

# A Norwegian salmon derivatives market has made it

The possibility of hedging against future price movements may be essential when developing industries. Fish prices have been highly volatile and the movement to fish farming has highlighted the need to hedge against price risk. This has been the basis for the establishment of a derivatives market in Norway with salmon prices as the underlying. However, in due course the traditional pelagic fishing may also benefit from this marketplace. The success of a Norwegian fish derivatives market will depend on the ability of the initiative to meet market needs as well as on possible global competition.

Authorities have probably done their part of the job. Norwegian (and European) legislation for commodity derivatives appears to be adequate. Markets are well organised and transactions in standard products are settled in clearing houses and netting rules apply.

## Introduction

From being something very remote, commodity derivatives have become a normal and growing feature of the financial industry landscape of Norway. This is neither due to price hedging by the traditional industries such as aluminium or other producers of basic metals, nor by the oil and gas industry that has developed over the last 30 years, even if these industries benefit from global commodity derivatives markets in their risk management. The commodity that paved the way was electricity, and it was followed by shipping freight. Norway was an early starter in the liberalisation of the electricity market, and NordPool,<sup>1</sup> the market for hedging energy price risk, is well established. The market for shipping freight derivatives, Imarex, was established in 2000, and this market has subsequently developed and matured.

A number of Norwegian market participants felt that the time was right for the establishment of a salmon derivatives market. After a modest start where competition between alternative market places was an issue, Fish Pool came out as the winner. Fish Pool has an agreement with NOS Clearing to handle settlements. NOS Clearing is also the settlement provider for the shipping freight market at Imarex.<sup>2</sup>

## The salmon derivatives market at present

Markets for hedging price risk can develop if there is sufficient price fluctuation, and a basic interest for the hedge in both ends



Figure 1 – Extreme volatility in salmon prices (NOK/kg salmon). Source: Fish Pool.

of the market. When the salmon business developed from hunting to farming, an industry for a variety of consumer products developed. This industry and the salmon farmers could both benefit from predictable prices. As shown in figure 1, spot market prices have been highly variable over the last five years. The price shown – the Fish Pool index – is by construction representative for the farmed price exported from Norway. Over the period prices have varied from below 20 to above 42 NOK per kilogramme of salmon sold.<sup>3</sup> The variation does not have a unique seasonal pattern.

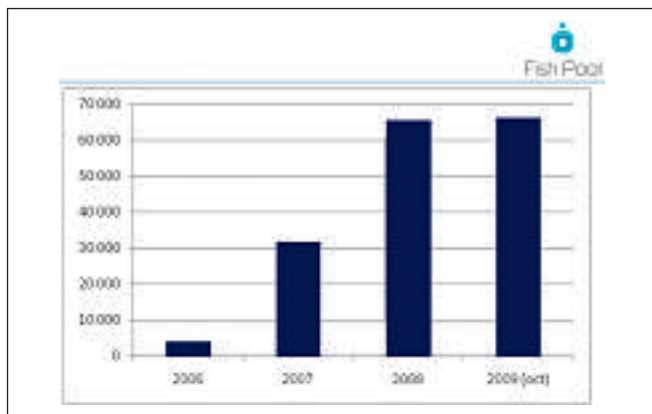
Various factors contribute to price changes in the short and in the longer run. Locations with suitable sea temperature and possibility for protection of the farms from extreme weather are limited. In 2008 around half of the world production was in Norway, and more than a quarter was in Chile. The long term supply is driven by suppliers' belief in the development and how much smolt (juvenile fish) they start feeding and the feeding intensity. The smolt release must be within a license, and the licence policy is an important supply factor. Disease outbreaks are important, as the fighting of disease can necessitate mass closures in large geographic areas. This has limited production in Chile the last few years. In the shorter run weather and sea temperatures can affect supply. The feeding regime can be changed and producers can harvest the fish early if they believe a quick profit can be made.

On the demand side a main driver is consumer choice. The demand for a variety of products based on salmon, their price and the perception of healthiness are important in the long run as are the development of purchasing power for consumers worldwide. Another important factor is the regulation of imports to important markets. Both the US and the EU have practiced various forms of import restrictions at the request of the domestic suppliers, and changes in these regimes will have

1 Liberalisation started with the Norwegian Energy Act in 1991. Nord Pool, the marketplace for electricity came in 1994, and financial futures were introduced in 1995. The physical market now covers the four Nordic countries. The financial marketplace is owned by the owners of the basic grid, whereas Nord Pool Clearing is owned by NASDAQ OMX.

2 Fish Pool and Imarex cooperate with the New York Mercantile Exchange (CME Group).

3 The euro exchange rate during the period varied between 7.3 and 9.2 NOK. The variation in the euro price of salmon has been approximately between 2.2 and 5.6 Euros per kilo.



**Figure 2 – Trade volume in tons 2006–2009.**

Source: Fish Pool.

large demand effects. In the short run seasonal factors and publicity issues related to health for the farmed salmon or for the consumer can be important for demand. So can short term price variations from exchange rate movements be.

The real supply and demand factors in the underlying physical spot market form the background for the development of a derivatives market. Fish Pool organises trade of futures contracts for the average monthly spot price of buying and selling of fresh Atlantic salmon.

In 2008 around 81 percent of the partners to the trades were salmon farmers, 24 percent were salmon export or import firms, 37 percent were value adding producers of salmon and 58 percent were grouped as financial investors<sup>4</sup>. A fairly new development is that a few securities firms act as general clearing members. Through these firms anyone can place cleared trades. The full impact this will have on market activity is probably not yet seen.

In some respects, Fish Pool still acts as an intermediary. An electronic trading system is available,<sup>5</sup> but a number of trades are entered into the system by the Fish Pool staff at the request of members. Interest has always been highest in the shortest contracts, i.e. up to three months ahead, and interest declines with time horizon. According to Fish Pool, there has been some trade in contracts for 2011. Even if very few futures contracts with expiration dates in 2011 have been executed, Fish Pool quotes prices until October 2011 on their homepage (<http://www.fishpool.eu/forwardlist.asp>). It is said that the forward price reflects the expectations of Fish Pool's Members for the next 24 months. Prices are not binding and according to Fish Pool they are assessed by contracts made as well as interests to buy or sell at Fish Pool. It is stated that they are indications for information purposes only, prices are given in NOK and euro and the currency exchange rate is sourced from banks and information providers.

The organised trade with salmon derivatives at Fish Pool started in 2006, and as can be seen from figure 2 the start was modest. However, the activity is increasing at a brisk pace. With three months remaining in 2009, the trading volume this year has already surpassed the previous year's record. Trading in 2009 may well turn out to be three times the figure of 2007, the first full year of activity. In addition, as the average price in the contracts increased from 2008 to 2009, the contract value of trades in 2009 surpassed that of 2008 some weeks before the trade, measured in tons of salmon, surpassed the 2008 volume. As a result, Fish Pool expects to make a small net profit this year. This is a milestone for the market, and may be seen as a sign that the salmon derivative market is established.

With the futures market for monthly salmon price established, Fish Pool is considering enlarging its product line. In April 2009 trade with Salmon Options started, and it is possible to write and hold call and put options on the salmon price. Fish Pool is also looking into the interest for seafood derivatives with different underlying commodity. There have been some newspaper reports on interest in price hedging from pelagic fishing of herring and mackerel. Also for other fisheries the traditional mechanisms for price fixing is under pressure, as market forces are not fully taken into account. Fish Pool seems to have an open eye for developments and possibilities.

### **On the development of new commodity derivatives markets**

The success of the Norwegian salmon derivatives market can serve as an example to provide general lessons for the establishment of a commodity derivatives market.

The demand to hedge requires price fluctuations sufficiently large to give certainty about future prices an independent value of a sufficient size. A clearly defined price against which the derivative can be settled, is required. The hedging product must be inexpensive and the counterparty risk low. The contracts must be standardised so that the market can become liquid. Achieving this requires organised trading, formulation of contracts and a settlement system.

The marketplace must establish a product that is clearly defined and suited for trade. It must also ensure sufficient activity to generate enough liquidity that prices are so clearly established that the portfolio may be rebalanced at a moderate cost. Efforts to acquire liquidity are particularly important in the start-up phase because this determines whether the market is attractive enough to be profitable.

To establish the initial activity, the initiators need to have close contact with the assumed natural users – large manufacturers and large consumers of the commodity. Like stock markets, commodity derivatives markets have members who receive information from the market and have access to trade in the market. Today, international recommendations on the use of a clearing house are usually followed. This reduces risk and allows markets to be accessible to more participants. Among these participants are speculators who take positions on the basis of their assessments of future prices. Such speculation increases liquidity and has a positive effect on the establishment of deep, liquid markets. Contracts that oblige particular market participants to quote bid and offer prices for a certain minimum volume on a continuous basis, is one important way of securing liquidity. Markets that have such market-makers are by definition liquid. In commodity derivatives markets, it is the marketplace that must take the initiative to find market participants who are willing to take on these obligations.

There may seem to be a contradiction in the requirement to produce highly standardised products for exchange trading, which are at the same time solutions that meet the needs of the specific producers and buyers of a specific commodity. To reconcile these needs, the two may meet through a broker. The market participants offering OTC contracts are usually brokers, and trading directly in the organised market where they can reduce the risk of their OTC transactions is often an element of their risk management. Therefore, successful mar-

<sup>4</sup> As each trade involves two parties, the sum of involved trading partners is 200 percent.

<sup>5</sup> The electronic trading system is the same as used by Imarex.

ketplaces for commodity derivatives often live in symbiosis with brokers dealing in OTC contracts.

As will be apparent from the information given above, Fish Pool has thus far passed most of the tests. There exists an elaborate regime for the reference price of salmon. Contracts relate to the average monthly spot price of buying and selling of fresh Atlantic salmon FCA in OSLO quoted in NOK and in euro per kilo. The underlying reference price spot relates to a weekly average, and the future prices are published daily. To ensure a high robustness and a correct reflection of the market price, a surveillance board oversees the decisions related to rules and procedures of the price index. The board may also impose temporary changes in the weighting of the price elements when deemed necessary.

From April 2007 it has been possible to clear the contracts at Fish Pool. Settled and bilateral trades coexist. In 2008 34 percent of the trades were settled through the central counterparty (CCP) NOS Clearing, and the ratio of settled trades is increasing. There has been a steady flow of new members since start-up. The present total of 174 includes fish farming companies, fish processing companies and financial brokers. There is no membership fee, but companies must provide a credit rating or a special settlement guarantee. Some securities houses act as general clearing members and offer trade with cleared contracts to the general public. This has not yet generated a lot of additional market activity. It remains to commit someone to take on the role of market maker.

### Regulating commodity derivatives markets

In Norway and the Nordic countries, commodity derivatives have been defined as financial instruments for a number of years. With the MiFID, this has become the European standard. In most European countries securities markets and commodity derivatives markets are supervised by the same authority. Commodity derivatives markets are also strictly regulated in the US, Canada and Japan. In these countries, there are special organisations that supervise these activities, but they all adhere to the same internationally agreed standards.

In Norway the first regulation came in 2001 and was based on a proposal from a specially set-up committee. The committee proposed a general regulation rather than a specific regulation for power derivatives, where the need for regulation was most pronounced.<sup>6</sup> The regulation has reduced financial risk, and there is agreement that activity with commodity derivatives cannot in itself have an impact on financial stability.

It should be mentioned that Fish Pool can issue products which have other seafood prices as underlying without a change of license. The existing license from the Ministry of Finance gives Fish Pool the right to operate “an authorised

marketplace for trading of salmon *and seafood derivatives*” and the CCP has a license to act as a clearing house for activity from the European Economic Area, Switzerland and the USA.

### Conclusions and future perspectives

Commodity derivatives markets provide a means of hedging against the risk of unfavourable fluctuations in prices. For some commodities, this protection is important for the development of a value chain from production to final sale to end users. Since this is a private, organised market that provides hedging products, the government budgets are not affected. The public authorities make their contribution by establishing an adequate regulatory framework which ensures that markets are well-organised and that the threat of collapse is reduced. The application of netting rules and adequate financial soundness and supervision of the clearing houses connected with derivatives trading are particularly important.

In Norway, the marketplaces for power and freight derivatives have been in operation for sixteen and ten years respectively. There have been dramatic episodes in both these markets. The markets have proved sufficiently robust, and both marketplaces are useful for hedging price risk. Through the MiFID, an adequate legal framework is now in place throughout Europe. FSA

Norway has ten years’ experience as a supervisory body for commodity derivatives markets and is thus well qualified to support the development in Norway. The description above reveals that Fish Pool ASA is filling a need for products that hedge the future price of salmon, and that this market now is established. The authorities should continue to encourage the further development of market-based systems to hedge price risk.

*“The demand to hedge requires price fluctuations sufficiently large to give certainty about future prices an independent value of a sufficient size.”*



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<sup>6</sup> More on this proposal and the reasoning behind it can be found in my article in the Economic Bulletin of the central bank of Norway: On commodity derivatives and the Norwegian initiatives to create a fish derivatives market. *Economic bulletin* 79, 30–37, [www.norges-bank.no/templates/article\\_69181.aspx](http://www.norges-bank.no/templates/article_69181.aspx).