



How to use historical volatility of soybean prices to estimate your cashflows

Soybean market in the EU

The EU need for soybeans is largely fulfilled with import from the United States, and accounts for 75% of supply. Imports of U.S. soybeans by the European Union increased by 112% over the current market year (July-December 2018), compared to the same period in the previous year.

Currently this amount is about 14 million tonnes of soybeans per year. Soy is used as a source of protein to feed animals, including chicken, pigs and cattle, as well as for milk production.

In January 2019, the EU approved US soybeans for use in biofuelsⁱ. This will however not lead to a mass increase in soybean import – it will only allow better use of the soybean. A more substantial increase is expected with the upcoming US-China trade dealⁱⁱ.

Year-over-year consumption of soybeans increased with 11.8% compared to 2017/2018, and a similar percentage is expected for this year.

For 2019 a slight decrease in soybean prices is expected – see under an example from ABN AMROⁱⁱⁱ.

The current volatility of soybean prices is with 16% quite low. It may seem low, but when compared to the Euro Dollar volatility, it is 2-3 times higher. What is the impact of this volatility on your business?

Commodity exposure

Suppose you consume in 2020 an annual volume of the following basket of soy products:

| Commodity | Amount |
|--------------|------------------------------|
| Soybean meal | 12,000 MT |
| Soybean oil | 12,000 MT (= Lbs 26,455,440) |
| Soybeans | 12,000 MT (= Bushel 440,924) |
| Total | 36,000 MT |

Your annual cash flow based upon current market prices (prices taken 27 February 2019) would be around USD 16.6 million.

What is the risk

If you do not hedge this “floating priced” position, your cashflow@risk (=CfaR) for 2020 can be presented as the potential cash flow difference between:

- Volume * (current market prices versus simulated market prices)
- KYOS calculated the current CfaR at USD 4.7 million

| | 2nd contract | | - end of period prices - | | | | | | | | - averages - | |
|--------------------------|--------------|-------|--------------------------|-------|-------|-------|-------|-------|-------|-------|--------------|--|
| | 22-02-19 | Q1-19 | Q2-19 | Q3-19 | Q4-19 | Q1-20 | Q2-20 | Q3-20 | Q4-20 | 2019 | 2020 | |
| Wheat-CBOT (USDc/bu) | 492 | 515 | 532 | 543 | 545 | - | - | - | - | 532 | - | |
| Corn-CBOT (USDc/bu) | 385 | 389 | 393 | 390 | 400 | - | - | - | - | 392 | - | |
| Soybeans-CBOT (USDc/bu) | 923.75 | 920 | 915 | 895 | 900 | - | - | - | - | 909 | - | |
| Sugar (USDc/lb) | 13.3 | 12.85 | 12.70 | 12.80 | 13.00 | - | - | - | - | 13.00 | - | |
| Cocoa (USD/MT) | 2,288 | 2,350 | 2,370 | 2,460 | 2,475 | - | - | - | - | 2,462 | - | |
| Coffee-Arabica (USDc/lb) | 100 | 105 | 109 | 110 | 113 | - | - | - | - | 108 | - | |

ABN AMRO forecast price trend until 2019 (index)

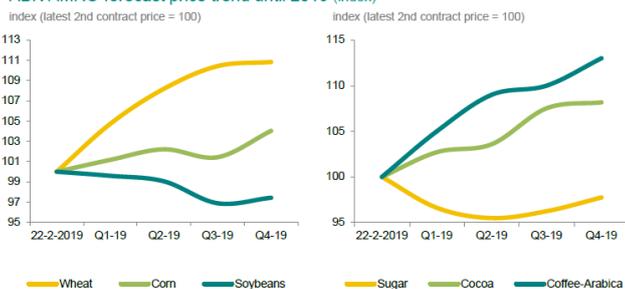


Figure 1 Price development Agri - Source ABN AMRO Feb 2019

Risk Profile: Soybean Portfolio 2019-02-25

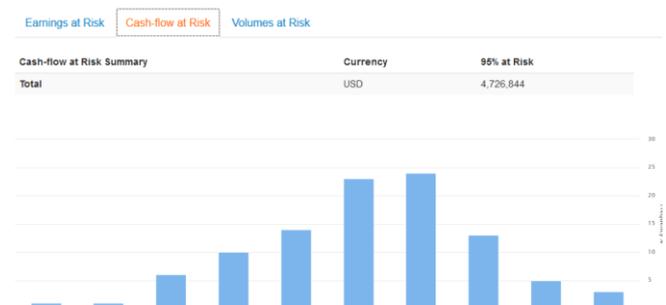


Figure 2 Distribution of cash flows - Source KYOS

Cashflow-at-Risk

For your cash flow this means that:

- With 95% certainty your cashflow will be lower than USD 21.3 million
- Be aware that USD 21.3 million is not the maximum

With this information, you are better prepared to make your hedging decisions!

Short term versus Long term

KYOS software is used globally by procurement teams to calculate short- and long-term risks.

Short term risks can be calculated using stress tests or by using Value@Risk (=VaR) calculations. VaR can be calculated using different modelling techniques and depending on the underlying commodity, clients should apply a different technique.

Value-at-Risk

For a short term risk calculation (e.g. 1 day) you can use Value-at-Risk. With 95% certainty the potential price change (up/down) will not be bigger than \$ 250.000 for this portfolio of 36,000MT soybean products.

KYOS adds value

To help you understand these price risks and improve your cash flow prediction, KYOS has developed risk management software to effectively manage your commodity portfolio. This software is tailor-made to reflect your specific requirements. The KYOS commodity portfolio & risk management system captures years of industrial experience in managing budgets, commodity contracts, physical and/or financial hedging, market price analysis including sophisticated cash flow forecasting.

For whom

Are you still using different spreadsheets to calculate your numbers? Whether you are in Procurement, Sales, Finance or Treasury – every department needs good, dependable figures. We at KYOS are confident a good cash flow forecast will make your life easier. Please do not hesitate to contact us so we can discuss how we can help you save time – and probably money too.

Interested to learn more? Contact us at info@kyos.com

ⁱ http://europa.eu/rapid/press-release_IP-19-161_en.htm

ⁱⁱ <https://www.reuters.com/article/us-usa-trade-eu/eu-seeks-to-soothe-us-by-clearing-soybeans-for-biofuel-idUSKCN1PN1GT>

ⁱⁱⁱ <https://insights.abnamro.nl/en/2019/01/price-recovery-commodities-to-continue/>