Managing Protein Price Risk

In the volatile dairy commodity market, effective price risk management is essential for businesses dealing in a range of dairy products. One strategy in a risk manager's toolbox is employing the skim milk powder (SMP) multiplier. The guide below outlines how companies can use this mechanism to hedge and manage price exposures tied to their protein portfolio, whilst remaining conscious of the risks associated with hedging using an instrument with different supply and demand fundamentals. In this article we will be focusing on acid casein, however the same principles apply across other products in the protein portfolio.

What is an SMP multiplier?

The SMP multiplier is a risk management method that uses the price movement of skim milk powder futures or indexes as a benchmark to manage the price risk of related, but not directly traded, dairy products. Since SMP is a primary ingredient and reference point for the dairy protein complex, its price can be correlated with the pricing of acid casein. The multiplier reflects the typical price ratio between SMP and the derivative product.

While the supply and demand fundamentals can change between products, the composition of the protein portfolio can be a consistent measure to assist with calculating a multiplier.

Composition (%)	SMP	Acid Casein	Rennet Casein	MPC70	MPC85
Solids	96.2	90.4	90.3	95.6	95.5
Milk Fat	0.9	1.1	0.5	1.4	1.5
Moisture	3.8	9.6	9.7	4.4	4.5
Carbohydrate	54.5	0.13	0.1	17.0	5.8
Ash	7.9	1.9	8.3	7.2	7.0
Protein	32.9	89.0	83.7	70.0	81.2
Protein (dry basis)	34%	98%	93%	73%	85%
Multiple to SMP Protein	1	2.9	2.7	2.1	2.5

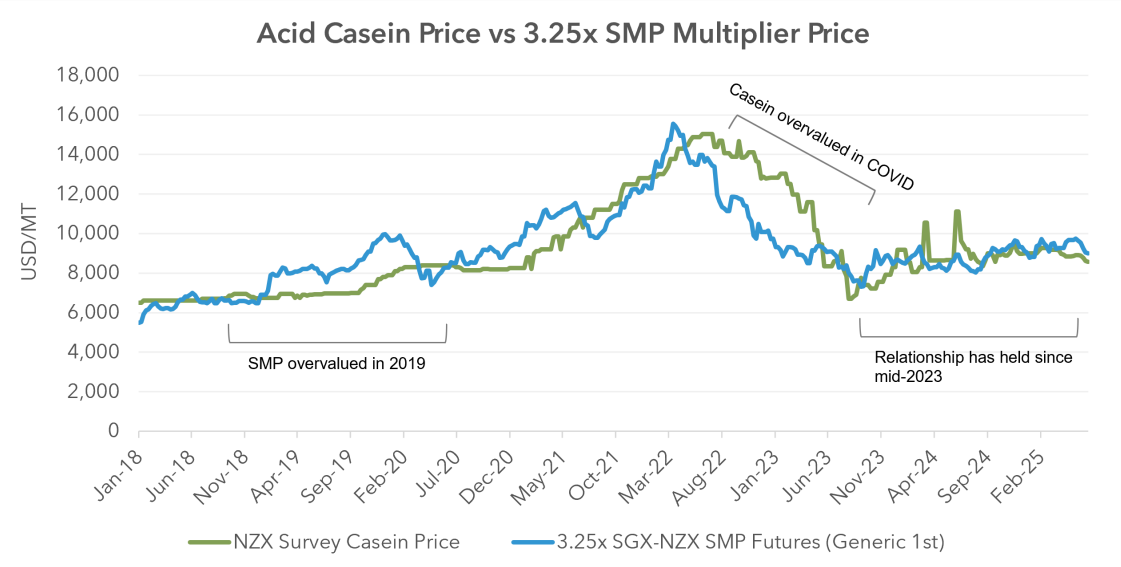
Why use an SMP multiplier?

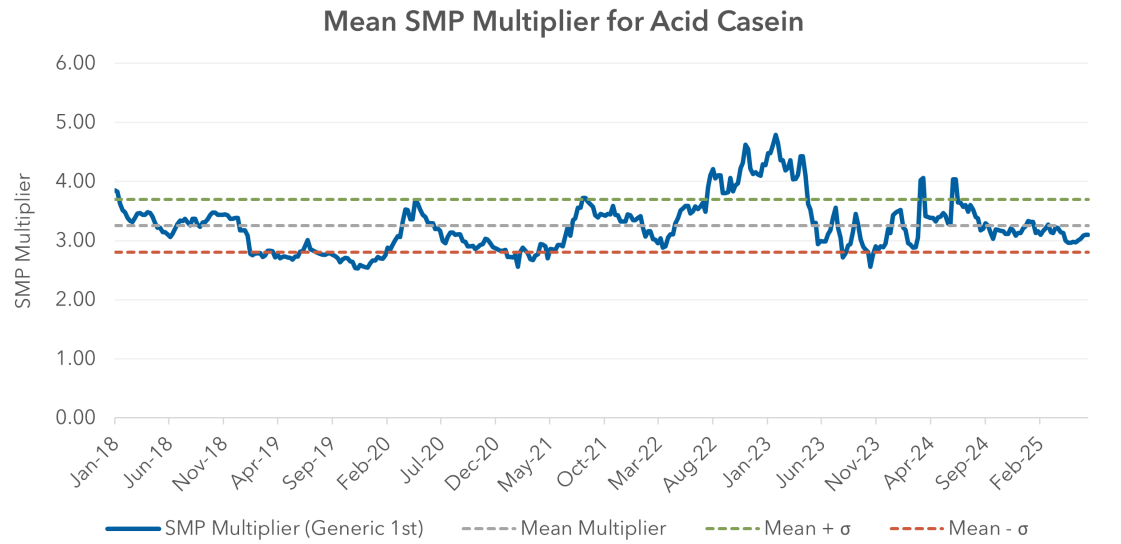
Acid casein does not have exchange-traded derivatives market, meaning that managing risk for buyers and sellers can be more difficult. SMP futures are actively traded globally and serve as a solid proxy for managing price risk in

less liquid dairy protein markets. The pricing of acid casein generally tracks the SMP market, albeit with a variable ratio due to product-specific supply/demand trends.

How an SMP multiplier works

1. Establish the historic price relationship between the target product and SMP. Acid casein historically trades at a 3.25x premium to SMP futures prices.
2. The business buys acid casein on a forward contract with pricing linked to a multiplier against SGX-NZX SMP settlement.
3. This agreement gives the business a pricing exposure that can be managed using SGX-NZX SMP futures.
4. Adjust the multiplier as historical ratios change over time, performing regular reviews.





Findings from price series data

Based on price series from the start of 2018, the mean multiple between the generic 1st SGX-NZX SMP contract and the NZX Survey acid casein price is 3.25 with a standard deviation of 0.44. The relationship has held mostly within

the range of ± 1 standard deviation since 2023, however during COVID the relationship did not hold as acid casein was significantly overvalued against SMP. Whilst the supply and demand fundamentals are quite different for both products, the data shows the multiplier reverting towards the mean in the long run.

Key considerations

Basis Risk:

- **Definition**: The risk that the correlation between the hedge instrument and the underlying exposure breaks down.
- **Example**: Supply shocks (e.g., COVID) affecting one product but not another, causing the multiplier to shift.
- **Mitigation**: Monitor historical and real-time correlation between SMP and Acid Casein. Keep in mind what percentage of the portfolio is linked to a multiplier and the length of the agreement in case the multiplier moves away from the spot market.

Market Data:

- **Requirement**: Maintain accurate and timely market intelligence.
- **Sources**: NZX Dairy Commodity Survey for price series of SMP and Acid Casein.
- **Action**: Regularly review and update the multiplier used in hedging model.

Risk Limits:

- **Definition**: Predefined boundaries for acceptable risk exposure.
- **Flexibility**: Apply hedge strategies to a portion of the portfolio, the strategy doesn’t need to be for 100% of the Protein portfolio.
- **Action**: Regular reviews of hedge performance vs. actual outcome.

Using the **SMP multiplier** can be an effective method for managing price exposure in your business’ acid casein portfolio. A similar methodology could be applied to other protein products like MPC70, MPC85 and rennet casein, especially when direct risk tools do not exist.

If you're interested in learning more about managing protein price risk, contact NZX Derivatives Sales Manager James Atkinson below:

Contact

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