The Role of Dairy Futures Markets & Other Price Risk Management Mechanisms in the EU Dairy Industry

A report for

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Executive Summary

Introduction

Irish and EU milk producers have entered a period of sustained price volatility. This volatility is a relatively new phenomenon for EU producers – volatility on international dairy markets has always been evident but EU market mechanisms shielded their suppliers from its worst effects. However the effective removal of these mechanisms over the past 6 years means that this will no longer be the case going forward. Accordingly, producers will now need to look at other options to reduce the worst effects of price volatility.

Aims/Objectives

- Give all participants in the Irish dairy industry a better understanding of price risk management and how it applies to the dairy industry
- Give all stakeholders in the Irish dairy industry recommendations on changes that can be made and strategies that can be undertaken to allow the dairy industry to better cope with price volatility
- Give recommendations on policy changes and other developments that could be implemented at both Irish & EU level to assist the dairy industry to improve price risk management

Methodology

In compiling this report, a literature review of relevant Irish and US studies was firstly carried out followed by international travel to mainland Europe, US and New Zealand.

Findings

Before looking at managing price volatility and the risks associated with this, producers first need to look at their competitive position. High cost producers whose cost of production is at or above long-term average milk price will struggle for viability in any case. These producers need to look at their overall cost of production, as the main risk they face is business failure due to farm financial losses. Managing price volatility will be of limited assistance to them.

Very low cost producers should also consider whether there is a requirement for their business to manage price risk. If their cost of production is at a level that they can break-even even during periods of very low milk price, the benefits of managing price risk for them is limited.

Futures markets offer many benefits to producers seeking to manage price risk. It allows producers to lock-in both output and input prices (mainly feed costs) thus protecting their margin. Futures markets are also of benefit to end users who can use them to avoid the worst effects of price volatility in dairy ingredients thus possibly preventing them from considering substitute ingredients.

There are also some disadvantages to futures markets. Milk producers may struggle to hedge their milk price accurately against dairy commodity futures markets as both may not always move fully in tandem. There is also the risk of increased speculation taking place following the introduction of futures markets leading to an increase in volatility. It should also be noted that futures markets do not reduce volatility – their function is to allow hedgers to manage the volatility effectively.

There is currently a well-established dairy futures market in the US which is now an integral part of the US dairy industry. Over the past 18 months futures markets have also been launched in Europe and New Zealand with limited success to date.

Dairy futures markets also allow the development of other methods of price risk management mechanisms including futures options (enabling participants for example to put a price floor on their commodity), fixed price contracts and state-subsidised insurance products.

There are a number of other risks which producers also need to manage in conjunction with price risk. These include input price inflation, basis risk, margin risk & exchange rate risk.

Recommendations

This paper recommends a number of developments that could be made at European level to improve the conditions to allow a futures market to develop. These include:

- Improved market & price information
- Development of a European milk price index
- Provision of education of managing price risk to stakeholders

Recommendations are also made to the Irish dairy industry to better equip itself to deal with price volatility. These include:

- The recent Glanbia fixed milk price scheme is a welcome development and more milk processors should consider offering their suppliers this option. The Irish Dairy Board (IDB) can play a role in supporting processors in developing these contracts by giving medium-term price commitments to their processor members

- The IDB should also consider commencing trading dairy futures on a small scale & using the experience gained to develop best practice is the use of dairy futures contracts by Irish dairy processors

- Other stakeholders in the dairy industry also need to upskill themselves on the various risk management options available given the clear increase in price volatility that is now evident

- The option of the provision of a price risk management training module should be considered. This training module could be made available to the relevant stakeholders including farmers & extension agents (Teagasc, Agricultural Consultants Association)

- ICOS (Irish Co-operative Organisation Society) currently provides training courses for board members of milk processors in various management practices e.g. diploma in corporate direction – a dedicated module on price risk management should now be made a priority

Acknowledgements

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- My wife Edel – for being an ideal travel companion and for her support in completing the study

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Tadhg Buckley,

November 2011

Introduction

My involvement in Agriculture is currently twofold; firstly, I am regional agri-manager for AIB Bank based in Cork, in the South of Ireland. AIB is Irish Agriculture's largest lender with a particularly strong market share of the Irish dairy farmer market. In addition to this, I am involved with my father in running a 60 ha dairy farm. I am married to Edel, who is a self-employed agricultural consultant.

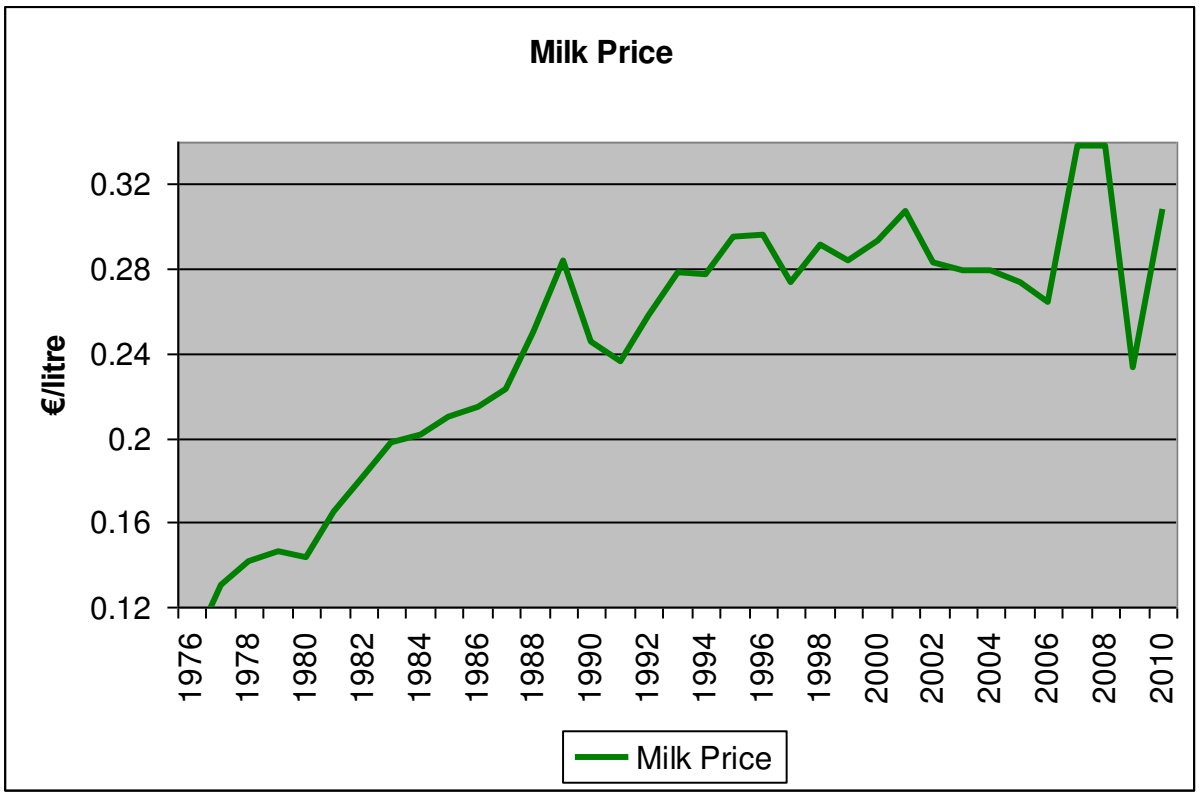
During the 2007-2009 period, through my work in agri lending and also my involvement in dairy farming at producer level, I have seen at first hand the impacts of price volatility. This led me to question how one could manage this risk and reduce its potentially devastating impact from a farm financial stability point of view. For this reason I chose the topic of price risk management as my area of Nuffield study.

The EU & Irish dairy industry has entered a sustained period of strong price volatility. Historically, the EU Common Agricultural Policy (CAP) has provided EU & Irish farmers with price stability. Using a combination of market support mechanisms (export refunds and import tariffs) & supply control (milk quotas), CAP regulated the internal market & shielded producers to a large extent from the price volatility which was much more prevalent in world dairy markets.

However, EU agricultural policy is undergoing significant change. Market support measures are now becoming less and less prevalent with decoupled direct payments now the main mechanism of agricultural support. This policy shift is inexorably in the direction of less market intervention and aligning EU dairy markets with world market price movements. Going forward, market intervention by the EU will only occur in exceptional circumstances and supply controls in the form of producer milk quotas will be removed from April 2015.

This shift in EU agricultural policy has lead to substantial volatility in EU dairy markets. This price volatility has major implications on farm finance, making cashflow planning difficult & also makes any medium-term planning very problematical. This price volatility is mirrored throughout Europe and beyond.

Figure 1: Irish Manufacturing Milk Price 1976 - 2010



Source: Central Statistics Office (CSO)

Figure 1 shows the significant increase in price volatility over the past 5 years. During the 90's and early 00's milk price was stable at c. 28 cent/litre. While in the 2007-2010 period the average milk price has ranged from 23 cent/litre to 34 cent/litre

Given the policy changes outlined above it now appears certain that price volatility could potentially have wide-ranging effects on the financial stability of EU milk producers. As outlined earlier, over the past 30 years producers have been shielded from this volatility by EU market management mechanisms. Price risk management was effectively publicly funded through market intervention. This will no longer be the case in the future. The purpose of this paper is to examine what options are available to producers should they wish to avail of price risk management. Also, the paper looks at what options and methods of price risk management other countries, that have been consistently exposed to market volatility, have developed.

Aims & Objectives

Aims

- The aim of this study is to give all participants in the Irish dairy industry a better understanding of price risk management and how it applies to the dairy industry
- In addition, the study also aims to outline the options available in terms of managing price volatility, in particular dairy futures markets, and the barriers currently in place that inhibit producers from hedging their milk price
- It also attempts to give all stakeholders in the Irish dairy industry (farmers, extension agents, dairy co-op management) recommendations on changes that can be made and strategies that can be undertaken to allow the dairy industry to easier deal with price volatility

Objectives

- Outline why price volatility will be much more prevalent in EU dairy markets in the future than was the case in the past
- Illustrate what farmers are most affected by price volatility and what farmers would benefit most from managing price risk (hedging milk price)
- Outline what a dairy futures contract is and the benefits and limitations associated with it
- Detail current dairy futures markets in other major milk producing countries and their success or otherwise
- Examine other price risk management options that could be used by dairy producers as well as other risks that need to be managed in conjunction with price risk
- Summarise the key requirements necessary to allow a successful dairy futures market to become established
- Give recommendations on policy changes and other developments that could be implemented at both Irish & EU level to allow the dairy industry to manage price risk more efficiently

Methodology

On commencement of the study a short literature review was firstly carried out. This included reviewing papers on price volatility and price risk management by Dr Michael Keane of University College Cork and Dr Declan O'Connor of Cork Institute of Technology. In addition, literature from the US was also reviewed including papers on the workings of the US dairy futures markets by Professors Ed Jesse & Bob Cropp of the University of Wisconsin.

Following this initial literature review, meetings were conducted in Ireland with individuals and organisations that are directly or indirectly related to the topic. These included Dr Michael Keane & Dr Declan O'Connor, the Irish Dairy Board (IDB), the Irish Dairy Industries Association (IDIA) and FC Stone Commodity Services.

The next phase of the study involved international travel in order to gain a better understanding of how price risk management and dairy futures markets worked internationally. This commenced with the International Dairy Federation world dairy summit in Germany at which there was a complete session dedicated to price risk management in the dairy industry.

The next leg of the international travel was the US. While in the US, a full day was spent on the trading floor at the Chicago Mercantile Exchange (CME), home to the largest functioning futures market in the world. Meetings were also held with CME management to obtain their views on the opportunities and challenges associated with establishing futures markets. Following this, a substantial period of time was spent in Wisconsin where the focus was on how producers and processors were using futures markets to their benefit. Meetings were held with commodity brokers (Blimling & Associates), academics (Professors Ed Jesse, Bob Cropp & Brian Gould, University of Madison) extension agents, processors (Erica Pagel & Tim Greenway of Foremost Farms) and dairy farmers.

New Zealand was also visited in order to examine how price risk management was dealt with in a low-cost grass-based dairy producing country. Meetings were held with Fonterra, NZX (New Zealand Stock Exchange) as well as with numerous dairy farmers throughout the country.

Finally, a risk management seminar for European dairy producers, organised by FC Stone Commodity Services in Amsterdam, Holland was attended. This seminar focused on the current

use of risk management tools in the European dairy market as well as the obstacles that could prevent European dairy futures markets from becoming properly established.

Glossary

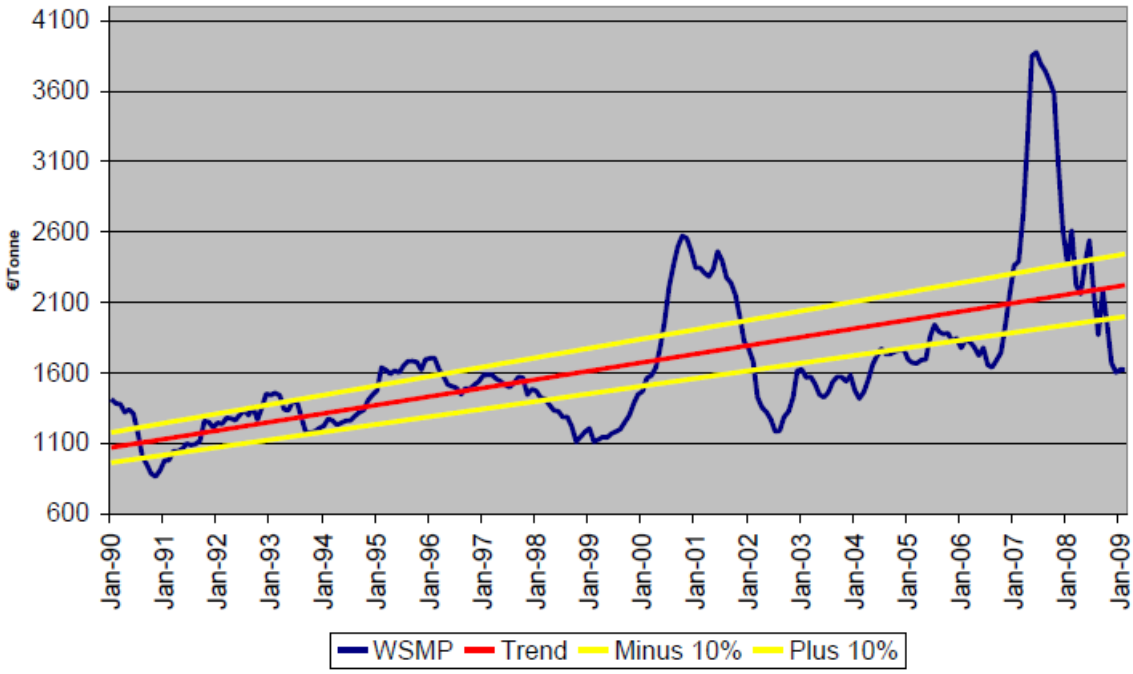
Risk management:	The identification, analysis, minimisation and/or elimination of unacceptable risks
Hedging:	Making an investment to reduce the risk of adverse price movements in an asset. In the case of a dairy farmer, it is making an investment to reduce the risk of a fall in milk price.
Futures contract:	A futures contract is a standardised agreement between two parties to buy or sell a specific commodity at a specified future date at a price agreed today
Futures market:	A futures market is an organised auction market for trading futures contract
Options:	The right but not the obligation to buy or sell a futures contract at a specified price at a specified future date
Forward contract:	An agreement to sell a stated quantity of a commodity at a stated period in the future at a stated price. It differs from a futures contract in that the agreement is not standardised and cannot be traded.

Price Volatility – Here to Stay

For dairy producers in the EU, price volatility is a relatively new phenomenon – prior to 2005 milk price was remarkably stable across the EU, as the European Commission (EC) managed the internal dairy markets, keeping prices stable through various market management mechanisms. However, these controls had significant market-altering effects on international dairy markets. As part of the last World Trade Organisation (WTO) agreement the EC agreed to significantly reduce market intervention and allow internal EU milk markets to become more closely aligned with international dairy market movements. The effect has been dramatic with massive price movements evident since this policy shift in 2005.

This increased volatility, internally in the EU, has not been solely as a result of dairy policy changes. The policy shift was quickly followed with a substantial increase in dairy prices in 2007-2008 followed by a collapse in 2009 – price movements that were extreme in historical terms. However, dairy markets internationally have always been volatile.

Figure 2: World Skim Milk Powder, Trend & 10% Bands



Source: Dr M Keane, UCC – presentation at Risk Management Conference, Amsterdam, October 2010

Figure 2 illustrates the level of volatility that has been evident over the past 20 years and shows that for sustained periods SMP (Skimmed Milk Powder) prices were at levels of greater than 10% above or below the trend price for the period. However, it is clear that there has been a marked increase in volatility since 2007.

Table 1: % of time outside 20% band of trend price during 1990-2009 period

	EU	World
Butter	17.4	63.4
SMP	28.7	60.9
Average	23	62.1

Source: Dr M Keane, UCC – presentation at Risk Management Conference, Amsterdam, October 2010

Table 1 also shows the difference in price volatility over the past 20 years between EU markets and world markets – world markets were effectively 2.7 times more volatile than EU markets in the above period.

Therefore, it is clear that price volatility was always evident – however, EU dairy policy shielded producers from its effects. This has changed substantially over the past decade and will be even more pronounced going forward.

Table 2: Increase in price volatility 2000-2009 vs 1990-1999

	EU	World
Butter	+ 260%	+ 62%
SMP	+ 540%	+ 86%
Average	+ 400%	+ 74%

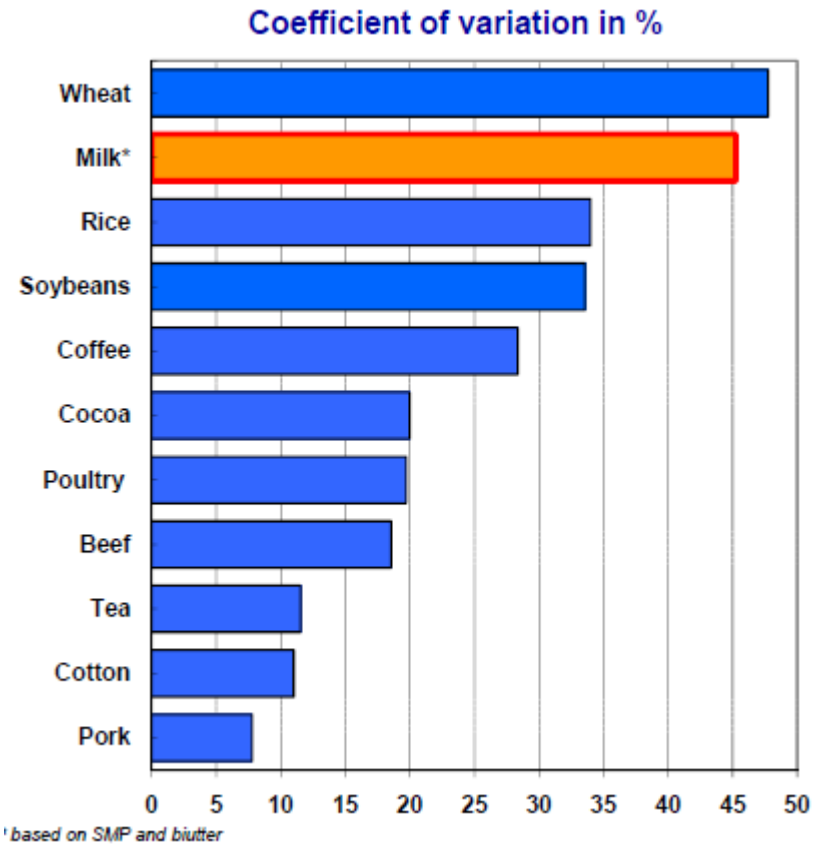
Source: Dr M Keane, UCC – presentation at Risk Management Conference, Amsterdam, October 2010

Clearly, price volatility has increased substantially across world dairy markets but the increase in volatility is much more pronounced in EU markets for the already outlined reasons.

How Volatile is Milk compared with other Commodities

When considering the various agri commodities one does not instantly associate dairy as being any more volatile that its other agri commodity counterparts. There is, however, statistical evidence that says otherwise.

Figure 3: Volatility of various agri commodities – 1998 - 2008



Source: IFCN dairy research centre 2009

Figure 3 expresses the level of volatility for various agri commodities for the 10-year period from 1998-2008. This shows that milk was the 2nd most volatile commodity in the period examined. Interestingly, the most volatile commodity, wheat, is one of the principal inputs for dairy farmers – particularly in confinement-based milk production systems which constitutes up to 90% of world milk output.

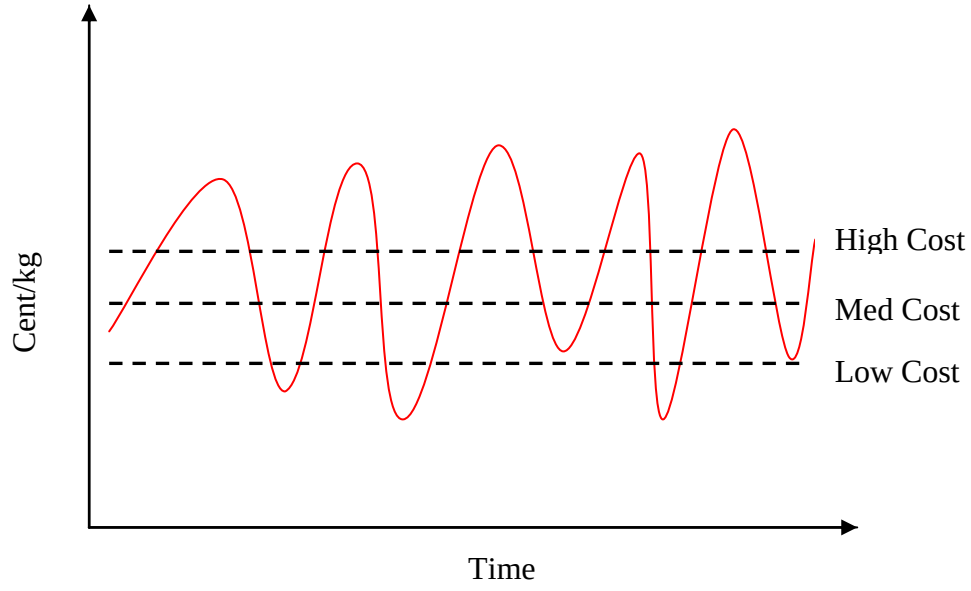
Dairy (and other food) commodities are inelastic in terms of price demand. Therefore a modest scarcity of product causes a major increase in prices and vice versa. There is, therefore, no reason to expect price volatility to reduce from current levels into the future.

What Farmers Need to Hedge Milk Price

Price volatility will not impact on all dairy farmers in a similar fashion. The potential impact will be very much down to the competitive position of the farmer in question. In addition, the type of farming system employed will also govern what type of hedging of milk price will be available to the producer.

Before any farmer makes a decision on hedging milk price, if that option is available, they must firstly establish their competitive position. This theory was put forward by Torsten Hemme, Chairman of the IFCN Dairy Network at the 2009 World Dairy Summit. It is best explained by figure 4 below:

Figure 4: Competitiveness comparison – high cost vs low cost producer



The erratic line above represents a volatile milk price while the broken lines represent the cost of production of three different producers. These 3 different producers have been categorised into high cost, medium cost and low cost. So which producers would best benefit from hedging milk price?

<u>High cost Producer</u>

Hedging of milk price will be of limited benefit to this producer – managing price risk is not the issue here, rather competitiveness. This producer will struggle to operate profitably with the

exception of unusually high milk price periods and will eventually be forced to exit dairy farming unless they improve competitiveness. The main objective of this farmer must be to reduce this cost of production to a level which is sustainable in the medium-term.

Medium cost Producer

This producer will benefit from risk management on milk price. Hedging of milk price will not improve their average milk price (if anything it will slightly reduce it) but this producer will manage better financially with periods of very low milk price as in 2009. This producer is typically farming an efficient confinement-based system. Therefore, any price risk management strategy needs to incorporate management of input costs particularly given the volatility of wheat prices as shown earlier.

Low cost Producer

This producer has a very low cost of production and can cope with periods of very low milk price relatively comfortably. Therefore, hedging of milk price will not confer the benefits that it will to a medium-cost producer as milk price volatility does not have any significant long-term financial implications. Potentially, they may gain more from not hedging as a hedged milk price will be slightly lower on average in the medium-term than the un-hedged market price. This low-cost producer is most likely in a pasture-based production system.

The other factor that will determine whether a dairy producer should consider hedging milk price or not is the type of dairy production system they use. Confinement-based dairy production systems with a high level of purchased feed (up to 90% of commercial world milk output) are more suited to hedging of milk price than those involved in grass-based production systems. Firstly, this is for reasons explained above; the grass-based producer is likely to have a much lower cost of production than the confinement-based producer. In addition, producers involved in a confinement-based milk production system will be able to hedge a large amount of their inputs in conjunction with hedging their outputs.

Take a large US milk producer who employs a price risk management system and hedges their milk price. This producer can also hedge the bulk of their input costs through the use of futures markets for wheat, corn and oil. This will hedge up to 70% of their cost base. Compare this with a low cost grass-based milk producer in Ireland or New Zealand. Hedging of inputs is much more difficult in this case as the amount of bought-in feed is low & may make up as little as 15% of total cost base. It is, therefore, much more difficult for this producer to hedge their

input costs in tandem with their output price, a strategy which is recommended in any price risk management strategy. A number of dairy producers in New Zealand cited this as one of the main reasons why they would be slow to hedge their output price even if the option was available to them.

Dairy Futures Markets

Futures contracts are the most common price risk management tool used in international commodity markets. Futures markets in terms of commodities are most associated with grain markets. The main dairy futures market is in the United States (US) and is operated through the Chicago Mercantile Exchange (CME). Although, well established it remains a very small market in relative terms – daily trading volume in corn and soybean futures in the CME is several times the volume traded in dairy contracts.

What is a Dairy Futures Contract

A futures contract is a standardised agreement between 2 parties to buy or sell a specific commodity at a specified future date at a price agreed today. The contract agrees the quantity, specification and expiry/settlement date. For example, the Class III milk futures contract is the most heavily traded contract in the US dairy futures market. The contract is 200k lbs in size, the specification is class III standard milk and the expiry will be any month up to 24 months from now.

Futures contracts are either physically or cash settled;

- Physical settlement – the amount specified in the contract is delivered by the seller of the contract to the purchaser via the exchange
- Cash settlement – a cash payment is paid based on the underlying price of the commodity on the date of expiry of the contract. This will see either party paying/receiving the profit/loss in cash at contract expiry.

Cash settlement of a futures contract means participants do not have to implement complicated delivery mechanisms or risk having to make, or take, delivery of a product when trading in the futures market. Cash settlement is particularly preferable for dairy commodities where food safety criteria, and the actual delivery process, are complex and not globally standardised. However, in reality only 2-3% of physical-settlement contracts end in delivery with the vast bulk of those contracts closed out before expiry date.

The majority of dairy futures contracts are now cash-settled. It should be noted that in order for cash settled markets to work effectively, it is important that settlement is made against transparent and credible reference prices.

Conditions for the Successful Establishment of Futures and Options Markets

There are a number of key constituents that are integral for a properly-functioning dairy futures market – some of these are:

High quality & timely market information

The USDA (United States Department of Agriculture) provides regular and credible market information for the dairy industry in the US, giving market participants confidence that they are up to speed on market trends etc

Base dairy price index

Futures markets require a base price or physical market from which futures markets are calculated. In the US, cash-settled futures prices are calculated based on USDA announced milk prices. These are published on a monthly basis shortly after the end of the trading month. In New Zealand, the recently launched NZX dairy futures contracts use Fonterra's globalDairyTrade (gDT) trading platform as its reference price index from which their contracts are priced.

In addition to the above, Sarris (1997) identifies the following conditions which are necessary for the successful establishment of futures markets:

Substantial commodity price variability

Participants on futures markets are either hedgers or speculators. Hedgers try to avoid risk while speculators accept the risk hedgers are trying to avoid. Speculators main aim is to profit from correctly buying and selling – these participants are vital to any properly functioning futures market. Without price volatility, hedgers would have little requirement to use a futures market and speculators would have little incentive to invest in futures markets, as without volatility there is little potential for profit-making. It should be noted that this illustrates that

futures markets do not reduce volatility – they merely allow participants to better manage through it.

Large number of potential traders and speculators

Necessary in order to provide liquidity – if the trade volume is too small there is a considerable risk that a small number of transactions could influence the futures market significantly.

Products with standardised grades and quality

Futures markets relate to standardised commodities – products that vary significantly in grade and quality are not suitable for successful futures contracts.

Limited government intervention in pricing & trade

Where the likelihood of regular government intervention is evident, market participants will not have full confidence that the market will operate in an unhindered basis. In other words, government intervention through state purchasing could put an artificial floor on market price. Alternatively, the implementation of an export tax (e.g. Russia in grain market in Q3 2010) could put an artificial ceiling on prices in that country.

The existence of a regulatory body

To ensure market integrity and prevent market manipulation and fraud

Good transportation and telecommunication systems

A well functioning financial system

An effective legal environment

Political and macro-economic stability

Benefits of Dairy Futures Markets

- Clearly, primary milk producers can use dairy futures markets to their benefit in order to reduce the worst effects of price volatility. It allows them more stability and also allows better financial planning. In addition to primary milk producers there are others who can benefit from dairy futures markets.

- Milk processors can use dairy futures markets to hedge their output price for a defined period of time. This can be very beneficial where processors enter a medium-term arrangement with a product purchaser at a fixed price (possibly by way of OTC [Over the Counter] contract – discussed in a later chapter). Milk processors can also use dairy futures markets to offer their suppliers fixed price contracts over a defined period of time. Using futures markets processors can prevent their processing margin being eroded over the period of the fixed price contract.

- End users can clearly benefit from dairy futures markets also. It allows them to avoid the worst effects of price volatility similar to primary producers. It also allows end users to lock down their profit margin and maintain a stable output price for their product. From a producer point of view, the ability of end users to hedge dairy commodities should be welcomed. If end users are unable to avoid price volatility, it may encourage them to switch from dairy ingredients to other ingredients. Keane & O'Connor (2009) outline that due to sustained price volatility, end users will consider investing in new processes that allows them to substitute dairy ingredients for other products e.g. butterfat with vegetable oil. Similarly, there are examples where food producers stopped using lactose during sustained price peaks and changed their processes to facilitate this. There is no guarantee that these producers will switch back to lactose if it subsequently returns to more competitive pricing levels relative to substitute ingredients.

- Dairy futures markets give to all stakeholders the benefit of extended price discovery. Dairy futures markets in the US are available up to 24 months from present. While they are not a fully reliable guide of likely price movements in the medium-term, nevertheless, they do offer indications of price trends into the future.

- Futures markets all but remove default risk as they are highly regulated markets

Limitations of Dairy Futures Markets

O'Connor & Keane (2009) set out some of the limitations of futures markets:

- Ideally, futures markets require an index price against which contracts are settled. This may be difficult to devise particularly where a number of reference prices are used

- Margin calls may tie up a significant amount of working capital. A margin call is an interim cash payment that the producer may have to make, if futures markets have moved unfavourably from when they initially entered into their futures contract

- Producers endeavouring to hedge milk price may not be easily able to match this hedge with the commodity contracts available

- The risk that the introduction of futures markets may encourage excessive speculation and accordingly lead to even greater price volatility

Current Use of Dairy Futures Markets

United States

The US has a well-established & functioning dairy futures market. The Chicago Mercantile Exchange (CME) dairy futures market was established in 1995 and is the leading futures exchange in the world. They currently offer 6 dairy futures contracts covering Class III & Class IV milk, butter, whey and non-fat dry milk. The dairy futures market in the US is now well established and is here to stay – however, the futures market is small when compared to corn or soybean markets. Interestingly, dairy futures markets were established mainly at the behest of product end-users who sought a mechanism to reduce the volatility in the price of dairy inputs.

The CME futures markets are cash-settled (with the exception of one butter contract which is little used). This effectively means that on expiry of the contract there is no physical delivery of the product – instead there is a cash payment made, to make up any difference between the price of the product at the time of entering the futures contract and the price at the time the contract expires. Cash settlement allows the exchange to base some futures markets on a reference price (Class III and Class IV milk) rather that a specific dairy product.

Figure 5: Trading floor of Chicago Mercantile Exchange

New Zealand

In October 2010 the NZX (New Zealand Stock Exchange) launched their dairy futures contract. They offer 3 contracts, Whole Milk Powder (WMP), Skimmed Milk Powder (SMP) and Anhydrous Milk Fat (AMF). The NZX WMP futures contract was this first futures contract available specifically for WMP, the most traded commodity in Oceania. As WMP has a higher fat content than SMP, it has a shorter shelf life and cannot be stored for as long a period as SMP. NZX therefore maintains that there is less chance of WMP markets being distorted by government intervention than SMP markets (Kilsby, 2010).

NZX dairy futures contracts are one metric tonne in size – significantly smaller than their CME counterparts. For example, the main CME contract, Class III milk, is c. 90 metric tonnes in size. The small sized contracts employed by the NZX will allow hesitant participants to commence trading without creating a major exposure – however, in order to create a market with depth, it is likely that the size of these contracts will need to be increased in the medium-term.

To date, there has been some trading on the NZX exchange. For the month of October 2011 over 2,000 contracts were traded (WMP futures was the most traded contract - see Appendix I for contract specification). While this is small given the size of the contracts it is, nevertheless, encouraging progress.

Europe

There have been a number of dairy futures contracts launched in Europe over the past 2 years. These include:

- Eurex, a Swiss derivatives exchange, launched an SMP and Butter contract in May 2010. These are cash-settled contracts of 5 metric tonnes in size (See Appendix I for contract specification of SMP contract). The contracts use reference price indices - the Eurex SMP & Butter indices which in turn are based on a combination of SMP & Butter prices from Germany, France and The Netherlands

- NYSE Liffe, a European derivatives exchange, launched their SMP contract in October 2010. This contract operates on a physical settlement basis – each contract is 24 metric tonnes in size (contract specification in Appendix I)

- CME, the Chicago-based derivatives exchange, launched an international SMP contract in May 2010. This contract is 20 metric tonnes in size and operates on a physical settlement basis (contract specification in Appendix I)

There has been very limited activity on any of the above contracts to date. Futures contracts are notoriously slow to become established – in the US it was a number of years before significant activity was evident. Nevertheless, one would have concerns as to the long-term future of these contracts without significant improvements in market conditions in the EU to facilitate trading of futures contracts. These are examined in detail in the Recommendations section later in the report.

Using Futures Markets to Manage Price Risk

An established & fully functioning dairy futures market does not automatically allow dairy farmers to hedge their milk price. Given the size of most futures contract, only farmers of a very large scale have the capacity to trade futures directly to hedge their milk. For example, one Class III CME dairy futures contract is c. 90 metric tonnes in size equating to 87,000 litres of milk (see Appendix I for contract specifications).

Despite the availability of dairy futures markets, it is estimated that as few as 2-3% of US dairy producers actively trade on the dairy futures markets. One of the chief reasons for this is lack of scale on the part of producers as referred to above. There are other reasons for the low level of participation. These were outlined by Alan Linnebur, Agricultural Agent with University of Wisconsin and are listed below:

- Lack of understanding of how hedging works
- Mistrust of futures markets – this has been further fuelled by the recent global financial crisis
- Preference to speculate – farmers are afraid of missing out on periods of peak milk price
- Dislike of margin calls – these are interim cash payments that the producer may have to make if futures markets have moved unfavourably from when they initially entered into the contract.

Use of Fixed Price Contracts Based on Dairy Futures Markets

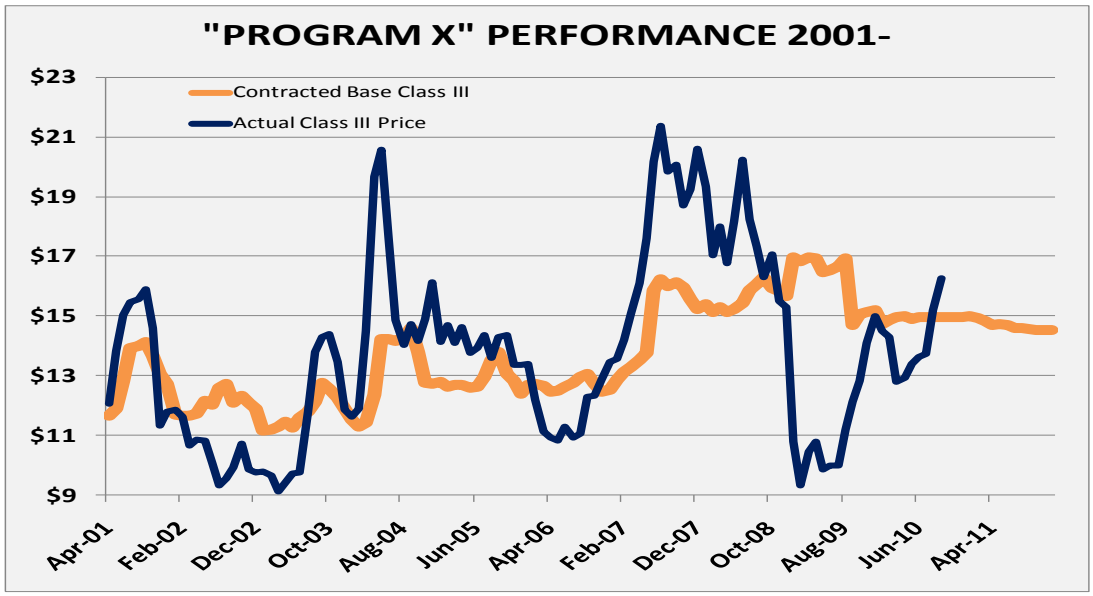
Due to the above concerns, many dairy processors offer their milk suppliers fixed price contracts. These contracts are developed in conjunction with brokers who use futures markets to allow processors to offer contracts for a fixed period at a fixed price. For example, Foremost Farms, a Dairy Co-operative based in Wisconsin/Minnesota, offer their suppliers a 6-month contract at a fixed price of, say, $17/cwt. Suppliers will then be given a deadline by which they can avail of this contract. They may decide to place part of their milk into this contract with the remainder supplied at market price. The use of fixed price contracts, such as these, helps increase the use of hedging for the following reasons:

- Much easier to understand

- As producers are dealing directly with their processor there is a higher level of trust
- Small producers can hedge their milk price – participating directly on the futures market is suited to larger producers
- The processor covers any margin calls

These fixed price contracts are normally formulated in conjunction with a brokerage firm. An example of one of these is Blimling & Associates of Cottage Grove, Wisconsin. Figure 6 is an example of a fixed price contract they formulate in association with a local dairy processor.

Figure 6: Price comparison - hedged milk vs unhedged milk



Source: Blimling & Associates

During the above 10-year period, the average hedged milk price is $13.69/cwt versus average unhedged milk price of $13.79, a 1% difference in milk price. This illustrates the fact that you cannot beat the market, but you can make the ride less bumpy. The high/low price for hedged milk in the above period was $16.96/$11.14 versus unhedged high/low price of $21.28/$9.11. Hedging of milk price gives producers certainty and avoids the peaks and troughs that those in unhedged positions experience but it results in a very similar milk price over a long-term period.

Even with the option of forward contracts, such as above, the use of this remains quite low in the US. In all, it is estimated that as little as 20% of US dairy producers use some form of price risk management.

Use of Options Based on Dairy Futures Contracts

Options are the right but not the obligation to buy or sell a futures contract at a specified price at a specified future date. There are 2 forms of options; a put option (the right but not the obligation to sell a futures contract) & a call option (the right but not the obligation to buy a futures contract) (Jesse & Cropp, 2009).

Options can be used to allow producers to put a floor on their output price and allow end users to put a cap on their input prices. In the US, producers generally work with brokerage firms, who use options to develop hedging strategies, suitable to the producer in question depending on prevailing market conditions.

Use of Futures Markets to Develop Insurance Products

An established dairy futures market gives other options to both producers and administrators. Administrators can use futures markets to provide subsidised state insurance products for dairy farmers such as Livestock Gross Margin Dairy (LGM Dairy) in the US. This was developed by Brian Gould, Associate Professor at University of Wisconsin. This insurance product uses derivatives from both dairy & feed futures markets and allows producers to enter into an arrangement that locks in their Income over Feed Costs (IOFC).

Other Risks Associated with Price Risk Management

There are a number of other risk factors that a milk producer needs to manage, should they decide to hedge their milk price. Some of these are examined below.

Basis Risk

This is effectively the calculation of the relationship of the milk price the farmer is receiving from their milk processor, to the commodity they are hedging against in the futures market. For example, should a farmer hedge using a SMP contract this would cover the protein constituent of their milk price but would not cover the fat. A Butter or AMF contract would also need to be hedged to fully cover the constituents of the milk being produced. For this reason the NZX WMP contract is a good option to fully hedge against processor milk price in New Zealand as it covers all constituents. Basis risk is a major concern for a milk producer supplying a cheese processor in Europe as there is currently no futures contract they can use to fully hedge against cheese.

Input Inflation Risk

If a milk producer decides to hedge or lock in their milk price it is vital that they also look at hedging the bulk of their inputs. As discussed earlier in the paper, the type of milk production system employed has a significant effect on how achievable hedging inputs is. For a US confinement based milk producer, a hedge on corn & soybean as well as oil will allow them to fix up to 70% of their cost base. Hedging input prices allows milk producers to effectively lock in their profit margin or margin over feed costs (MOFC). Milk price can be affected to a significant extent by feed price – therefore, not hedging on input prices following a hedge on output price could leave a milk producer significantly exposed to negative input price movements.

For a pasture-based milk producer in New Zealand hedging their inputs is more complicated given that grass generally constitutes over 80% of the cow's diet. Therefore hedging inputs is not straightforward. The option of hedging on oil & gas price (to cover fertiliser inputs) as well as fixing of interest rates on farm borrowings will allow a New Zealand milk producer to lock

down a significant amount of farm costs but nothing near what a confinement-based farmer can achieve.

Exchange Rate Risk

Where a milk producer is hedging milk through a futures contract which is in a different currency from that which their daily trading is transacted, the milk producer will need to hedge on exchange rate in conjunction with the output price hedge. This eliminates the risk of currency movements, reducing the margin the milk producer achieves for milk hedged. Interestingly, NZX futures contracts are priced in US Dollars – therefore, New Zealand dairy farmers need to be mindful of exchange rate risk if hedging using NZX futures.

Default Risk

Where a milk processor enters into a forward contract with an end user often no funds change hands when the deal is initially agreed. There is the risk that at the time of maturity of the contract that one party may renege on the agreement. Default risk is eliminated in futures contracts as the futures exchange effectively guarantees the transaction.

Other Price Risk Management Options

Over the Counter (OTC) Contracts

OTC contracts are generally individually customised contracts between 2 parties usually a commodity supplier and an end user. There is usually an intermediary in this transaction (normally a brokerage firm). The benefits of OTC contracts are that they can be customised to meet the needs of the end user. The downside is counter-party credit risk (default risk as outlined above). By their nature the pricing of these contracts is not transparent and price information is difficult to obtain.

Forward Contracting

A forward contract is effectively an agreement to sell a fixed quantity of a good at a stated period in the future at a fixed price. Forward contracts are becoming more and more prevalent in the Irish cereals markets with an estimated 25% of the 2011 grain harvest forward sold. The benefits of these contracts are that they are clear and unambiguous in terms of the selling price which allows both parties to carry out superior planning, particularly from a financial point of

view. On the downside, as outlined earlier there is counter-party credit risk – so both parties need to have full confidence in their partner when entering into these transactions.

Fixed Price Contracts

Glanbia, the largest Irish milk processor, recently offered a fixed price contract option to their milk suppliers called the Index Linked Fixed Milk Price Scheme. This scheme offers a 3-year fixed price and is index-lined to the cost of farm inputs (based on input index derived from data from Central Statistics Office [CSO]). Suppliers are required to commit a minimum of 10% of their milk supply to the scheme with no upper limit (see appendix II for scheme outline).

This scheme offers suppliers the benefit of an effective hedge on part of their output price while also insulating themselves to a large extent from input price inflation. This scheme is a welcome development in aiding milk producers to manage price risk. Notably, it has also been well received by their supplier base in general and was strongly oversubscribed.

Conclusions

- Irish and European milk producers are now much more exposed to milk price volatility as a result of the removal of market management mechanisms previously employed by the EC. These mechanisms were effectively publicly funded price risk management mechanisms and successfully shielded EU milk producers from the volatility of international dairy markets

- World dairy markets have always been volatile – however, the level of volatility has increased significantly over the past decade. This volatility is set to continue into the future. Milk is also quite a volatile commodity when compared to its other agri counterparts

- When considering hedging milk price or managing price risk, milk producers must firstly examine their competitive position – high-cost producers need to improve their competitiveness before looking at the area of price risk management

- Dairy futures contracts offer both milk producers and end users the option of hedging their milk price thus reducing the worst effects of price volatility

- There are a number of crucial conditions necessary in order for a successful futures market to become established. Key among these is timely market information, a credible milk price index & numerous market participants

- Futures markets also facilitate the development of other products including fixed price contracts, options and state-subsidised insurance products

- There are other risks that also need to be managed in conjunction with price risk. These include exchange rate risk, input price risk & default risk

- There are a number of improvements that could be made at EC level to improve market conditions for the development of futures markets. These include better market and price information as well as the education of participants

Recommendations

Having examined in depth the various price risk management options available there are many steps that can be taken to help all stakeholders in the dairy industry better deal with price volatility.

At European Commission (EC) level some recommendations are as follows:

- Improved market information including regular detailed statistical updates on cow numbers, stocks, imports & exports. Currently, the information available on EU milk production is very limited and is paltry when compared to the level of detail provided by the USDA. This information is beneficial and should be provided in any case even if futures markets are not subsequently developed. Improved market information will allow all stakeholders to plan with more certainty in the medium-term.

- Detailed price information on dairy commodities across the EU. Currently, there is an ad hoc approach to price information across the EU. There are various sources of information e.g. Dutch auction prices – however, there is no pan-European price information system. This pricing information is a requirement in order to allow price risk management mechanisms to be developed and to give investors the confidence to invest in any such mechanisms

- Leading on from the previous point, detailed price information will give the EC the opportunity to develop an EU milk price index. This index should be auditable to ensure its integrity. The EC is probably the only body that has the ability to collate the information necessary for an index and also to ensure the information is credible to all stakeholders. Is it a coincidence that the establishment of futures markets in New Zealand where there is an effective milk price index through globalDairyTrade has been much more successful than those launched in Europe at the same time?

- Education of all potential market participants is vital. After examining the US dairy industry and how futures are utilised it is clear that there is a distinct lack of understanding at all levels in how futures markets work. This lack of understanding automatically breeds distrust – provision of education and detailed information on the

advantages and disadvantages of futures markets can reduce this. It will also allow potential market participants to make an informed decision as to whether these types of markets can benefit them or not.

- Currently, the EC is reluctant to develop a milk index or take on the role of education. Lars Hoelgaard, Deputy Director, DG Agri for the EC speaking at the 2009 world dairy summit said "dairy futures are a matter for the market not the Commission". While acknowledging that the EC cannot be an administrator of a futures market they do have a vital role to play in providing some of the conditions necessary for a futures market to potentially develop.

At an Irish level, there are also potential improvements that could be undertaken in the short-term:

- The recent Glanbia fixed price contract is a welcome development and more milk processors should consider offering their suppliers this option. To encourage this, the Irish Dairy Board (IDB) can play a role in supporting processors in developing these contracts, by giving medium-term price commitments to their processor members

- Other simple mechanisms to help milk producers deal with price volatility could also be considered at State level. For example, the provision of a tax exemption on a portion of milk producers' profits could be introduced. This scheme would allow milk producers to set aside some of their profits in a year of high profitability and place it in a designated deposit a/c as a form of buffer fund. This fund would be exempt from income tax for a defined period – if the business needs to withdraw from this fund within the defined period the funds then flow back into the business. If the funds are not withdrawn and are still in place at the end of the period they then become liable for income tax. A scheme of this type would encourage milk producers to build up buffer funds putting them in a stronger position to cope with a potential downturn in milk prices.

- The IDB (Irish Dairy Board) can also play a pro-active role in exploring the benefits and limitations of futures contracts to the Irish dairy industry. The organisation should consider commencing trading dairy futures on a small scale & using the experience gained, to develop best practice in the use of dairy futures contracts by Irish dairy processors

- Other stakeholders in the dairy industry also need to up-skill themselves on the various risk management options available, given the clear increase in price volatility that is now evident

- To this end, the option of the provision of a price risk management training module should be considered. This training module could be made available to the relevant stakeholders in the Irish dairy industry including farmers, extension agents (Teagasc, Agricultural Consultants Association), co-op board members and management in milk processors.

- Leading on from above point, ICOS (Irish Co-operative Organisation Society) provide training courses for board members of milk processors in various management practices e.g. diploma in corporate direction – a dedicated module on price risk management should now be made a priority

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Appendix I:

Contract Specifications for Selected Dairy Futures Contracts

CME International SMP Contract Specifications

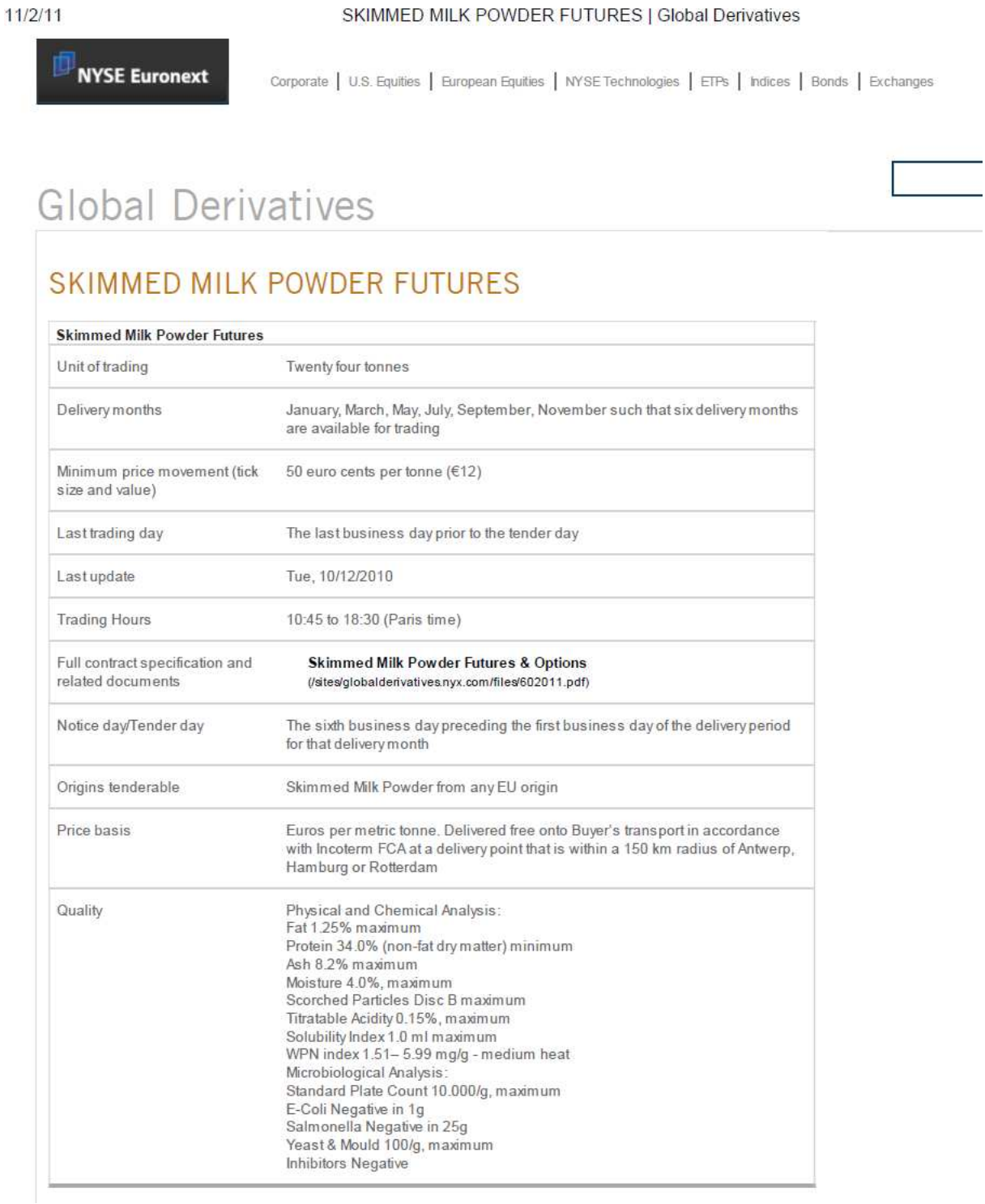
CME Group
A CME/Chicago Board of Trade/NYMEX Company

Deliverable International Skimmed Milk Futures

Contract Size	20 Metric Tonnes Skimmed Milk Powder (18 - 20MT Deliverable Variance)	
Product Description	Skimmed Milk Powder meeting "Codex Standard for Milk Powders and Cream Powder" (Codex Standard 207-1999)	
Pricing Unit	Cents per metric tonne	
Tick Size (minimum fluctuation)	$0.50 per metric tonne (= $10.00 per contract)	
Daily Price Limits	$50.00 per metric tonne above or below the previous day's settlement price, expandable limits. No limits in the spot month. See CME Rule: 5902.D	
Trading Hours (All times listed are Central Time)	GLOBEX (Electronic Platform)	Sunday at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. to 5:00 p.m.
Last Trade Date / Time View calendar	Trading shall terminate on the business day immediately preceding the last seven business days of the contract month. (LTD 12:10 p.m.)	
Contract Months View listings	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov and Dec	
Settlement Procedure	Physical Delivery See CME Rule 5903	
Position Limits	Non-Spot: 1000 contracts in any contract month Spot: 500 contracts See CME Rule: 5902.E	
Ticker Symbol	ISM View product and vendor codes	
CME Rulebook Chapter	59	
Exchange Rule	These contracts are listed with, and subject to, the rules and regulations of the CME.	

Source:http://www.cmegroup.com/trading/agricultural/dairy/international-skimmed-milk-powder_contract_specifications.html

NYSE LIFFE SMP Contract Specifications



11/2/11 SKIMMED MILK POWDER FUTURES | Global Derivatives

NYSE Euronext

Corporate | U.S. Equities | European Equities | NYSE Technologies | ETPs | Indices | Bonds | Exchanges

Global Derivatives

SKIMMED MILK POWDER FUTURES

Skimmed Milk Powder Futures	
Unit of trading	Twenty four tonnes
Delivery months	January, March, May, July, September, November such that six delivery months are available for trading
Minimum price movement (tick size and value)	50 euro cents per tonne (€12)
Last trading day	The last business day prior to the tender day
Last update	Tue, 10/12/2010
Trading Hours	10:45 to 18:30 (Paris time)
Full contract specification and related documents	**Skimmed Milk Powder Futures & Options** (/sites/globalderivatives.nyx.com/files/602011.pdf)
Notice day/Tender day	The sixth business day preceding the first business day of the delivery period for that delivery month
Origins tenderable	Skimmed Milk Powder from any EU origin
Price basis	Euros per metric tonne. Delivered free onto Buyer's transport in accordance with Incoterm FCA at a delivery point that is within a 150 km radius of Antwerp, Hamburg or Rotterdam
Quality	Physical and Chemical Analysis: Fat 1.25% maximum Protein 34.0% (non-fat dry matter) minimum Ash 8.2% maximum Moisture 4.0%, maximum Scorched Particles Disc B maximum Titratable Acidity 0.15%, maximum Solubility Index 1.0 ml maximum WPN index 1.51– 5.99 mg/g - medium heat Microbiological Analysis: Standard Plate Count 10.000/g, maximum E-Coli Negative in 1g Salmonella Negative in 25g Yeast & Mould 100/g, maximum Inhibitors Negative

Source: http://globalderivatives.nyx.com/en/contract/content/33687/contract-specification

CME Class III Milk Futures Contract Specifications

Class III Milk Futures

Quotes | **Contract Specifications** | Performance Bonds / Margins | Product Calendar | Learn More

Futures Options

Milk Futures

Contract Size	200,000 lbs. of Class III Milk (~ 90 metric tons)	
Price Quotation	Class III Milk	
Pricing Unit	Cents per hundredweight (cwt.)	
Tick Size (minimum fluctuation)	$0.01 per cwt (= $20.00 per contract)	
Daily Price Limits	$0.75 per cwt above or below the previous day's settlement price.	
Trading Hours (All times listed are Central Time)	GLOBEX (Electronic Platform)	Sundays at 5:00 p.m. through Friday at 1:55 p.m. with daily trading halts from 4:00 p.m. to 5:00 p.m.
	OPEN OUTCRY (Trading Floor)	MON-FRI: 9:05 a.m. - 1:10 p.m.
Last Trade Date/Time View Calendar	Trading shall terminate on the business day immediately preceding the day on which the USDA announces the Class III price for that contract month. (LTD 12:10 p.m.)	
Contract Months View Listings	All Calendar Months	
Settlement Procedure	Cash Settlement See CME Rule 5203.A	
Position Limits	Non-Spot: 1,500 contracts in any contract month Spot: n/a All months combined: n/a See CME Rule: 5202.E	
Rulebook Chapter	52	
Exchange Rule	These contracts are listed with, and subject to, the rules and regulations of CME.	

Most Requested

- Special Executive Reports
- Commodity Market Commentary
- Margins
- Price Limits
- Trading Hours
- Daily Settlements
- Product Code Guide

Quick Links

- Clearing & Trading Fees
- International Incentive Programs
- Advisory Notices
- Special Executive Reports
- Cash Settled Futures
- Holiday Calendar
- Financial Safeguards
- Free Real-Time Quotes
- Vendor Codes Lookup
- Agricultural Broker Directory
- Future Spreads on CME Globex
- Integration Update
- Corporate Governance
- NYMEX Cost Basis Memo
- SMART Click Tool
- Performance Bond Requirements

Source: http://www.cmegroup.com/trading/agricultural/dairy/class-iii-milk_contractSpecs_futures.html

Eurex SMP Contract Specifications

11/2/11 Eurex - Agriculture Derivatives

Trading > Products > Commodity Derivatives > Agriculture Derivatives

Skimmed Milk Powder Futures (FSMP)

Detail Information

Contract Specifications
Product News/ Corporate Actions
Transaction Fees
Trading Calendar
Trading Hours
Prices/Quotes
Statistics
Transaction Limits
Position Limits
Maximum Spreads
Minimum Quote Size
Maturity Range for PMM/AMM
AMM Package ID
Crossing Parameters
Mistrade Ranges
OTC Block Trade
OTC Exchange for Physicals
Index Composition
Vendor Codes

ISIN: DE000A1DKGX8
Currency: EUR

FSMP
2'340.00
2'320.00
2'300.00
2'280.00
2'260.00
9 11 13 15 17 19 21

Contract Specifications for all products

Contract Specifications

Version 31 May 2010

Contract Standards

Contract	Product ID	Underlying	Currency
Skimmed Milk Powder Futures	FSMP	Eurex Skimmed Milk Powder Index	EUR

Contract Size
5 metric tons

Notation
In EUR per metric ton

Settlement
Cash settlement, payable on the first exchange day following the Final Settlement Day.

Price Quotation and Minimum Price Change
The Price Quotation is in points. The Minimum Price Change is 1 point, equivalent to a value of EUR 5.

Contract Months
Up to 18 Months: The six nearest successive maturity months of the January, April, July and October cycle.

Last Trading Day and Final Settlement Day
Last Trading Day is the Final Settlement Day. Final Settlement Day is the last Wednesday of the respective maturity month, if this is an exchange day; otherwise the exchange day immediately preceding that day. Close of trading in the maturing Skimmed Milk Powder Futures on the Last Trading Day is at 12:00 CET.

Daily Settlement Price
The Daily Settlement Price for the current maturity month is derived from the volume-weighted average of the prices of all transactions during the minute before 18:30 CET (reference point), provided that more than five trades transacted within this period.
For the remaining maturity months, the Daily Settlement Price for a contract is determined based on the average bid/ask spread of the combination order book.

Final Settlement Price
The Final Settlement Price is established by Eurex on the Final Settlement Day, based on the value of the Eurex Skimmed Milk Powder Index at 19:00 CET.

Trading Hours
09:50-18:30 CET.

Source: http://www.eurexchange.com/trading/products/COM/AGR/FSMP_en.htm

NZX WMP Contract Specifications

Global WMP Futures - Individual Contract Specification		
Unit of Trading	1 tonne (MT)	
Price basis	USD/tonne	
Minimum Price Movement (Tick Size and Value)	USD5 per tonne (USD5)	
Daily Price Limits by Contract Month	**Contract Months 1-5 in the current Expiry Calendar**: 10% above or below the previous Trading Day's Daily Settlement Price. **Contract Months 6-11 in the current Expiry Calendar**:: 15% above or below the previous Trading Day's Daily Settlement Price. **Contract Months 12-18 in the current Expiry Calendar**: 20% above or below the previous Trading Day's Daily Settlement Price. Price Limits only apply to a Contract once a Trade has been executed on the Market in that Contract. Price Limits do not apply for 5 Trading Days preceding and including the Last Trading Day.	
Contract Months	Every calendar month such that 18 months are available for Trading	
Trading Day	08:00 hrs - 16:00 hrs NZST/NZDST	
Last Trading Day	Trading shall terminate on the last Business Day preceding the first GDT Auction of the month i.e. Trading in the March WMP Futures Contract will expire on the last Business Day immediately preceding the first GDT Auction in April (See Expiry Calendar contained in the Contract Terms and Administrative Procedures - NZX Derivatives Market Contract No 1 ("Contract T&Ps"))	
Final Settlement	Cash settled to the final Settlement Price calculated by NZX according to an average of winning prices for Whole Milk Powder, Regular - NZ, Contract 2 in GDT Auctions as stipulated in the Contract T&Ps (see Contract Term 8).	
Clearing House	New Zealand Clearing Limited	
Common Trading Facilities	Block Trading Facility	√
	Exchange for Physicals Facility	√
	Exchange for Swaps Facility	√
Common Trading Facilities Minimum Volume Thresholds	Minimum Volume Thresholds for each Contract or Class of Contracts are specified in Part C, Appendix One of the Procedures.	
Exchange Code	WMPF View Quote Vendor codes	
Cross Transactions Minimum Time Period	15 seconds	
Position Limits	20,000 Open Positions in any Contract Month	
Exchange Rules	The Contracts are Traded on the NZX Derivatives Market and subject to the NZX Derivatives Market Rules and Procedures.	

Where a Daily Settlement Price results in decimals and/or a price that is not a valid Tick Size this price will be rounded to the nearest whole number and then rounded to the nearest whole Tick. Where the Daily Settlement Price results in a decimal that is an exact uneven multiple of 0.5 this will be rounded up to the nearest whole number and then rounded to the nearest whole Tick.

This is an Individual Contract Specification for the purpose of the NZX Derivatives Market Rules ("Rules") as amended or supplemented from time to time. Capitalised terms used herein have the meanings given in the Rules, the Procedures and the Contract T&Ps unless otherwise defined. The information published in this Individual Contract Specification cannot and does not substitute the Rules, Procedures or Contract T&Ps, which should be read in full.

This Individual Contract Specification shall not constitute investment advice nor an offer, invitation, solicitation or recommendation to engage in any transaction. NZX and its subsidiaries take no responsibility for any errors or omissions or losses, direct, consequential or otherwise arising from actions based upon this information. Before entering into any transaction you should take steps to ensure that you understand the transaction and have made an independent assessment of its appropriateness in light of your own objectives and circumstances. You should also consider seeking advice from independent advisors.

GlobalDairyTrade *"GDT" is an internet-based electronic trading platform for cross-border trade in physical commodity dairy products operated by an independent trading manager. For further information on gGlobalDairyTrade go to www.globaldairytrade.info*

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Phone +64 4 472 7599 Fax +64 4 496 2893 www.nzx.com

Source:http://www.nzxfutures.com/dairy/contract_specifications/wmp

Appendix II

Glanbia Fixed Price Scheme Offering

- Index Linked Fixed Milk Price Scheme -

Key Components of the Scheme

- **The Scheme will guarantee a minimum fixed base manufacturing milk price of 28cpl (29.5cpl *Inc. Vat*) adjusted for input cost inflation over a 2010 base cost for a duration of three years. This is based on standard constituents of 3.6% butterfat and 3.3% protein and will be adjusted for actual constituents.**

- **For 2011, the input cost inflation will be guaranteed at a minimum of 2.5cpl. This will ensure a guaranteed minimum manufacturing milk price of 30.5cpl (*Excl. Vat*), or 32.1cpl (*Inc. Vat*) for 2011.**

- **If at the end of 2011, the input cost inflation is higher than 2.5cpl, then the 2011 base manufacturing milk price will be adjusted upwards to reflect this increase and any additions due will be paid to suppliers when farm input cost inflation information becomes available form the Central Statistics Office.**

- **The input cost inflation will be calculated relative to 2010 actual input costs (including feed, fertiliser, fuel (diesel) electricity, vet, medicine, etc.), as determined by the Central Statistics Office.**

- **Over the three year period the minimum base manufacturing milk price paid to suppliers will not fall under 28cpl (Excl. Vat) regardless of the movement in farm input costs.**

- **The actual level of farm input inflation to be applied to the base manufacturing milk price will be determined each year by reference to the relevant annual farm input inflation rates as published by the Central Statistics Office.**

- **In the event that the weighted average Glanbia base manufacturing milk price is below 24cpl (Excl. Vat) for either 2012 or 2013, then no input inflation adjustment will be applied in that year. In that case the supplier will receive the guaranteed fixed milk price of 28cpl (Excl. *Vat*).**

- **To participate, applicants will be required to supply a minimum volume of 10% of their 2010 milk quota to this scheme for three years. No upper volume limit applies.**

- **If you are interested in the scheme, contact your local Milk Advisor, who will assist you in the completion of the appropriate forms. The closing date for the scheme is the Friday 8th April.**

- **In the event that the Index Linked Fixed Milk Price Scheme is over subscribed, volumes will be reduced on a pro rata basis. If under subscribed Glanbia reserve the right not to execute the Scheme.**

Source: Glanbia

Promotional Summary

Study Topic: "The Role of Dairy Futures Markets & Other Price Risk Management Mechanisms in the EU Dairy Industry"

By Tadhg Buckley – 2009 Nuffield Scholar

- Before looking at managing price volatility and the risks associated with this, producers first need to look at their competitive position
- High cost producers, whose cost of production is at or above long-term average milk price, will struggle for viability, regardless of what price risk management mechanisms are employed
- Futures markets offer many benefits to producers seeking to manage price risk allowing producers to lock-in both output and input prices (mainly feed costs) thus protecting their margin
- Futures markets are also of benefit to end users who can use them to avoid the worst effects of price volatility in dairy ingredients, thus possibly preventing them from considering substitute ingredients
- The European Commission must provide improved market information including regular detailed statistical updates on cow numbers, stocks, imports & exports. Currently, the information available on EU milk production is very limited and is paltry when compared to the level of detail provided by the USDA
- The Irish Dairy Board should consider commencing trading dairy futures on a small scale & using the experience gained to develop best practice is the use of dairy futures contracts by Irish dairy processors
- ICOS (Irish Co-operative Organisation Society) currently provides training courses for board members of milk processors in various management practices e.g. diploma in corporate direction – a dedicated module on price risk management should now be made a priority