal rainfall. For Mainland ASEAN, there a slight increase in chance of below normal rainfall for most of the region impacting Thailand and Vietnam, but is inconclusive for the northern areas (Myanmar, Laos) (**Figure 9**). For September to October (SON) season, high probability of below-normal rainfall spreads over a wider region covering the Philippines and more areas of Vietnam (**Figure 10**), the latter is more exposed to hydropower disruptions, while Indonesia's wildfires and its adverse impact on air quality are expected to intensify in the coming months (CREA, 14 Sep) The exceptions continue to be in Malaysia, where above-normal rainfall is predicted, as well as northern parts of mainland ASEAN (East Myanmar, northern parts of Thailand, Laos & Vietnam;) and parts of Borneo, where there is less agreement between the models (ASMC , 2 Sep).

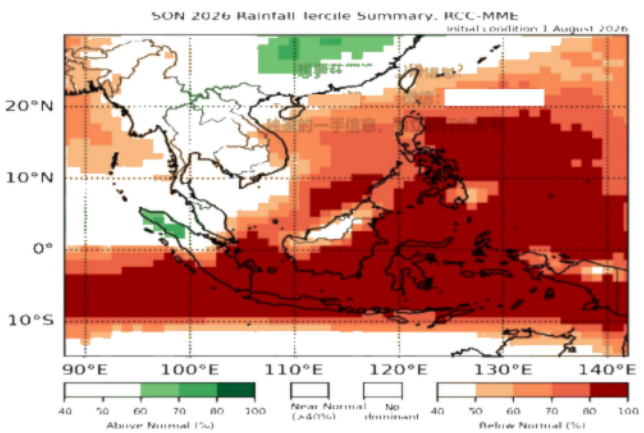
Figure 5. ASEAN – Rainfall tercile prediction based on multi-model ensemble for September 2026



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Source: ASMC, Citi Research

Figure 6. ASEAN – Rainfall tercile prediction based on multi-model ensemble for Sep to Nov (SON) 2026



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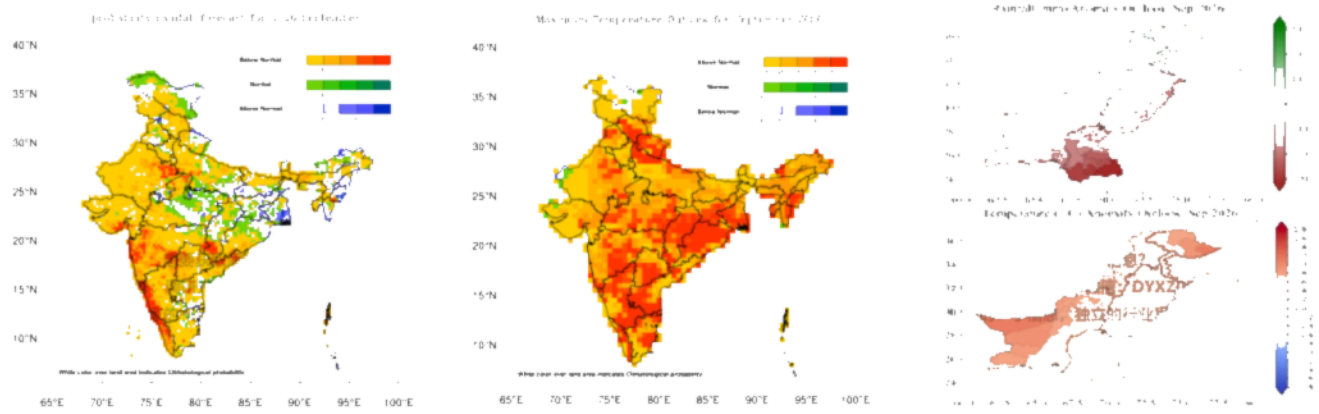
Source: ASMC, Citi Research

SOUTH ASIA: India Meteorological Department (IMD) sees below-normal rainfall (<91% of the long-period average) over the country as being most likely in September 2026. Below-normal rainfall is likely across many parts of the country, although some areas of Northwest, Northeast, East, East-central and Southeast Peninsular India are forecast to receive normal to above-normal rainfall. Average maximum temperatures are expected to be above normal over most parts of India in September 2026. Average minimum temperatures are also likely to be above normal over most of the country, except in some parts of Northwest, West-central and Northeast India, where they are expected to be normal to below normal. IMD said India recorded its warmest August since records began in 1901, with the country's average temperature rising to 28.01 degrees Celsius, as well as seeing 16.3% less rain than normal in August (Business Standard, 1 Sep).

Pakistan Meteorological Department's (PMD) outlook is transitioning from still below normal rainfall in September 2026 (except for the above-normal rainfall in Punjab), towards above-normal rainfall in most parts of Pakistan in the September to November (SON) season, with the most pronounced surplus rainfall in northern Khyber Pakhtunkhwa and adjoining areas of Punjab. Mean temperatures are expected to remain "slightly above normal" over most parts of the country in SON season, a downgrade from the September 2026 assessment of being above normal nationwide.[1] (PMD, 2 Sep) Main risk to Pakistan from El Nino is both heightened risk of flooding in the northern regions, not only from rains but from glacial melt (linked to flooding across Gilgit-Baltistan last month) but the heatwaves over the summer proved to be not as damaging as earlier feared (The News, 26 Aug).

Sri Lanka's meteorological department says the country is feeling the effects of El Nino "earlier and more intensely" than others, with some key farming areas recording rainfall deficits of 85% to 100% below long-term averages. The dry spell is also hitting a major tourist attraction, Yala National Park, prompting closures. Sri Lanka will transition to heavier rains in in Nov to Dec, but a second major drought is expected from February onwards. (ST, 3 Sep; Reuters, 8 Sep; Reuters 8 Sep)

Figure 7. India's rainfall probabilities; Pakistan's rainfall & temperature anomalies in Sep 2026

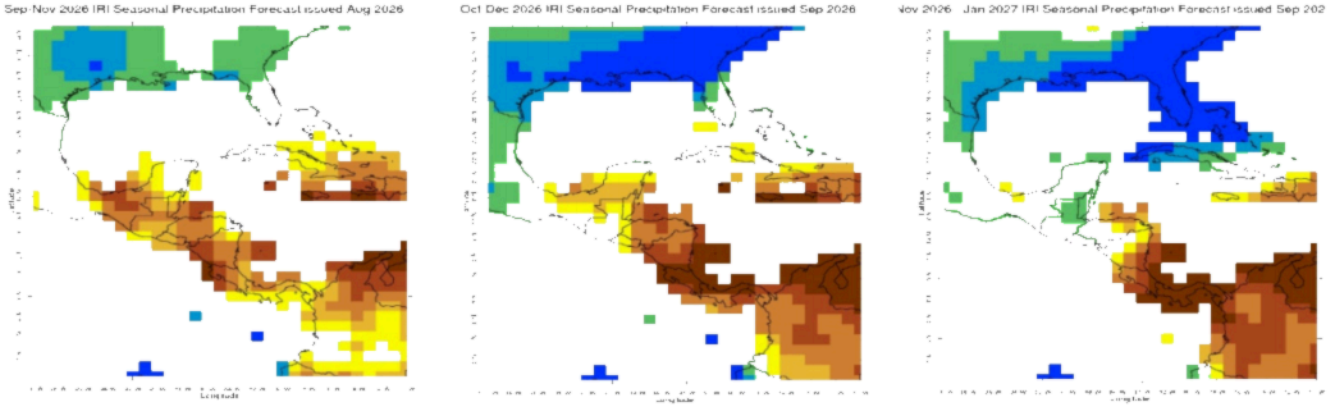


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Source: IMD, PMD, Citi Research

[1] The eastern Gilgit-Baltistan and western parts of Balochistant is still expected to see above normal temperatures in Sep-Nov (SON) season.

CENTRAL AMERICA: IRI Columbia forecast for September envision more intense rainfall shortalls in Central America south of Guatemala down to Panama heading towards Oct-Dec (OND) season than earlier forecast. Severe drought has been reported in Central America's Dry Corridor impacting maize and bean harvests, prompting national emergencies in Honduras, El Salvador and Panama. Honduras has put nearly 80% of its territory under drought alert since August (Tico Times, 7 Sep), Honduras saw its driest August since 1971 with 55% below normal rainfall (Canal 12 ElSalv video, 6 Sep) while Panama implemented this year's first Canal transport restrictions in September, warning that the 2026-27 El Niño could prove more persistent than previous (see Latam Econ & Strategy Daily, 4 Sep), as well as facing pressure on electricity sector due to reduced hydro power, with adverse impact on fiscal/external accounts (Latam Econ & Strategy Daily, 1 Sep). Meanwhile, Mexico seems less affected, with projected rainfall deficiency in Southwest Mexico being more benign than previously forecast, before shifting to above- normal rainfall by Nov-Jan (NDJ), according to IRI's September assessment.

Figure 8. Central America – Rainfall tercile summary prediction based on US NOAA's Multi-Model Ensemble Project - covering 3-month forecasts from Sep-Nov (SON; left) and updated Oct-Dec (OND) 2026 and Nov-Jan (NDJ) 2026-27



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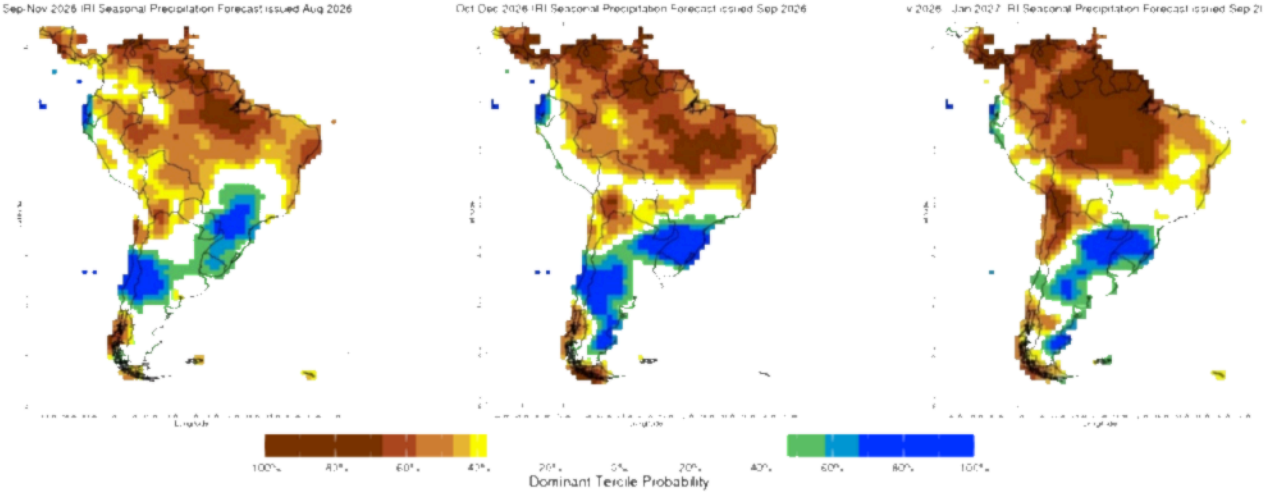
Source: IRI Columbia University (model predictions for Sep-Nov is as of 15 Aug 2026, while predictions for Oct-Dec and Nov-Jan are as of 15 Sep 2026), Citi Research

SOUTH AMERICA: The IRI Columbia University maps for South America show rainfall deficiency being most pronounced in the north/northeastern part of South America, covering Venezuela and northern areas of Colombia and northwestern to central parts of Brazil in the current Sep-Nov (SON) season (Figure 9, left chart). Venezuela faces electricity disruption as protracted drought impacts hydropower, with the government already seeking to conserve water and power (Americas Quarterly, 19 Aug). Colombia is also expected to face risk of deficient rainfall, but according to IRI Columbia forecasts, this is expected to intensify later this year to early next year (most pronounced in Dec-Feb [DJF] season. For now, Colombia's Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) notes some areas in Colombia are still receiving above average rainfall going into October (Noticias RN , 12 Sep)

Overall, unlike Central America dry corridor, South American harvests are still seen as largely favourable, though an earthquake has strained Colombia's grain sector while Peru is facing imminent flood threats. (JRC EU Commission, 3 Sep). In fact, on Sep 1st, Peru declared a 60-day state of emergency on 40% of the country for flooding and landslides. (WMO, 3 Sep; AA, 1 Sep), and Ecuador is also on guard for potential flooding risk. Brazil's Instituto Nacional de Meteorologia's (INMET) latest forecast for SON 2026 season anticipates above normal rainfall in the Southern

region below normal rainfall range in in the Northern and Northeastern region. Below normal rainfall and high temperature is expected to intensify the water deficit, with potential impact on rainfed crops and pastures and the planting of 2026/27 crop, although it will favor harvesting and drying of grains and cotton in the North and Northeast. (El Nino 2026-27 Panel- Monthly Bulletin No 3, 11 Sep). Meanwhile, El Nino risks could continue to pose disruption to mining in Chile (Bloomberg, 4 Sep).

Figure 9. South America – Rainfall tercile summary prediction based on US NOAA's Multi-Model Ensemble Project - covering 3-month forecasts from Sep-Nov (SON; left) and updated Oct-Dec (OND) 2026 and Nov-Jan (NDJ) 2026-27



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Source: IRI Columbia University (model predictions for Sep-Nov is as of 15 Aug 2026, while predictions for Oct-Dec and Nov-Jan are as of 15 Sep 2026) , Citi Research

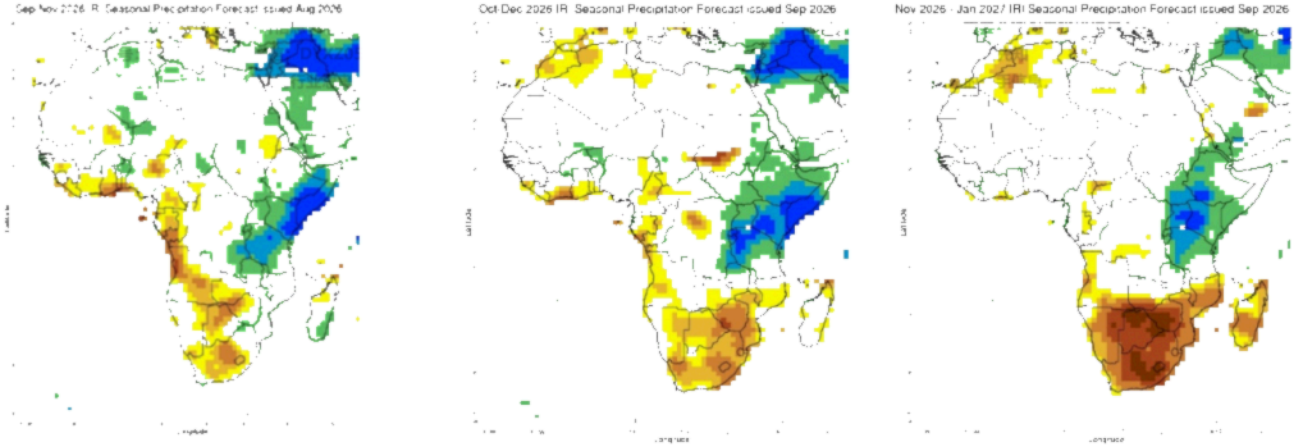
SUB-SAHARAN AFRICA: Southern Africa's 2026 aggregate cereal production is reportedly nearly 10% above the five-year average. However, ahead of the upcoming summer planting from October to December 2026, severe climate risks are emerging. The Copernicus rainfall forecast predicts widespread drier-than-average conditions across South Africa, Namibia, Botswana, Zimbabwe, Mozambique, and Madagascar, threatening the region's next crop cycle. (JRC EU Commission, 3 Sep). IRI Columbia's September assessment shows greater area of Southern Africa facing deficient rainfall in OND season versus last month's assessment (see Fig 10 of our August EM El Niño Monthly Tracker).

Meanwhile, East Africa is expected to transition from dry conditions to increasing flooding risk in the October-December (OND) rainy season, potentially amplified by a positive Indian dipole (ReliefWeb, 14 Aug). IRI Columbia assessment in OND season (Figure 10, center chart) is consistent with earlier warnings from the World Meteorological Organization of an increased likelihood of wetter than normal conditions, with a 90% chance of enhanced rainfall over southern Ethiopia, central to southern Somalia, and north-eastern Kenya, and a high chance of above normal rainfall in central parts of Kenya, and western Tanzania. The above-average rainfall is expected to improve pasture and water availability for livestock, but excessive rainfall substantially raises flood risk, which could lead to crop destruction (WMO, 19 Aug).

In West and Central Africa, the first-season maize harvest shows close-to-average production, but mid-August crop conditions remain poor across Nigeria's Middle Belt, and September rainfall forecasts predict mostly average conditions, but drier-

than-average weather threatens southern coasts and central Nigeria. JRC EU Commission) Overall IRI maps a more normal rainfall pattern are more erratic in western and central Africa and appear to have lower direct El Nino risk exposure as Southern and Eastern coast of Africa.

Figure 10. Africa – Rainfall tercile summary prediction based on US NOAA's Multi-Model Ensemble Project - covering 3-month forecasts from Sep-Nov (SON; left) and updated forecasts for Oct-Dec (OND) 2026 and Nov-Jan (NDJ) 2026-27



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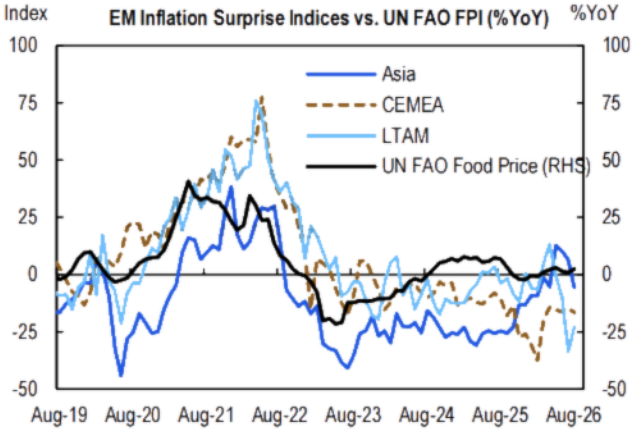
Source: IRI Columbia University (model predictions for Sep-Nov is as of 15 Aug 2026, while predictions for Oct-Dec and Nov-Jan are as of 15 Sep 2026) , Citi Research

Global Agri Price Developments

As we noted in our June EM Monthly, we **think the biggest economic impact of El Nino on EM comes from its effects on crop output impacting food inflation.** Using UN FAO food price index (YoY) as a benchmark for global food inflation saw broad-based increase in August (+2.5% YoY) from the revised subdued July print of 0.8%YoY in Jul-26. The rise was led by sugar (+11.3%yoy) given persistent hot and dry weather in EU and other parts of Asia, and India's policy of opening up to duty-free sugar imports (Firstpost, 22 Aug) and steady increases in international cereal prices across all grain products, affected by strong demand, weather related issues and uncertainties around Black Sea export flows, particularly damaging for wheat.

EM food inflation surprise indices (ISI) have remained relatively subdued with a negative bias (July data used for August inflation surprise index)**, especially in Latam on the back of negative surprises in its two largest economies** – Brazil (which supports our expectation of a 5th rate cut in Sep to 13.75%) and Mexico, where food inflation for both is still having benign effects. In fact, we expect Mexico will be less affected by El Niño vs other Latam countries and foresee a stable rate policy through 2027. Asia-Pac region saw some reversal of positive inflation surprises but this will likely reverse in Sep following August CPI readings amid persistent Mideast energy shock, and positive output gap effects in Korea and Taiwan (Figure 11).

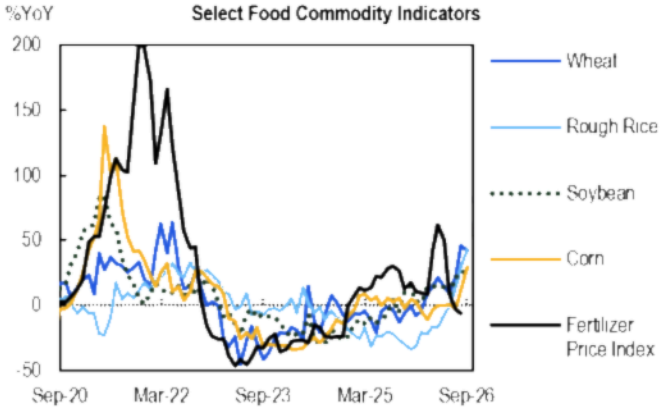
Figure 11. Annual change in UN FFPI still subdued; negative inflation surprises LTAM CEEMEA but positive in Asia



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Source: Bloomberg, Citi Research, Note: UN FFPI – FAO Food Price Index is a trade-weighted index of international prices for five commodity subgroups- cereals, vegetable oils, dairy, meat and sugar, Citi Research

Figure 12. Global Grain Prices & Bloomberg Agri Price Index – Trends in YoY Changes (as of Sep 15th)



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Source: Bloomberg, Citi Research, Note: We use the World Bank commodity fertilizer price index, which is a weighted index of fertilizer benchmarks including urea, phosphate and potassium-based ingredients

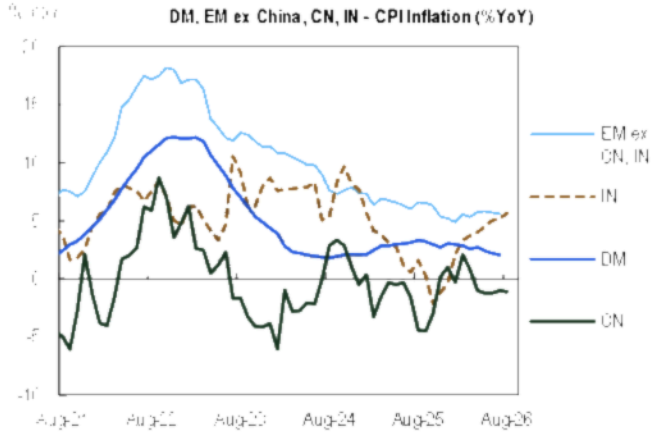
When we look over a longer period incorporating the period of the Russia-Ukraine conflict, the rise in some key grain staple prices have now exceeded 2022 highs for rice or is closely approaching this for wheat, the latter significantly disrupted by disruptions in the Black Sea. However, fertilizer prices are nowhere as high as the 2022 surge, and in fact, have decelerated sharply to small negative YoY levels in recent months, based on the World Bank Fertilizer Price Index (Figure 12) A key factor has been the decline in urea-based fertilizer prices, the most widely used fertilizer in the world, to pre-Iran conflict levels amid a surge in Chinese exports (Global Agriculture, 15 Sep). However, phosphate-based fertilizer prices (DAP and MAP) are more elevated. With urea cheap and phosphate expensive, many could decide to buy the former and not the latter. Analysis at CFR argues that reduced phosphate application over time (beyond one season) could lead to soil phosphate deficiency over time which could impact longer term agriculture yield in future growing seasons going into 2027. [2]

EM Food Inflation Monitor

We summarize food inflation trends (in YoY) terms between DM and EM, stripping out the two EM "giants". In aggregate, food inflation across EM more broadly still looks relatively stable, though though we are not yet feeling the full brunt of El Nino alongside their lagged effects. However, India stands out, with food and beverage inflation rising to a 20-month high, and its rise is even more pronounced if we exclude vegetables. Alongside other inflationary drivers (energy, core), this prompted us to move our RBI rate hike call earlier to October, with a risk of up to 75bps hike in this cycle. Breaking down by sub-region, food inflation is still most benign in CEE (-1.1% YoY in Aug) but has picked up MENA region up to July led by Egypt and Nigeria, though both (alongside Israel) saw food inflation come off in August (data not yet available for South Africa). Meanwhile, we saw a broad-based pick-up in food inflation in Latam led by Chile, and a more divergent trend with a smaller food inflation uptick in ASEAN led by Indonesia and Thailand,

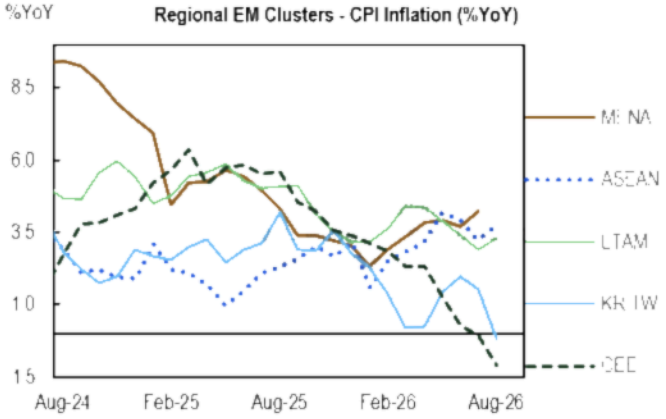
[2] Michael Werz. "Hunger Warfare and a Fertilizer Crisis Are Straining Global Food Supplies," *Council on Foreign Relations*, 8 Sep 2026. Read article here

Figure 13. DM vs. EM ex CN, CN & IN- Food Inflation (%YoY)



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Source: Haver, CEIC, Citi Research

Figure 14. EM ex CN Food Inflation – By Regional Groupings



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Source: Haver, CEIC, Citi Research

We try to capture food inflation momentum, eliminating seasonal noise, by calculating a seasonal adjusted annualized rate, which we think is more responsive to emerging food price shocks. To make some relative comparison across countries, we calculate latest SAAR relative to its three-year rolling historical z-score (we think a 36-month window is sufficient to capture one El Nino cycle in 2023-24) and present the results in Figure 15. Food inflation momentum across EM is now approaching closer to recent three-year historical average (-0.1x stdev) , with food inflation momentum being more pronounced across EM Asia (led by Thailand, Pakistan and Sri Lanka), pockets in MEA (Nigeria, Saudi) and Chile, but is still looking historically very benign in Mexico, CEE and Israel.

Figure 15. Food Inflation – Z-Score of 3M/3M Seasonally Adjusted Annualized Rate (SAAR)

Country	t-5	t-4	t-3	t-2	t-1	latest	Country	t-5	t-4	t-3	t-2	t-1	latest
ARG	-0.7	-0.7	-0.7	-0.6	-0.5	-0.5	MEX	1.5	2.4	1.9	-0.8	-2.8	-3.2
BRA	-0.5	0.4	1.5	1.7	1.2	0.0	MYS	-0.8	-1.2	-1.3	-0.6	-0.1	0.5
CHL	-0.2	-0.1	-0.8	-0.8	-0.8	0.9	NGA	-1.8	-0.3	0.8	1.4	1.2	1.0
CHN	-0.3	-0.8	-0.6	-0.1	0.3	0.3	PAK	-0.6	-0.5	-0.2	0.7	1.4	1.9
COL	0.9	1.8	1.7	1.5	0.8	0.8	PER	1.4	2.2	1.7	0.4	-0.6	-0.5
CZE	0.1	-0.6	-0.6	-1.0	-0.6	-1.2	PHL	0.6	1.7	2.1	2.0	0.5	-0.6
EGY	-0.7	-0.5	-0.3	-0.3	-0.3	-0.7	POL	-0.3	-0.4	-1.6	-2.4	-2.7	-2.1
HUN	-1.6	-1.4	-1.0	-0.3	-0.8	-1.2	ROU	-0.1	-0.3	-0.4	-0.5	-0.6	-1.0
IDN	-1.1	0.2	0.3	0.5	-0.1	0.0	SAU	-1.9	-0.6	1.1	2.2	2.1	1.6
IND	1.0	0.7	0.3	-0.1	-0.1	0.1	SGP	-0.9	-1.0	-0.8	0.1	0.7	1.1
ISR	-1.1	-0.8	-0.3	-0.5	-1.5	-2.2	THA	-0.3	-0.7	0.2	1.2	1.6	1.9
KAZ	0.7	0.7	0.3	0.0	-0.4	-0.6	TUR	-0.4	-0.1	-0.4	-0.5	-0.7	-0.7
KOR	-1.8	-2.5	-1.9	-0.6	0.4	0.3	TWN	-1.6	-1.7	-0.7	0.3	1.2	0.8
LKA	-0.2	-0.1	0.3	0.9	1.0	1.4	ZAF	-0.9	-1.3	-1.5	-1.3	-0.8	-0.7

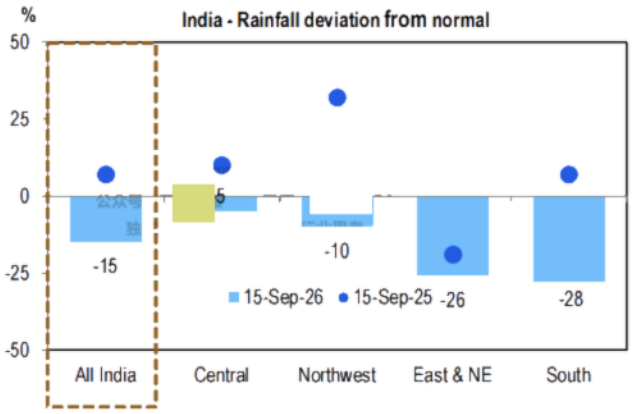
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Source: Haver, Citi Research

Indian Monsoon and Global Reservoi

We use India's IMD data to track rainfall deviations and find that
estimated to be about 15% below normal as of mid-September,
the 13% deficiency a month ago, but not as bad as the 21% rainfa
in July. We continue to see bigger shortfalls in South and East/N
(Figure 16). Compared to five-year averages and recent years, Inc
is clearly more pronounced in the current FY26/27 (Figure 17).

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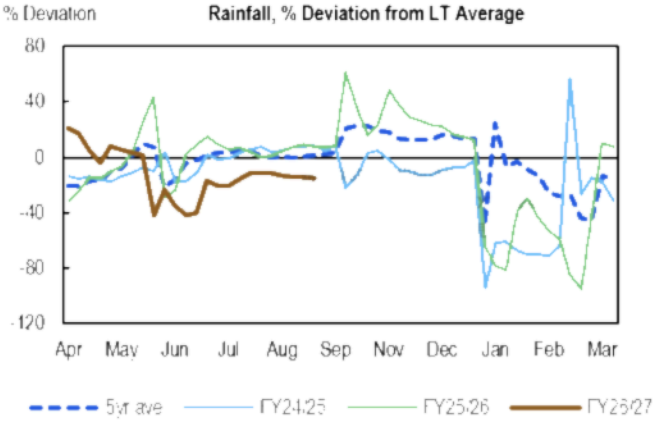
Figure 16. India – Comparing rainfall by region; rises to about 15% deficiency as of mid Sep



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Source: CEIC, IMD, Citi Research

Figure 17. India – Rainfall deviation vs. longer-term average, latest (as of 15 Sep) vs. recent years and five-year average

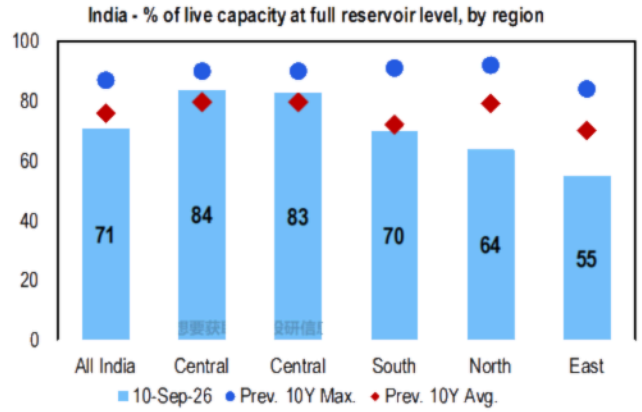


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Source: CEIC, IMD, Citi Research

We compare average reservoir levels in select EM economies vs. its history in India and Colombia, and more incomplete historical data in Brazil, South Africa & Pakistan (Figure 18 to Figure 21). India is continuing to show deficient rainfall and below-average reservoir levels, which appear to be worsening relative to seasonal history in mid-September (Figure 19). So far, we don't see that pattern emerging yet in Colombia, where reservoir levels have even moved slightly above seasonal average (Figure 20)

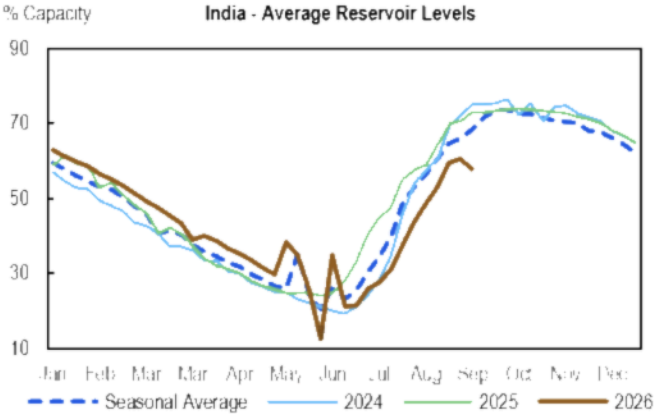
Figure 18. India – Comparing average reservoir levels up to Sep 10th vs. recent history and seasonal average



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Source: CEIC, CWC, Citi Research

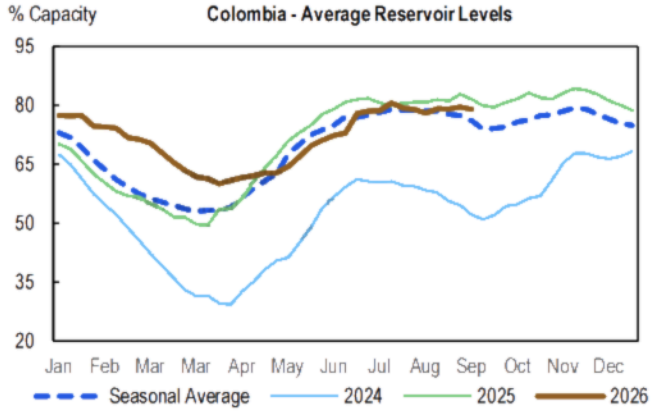
Figure 19. India – Comparing average reservoir levels up to September 15 vs. recent history and seasonal average



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Source: Globalreservoir.org citing CWC, cover 88% of India's reservoirs

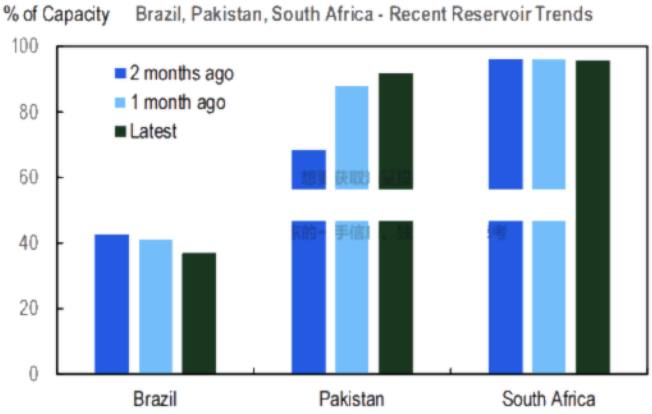
Figure 20. Colombia – Comparing average reservoir levels up to Sep 15th vs. recent history and seasonal average



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Source: Globalreservoir.org citing XM, covering about 70% of Colombia's reservoirs

Figure 21. Brazil, South Africa and Pakistan – Recent trends in reservoir levels



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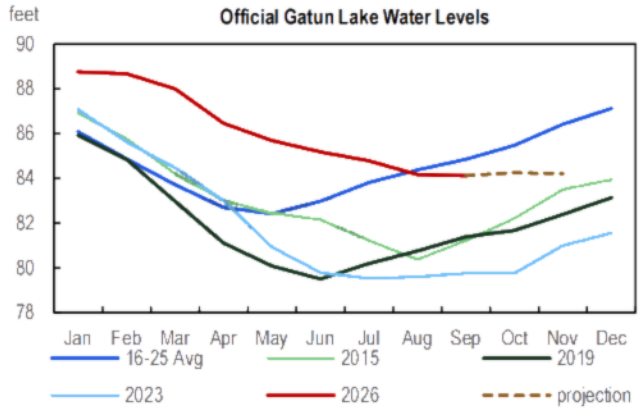
Source: Globalreservoir.org

Tracking Panama Canal and Peruvian anchoveta risks

As mentioned earlier, the Panama Canal Authority began implementing its first transit restrictions this year in September, starting with restricting canal crossings from 36 to 34 starting in Sep 4th, with a further reduction to 32 from September 15. As water levels in Gatun Lake are forecast to continue to be on a downward trajectory, below seasonal averages (Figure 22) Panama Canal Authority has not ruled out further cuts, with the new Panama Canal head raising the possibility of further reductions in February or March to possibly around 29 crossings a day (Fashion Network, 13 Sep). This is still above the trough of 22 crossings a day during the height of the 2023-24 droughts, when water levels were even far lower than where we are now. Nonetheless, we think the combination of below-seasonal reservoir recovery and continued El Niño risks suggests water availability is once again becoming an important downside risk for Panama's fiscal and external outlook.

Peru's Coastal El Nino indices continue to worsen in August (Figure 23), which will likely mean protracted extension of the anchovy fishing ban, which started on June 11. After disrupting the first fishing season (April to August), this is expected to extend to the second fishing season (November to January), coinciding with the peak of El Nino pressure, leading to a loss of output and employment. On August 24, **Peru's placed the fishing and aquaculture sectors under a 120-day emergency, highlighting that El Niño is no longer being treated as a transitory weather shock, but as a material threat.** The emergency declaration follows mounting evidence that warmer ocean temperatures are altering the distribution and biological condition of key species, particularly anchoveta, the backbone of Peru's fishmeal and fish-oil exports, forcing authorities to maintain restrictive management measures and intensify scientific monitoring (Latam Econ & Strategy Daily, 24 Aug).

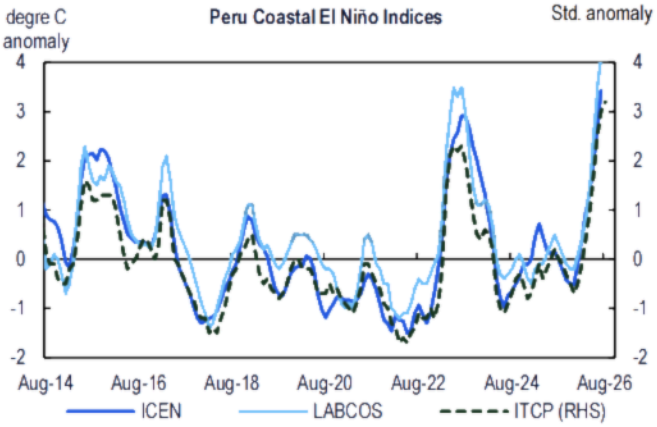
Figure 22. Panama Canal – Tracking Gatun Lake water levels



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Source: Panama Canal Authority (ETVMS); Note: *Up to Nov 15

Figure 23. Peru – Coastal El Nino Indices

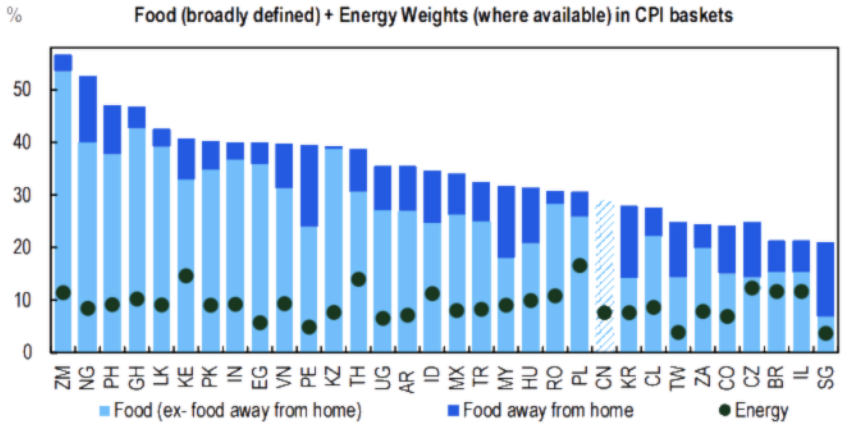


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Source: Ministerio del Ambiente, Instituto del Mar del Peru IIMARPE), Citi Research

More Structural Charts

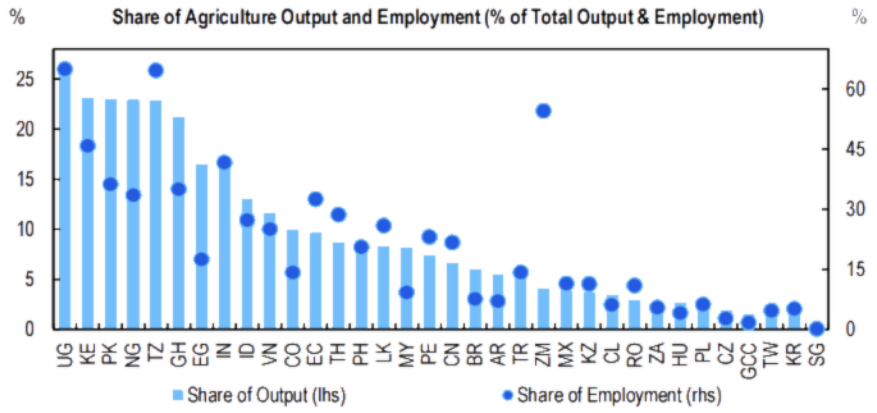
Figure 24. EM – Comparing Food weights (and energy) in the CPI basket



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Source: CEIC, Haver, Citi Research, Note: We assume 98% of restaurant & accommodation is for restaurants in Zambia, Nigeria, Uganda and Ghana, similar to Egypt, while we assume similar share for Kazakhstan

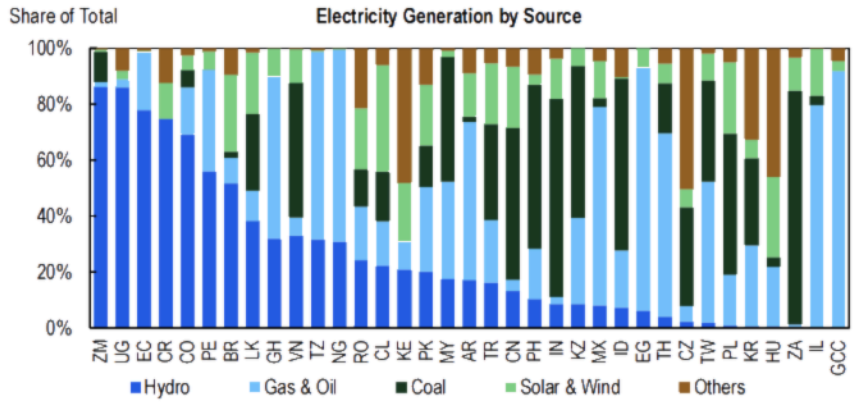
Figure 25. EM – Share of Agriculture, Forestry & Fishery to Total Output and Employment (2025)



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Source: CEIC, Haver, Citi Research

Figure 26. EM – Electricity generation by source, hydroelectric vs. others



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Source: Ember, Citi Research

Commodities Research Views: Super El Niño and Geopolitical Supply Risks Reinforce Our Bullish Ags View and Raise Food Inflation Risks

Arkady Gevorkyan
Max Layton
Anthony Yuen
Eric Lee

A strengthening Super El Niño remains our highest-conviction agricultural risk heading into late 2026 and early 2027. Based on our new Production-at-Risk (PAR) framework, current market pricing appears to reflect only a portion of the potential downside risks to global agricultural production. The largest weather-exposed commodities remain palm oil, robusta coffee, rice, sugar, cocoa, and Australian wheat, while risks are concentrated geographically across Australia, India, Southeast Asia, and parts of Brazil. Importantly, production revisions since March 2026 remain significantly smaller than our estimated production-at-risk metrics, suggesting additional downside risks to global supply estimates if El Niño continues to strengthen. While Argentina is likely to benefit from improved rainfall, we believe risks to global agricultural production remain skewed to the upside for prices.

Figure 27. Food prices are rising, with traded agricultural prices up ytd



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Source: Citi Research, Bloomberg

Figure 28. Agricultural production at-risk on the back of strong El Niño

Commodity	Revision Since Mar-26*	Revision Since Jul-26**	Global Production at-Risk***	Risk Level
Palm Oil	▼ -2.5%	▼ -0.8%	-5% to -8%	Very High
Rice	▼ -1.5%	▼ -0.3%	-2% to -4%	Very High
Robusta Coffee	▼ -4.0%	▼ -1.5%	-3% to -6%	Very High
Arabica Coffee	▼ -1.5%	▼ -0.4%	-1% to -3%	High
Sugar	▼ -2.0%	▼ -0.7%	-2% to -5%	Very High
Cocoa	▼ -1.0%	▼ -0.2%	-1% to -4%	High
Wheat	▼ -1.2%	▼ -0.1%	-1% to -3%	High
Cotton	▼ -1.0%	▼ -0.2%	-1% to -3%	High
Corn	▼ -0.5%	0	-0.5% to -2.0%	Medium
Canola	▼ -0.4%	0	-0.5% to -2.0%	Medium
Soybeans	▲ +0.3%	▲ +0.1%	-1% to +2%	Neutral/Mixed
Barley	▼ -0.8%	▼ -0.1%	-1% to -2%	Medium

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* Development of El Niño was first announced in March. Revisions in global production are compared versus previous estimates by official agencies

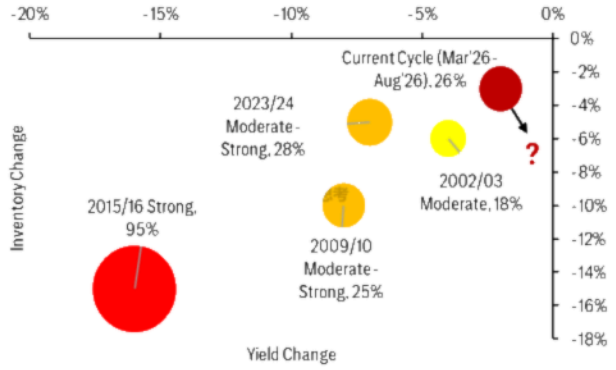
** Revisions since last month

*** Global Production-at-Risk is the sum of (Country Production Share × Yield Beta to ENSO × ENSO Probability × Stage Sensitivity × Crop Calendar Severity). Estimations are based on historical moderate to strong El Nino episodes.

Source: Citi Research, USDA, NOAA, ICO, ISO, ICCO, Expana

The historical evidence suggests that inventory conditions, rather than yield losses alone, have been the primary determinant of price performance during El Niño episodes. We extend our Production at-risk framework presented in the Global Commodities - Super El Niño and Geopolitical Supply Risks Reinforce Our Bullish Ags View and Raise Food Inflation Risks below in Figures 29-32. While sugar and robusta coffee have consistently exhibited the greatest production sensitivity to El Niño-related weather disruptions, the largest rallies have occurred when adverse weather coincided with already depleted inventories. Cocoa's exceptional 2023/24 rally illustrates this dynamic clearly, as severe West African crop losses were amplified by a roughly 30% collapse in inventories, triggering an unprecedented price response. **Looking at the current cycle, sugar and robusta coffee appear most vulnerable, combining elevated weather exposure with relatively thin inventory cushions, while cocoa enters this El Niño event with a more comfortable stock position than in 2023/24.** Overall, history suggests that investors should focus less on headline weather forecasts and more on whether inventory buffers are sufficient to absorb potential production shortfalls, as this has proven to be the key driver of price volatility across the soft commodities complex (please see Global Commodities - ICE Softs Outlook: Weather Risks Intensify Across Softs, with Sugar Remaining Our Highest-Conviction Bullish View).

Figure 29. Current El Niño Cycle vs Historical Episodes: Sugar is exposed the most to El Niño while yields and inventories are yet to decline*, **



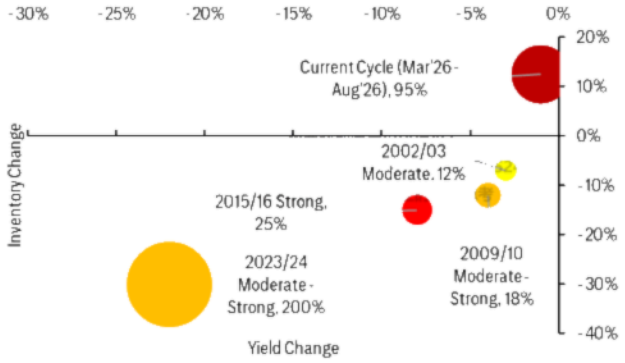
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*Size of the bubble represents the previous price performance of each commodity

** Inventory, yield and price changes are estimated for the period between the moment El Niño officially announced start and end date

Source: Citi Research, Expana, Bloomberg

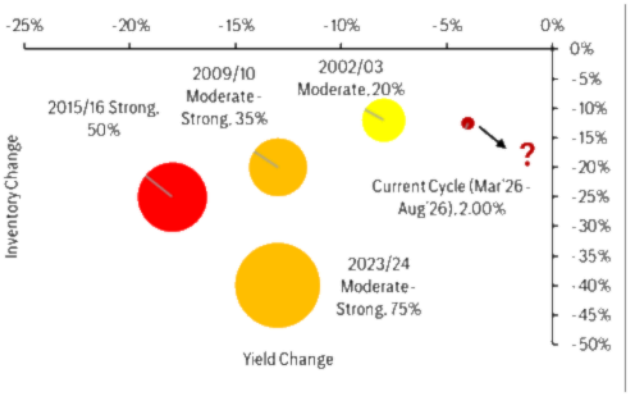
Figure 30. Current El Niño Cycle vs Historical Episodes: Cocoa inventory levels have been improving, while price appreciated significantly



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Source: Citi Research, Expana, Bloomberg

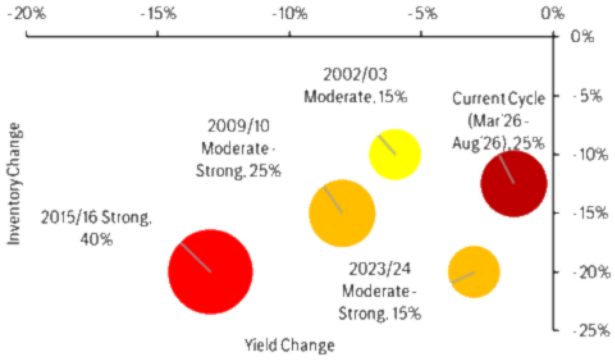
Figure 31. Current El Niño Cycle vs Historical Episodes: Robusta coffee could represent a good opportunity as prices have not appreciated yet



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Source: Citi Research, Expana, Bloomberg

Figure 32. Current El Niño Cycle vs Historical Episodes: Arabica coffee – Inventories are extremely low, while production is set to improve on the back of higher prices



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Source: Citi Research, Expana, Bloomberg