Advantages KYOS Portfolio and Risk Management System

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.

Accumulators - embedded options
Many clients in the food & beverage industry use accumulators to manage the price risk. KYOS has developed software to verify price valuations. It enables our clients to have an independent calculation of the value as well as the MtM. It also enables clients to play with the strikes to find their optimum.

KYOS adds value
To help you understand price risks and improve your company's cash flow prediction, KYOS has developed risk management software to effectively manage any 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 all departments
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.

This is just a brief overview of what we can offer you. Have a look at our website **www.kyos.com** for more detailed information.

Do not hesitate to contact us for more information, or a short demonstration: **info@kyos.com**

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KYOS Commodity Risk Solutions

Insights in risks
Aluminium & Coffee

May 2022

Learn about the risks of a commodity portfolio with KYOS Insight in Risks. Based on market price volatilities, correlations and Monte Carlo simulations, the report shows the important risk metrics Cashflow-At-Risk and Value-At-Risk. This month aluminium and coffee are in the spotlights. How much is the amount at risk and what could you do to mitigate the risk?

Earlier this year we showed an example of a food producer who needs to buy aluminium and coffee during the budget year 2023. On 26th of January we calculated the costs and risks and on 13th of May we have done the same. Now we are able to compare the costs and risks.

		26 January 2022		13 May 2022	
Commodity	**Amount**	**Average price**	**Total**	**Average price**	**Total**
Aluminium	18,000 MT	2.682 USD/MT	USD 48.3 million	2,736 USD/MT	USD 49.0 million
Coffee (arabica)	20 million Lbs	231 $cnts/Lbs	USD 46.1 million	210.54 $cnts/Lbs	USD 42.3 million
Total			USD 94.4 million		USD 91.3 million

What are the risks you are facing? At KYOS we offer several analytical modules in our platform to help you simulating the future.

- **Stress tests**: effective financial results after a change in market prices, volatilities and/or positions?
- **Options and accumulators**: what are the values of your derivatives, using Monte Carlo simulations?
- **Value-at-Risk:** what is a '95% worst-case' impact on your MtM in one single day?
- **Cashflow-at-Risk / Profit-at-Risk**: what is a '95% worst-case' scenario of your cash-flows over a longer period?

Cashflow-at-Risk

The Cashflow-at-Risk is calculated as a '95% worst-case' scenario of your cash-flows over a longer period.

If you do not hedge this "floating priced" position, your Cashflow-at-Risk (=CfaR) from today until 31 December 2023 (=1,5 year) can be presented as the potential cashflow difference between:

*Sourcing volume * (current market prices versus simulated market prices)*

We estimate with 95% confidence that the total costs to source these two commodities will not be more than USD 134.2 million. This means that the difference between the current expected costs and the worst-case costs is the CfaR of USD 42.9 million.

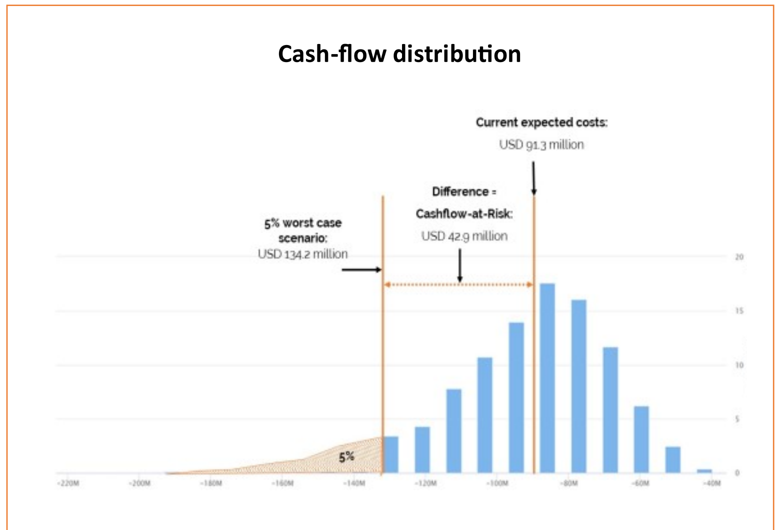
Insights in risks
Aluminium & Coffee

To hedge or not to hedge?

	26 January 2022	13 May 2022
Current value	USD 94.4 million	USD 91.3 million
5% worst case scenario	USD 143.3 million	USD 134.2 million
Cashflow-at-Risk	USD 143.3 – 94.4 = **USD 48.9 million**	USD 134.2 – 91.3 = **USD 42.9 million**

What will you do? Hedge now, at the price of USD 91.3?

Or leave it open? There is a 5% chance that costs will go up and you have to pay an extra USD 42.9 million— or more.

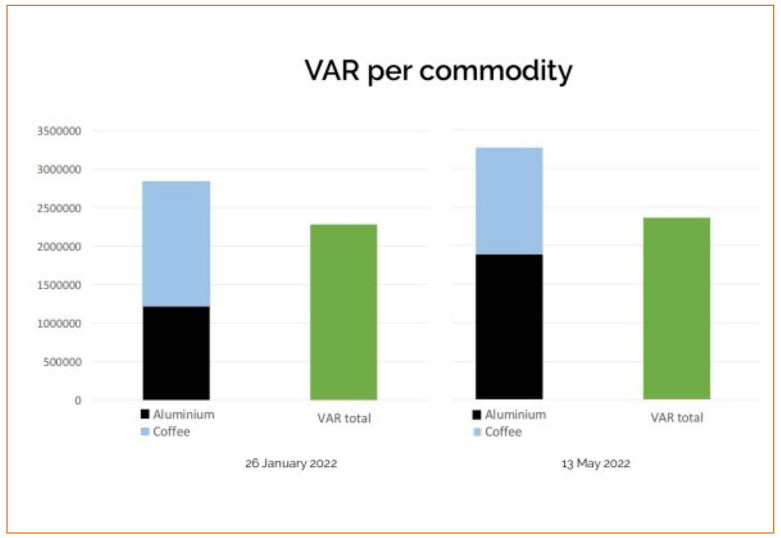


Value-at-Risk

The Value-at-Risk shows the '95% worst-case' impact on your MtM due to various price changes in the short-term.

The graph shows the Value-at-Risk for a basket of commodities: left for the individual commodities aluminium and coffee, on the right for both together. Do you notice the difference? The combined exposure is lower than the sum of the two because aluminium and coffee prices are not strongly correlated.

See in the table the Value–at-Risk calculations for 1 day. We also show how quickly the value could go up (or down) for 10 days (holiday scenario). Beware that this is not the maximum. The actual cost increase may be higher with 5% probability.



		26 Jan 2022		13 May 2022	
Value-at Risk	**Commodity exposure**	**VaR per commodity**	**Total VaR**	**VaR per commodity**	**Total VaR**
1 day	18,000 MT of aluminium 20 million Lbs of arabica	USD 1.2 million USD 1.6 million	USD 2.3 million	USD 1.9 million USD 1.4 million	USD 2.4 million
10 days	18,000 MT of aluminium 20 million Lbs of arabica	USD 3.8 million USD 4.9 million	USD 7.1 million	USD 5.4 million USD 4.2 million	USD 7.4 million

Market Trend

As arabica prices went down, combined with a stable volatility, the short- and long-term risks decreased. The combined effect is that the portfolio risk has gone down slightly whilst the costs when the CPO would hedge today fell with 3.1 million USD.

The aluminium forward curve (in $/MT) has risen slightly since 27th of January whilst the spot price has fallen with more than 10%. Meaning that market players price in a higher risk for longer term contracts but the short-term markets calmed down. CPO's see spot prices falling but must realize that their effective costs for 2023 went up, if they would hedge the position today.

Aluminium volatility term structure has risen as a whole from an average of 25% up to 37%. This has a significant effect on the short- and long-term risks.

The arabica forward curve (in $cnts/Lbs) has fallen over the whole curve with about 10%. Arabica volatility term structure has not changed significantly with levels around 32%.

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