World market for salmon: pricing and currencies

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Agenda

• Is the salmon market regional or global?
  - The «law of one price»

• Currency developments going forward

• A new price dynamic going forward?
  - More demand driven
The market didn’t look too global in 2015

Large regional differences in margins

Regional EBIT/kg NOK for MHG in 2015

- Norway: -1
- Canada: -6
- UK: -6
- Chile: -12

2015 EBIT/kg (NOK) □ Change vs 2014

CAD vs NOK +11% in 2015
GBP vs NOK +19% in 2015
USD vs NOK +28% in 2015

Source: MHG, NB, DNB
2015 – Chile prices at new lows, Norway at new highs

New lows for Chilean prices in 2015

Source: Urner Barry, DNB

New highs for Norwegian prices in 2015

Source: Kontali, DNB
But measured in NOK Chile also set new highs

*When measured in the same FX Chilean and Norwegian prices look very similar*

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**New highs for Chilean prices also...when measured in NOK**

**New highs for Norwegian prices**

*Source: Urner Barry, DNB*

*Source: Kontali, DNB*
The law of one price

Norwegian and Chilean prices are linked

- Price US = Norwegian farm gate price + air freight cost Atlantic
- Price US = Chilean farm gate price + air freight cost Americas
- Chilean farm gate price = Norwegian farm gate price + difference in freight cost Atlantic vs Americas

Must be measured in same currency. There can be price premiums/discount due to perceived or real differences in quality, consistency of supply, etc. There will be time lags in price adjustments due to logistics.
Norwegian and Chilean farm gate prices strongly linked

*The data supports the “law of one price”*

- Norwegian prices and Chilean were in line until 2012; then a NOK/kg ~7 discount on Chilean product. But movements still in sync. After the algal bloom the gap has closed.
Main regions and trade flows

Norway supplies Europe, Chile supplies the US

Global trade 2015:
Farmed salmon & trout - world wide (Atl. salmon, large trout, coho & chinook in tonnes wye)

Norway, Faroe Islands, Iceland:
Harvest: 1,388,000
Market: 50,000

Russia:
Harvest: 39,000
Market: 135,000

Japan:
Harvest: 10,000
Market: 276,000

Other Asia:
Harvest: 1,500
Market: 257,000

Australia & New Zealand:
Harvest: 64,000
Market: 65,000

North America:
Harvest: 175,000
Market: 520,000

Latin America:
Harvest (CL): 838,000
Market: 189,000

to Japan

Source: Kontali
High Canadian supply growth hit US prices in 2015
But Canadian volumes have now normalized, supportive for prices

Relative regional supply growth rates drive relative regional prices short-mid term

Source: DNB, Kontali, Urner Barry, Bloomberg
FX – a perfect storm for Chile (tough for the UK too!)

And a hedge which isn’t a hedge

- USD – lifts Chilean cost but not prices
- NOK – improves cost position of main global competitor
- CAD – improves cost position of main US mkt competitor
- EUR – reduces demand measured in USD
- Yen – hurts demand for coho and trout in USD
- Ruble and Real - hit demand measured in USD

CLP – dropped as much as NOK last 2 years, but Chilean farmers have a limited share of their cost base in local currency, USD ~75%..

...apparently a text book hedge as sales are dominated by USD...

...but the USD salmon price is heavily impacted by the NOK exchange rate..

...hence this hedge increases risk instead of reducing it.
Chile margins vs Norway
*Regulations, farming practices, market structure*

**EBIT/kg NOK – Norway vs Chile, Marine Harvest**

- **Norway**
  - Q14: 10
  - Q15: 15
  - Q16: 18

- **Chile**
  - Q14: 5
  - Q15: -10
  - Q16: -15
  - (Note: -9 ex algal bloom)

**Source:** Marine Harvest
Regional profitability, EBT/kg in NOK
*Synchronized (ex regional biological crisis) but different levels*

Average EBT/kg in Norway has been NOK 6 vs NOK 2 for Chile since year 2000

Source: Kontali

Chile has made money in only 2 of the last 9 years – and those were years with very strong prices (and low volumes meaning low profit in absolute numbers)
Global (simplified) supply curve

Chile’s position not sustainable given logistics cost and price achievement

Supply by region & production cost 2014, FX 2015

Source: Kontali, MHG, DNB
Cost – from leader to laggard in a decade

- From cost leader to laggard in 10 years
  - Cost has increased by USD/kg 2 relative to Norway
  - About half due to higher underlying cost, the other half due to weak NOK vs USD
  - The bulk of the FX effect has come in the last 1.5 years

Source: NILF, Kontali.

USD/NOK 6.44, GBP/NOK 13.15

But cost varies also significantly within countries, not just between them

Source: Fisheries Directorate, Marine Harvest, DNB
USD/NOK 8.10 current, 2005 USD/NOK 6.44
FX creates noise in relative feed prices too

Feed prices in USD/kg

Feed price in Norway less price in Chile, USD/kg

Weak NOK lowers Norwegian feed price relative to the Chile price when measured in USD

It takes time for changes in USD-NOK to feed into the Norwegian feed price due to long supply chains, FIFO accounting and FX hedging. (Regional development in raw materials is also a factor)
Norway and Chile - OECD commodity exporters

**Strong correlation between NOK & CLP and oil & copper**

NOK and CLP hand in hand; two small open OECD economies with large commodity exports where China is directly or indirectly the key end customer.

Source: FactSet
Norway has also benefited from weak NOK vs EUR

• Historically a 10% drop in NOKEUR leads to 5% increase in the salmon price measured in NOK and 5% drop in EUR (and vice versa)

• More recently looks like NOK price absorbs 70% - positive for Norwegian farmers when NOK drops, negative when it increases

Source: FishPool, DNB
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**NOK – where are we now?**

*The Norwegian party is over! (which is good for Norwegian seafood exporters)*

Norway surfs on a commodity super-cycle fueled by Chinese demand. Strong NOK.

The party is over! Weak NOK.

Source: Norges Bank
The super cycle boom-bust and the NOK

The commodity super cycle was kick started by China’s entry into the world economy and ended because China now focuses more on consumption and less on investment. And commodity supply has increased stimulated by high prices.

10 years of excessive oil driven wage growth in Norway reversed in a year due to the weak NOK (i.e. – the correction has gone a long way already).
Where is the NOK going?

Weak economic activity points to a weaker NOK…

**Weak growth & climbing unemployment**

![Graph showing Norway: Key indicators](image)

**Policy interest rate dropping further**

![Graph showing Norway: Key Policy Rate](image)

Source: Statistics Norway/DNB Markets

Source: Thomson Datastream/Norges Bank/DNB Markets
..but the NOK is undervalued
And the economy will not turn as bad as many fear
The Economist’s Big Mac Index says NOK is cheap!

NOK is undervalued
Legendary DNB oil analyst Kjus is bullish on oil prices...and hence DNB believes in a stronger NOK
DNB estimates a gradual NOK strengthening

Ripple effects from the oil induced slowdown and Norges Bank in easing mode will continue to weigh on the NOK.

Higher oil price should reduce the risk premium on a significantly undervalued NOK, hence we should see a stronger NOK ahead.

If DNB EUR-NOK estimates turn out correct, could imply NOK/kg ~2 lower selling price for the Norwegian farmer and EUR/kg ~0.1 higher for the European buyer vs salmon forward prices.
## DNB Markets FX forecasts

### Exchange rates

<table>
<thead>
<tr>
<th>Currency Pair</th>
<th>19-Apr-16</th>
<th>Jul-16</th>
<th>Oct-16</th>
<th>Apr-17</th>
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<tr>
<td>EURNOK</td>
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<td>USDJPY</td>
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### Exchange rates (calculated)

<table>
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<tr>
<th>Currency Pair</th>
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<th>Jul-16</th>
<th>Oct-16</th>
<th>Apr-17</th>
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<tr>
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<td>112.0</td>
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</table>

Source: DNB Markets
The Norwegians should not get too complacent

*The NOK exchange rate is the least faithful friend you can have in life.*

- Director Knut Sunde, Norsk Industri
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Salmon farming is still a young industry

Development in investor perceptions over time

Chaotic growth (pre 2008)

Cyclical growth (2008-2014)

New Dawn (2014-)

Low & stable growth:
Better margins + lower volatility = higher company valuations

Source: DNB
Time to find some new analytic tools?

A farewell to cyclical growth...

Full capacity utilization gives higher average margin and lower volatility.

..could also be a farewell to supply side totally dominating the price dynamic.

The changed dynamic in the left chart may change the dynamic to the right too.

Source: DNB, Kontali
Vertical supply curve makes supply less responsive to changes in price
And NOK less important, EUR more so

MAB utilization in Norway

A steeper supply curve

This well known chart implies the two to the right

Supply will respond less to prices than in the past
What sets the global price long term?

*Norwegian cost plus return on capital*

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**Cost drives price longer term**

As the industry has approached full capacity the last few years, the industry has moved from covering cost of capital to earning super profits.

![Graph: Price and operating cost (NOK/kg), Norwegian salmon & trout farmers](image)

*Source: Directorate of Fisheries*
Demand to become more important in forecasting salmon prices?

*A challenge, we know way more about supply than demand.*

Supply; we drown in data

Demand; the dark side of the moon

But overall price volatility should become lower due to lower supply volatility and more integrated value chains

Lower volatility could paradoxically lead to more salmon price hedging as it reduces the risk of having a different strategy than your competitors
A road map for growth

Atlantic salmon harvest; growth, no growth – and eventually innovation will trigger new growth

A few years with very limited or no growth due to restrictions in Norway and Chile?

Industry and governments lift biological capacity through technological and regulatory innovation, but still supply growth below growth in demand?

CAGR?

CAGR? 10% 1992-2014

Source: Kontali, DNB
New «normal» salmon price = NOK/kg 40+

To get 8% return on invested capital after tax, a Norwegian farmer needs NOK/kg 10+ EBIT-margin. Given cost of ~30+, the price must be 40+

Norwegian salmon price, NOK/kg

New «normal» salmon price?
(NOK/kg 40)

10-year average
(NOK/kg 33)

Source: Kontali, DNB
We assume NOKm 60 for naked license in our NOK/kg 40+ normal salmon price calculation

Source: Fiskeridir, DNB
Thank you for your attention