

SuperDerivatives

Effective management of freight risk using derivatives – a user guide

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The shipping industry is one of the leading indicators of the state of the global economy. Trading volumes of forward freight agreement contracts, or FFAs, experienced seven years of rapid growth as the economy boomed, with a peak in 2008 when 2.1bn tonnes of freight in FFA contracts worth \$155 billion were traded.

The tanker and dry freight markets have experienced record highs and lows over the past 18 months, reflecting the wider economic downturn, yet as the financial markets recover, an upswing of trade in FFAs is widely considered to be imminent.

Already, a marginal uptick in world trade in the last six months has been driving shipping activity, with the dry bulk market proving more resilient than many expected in 2009, especially towards the end of the year.

Fundamental supply and demand drivers such as vessel supply, vessel construction, export growth, oil flows, refinery utilisation, and demand for bulk raw materials contribute to establishing global freight rates. Shipping is an

inherent part of the commodity value chain.

Managing freight market risk remains a significant issue for the shipping industry but also for the banks and corporates with an interest in this evolving market.

One method of managing this risk is through the purchase and sale of FFAs, the value of which is derived from the value of an underlying asset.

In the shipping industry, the underlying asset is the freight rate for a specific physical trade route, based on a daily assessment provided by the Baltic Exchange.

These freight derivatives serve as a means of hedging exposure to freight market risk by providing for the purchase and sale of a freight along a named voyage route or timecharter over a specified period of time.

Using a simple example of a buyer of an FFA swap, a formula determines the settlement amount for the transaction at expiration. On settlement, if the contract rate at which the buyer entered into the swap is less than the average of the rates for the contract route over

the contract period, as determined by reference to the relevant index, the seller of the FFA is required to pay the buyer an amount equal to the difference between the contract rate and the settlement rate multiplied by the number of days specified in the contract. Conversely, if the contract rate is greater than the settlement rate the buyer is required to pay the seller the settlement sum.

FFAs can be bilateral between two principals or can be cleared. A bilateral transaction exposes the counterparties to a risk on non-performance throughout the life of the transaction. As a way to reduce or eliminate counterparty credit risk, participants have overwhelmingly embraced clearing mechanisms for freight products. Clearing mechanisms have been provided by NOS, Singapore Exchange (SGX), CME Clearport and others for the standard freight products such as swaps and options. Clearing mechanisms replicate the structure in place at a regulated futures exchange in that participants trade standardised products, must post margins, and report their positions and abide by position limits in place.

The freight derivatives market began with the trading of voyage rates for dry cargo routes in the early 1990s and later was expanded to include wet tanker routes.

Forward Freight Agreements were originally used almost exclusively by participants in the shipping industry, such as shipowners and charterers, to hedge against fluctuations in freight rates. Banks stepped in to offer greater intermediation and provide hedging services to the shipping community.

Financial hedging allows for an efficient management of freight exposure and cash flow. Participants can flexibly react to spot market volatility using financial contracts rather than timecharters. Trading in and out of contracts prior to settlement is also possible.

Since then, the attractiveness of trading freight has greatly evolved. The advent of



clearing has created greater transparency and promoted liquidity, while market volatility has remained very high. These factors have attracted a large number of non-traditional players to this market.

Today, participants include shipowners, refiners, physical traders, banks, brokers, hedge funds, and asset managers.

The result of increased participation is that the total volume of financial trading today is a multiple of the underlying physical market. There is more extensive use of risk management techniques and instruments, whether standardised or bespoke.

The market now actively trades swaps, route spreads, time spreads, Asian options, and strips on both dry and wet freight. As the level of sophistication and customer need increases, new products and structures will eventually be developed.

In light of these developments and to reflect the growing market, SD realised that participants active in the markets require sophisticated pricing, analytics and risk management tools to support their freight trading operations. Tools were needed for supporting hedging or trading decisions, to collect reliable market data, and accurately and efficiently calculate the values of financial instruments.

Valuing shipping derivatives also has its set of challenges. The market is still relatively young when compared to the more established energy and metals markets.

Although clearing and settlement have provided much needed price transparency, the intra-day market is still relatively opaque. Price discovery is provided by shipping brokers but quotes oftentimes contain wide bid-offer spreads to reflect the uncertainty of where the market is trading.

Second freight is volatile. Spot volatility and option implied volatility for freight can easily be trading above 100% consistently. Compare this with 10% annualised implied volatility in the foreign exchange market; 100% implied volatility is akin to saying that the market believes that within a given time frame, in this case one year, freight rates can double or head to 0.

Volatility reflects the fundamentals of the market. Demand for freight is inelastic and in the short run there are limitations on how much supply can increase in order to catch up with demand.

With this in mind, obtaining accurate volatility quotes is challenging as options volume are more thinly traded than swaps and wide bid-offer spreads are prevalent.

Third, choosing the appropriate financial models to value options is also key. The appropriate model is ultimately the one that



produces prices that are observed in the market. In freight, the industry has not embraced just one model, creating associated model risk when pricing options.

To support market participants through these trading conditions, SD has added dry and wet cargo FFAs and options on FFAs on a very wide range of ocean routes to its commodities and energy solution, giving users access to real-time independent pricing, risk management, mark to market valuations, pre-trade analysis tools and extensive portfolio management capabilities

These cover both wet and dry freight derivatives, designed to provide coal, ore, oil and other commodity producers, timecharterers, shipowners and financial institutions with an in-depth understanding of market trends and potential trading opportunities.

SD's freight derivatives service enables shipping firms to access accurate pricing and manage risk in the volatile shipping market to benchmark and manage their exposures to freight costs.

SD provides the widest coverage of commodity and energy derivatives on a real-time basis, from vanilla to the most advanced structures, across a huge range of underlying assets. The addition of FFAs builds on the company's existing presence in commodity derivatives.

Overall coverage of commodities derivatives includes over 65 options and structures across more than 105 underlying assets, including precious metals, base metals, oil and refined products, natural gas, electricity, emissions and agricultural markets and freight.

This ensures shipping companies have access to accurate, independent and real-time pricing for almost any commodity and commodity-related products and instrument or

structure, allowing them to more effectively hedge any exposures that may affect their capacity to do business.

Western Bulk, one of the world's largest shipping companies with a 60-strong commercial fleet, has signed up for the service to strengthen its ability to set a market-accurate future price for carrying commodities at sea.

International shipping company Gearbulk recently joined the growing list of shipping companies using SD's data to gain an accurate and independent view for commodities derivatives pricing and management.

Gearbulk hedges its exposure to bunker fuel costs for its fleet of vessels and chose SD's commodities solution, SD-CM, for its ability to provide extremely accurate independent price checks for fuel markets before going to market.

Ilias Angelidis, treasury analyst, Gearbulk, comments: "After surveying the market for a solution to accurately price our fuel exposure, we went with SD for its residual fuel oil coverage and its scalable pricing system supported by robust risk analytic tools. Our ability to price and manage our positions across the life cycle has improved dramatically since deploying it."

SD aims to develop its presence in the shipping industry further by providing members of the Baltic Exchange with risk management and valuation services.

Through its technology, it directly provides additional market transparency which ultimately leads to better information and to better decision making. Finally, it raises awareness and education about the shipping market to get new players into the market.

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