

# KYOS

## Commodity risk management

April 2023



# KYOS - Overview

- International client base across Europe, plus Americas and Japan
- > 100 corporate clients



- **Background**

- Activities started in 2001, Strong focus on risk management
- Core competence: combine quantitative background with practical solutions

- **Activities**

- Modelling

*Apply quantitative financial techniques to commodity markets*

- Software development: Analytical platform


*Practical approach for understandable risk reporting*

- Training

*Combine theory with real life examples*



- "RISK COMES FROM NOT KNOWING WHAT YOU'RE DOING."

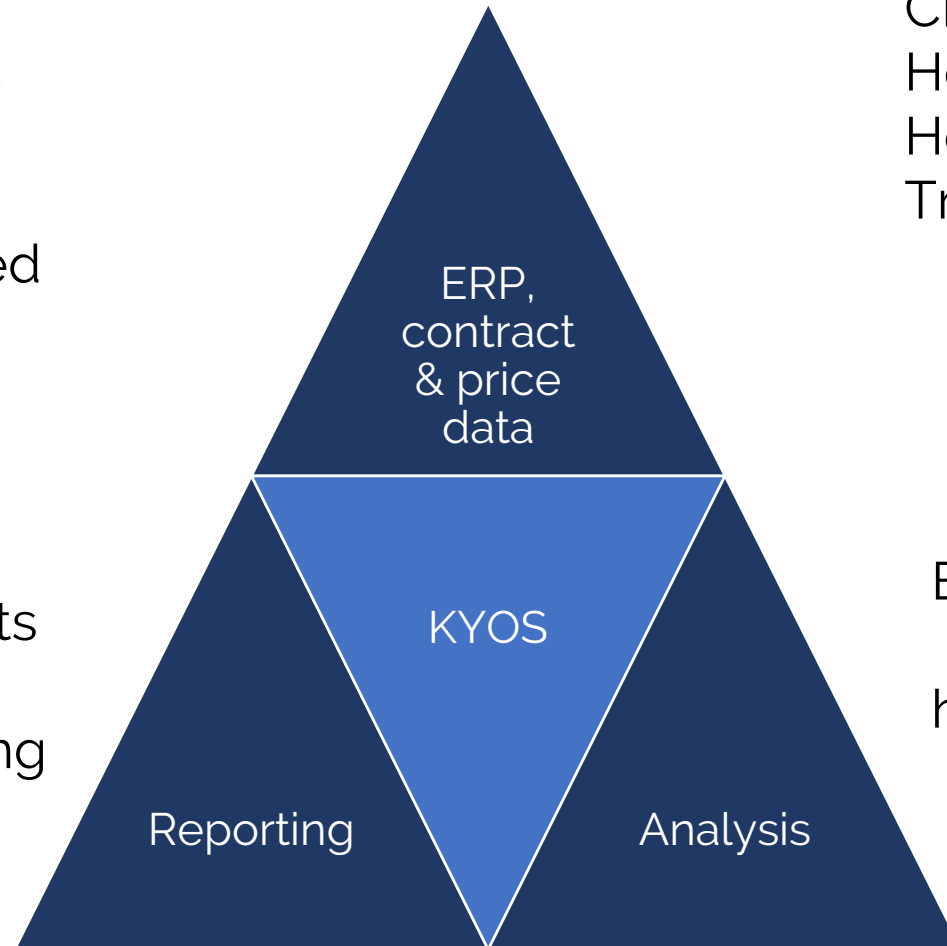


WARREN  
BUT  
YOU'RE

# Adding value to the chain – risk management

Physical flows  
Financial hedges  
Price analytics  
✓ SFTP, API  
✓ SaaS based

Cashflow forecasts  
Insight in risks  
Coverage reporting



CPO/CFO  
Head of Trading  
Head of Risk  
Treasury

Enable you to look forward as ...  
hindsight is a wonderfull thing

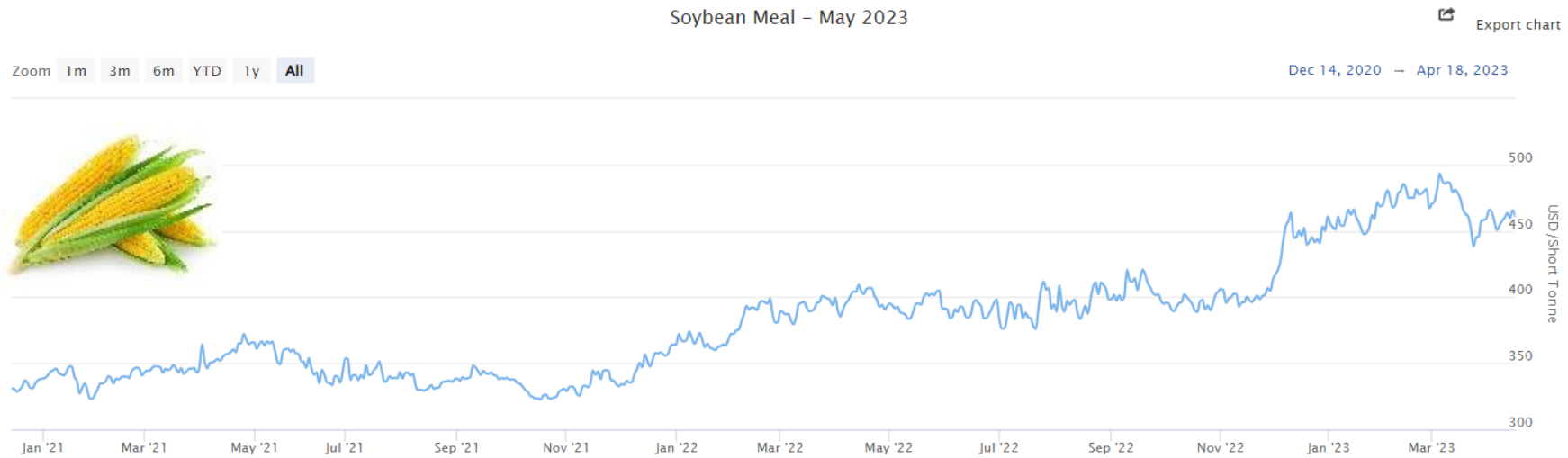
# Markets relevant to dairy are “volatile”

Ammonia (natural gas), corn, soybean meal, diesel.....

Natural gas typically represents 55 per cent of the cash cost of production



As such it is one of the most feedstock- (or energy-) cost sensitive petrochemicals produced.



# Adding value to the chain – risk management

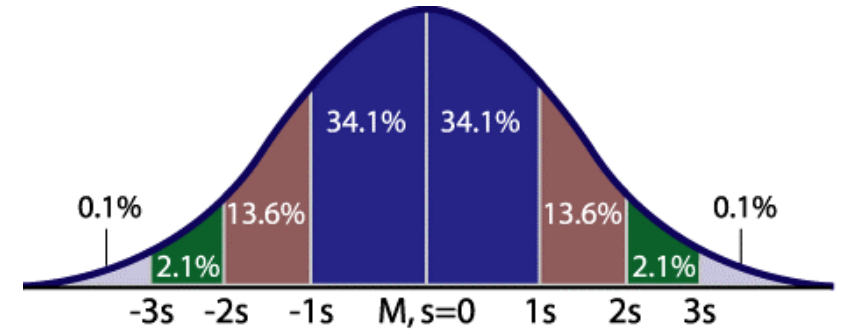
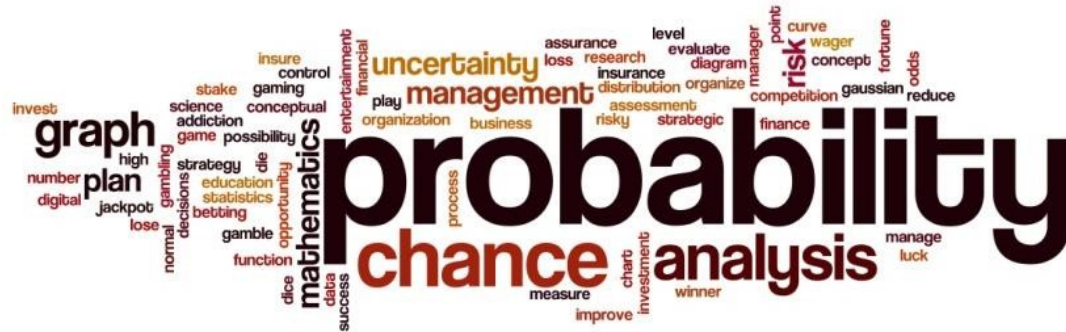
Sales & Procurement : What can happen during a 2 weeks holiday in.....e.g..... Italy



CFO: What can happen the next 2 or 3 years



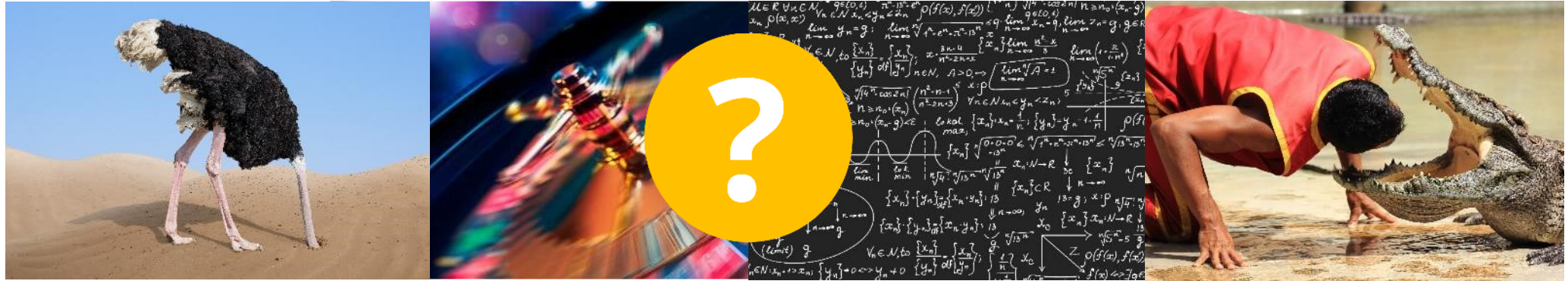
# Struggle between brain, experience and gut feeling



# Price risks for buyers/sellers translated into “cash”

Price risks can be calculated (estimated) of products bought and/or sold

Certainty is the “big” question



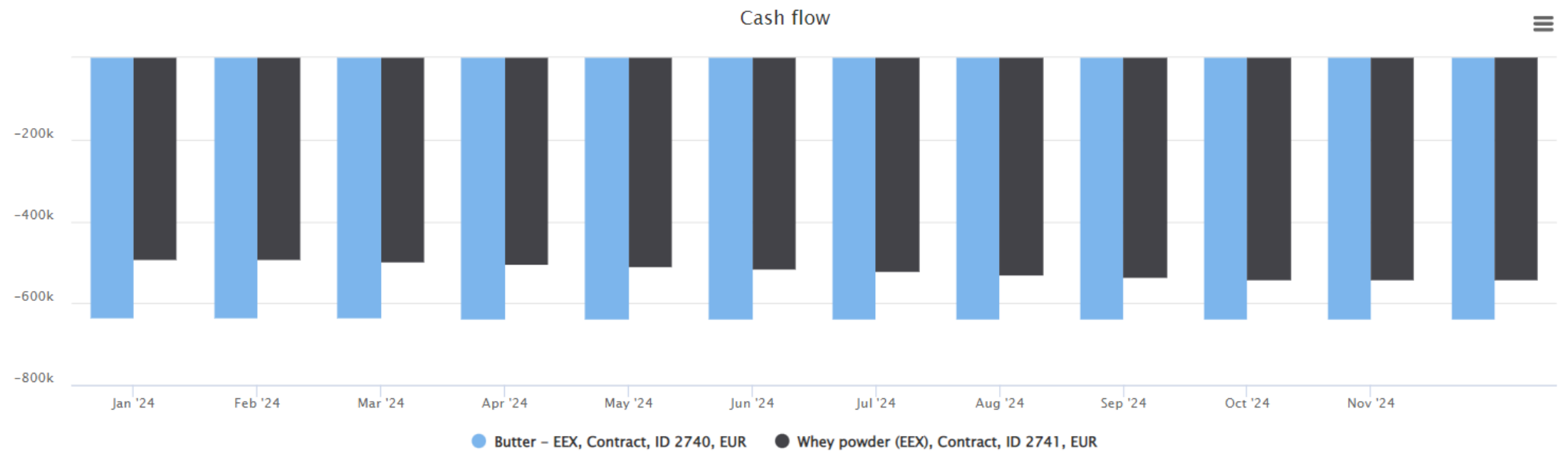
# Estimating potential dairy related cash-flows

Date	Legal entity	Counterparty	Period	Commodity	B/S	Volume	FX	Price type
2023-01-01	Food producer global	Market	Jan'24 - Dec'24	Whey powder (EEX)	Buy	7,200 MT	EUR	phys   indexed
2023-01-01	Food producer global	Market	Jan'24 - Dec'24	Butter - EEX	Buy	1,500 MT	EUR	phys   indexed

From straight forward commodities to “products” like:  
Beer, bread, chocolate or even a “steel bridge”

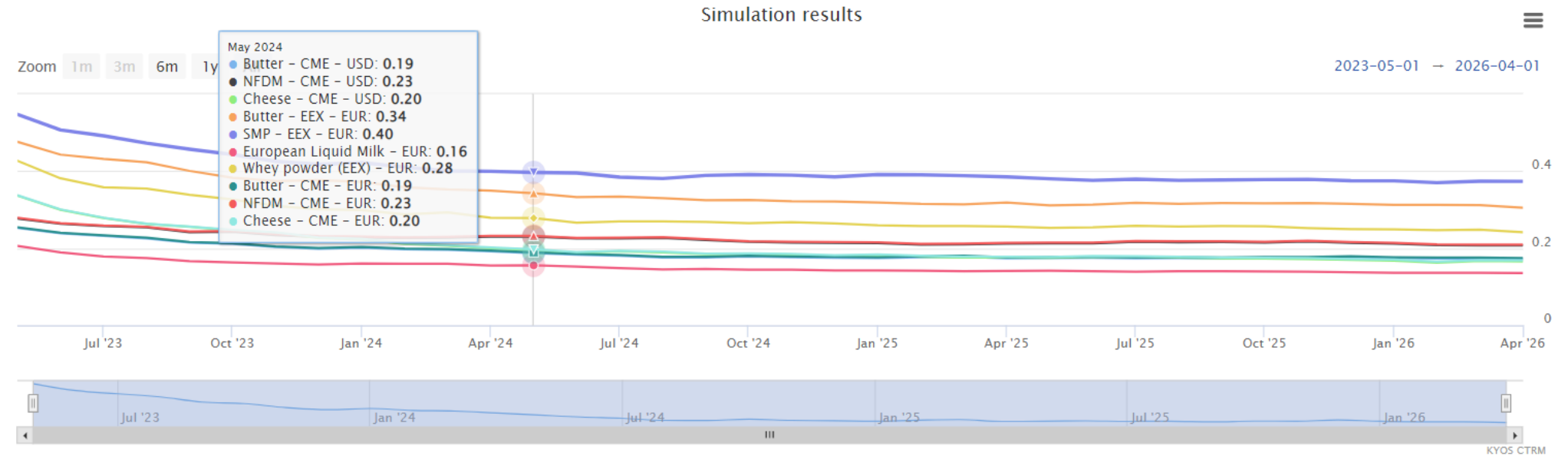


# Starting point: today's values



2024																
Commodity	Asset type	Contract ID	Currency	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Butter - EEX	Contract	ID 2740	EUR	-7,629,181	-632,875	-633,500	-634,125	-636,000	-636,000	-636,000	-636,250	-636,250	-636,250	-636,250	-637,310	-638,371
Whey powder (EEX)	Contract	ID 2741	EUR	-6,216,000	-492,000	-492,000	-498,000	-504,000	-510,000	-516,000	-522,000	-528,000	-534,000	-540,000	-540,000	-540,000
Total			EUR	-13,845,181	-1,124,875	-1,125,500	-1,132,125	-1,140,000	-1,146,000	-1,152,000	-1,158,250	-1,164,250	-1,170,250	-1,176,250	-1,177,310	-1,178,371

# Calculating volatilities & correlations



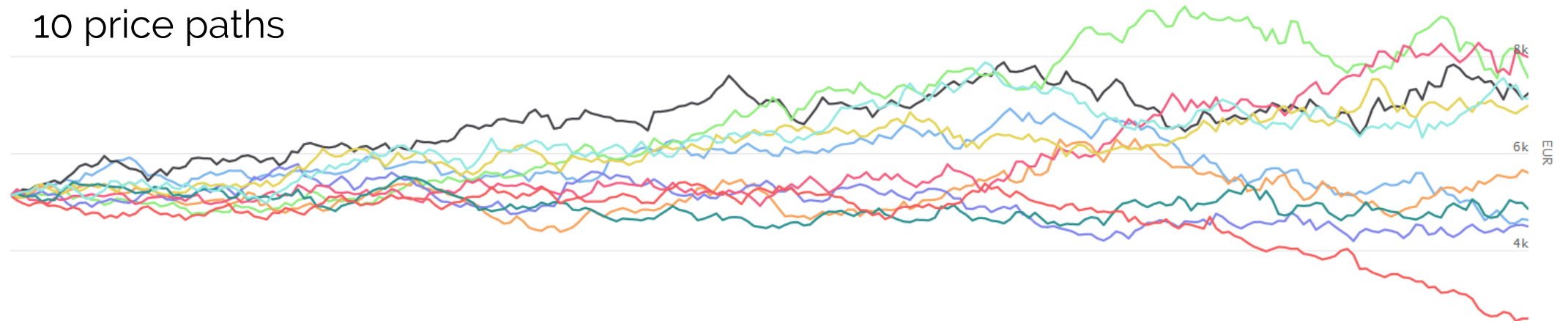
Show / hide table

Save volatility overrides

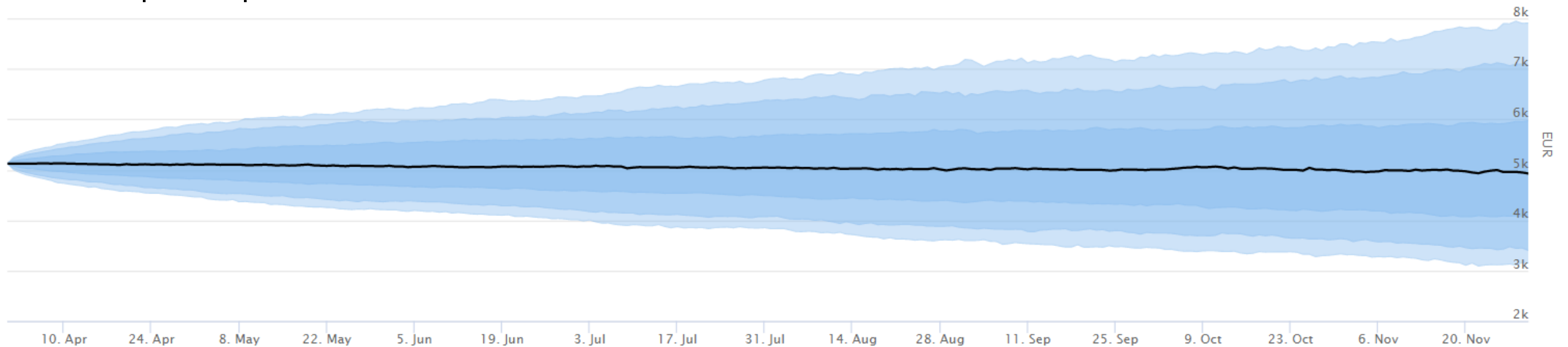
Maturity	Butter - CME Baseload (USD)	NFDM - CME Baseload (USD)	Cheese - CME Baseload (USD)	Butter - EEX Baseload (EUR)	SMP - EEX Baseload (EUR)	European Liquid Milk Baseload (EUR)	Whey powder (EEX) Baseload (EUR)	Butter - CME Baseload (EUR)	NFDM - CME Baseload (EUR)	Cheese - CME Baseload (EUR)
				<input type="checkbox"/> Override	<input type="checkbox"/> Override	<input type="checkbox"/> Override	<input type="checkbox"/> Override	<input type="checkbox"/> Override	<input type="checkbox"/> Override	<input type="checkbox"/> Override
May-23	0.25302	0.27723	0.33644	0.47602	0.54712	0.20582	0.42689	0.25409	0.27888	0.33728
Jun-23	0.23884	0.26363	0.29997	0.44288	0.50702	0.18937	0.38139	0.23993	0.26512	0.3008
Jul-23	0.23211	0.25746	0.27844	0.43156	0.49186	0.17859	0.35801	0.23336	0.25894	0.27935

# Use all information to create Monte Carlo simulations

10 price paths



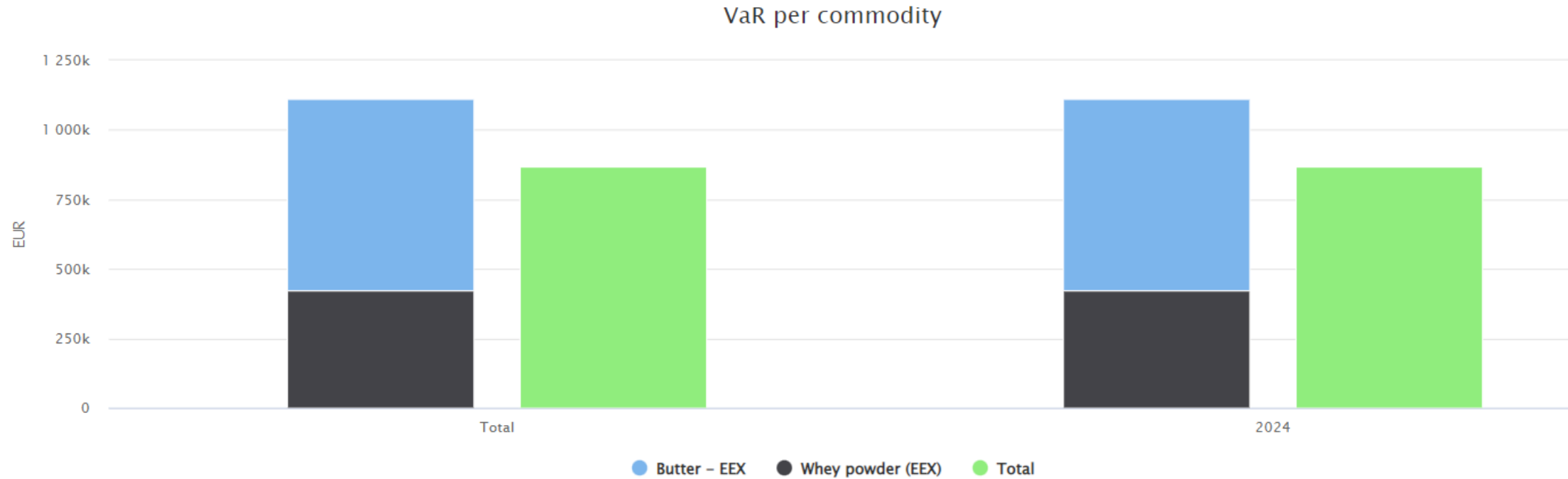
1,000 price paths



# Long-term risk for buyers as well as producers



# Short-term risks – trading companies – 10 days



		VaR 2023-04-18 (EUR)		VaR 2023-03-31 (EUR)		Change in VaR (EUR)	
		Total	Jan '24 - Dec '24	Total	Jan '24 - Dec '24	Total	Jan '24 - Dec '24
VaR total		868,350	868,350	877,420	877,420	-9,070	-9,070
VaR per commodity	Butter - EEX	693,230	693,230	704,330	704,330	↓ -11,100	↓ -11,100
	Whey powder (EEX)	421,050	421,050	445,480	445,480	↓ -24,430	↓ -24,430

# Hedging tools in turbulent times

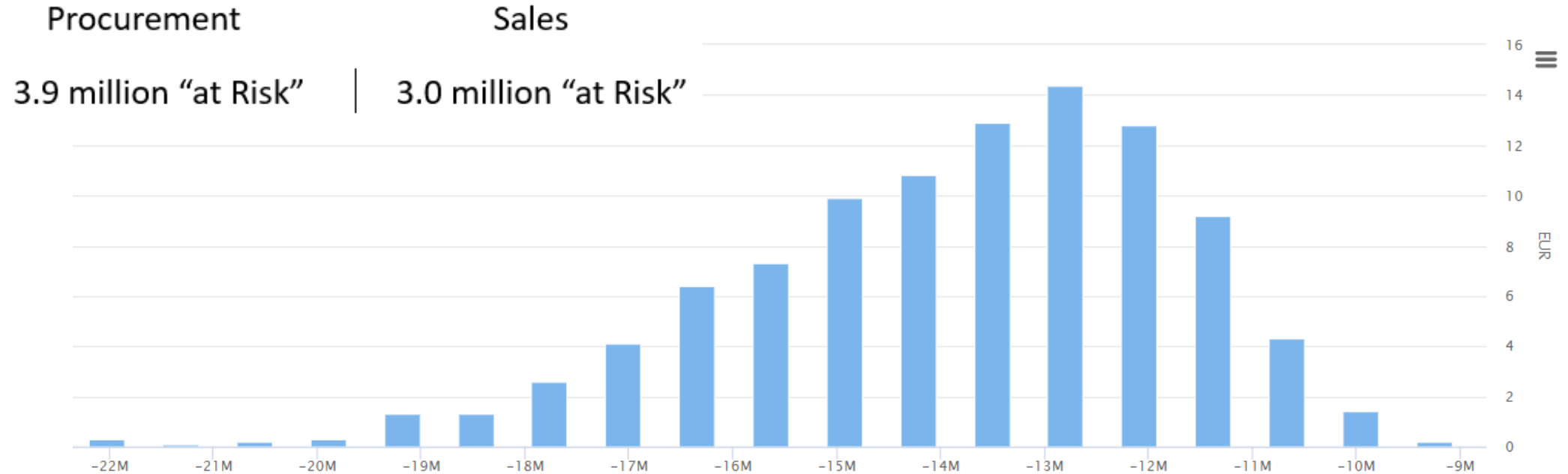
Food producer global	BNP Paribas	May'24 - May'24	Butter - EEX	Buy	50.00 MT	EUR	fin   option   6,000   C   10,000
Food producer global	BNP Paribas	Apr'24 - Apr'24	Butter - EEX	Buy	50.00 MT	EUR	fin   option   6,000   C   10,000
Food producer global	Rabobank	Mar'24 - Mar'24	Butter - EEX	Buy	50.00 MT	EUR	fin   swap   5,160
Food producer global	BNP Paribas	Feb'24 - Feb'24	Butter - EEX	Buy	50.00 MT	EUR	fin   swap   5,155
Food producer global	Rabobank	Jan'24 - Jan'24	Butter - EEX	Buy	50.00 MT	EUR	fin   swap   5,150
Food producer global	Market	Jan'24 - Dec'24	Butter - EEX	Buy	420.00 MT	EUR	phys   fixed   5,200
Food producer global	Market	Jan'24 - Dec'24	Whey powder (EEX)	Buy	2,100 MT	EUR	phys   fixed   842.50



## Growth in financial derivatives creating a combined book (physical/financial)

- Swaps/futures
- Call and Put options

# Partially hedged portfolio – mitigate the risks



Commodity	Currency	Avg	1%	5%	10%	25%	75%	90%	95%	99%
Total	EUR	-13,843,306	-19,895,876	-17,776,107	-16,775,021	-15,202,430	-12,321,408	-11,415,684	-10,870,365	-10,159,638
Butter - EEX	EUR	-7,627,306	-12,907,522	-10,563,399	-9,793,752	-8,550,119	-6,508,132	-5,829,491	-5,478,710	-4,973,688
Whey powder (EEX)	EUR	-6,216,000	-9,645,865	-8,546,907	-7,908,941	-6,954,370	-5,331,458	-4,814,674	-4,490,057	-4,097,269

# KYOS PRM – Portfolio and risk management

To conclude, KYOS offers software solution for advanced risk management

Main elements:

- Cash-flow at risk (Cfar)
- Value-at-risk (VaR)
- Monte Carlo Price simulations (KySim)
- Advanced option capturing, like accumulators

All delivered in a user-friendly, on-line SaaS based platform

Used by treasury, sales, procurement and finance

# Let's talk and get you in control, where possible...

THE KEY IS NOT  
TO PREDICT THE  
FUTURE, BUT TO  
BE PREPARED FOR  
THE FUTURE

PERICLES, 495 – 429 V. CHR.



# Questions

Time for questions & answers!



# More information

Looking forward supporting you with advice & tools!



cornielje@kyos.com  
<https://www.kyos.com>



KYOS  
Nieuwe Gracht 49  
2011 ND Haarlem  
The Netherlands