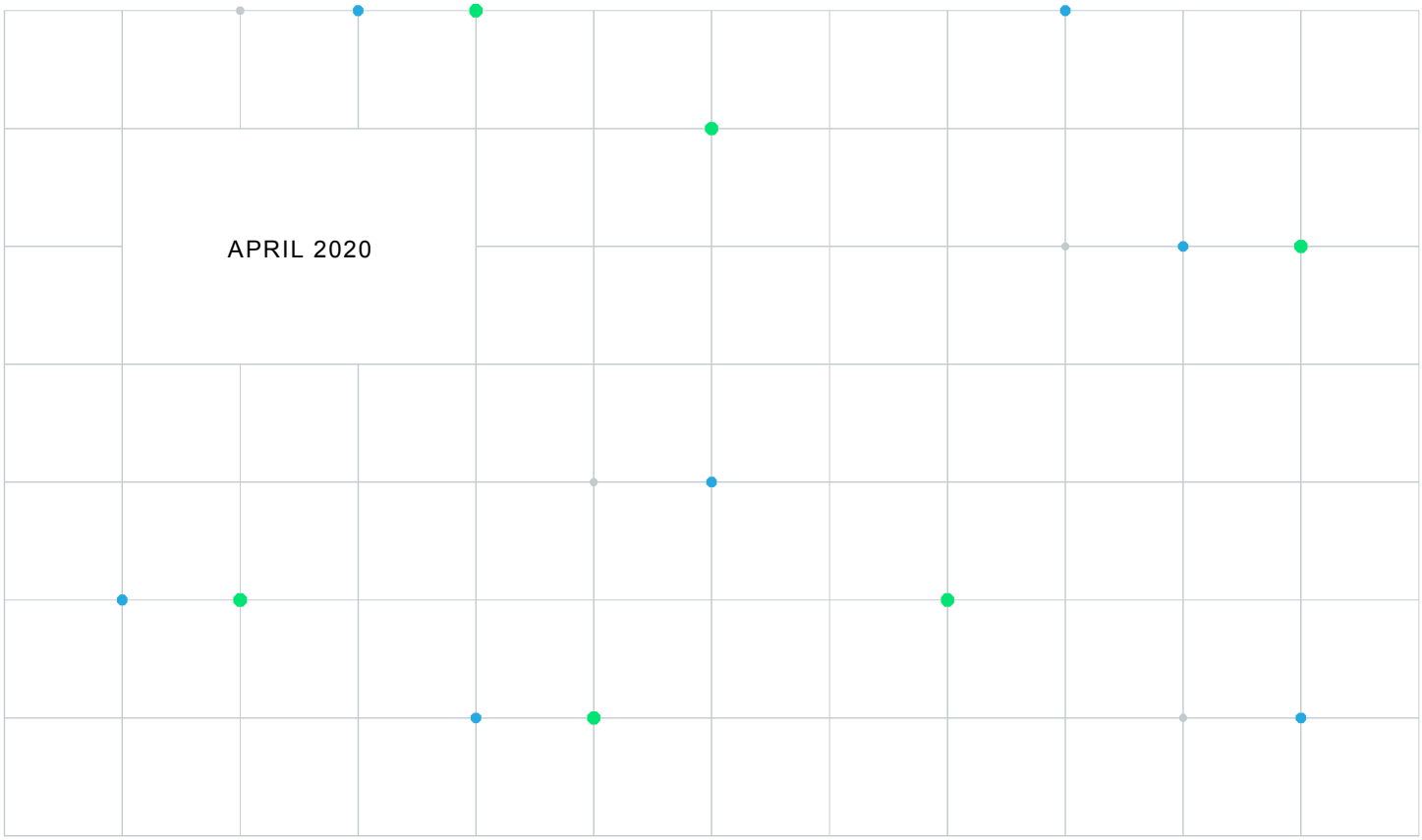
CME Group

Agricultural Products

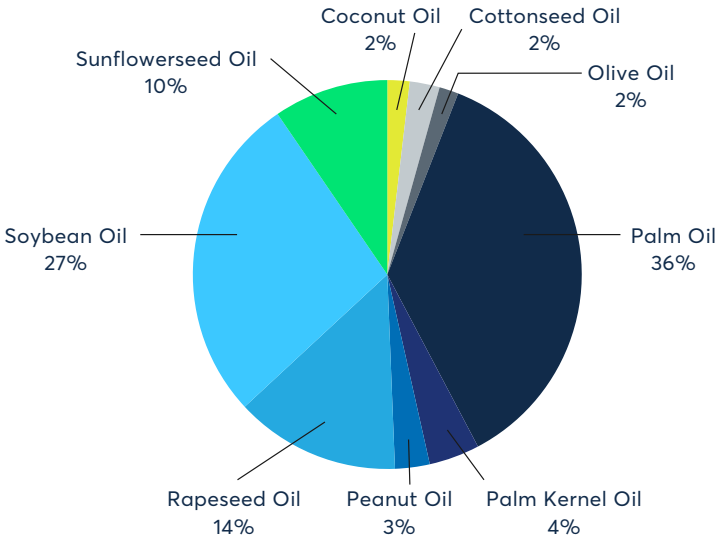
An Overview of the Edible Oil Markets: Crude Palm Oil vs Soybean Oil



Edible vegetable oils are versatile with multiple applications. They are crucial ingredients for cooking and producing processed food. They can also be found in personal care products such as soaps, fragrance and makeup. In addition, vegetable oils are used as feedstock for bio-fuel production.

Global major vegetable oil markets include coconut oil, cottonseed oil, olive oil, palm oil, palm kernel oil, peanut oil, rapeseed oil, soybean oil and sunflower oil. These together represent vegetable oil supply of more than 200 million metric tons (MMT) per annum. Among the markets, two vegetable oils, soybean oil and palm oil, account for roughly 63 percent of the total world production. In this paper we will review the fundamentals for palm oil and soybean oil, the key supply and demand drivers, and the mechanics for the corresponding futures contracts on CME Group.

Chart 1: World Major Vegetable Oil Production



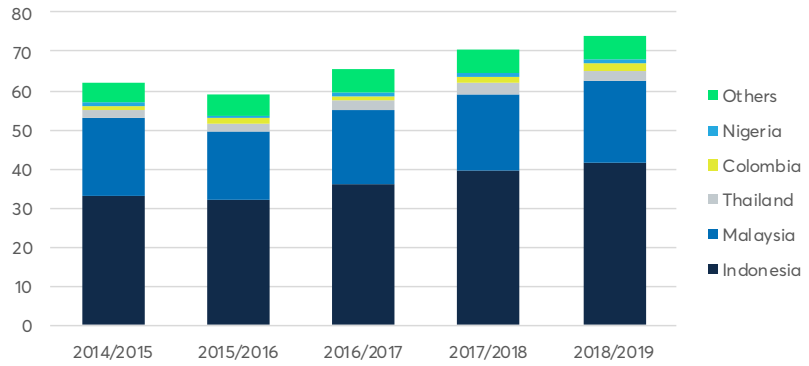
Source: USDA

Palm Oil Fundamentals

Production

In market year 2018/2019, more than 73 million metric tons (MMT) of palm oil were produced globally. The largest producer was Indonesia whose 41.5 MMT production accounted for 56.2% of world output. Malaysia came in second at 20.8 MMT (28.2%), followed by Thailand at 2.9 MMT (3.9%), Colombia at 1.6 MMT (2.2%) and Nigeria at 1 MMT (1.4%). The remainder of the producing countries accounted for 6 MMT (8.2%).

Chart 2: Palm Oil Production (million metric tons)

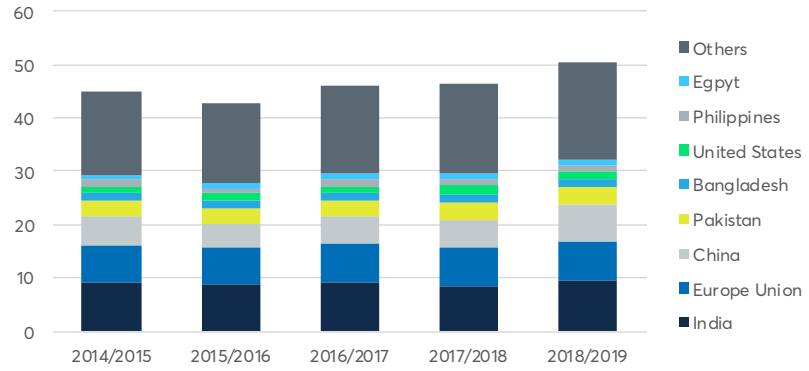


Source: USDA

Imports

In market year 2018/2019, the three largest importing countries were India, European Union and China which imported 9.7 MMT (19.3%), 7.3 MMT (14.5%) and 6.8 MMT (13.5%) respectively. India and China primarily use palm oil for cooking. In the case of the EU, a good portion of the imports was also used for bio-fuel production.

Chart 3: Palm Oil Imports (million metric tons)

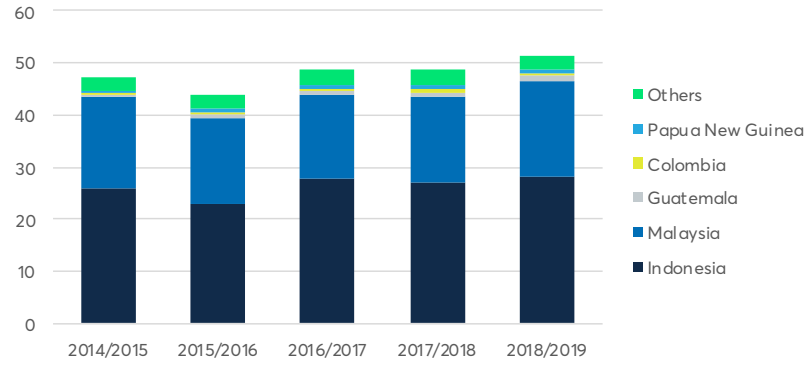


Source: USDA

Exports

Malaysia and Indonesia are the two largest exporting countries of palm oil. In market year 2018/2019, Malaysia exported 15.2 MMT (42 percent), while Indonesia exported 19.0 MMT (50 percent). The two countries accounted for about 90% of the world's palm oil exports.

Chart 4: Palm Oil Exports (million metric tons)

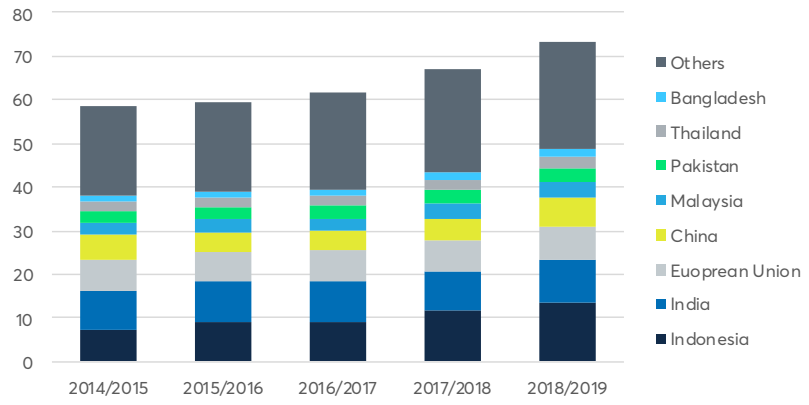


Source: USDA

Domestic Consumption

Global consumption of palm oil was at 73 million tons for market year 2018/2019. As previously noted, Indonesia and Malaysia are the main producers of palm oil, while India, EU and China are the largest importers of palm oil. As a result, these five countries are also the top consumers. In market year 2018/2019, Indonesia consumed 13.7 MMT (18.8%) followed by India's 9.8 MMT (13.4%). EU and China each consumed 7.1 MMT (9.8%) and 7 MMT (9.6%), respectively. In addition, Malaysia's consumption was 3.5 MMT (4.8%).

Chart 5: Palm Oil Domestic Consumption (million metric tons)

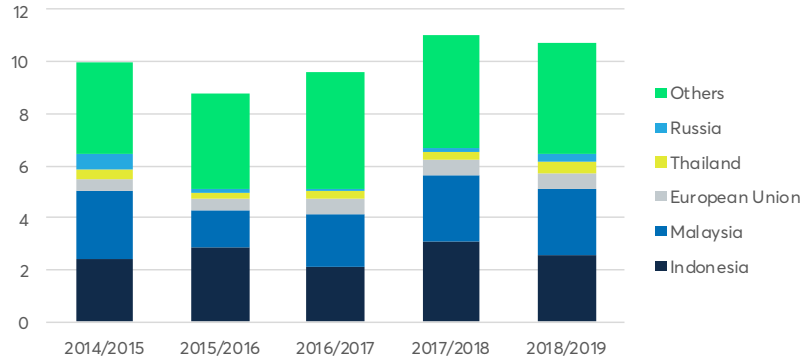


Source: USDA

Ending Stocks

Majority of the palm oil stock is held by the two main producing countries. For market year 2018/2019, Indonesia and Malaysia each had 2.58 MMT (24.1%) and 2.54 MMT (23.8%) of ending stock. European Union was the next largest holder of palm oil stocks, with 0.6 MMT (5.6%).

Chart 6: Palm Oil Ending Stocks (million metric tons)



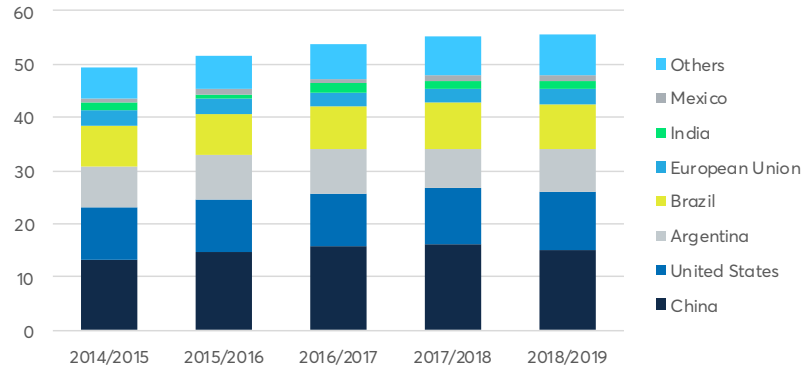
Source: USDA

Soybean Oil Fundamentals

Production

In market year 2009/2010, China overtook the United States as the largest producer of soybean oil in the world. However, during the past decade, U.S. production has remained steady over the last decade. In addition, soybean oil production has seen significant increase in other two major soybean suppliers, Brazil and Argentina. In market year 2018/2019, China's soybean oil production was 15.2 MMT (27.4%). U.S. produced 11 MMT (19.7%), followed by Brazil 8.2 MMT (14.7%) and Argentina 7.9 MMT (14.2%).

Chart 7: World Soybean Oil Production (million metric tons)

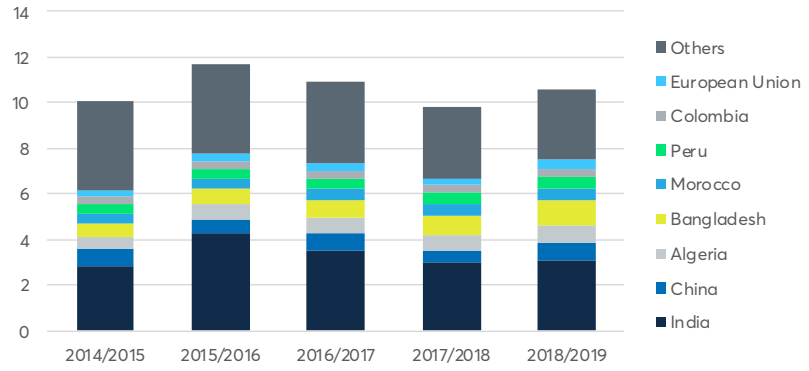


Source: USDA

Imports

China and India were traditionally the two major soybean oil importers in the world. China's imports however decreased significantly in the past decade due to its own growing production, while India's imports continued to increase. In market year 2018/2019, India was the largest importer of soybean oil, totaling 3.1 MMT (29.3%). This is followed by Bangladesh with its 1 MMT imports (9.8%). China and Algeria each imported 0.78 MMT (7.4%) and 0.76 MMT (7.2%) of soybean oil.

Chart 8: Soybean Oil Imports (million metric tons)

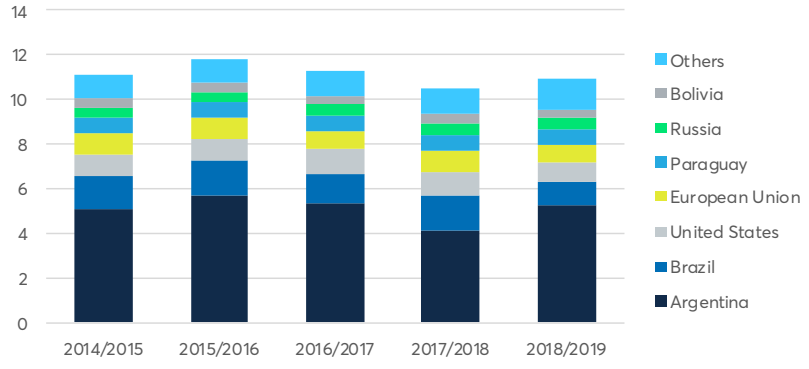


Source: USDA

Exports

South America is by far the largest exporter of soybean oil. The two largest exporters, Argentina and Brazil together accounted for about 60% of global soybean oil exports. In market year 2018/2019, Argentina exported 5.3 MMT (48%) followed by Brazil 1.1 MMT (9.8%). U.S. was the third largest exporter at 0.88 MMT (8%).

Chart 9: Soybean Oil Exports (million metric tons)

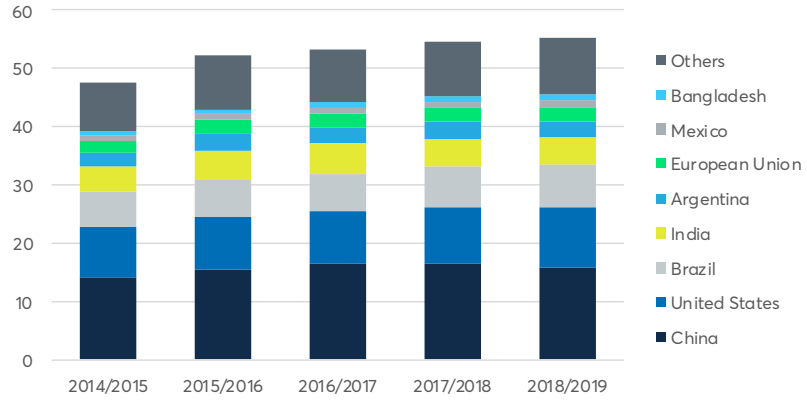


Source: USDA

Domestic Consumption

China and the U.S. are the two largest consumers of soybean oil. Between the two countries they consume almost half of the world's production. In market year 2018/2019, China used just under 16 MMT which is roughly 28.8% of world consumption. The U.S. consumed 10.4 MMT, which is about 18.8%. Brazil is the third largest consumer using almost 7.2 MMT, representing 13% of total world domestic consumption.

Chart 10: Domestic Soybean Oil Consumption (million metric tons)

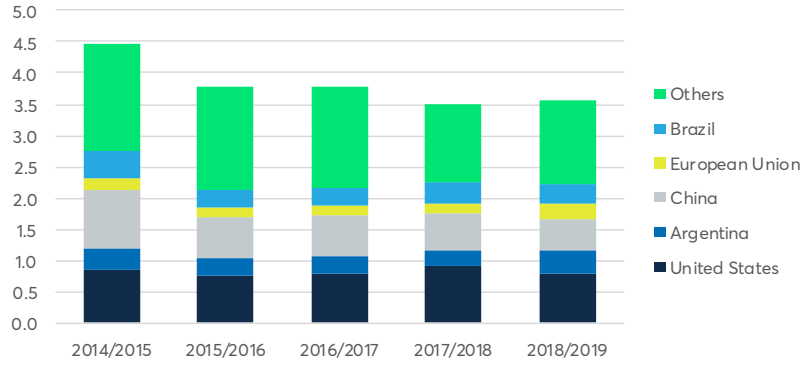


Source: USDA

Ending Stocks

World stock soybean oil holders are the major soybean oil producing countries. In market year 2018/2019, U.S. carries the largest ending stocks of 0.8 MMT (22.7%). China is the second largest stock holder with 0.5 MMT (14.1%). Argentina and Brazil each held 0.35 MMT (9.8%) and 0.3 MMT (8.4%), respectively. In addition, the EU had ending stock of 0.27 MMT (7.5%) for the year.

Chart 11: Soybean Oil Ending Stocks (million metric tons)

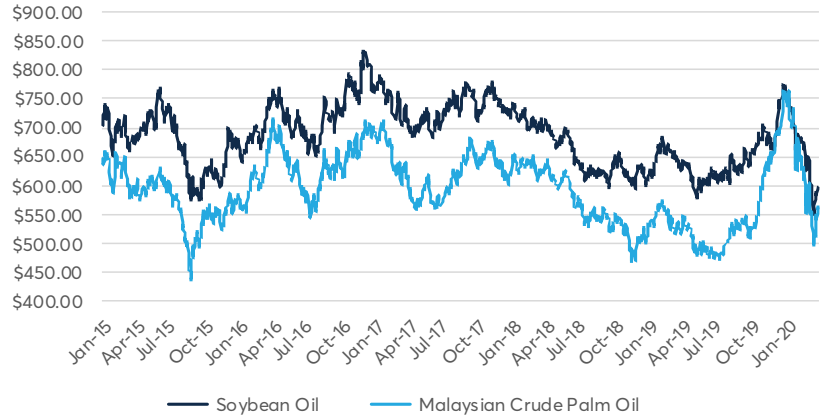


Source: USDA

Fundamental Price Drivers

Global economy plays an important role in driving demand. During the first decade of the 21st century, the fast-growing economy of emerging countries led by China had been the key driver for commodity prices including edible vegetable oils. World population and GDP grew at a rapid pace prior to the global recession of 2008-09, leading to increased demand for food and the use of both palm oil and soybean oil. In the next decade, with China's economy maturing and its growth slowing down, prices movement has been on a gradual downward trend mixed with range-bound in the past years.

Chart 12: Crude Palm Oil and Soybean Oil ($/metric ton)



Source: CME Group

Weather also plays a pivotal role in price direction. Most of the palm plantations are in rainforests, where wet weather is the norm. However, excessive rain could result in slowing of harvest and disrupt production. On the flip side to this are the periods of excessive dryness in the plantation areas that can stress the palm trees. With most growing areas near coastal areas, many can be affected by prolonged dry conditions created by El Nino weather effects.

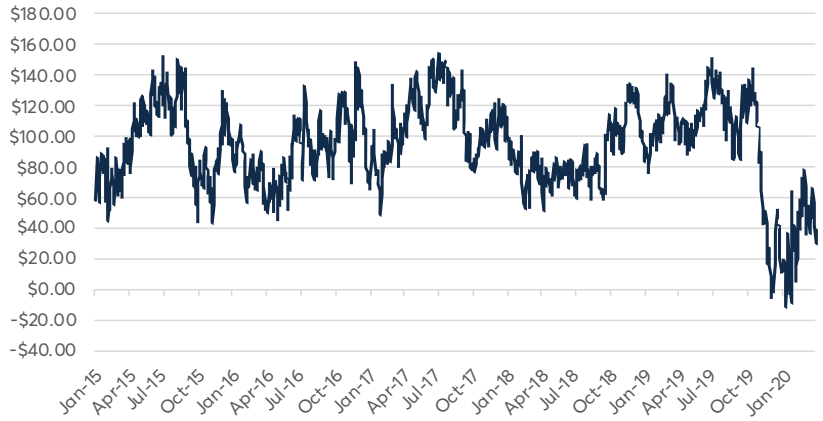
For soybean oil, besides weather, pricing economics also plays a key role in overall production. As with palm oil, soybean oil prices are primarily determined by supply and demand, with supply often dependent on competing crops such as corn, wheat, rice and cotton. Depending on the corn/soybean price ratio, producers in many growing areas can easily switch acreage between these two crops.

Finally, exchange rate exposure is also a key factor in the demand for both edible oil products. With today's commodity markets becoming more and more globally integrated, traders look for the most economical product to purchase. If the currency in a country gets too high you will see demand shift to other countries with cheaper currency. Conversely, if a country has a strong currency they will likely consume more from other countries as they can buy these products at a cheaper cost.

During the 4th quarter of 2019, the markets experienced high volatility. First was the price rally led by palm oil due to lower production and higher demand for biodiesel from the two top producers, Indonesia and Malaysia. Then in the beginning of 2020, the outbreak of the coronavirus, COVID-19, created an unprecedented shock wave causing price crash across financial and commodity markets including soybean oil and palm oil. Extreme price movements were seen in the six-month time span.

Soybean Oil – Palm Oil Price Spread

Chart 13: Soybean Oil vs Crude Palm Oil Spread ($/metric ton)



Source: CME Group

The respective oil market fundamentals and currency exchange rates drive the price spread, with soybean oil prices historically at a premium to crude palm oil. The premium, also known as Soybean Oil – Palm Oil (BOPO) spread is consistent with the lower quality characteristics of palm versus soybean oil, and most other vegetable oils as well. Palm oil typically sets a price floor. However, the spread significantly narrowed since Q4 2019 on the back of palm oil price rally. Since 2015, the spread price ranged from about negative $10 to $150 per metric ton.

Palm oil and soybean oil are the two largest vegetable oil markets accounting for 36% and 27% of world production, respectively. The supply and demand dynamics between soybean oil and palm oil can substantially vary over time, driving the spread wider or narrower based upon which oil is more scarce or abundant. USDA Supply and Demand, Oilseeds World Market and Trade reports, as well as Malaysian Palm Oil Board production and trade reports provide periodic information that traders watch as it may impact the market.

Derivative markets at CME Group

At CME Group, market participants are able to manage price risks for both soybean oil and palm oil.

CME Group's Soybean Oil futures is a long-established benchmark widely accepted by the industry. The futures contract consists of 60,000 pounds, which is equivalent to approximately 27.22 metric tons. Upon expiry, soybean oil futures contract will be settled by physical delivery of the commodity.

In 2016, CME Group further enhanced its vegetable oil product offering by launching the USD Malaysian Crude Palm Oil Calendar Futures. Contract size for the crude palm oil contract is 25 metric tons. The contract references Bursa Malaysia Derivatives' Crude Palm Oil futures contract prices and is financially settled when contract expires.

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Additional Resources:

USDA Production Reports
www.usda.gov/oce/commodity/wasde

https://www.fas.usda.gov/data/oilseeds-world-markets-and-trade

Malaysian Palm Oil Board
https://www.mpob.gov.my

Contract Specifications: USD Malaysian Crude Palm Oil vs. Soybean Oil Futures

	USD MALAYSIAN CRUDE PALM OIL CALENDAR FUTURES	SOYBEAN OIL FUTURES
Trading Unit	25 metric tons	60,000 pounds (lbs) (~ 27 metric tons)
Product Code	CME Globex: CPO CME ClearPort: CPO Clearing: CPO	CME Globex: ZL CME ClearPort: 07 Clearing: 07
Price Quotation	U.S dollars and cents per metric ton	U.S. cents per pound
Tick Size	USD $0.25 per metric ton	1/100 of a cent ($0.0001) per pound ($6.00 per contract)
Contract Months	Monthly contracts listed for 60 consecutive months	15 monthly contracts of Jan, Mar, May, Aug, Sep and 12 monthly contracts of Jul, Oct, Dec listed annually after the termination of trading in the December contract of the current year
Last Trading Day	Last business day of the contract month. However, should there be a Bursa Malaysia Derivatives Berhad business day during the contract month that follows the last CME Group business day of the contract month, then final settlement will be on the first CME Group business day of the month following the contract month.	The business day prior to the 15th calendar day of the contract month.
Final Settlement	Financially Settled. The final settlement price shall be the average of the settlement prices for the third forward month FCPO contract traded on the Bursa Malaysia Derivatives Berhad for each trading day in the contract month converted to USD and rounded to the nearest $0.25 using the Kuala Lumpur USD/ MYR Reference Rate 3:30 pm (Singapore time) MYR spot fixing.	Physical delivery
Trading Hours	CME Globex: Monday – Friday, 8:30 a.m. – 1:20 p.m. CT CME ClearPort: Sunday - Friday 5:00 p.m. - 4:00 p.m. CT with a 60-minute break each day beginning at 4:00 p.m. CT	Sunday – Friday: 7:00 p.m. – 7:45 a.m. CT and Monday – Friday: 8:30 a.m. – 1:20 p.m. CT
Exchange Rule	Listed with and subject to the rules and regulations of the CME	Listed with and subject to the rules and regulations of the CBOT

For more information on Crude Palm Oil futures, visit cmegroup.com/palm

cmegroup.com

Sources

Charts of Edible Oil, Palm Oil and Soybean Oil Production, Consumption, Import/Export and Ending Stocks: USDA

USD Malaysian Crude Palm Oil Calendar Futures are listed with and subject to the rules and regulations of CME.

Futures and swaps trading is not suitable for all investors, and involves the risk of loss. Futures and swaps are leveraged investments, and because only a percentage of a contract's value is required to trade, it is possible to lose more than the amount of money initially deposited for a futures and a swap position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles. And only a portion of those funds should be devoted to any one trade because they cannot expect to profit on every trade.

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