

## The El Nino Risk Premium

### In a nutshell:

- The **current El Nino cycle is expected to last till at least April 2024**. Indonesia, Malaysia and Philippines often see sharper declines in precipitations whereas Thailand and Vietnam experience higher temperatures.
- The El Nino impact on agricultural yields is understandably differentiated. Palm oil fruit yields tend to decline on heat stress while the impact on **rice yields are dependent on crop variants and growing methods** with irrigation providing some buffer against adverse weather conditions.
- On **prices, palm oil prices tend to rise** during El-Nino seasons amid the constrained supplies and may consequently assist the MYR and IDR as price effects often outweigh the decline in volume. That said, **food inflation** remains a key concern in EM-Asia given the large weights in the CPI basket.
- On growth, aside from the dent to agricultural output, **adverse industrial sector impact may stem from hydropower concentration risks** which puts the likes of **Vietnam vulnerable to power outages which were already seen in mid-2023**.
- Furthermore, the current backdrop of global warming has also amplified the impact of El Nino with incipient risks to inflation as hot weather this year has already delayed rice planting season, and weak monsoon patterns threaten yields.
- All in, governments in the region will continue to be **pre-occupied by food inflation and food security concerns** during the El-Nino season with the likes of Philippines, Malaysia and Indonesia being relatively more vulnerable.

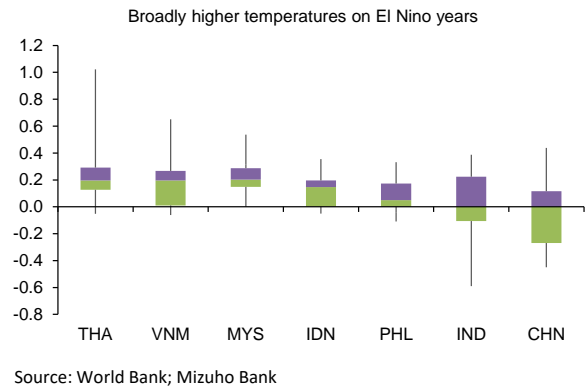
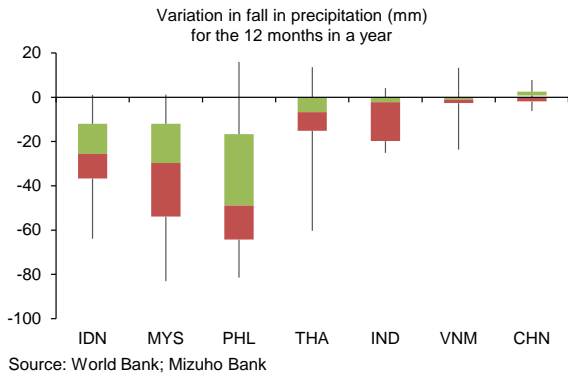
### Countries, Climate and Crops

While **El-Nino may strike fears across South East Asia**, the region being large (~4.5 million square kilometres) with a broad latitudinal expanse implies that the **ensuing effects on various countries in the region have been differentiated and subject to locational factors**. The South East Asia region lies between the continental influence of the rest of Asia to the north and the more oceanic influence of the Indian and Pacific Oceans to the south and the east. Broadly speaking, continental Southeast Asia (comprising the likes of Thailand and Vietnam) are characterised by more seasonal climates influenced by the monsoon system of winds, whereas the ‘maritime continent’ (comprising Malaysia, Singapore, Indonesia and the Philippines) have more uniformly humid equatorial climate<sup>1</sup>.

El Nino is a naturally-occurring climate phenomenon caused by the warming of sea surface temperatures in the Pacific Ocean and can be classified by the intensity of the phenomenon. El Nino alters rainfall and surface wind patterns, and **Southeast Asia typically see reduced rainfall and higher temperatures in El Nino years**. **Indonesia, Malaysia and Philippines see sharper declines in precipitations** whereas **Thailand and Vietnam experience higher temperatures**. **This current El-Nino cycle is expected to until April 2024 with a 54% chance of being a “historically strong” El-Nino**.

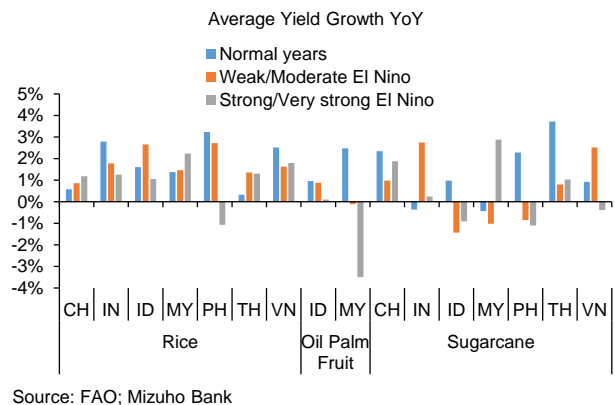
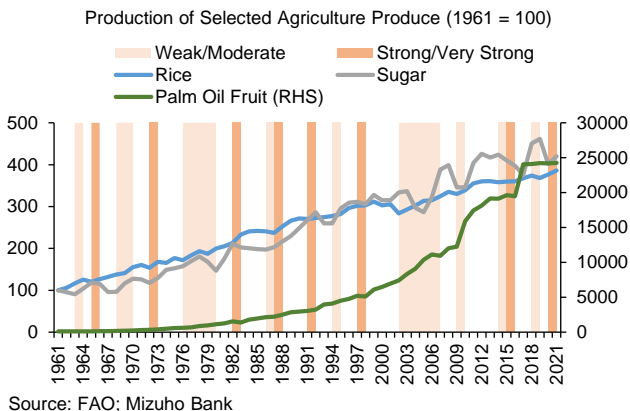
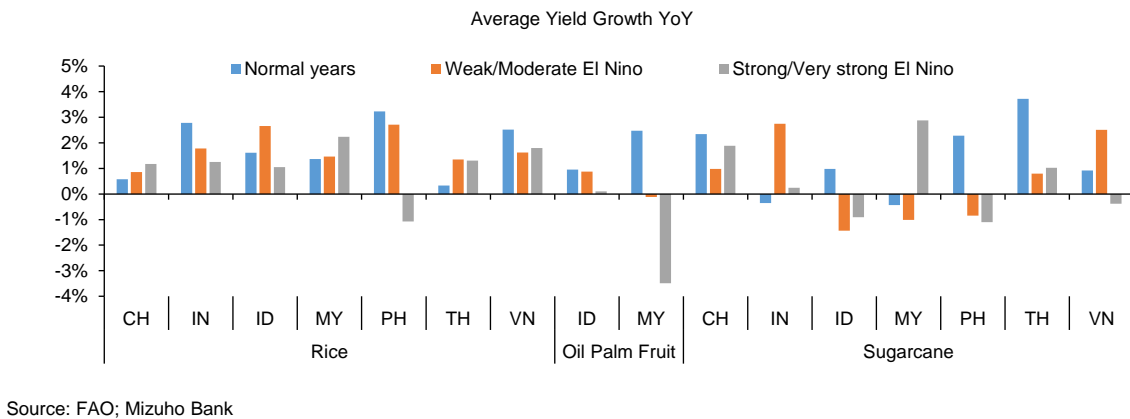
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<sup>1</sup> Goh Kim Chuan. February 2005. The Climate of Southeast Asia. <https://doi.org/10.1093/oso/9780199248025.003.0015> Pages 80-93.



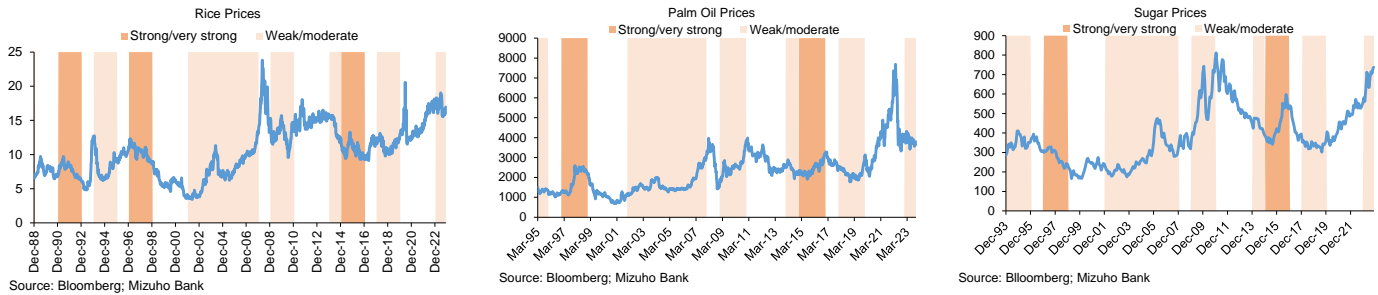
El Niño is likely to impact the agriculture sector disproportionately, since changes in temperatures and rainfall affect crops more compared to other sectors like services. The impact of El Niño however, differs across crops and countries. Lower precipitation often lead to lower crop yields, in particular **water-intensive crops like rice, oil palm fruit, sugarcane, wheat and soy beans**. Higher temperatures can also lead to heat stress as crops/trees become less productive and the lack of irrigation stemming from economic or practical infeasibility to offset these conditions.

In particular, we observe that **yields of oil palm fruit appear to be particularly vulnerable** to El Niño. This El Niño effect is, however, not as apparent for other crops such as rice which saw varying outcomes across the region. China’s rice yield appears to rise while rice yields in India, Indonesia and Philippines appear to be especially vulnerable to the effects of El Niño. There are many underlying reasons. For example, the impact of El Niño on rice yields across the region is dependent on **their crop variants as well as the proportion of rain-fed and irrigation crops**. The likes of Vietnam benefit from an overt focus on irrigation and improving the resistant varieties which allows for more crop cycles. In addition, compared to oil palm which takes years to grow and grow in a fixed plantation, rice has a cropping season and farmers in areas more vulnerable to the effects of higher temperatures and/or lower rainfall may switch to plant more weather-resistant crops such as cassava which then averts the low yielding outcomes while overall production may take a slight hit.



## Inflation – Intensity and Duration

El Nino-induced supply shocks could potentially lead to an increase to prices although **this price effect is not ubiquitously consistent as it depends on the intensity and duration of the El-Nino season.** For **palm oil, there tends to be a spike in prices on stronger El Nino seasons** and when the El Nino season is prolonged. With Indonesia and Malaysia constituting more than 80% of global oil palm fruit production, and both countries experience a fall in yields on El Nino years, the **increase in global prices is not surprising.** In 2024, oil palm prices may remain supported in 1H 2024, but unbridled price growth is unlikely given that palm oil prices remain >40% above average 2019 levels (as of Dec 2023).



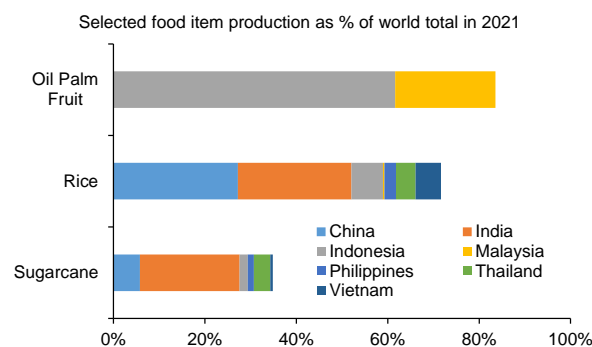
For rice and sugar, El Nino-induced price effects are less obvious, but are broadly higher when the El Nino season is prolonged or strong. Even domestically, increment of rice retail prices on El Nino years is at best, mixed.

Average Rice Retail Prices YoY

	ID (1994-2023)	IN (2012-2023)	TH (2007-2023)
Normal	11.0%	5.0%	4.0%
El Nino	13.5%	2.6%	-3.5%

\*Note that data availability is limited.

That price increases during El Nino years are mixed could have several reasons. For one, this could be attributed to that these agricultural produce have more differentiated supplies (i.e. more countries produce rice) and there appears to be less of a concentration risk. In addition, government policies could affect the price trajectory on top of just supply and demand dynamics. For example, policies such as export bans to ensure sufficient domestic supplies or decisions by countries to front load on agriculture produce before the El Nino season could drive prices higher even before the actual El Nino season. Subsequently, the lagged effects may even be a decline in prices of these commodities due to the accumulated stockpile.

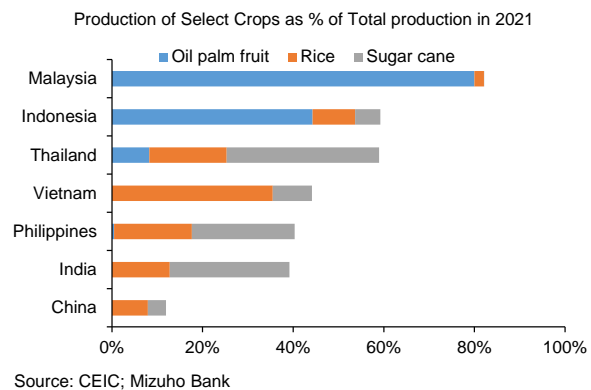
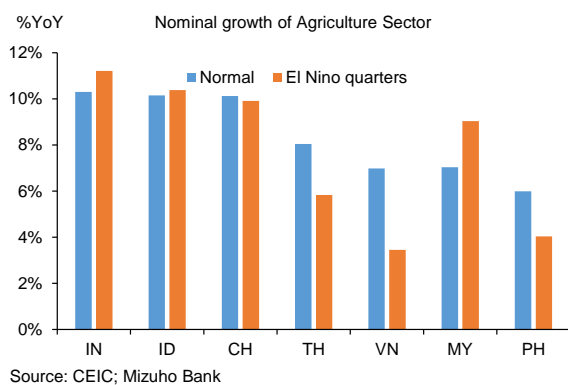


Source: FAOstat; Mizuho Bank

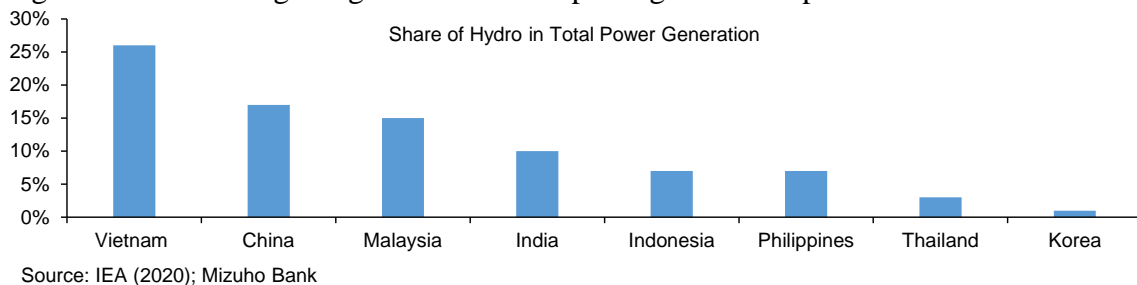
That said, El Nino-induced **supply shocks risk getting adversely amplified by climate change.** While not attributed to El Nino, the heat wave from March to May 2023 – when temperatures rose above 45 degrees Celsius in Thailand, Myanmar and Laos, and above 40 degrees Celsius in Cambodia, Vietnam and Malaysia – delayed the rice planting season. In 2023, India also recorded its weakest monsoon in five years and banned sugar exports. Thailand’s sugar output will drop by almost a fifth in the upcoming harvest due a severe drought. Even if farmers contemplate switching to other crops (e.g. cassava), supply shocks may still result as El Nino worsens the situations. **At a time when dis-inflation in EM-Asia remains insufficient, caution on El Nino effects should be duly warranted given the substantial weight of food in the CPI basket.**

## Growth – Differentiated Concentration Risks

Broadly speaking, **nominal agricultural growth tends to decrease on El Nino years**, with Thailand, Philippines and Vietnam more susceptible to effects of El Nino compared to others. This suggests that volume effects, or a significant reduction in production, outweighs the price effects for these countries. This was particularly evident during the 2014-2016 El Nino season when Thailand and Philippines were severely affected. One reason is the concentration of crops produced within each of the countries. For example, **Thailand's rice and sugar cane** production account for more than half of all agricultural production in 2021. This percentage is 44% in Vietnam and slightly less than 40% in Philippines. The high concentration of these select crops could thus see a more significant impact on nominal growth. This concentration is much smaller at ~12% and ~11% for China and Indonesia respectively. Turning to palm oil where the likes of Indonesia and Malaysia indeed bear concentration risks, the prices effects have often outweighed the decline in production volumes in most periods.

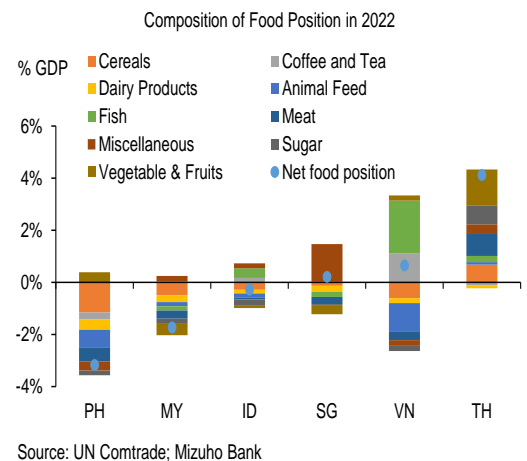


In addition, **industrial growth may not be entirely spared** as hydropower concentration also poses risk to the manufacturing sector. Vietnam continues to be particularly vulnerable from prospects of low rainfall curbing hydropower generation and re-igniting the blackout impacting industrial parks seen in mid-2023.



## Temporal Support and Structural Deficits

Indonesia and Malaysia's trade balances would likely benefit from a boost in supported palm oil prices with potential spillovers to the IDR and MYR. That said, the **trade surplus boost has tended to be temporal** as price effects fade after the El-Nino season. On the other hand, the broader concern is the structural deficits in the region pertaining to the accentuated net food import bill as well as the **associated food inflation and sufficiency** in the region. The Philippines and the PHP remains at risk given their significant net food deficit and adverse impact on their agriculture sectors. To a smaller extent, Malaysia and Indonesia has been and will continue to be pre-occupied with such concerns. The latter had **enlisted the army's assistance** in late 2023 to help plant rice while the former had to provide **subsidies as price of imported rice spiked**. All in, it may be unwelcome case of food inflation at best and food insecurity at worst.



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