

## Swimming against the current: the long term attractiveness of fish farming

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Over the last decade, the Norwegian aquaculture industry has enjoyed significant growth, with total industry revenues growing by more than 300%. The industry is now more consolidated, barriers to entry are higher, production technologies are more efficient and prices have increased, driven by both existing and new markets. Last but not least, long term demand could be supported by a combination of a growing middle-class within emerging markets, the positive health effect of salmon as a product and finally the fact fish farming is resource efficient and climate friendly.



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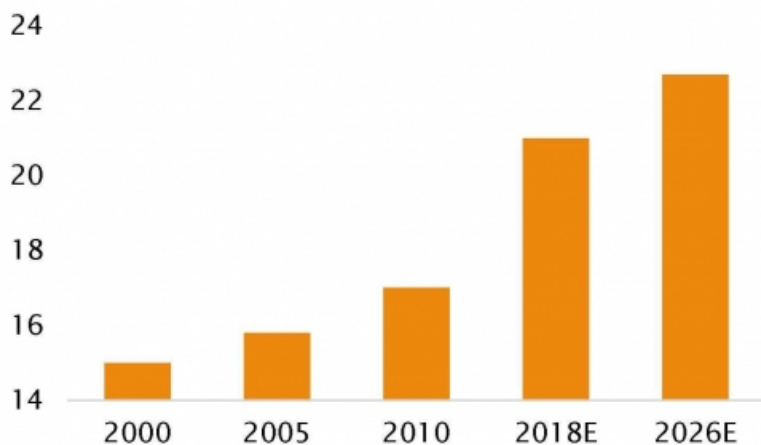
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Over the past ten years, the Norwegian salmon price has more than doubled to c.NOK57 per kilogram (with peaks of above NOK70 in 2016 and 2017) versus volumes increasing by only 3% per annum. The main reason for the export value growth in 2015-2016 was the reduction in salmon harvest volumes in both Norway and Chile. Volume declines were caused by an algae bloom, a lower smolt release in Chile in 2016 and finally a forced sea lice harvest in Norway during autumn 2015. This led to the biggest negative supply shock ever (supply contraction of c.7%) and therefore to extraordinary price increases for salmon.

While prices appear to have normalised, both supply and demand dynamics could prove supportive to future salmon price development. Moreover, we believe that demand should be supported by the fact the salmon can be easily adapted to local cooking habits and by the fact that until recently, salmon used to be consumed at home or in restaurants but is now increasingly available on the go.

Global population is growing rapidly and while 70% of the Earth's surface is covered by ocean only 6% of human protein consumption is produced there (pork, poultry and beef account for the bulk of the global protein supply). According to the UN, the world's population could grow by 30% between 2017-2050, which equates to more than 2 billion new mouths to feed! Therefore, increasing aqua production will be crucial to meet the growing demand.

Development of global average fish consumption, Kg per capita



Source

Source: SYZ Asset Management. Data as at August 2018.

The relatively new fish farming sector is gaining significant momentum, notably versus wild capture which has been flat for years. Progresses in breeding, cages, feeding and harvesting technologies have made salmon farming economically and biologically sustainable. In the short term, we expect supply to remain capped by both legal and biological limitations. However, we see meaningful growth potential owing to alternative and/or innovative farming techniques such as land-based farming (limited to smolt for the time being), offshore and near-shore farming (Salmar offshore farms; Marine Harvest Egg concept), value-added-processing from improved sealice treatment, feed management, vaccines and gene editing.

According to Kontali Analyse (a leading fish industry analyst company), the supply of Atlantic salmon increased by 417% since 1995 (c.8% per annum). However, growth is expected to diminish from its recent 5% per annum over 2005-17 to c.4% per annum over 2017-2021, thus supporting relatively high prices. Moreover, demand from new markets like China and the US is expected to increase by c.250-300k tons, i.e. 15-20% of the actual total production of farmed salmon.



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