



LOGISTIQUE ET TRANSPORT DES VRACS

Sous la direction de Yann Alix et Romuald Lacoste



CAPSULE PROFESSIONNELLE 6

Forward Freight Agreements: Transportation price management tools in uncertain markets

Vincent Socharð

Chartering Manager
Klaveness Asia - Singapore

Biographie

Après un master Finance et logistique maritime internationales de l'université de Nantes, Vincent Socharð a commencé sa carrière en tant qu'opérateur de navires chez Louis Dreyfus Commodities sur différentes tailles de navires et types de matières premières. Il a ensuite évolué dans la filiale Armement du groupe Louis Dreyfus, au sein du service commercial (Cetrappa SNC) où il a fait ses armes dans l'affrètement de navires au tramping.

Promu à Singapour en 2008 pour aider au développement de la zone Asie, il a ensuite évolué vers les responsabilités de chartering manager au sein de la réputée compagnie maritime Norvégienne Klaveness, poste qu'il occupe depuis 2011.

Introduction

The vast majority of international trade is carried by sea. This is convenient for companies and traders that want to do business with counterparties on the other side of the world, but it also poses a problem: how can they plan their businesses and make contracts with customers when the cost of transportation constantly changes? Forward freight agreements (FFAs) are a tool to fix the price for shipping in the future.

Industry terms

Long position: owning or buying an asset in the expectation of its price rising.

Short position : the opposite – when you expect prices to fall.

Freight: the amount to hire a ship in dollars per day or to move a cargo in dollars per ton.

Charterer: somebody who hires a ship.

Capesize: a dry cargo ship of around 172,000 deadweight tons.

Panamax: a dry cargo ship of around 74,000 deadweight tons.

Supramax: a dry cargo ship of around 52,000 deadweight tons (this will be increasing to 58,000 deadweight from January 2014).

Imagine you are a ship charterer with a contract to deliver a regular shipment of iron ore from Brazil to China every month for a year. Spot rates for a Capesize vessel are currently \$12,000 a day. However if rates rise as the months pass, the ship owner will charge you more every month and it will be difficult to budget and conduct your business during the coming year. If your income from carrying the ore to China is fixed, how can you avoid losing money if the freight rates are steadily rising? One solution is an FFA, a contract based on the difference between a rate fixed today and the average monthly rate in future.

Figure 1 : Freight rates and income

Freight rates and income



Source: Vincent Sochard 2013

Definition, players, objectives

A general definition of an FFA

An FFA is a financial contract by which party A (the buyer) agrees to pay party B (the seller) a certain sum at a fixed date in the future, based on the price of carrying freight by ship. The parties to the contract could be active in the shipping industry or they may be banks or other investors; the FFA is not a contract to hire a ship but an exchange of cash.

The charterer above, who is looking to hire a vessel, might buy an FFA contract from a hedge fund, a ship owner, or even another charterer. It's important to note that the word 'freight' in the acronym FFA refers to the cost of the carriage, rather than the type of cargo carried.

At the end of every month, the parties look at how the overall market price for freight has changed. In other words, what are most people charging for a similar ship compared to last month? If the market price is higher than the price in the contract, the contract seller will pay the difference to the contract buyer. If the contract buyer is a charterer, they can then put this sum towards hiring a vessel at this higher market price. If it is lower, the situation is reversed and the contract buyer will pay the difference to the contract seller. Then, who wins and who loses?

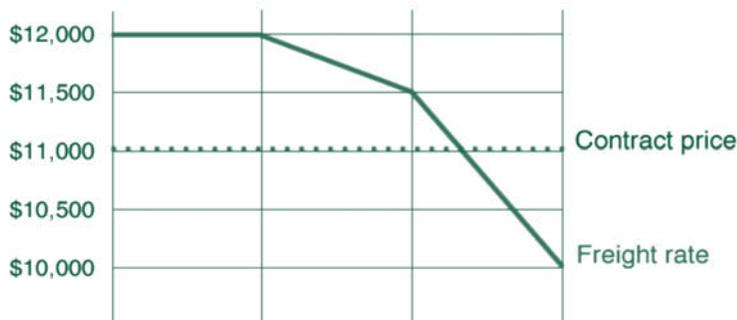
- If market rates, as indicated by the daily index, rise above the agreed price, the seller of the contract will pay the difference to the buyer of the contract.
- If rates fall below the agreed price, the buyer will pay the difference to the seller.

One additional aspect of an FFA to understand is that the overall market price referred to above is actually an index price. That's to say, it's an estimate of the price, provided by brokers who are active in the market. Moreover, note that an FFA does not have to concern a product, such as iron ore or grain. The contract is about the freight rate and not the cargo, so there are FFAs for Capesize, Panamax, Supramax and Handysize.

Let's illustrate this concept with a simple example. Let's say the current price of capesize rate is \$12,000 per day. The charterer expects daily prices to fall over the coming months, and risks losing the opportunity of a lower price if he is locked in at today's price.

Via a broker he arranges to sell a swap at \$11,000 per day, the price available for the particular period he wishes to cover. His broker finds a counterparty (a buyer in this case) and the FFA contract is confirmed.

In the first month, prices are static at \$12,000, and he pays an additional daily rate of \$1,000. Then the price falls to \$11,500, and he pays an extra \$500 per day. Finally, the price falls to \$10,000, and the counterparty is paying him \$1,000 extra per day.

Figure 2 : Freight rates versus contract price**Freight rates v contract price**

Source: Vincent Sochard 2013

The market participants in the world of FFAs and their objectives

In the world of commodity trading, the firms interested in taking up contracts are often called 'market participants' and this is a useful shorthand that we'll use from now on.

a) The ship charterers: a ship charterer is usually the owner of the cargo. In the scenario in the last section, a charterer decided to use this type of contract in order to hedge against potential losses if the price of hiring a vessel rises. So FFAs are used to reduce price risk and help the contract buyer predict cash flow more accurately. A ship charterer has the choice of several types of contract (known as charter-parties):

- With a voyage charter, the charterer hires the vessel for a specific voyage. The owner retains control of the vessel and must provide crew, fuel and will pay other operating costs such as insurance.
- Under a time charter the charterer hires the vessel for an agreed period and controls where it will sail and what it will carry. The charterer is responsible for fuel and port charges, and pays a daily rate for hire.
- A bareboat charter is an agreement to hire a vessel without crew or provisions. The charterer takes control of the vessel and is therefore responsible for all aspects of its operation, including insurance, crewing and fuel.

b) The ship owners: the counterparty to the charterer in our scenario was the ship owner. The ship owner is concerned to avoid losing money by charging too little for his ship, and wants to be sure his vessel is being used and not lying idle.

c) The Hedge funds and the other financial institutions: hedge funds and financial institutions such as banks use FFAs both as investments to diversify their assets and portfolio and as speculative trading opportunities, where they judge that doing so will give their customers a better return than other investments, or help to spread risk.

Industry terms

Arbitrage: the exploitation of a difference between prices in different markets. A simple example might be a car trader who notices that a particular make of car sells for USD 10,000 in London and USD 11,000 in Paris. This difference creates an opportunity to buy in London and sell in Paris.

Forward curve: an evaluation of future freight rates for specific periods.

Counterparty: a legal term for the person, organization or business with whom you make a contract.

Contract, pricing, clearing and settlement

FFA contracts

FFA contracts are principal-to-principal contracts, arranged via a broker. After agreement, they are then transferred to a clearing house where a process called 'novation' replaces the original counterparties with a central clearing counterparty. Clearing houses are intermediaries that offer the parties a level of financial security that may not be possible when dealing directly with the counterparty, and we will look at how they work in more detail later. Within dry FFAs close to 100% of all contracts are traded via a clearing house. Contracts which will be settled through a clearing house are registered by an authorised broker or by a member of the clearing house. Members must show they're adequately financed, and will be asked for a margin (see next section for an understanding of margining). In the scenario of Brazilian ore deliveries in the first section, the charterer might choose LCH as the clearing house (amongst others).

Clearing

Four clearing houses process the bulk of FFAs worldwide:

- 1- The London Clearing House (LCH)
- 2- The Singapore Exchange (SGX)
- 3- Chicago Mercantile Exchange (CME)
- 4- Norwegian Futures and Options Clearinghouse (NOS).

When an FFA is registered with a clearing house, the parties now have a contract with the clearing house, usually via a member firm of the clearing house, rather than with each other. This process of moving from a party-to-party contract to party-clearing house-party contract is called novation.

The most attractive thing about FFAs? It has to be cleared, particularly when the freight market is on one of its more dramatic white-knuckle rides. In the turmoil of 2008, it was really interesting to see the contrast between those who were losing their heads because they were exposed to the physical markets, and those who had the buffer of clearing. Nobody was complacent, but you could almost see in their eyes the greater confidence that clearing had given them. And it's nice to

reflect on how clearing helped – albeit in a small way – to keep the whole global economy on the road at that moment of crisis.

So an FFA is in effect two contracts: one between the buyer and the clearing house and another between the seller and the clearing house. This brings both parties the advantage of dealing with a properly-financed organisation that is regulated by the state and operates transparently. Above all, it brings the parties financial security, as they do not have to worry about the other party defaulting (failing to pay). Contracts that are not ‘given up’ to a clearing house are called Over The Counter (OTC) trades and are used for bespoke deals. A clearing house is a central counterparty in a deal and as such it risks losing money if one of the parties defaults. To reduce that risk, it asks participants to pay a deposit called an initial margin when they strike a deal, and a variation margin calculated every day throughout the life of the contract, according to recent volatility and expected volatility. Thus participants have an account with the clearing house, or in practice with a bank or broker that is a member of the clearing house and it is either debited or credited every day with a running profit and loss (this is called mark-to-market).

Settlement

Standard FFA contracts are based on the vessel type, the route the ship follows and prices published by the Baltic Exchange. Every FFA is settled in cash at the end of every month in the contract period by calculating the difference between the agreed contract price and the average market price in the preceding month. Strictly speaking, there is no “true” market price, so the parties refer to an index price which reflects the prices the industry has been charging throughout the past month. These are gathered at regular intervals (usually every day) by the Baltic Exchange, from a panel of market participants. In our scenario, the charterer will pay the ship owner if the index is higher than the contract price, and the ship owner will pay the charterer if the index is lower than the contract price.

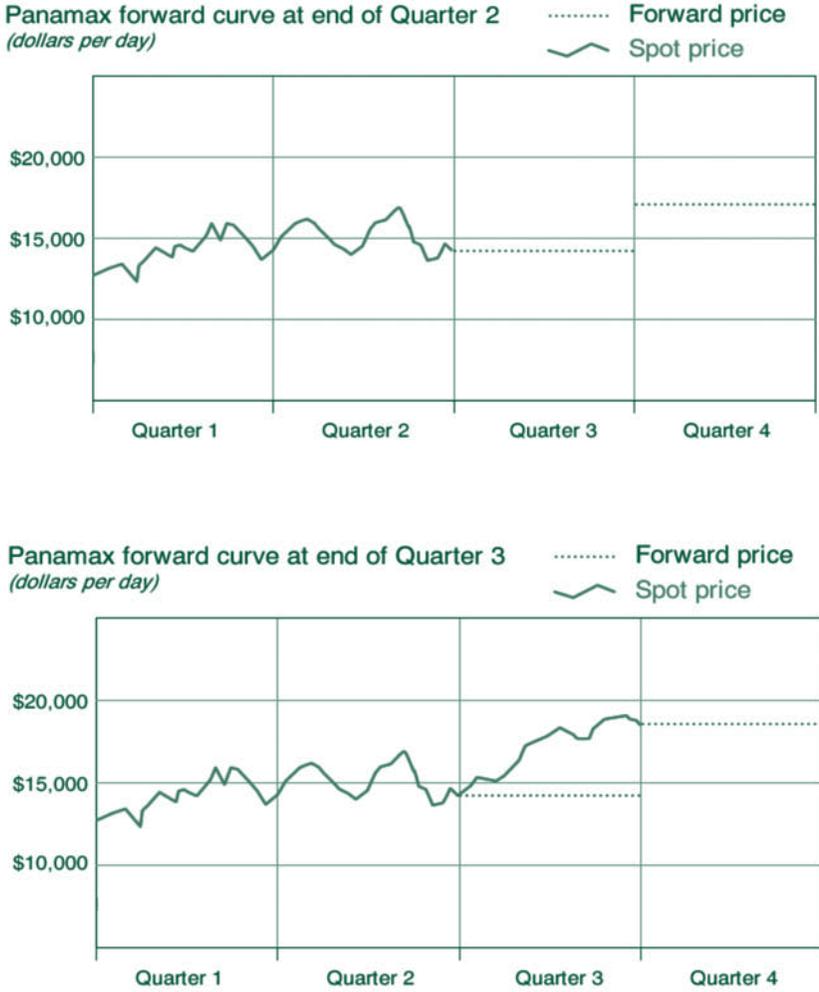
Price trends and arbitration

The FFA forward curve

A forward curve is simply a graph showing how the prices of an asset are expected to change in the coming months and years. The graphs below show:

- A typical forward curve for Panamax rates at the end of Quarter 2. The spot price and price for Quarter 3 are identical at just under \$15000 per day. Looking further forward, the price for Quarter 4 is well over \$15000, reflecting the market’s expectation that prices will rise.
- A typical forward curve at the end of Quarter 3. The spot price is considerably higher than was expected at the end of the last quarter, and the forward price for Quarter 4 has converged accordingly.

Figure 3 : Panamax forward curves at end of Quarter 2, end of Quarter 3.



Source: Vincent Sochard 2013

Forward prices for freight behave differently to prices for physical assets. Unlike iron and steel, there is no cost of storage and insurance, but participants must still take account of future shipping capacity and end user demand for the cargo the ships carry. The factors influencing prices include:

- The number of available cargo ships and their capacity. It takes a long time to order and build vessels, so ship builders and ship buyers try to predict market conditions years in advance. This is hard to get right, and as a result the market often experiences oversupply and shortages of tonnage (ships). Forward curve construction will try to price future capacity in.

- Fluctuations in the world economy that affect demand for grain, iron ore, coal and other bulk commodities. For example, a poor harvest in the US can lead to lower grain exports and hence less demand for shipping. Likewise, a spike in demand for steel products can result in Chinese and Indian steel mills suddenly ordering large amounts of coal and iron ore.
- The forward curve will also try to take into account seasonality – the regular and predictable variations in demand from one season to the next – and will try to predict how current political events are likely to shape future demand.

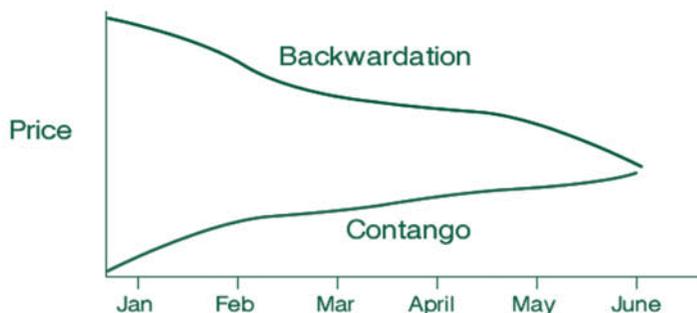
Contango and backwardation

Contango:

If the market is currently priced at a hundred dollars, it would be reasonable to expect that a contract bought today for delivery in six months would be priced at about a hundred dollars. The future price ought to be close to the spot price. In reality, market participants sometimes agree to buy forward at a price higher than the current price. Even though they know the spot price is a hundred dollars, they contract to buy the forward price at 150 dollars. Why would they do that? Where physical commodities are concerned, paying a premium allows one to buy goods at the exact moment one needs them, rather than having to buy now and store in a warehouse. In the case of FFAs, locking in a price six months in advance brings the advantage of avoiding problems if prices rise unexpectedly, but may involve paying a higher rate than the current spot price. One might say that a counterparty prefers to pay a little extra now in order to avoid the potential trouble of paying a lot more in six months.

So the market is said to be in contango when the forward price of an asset is higher than the spot price. The chart below is a schema showing contango and our next topic – backwardation.

Figure 4 : Contango and backwardation



Source: Vincent Sochard 2013

Backwardation:

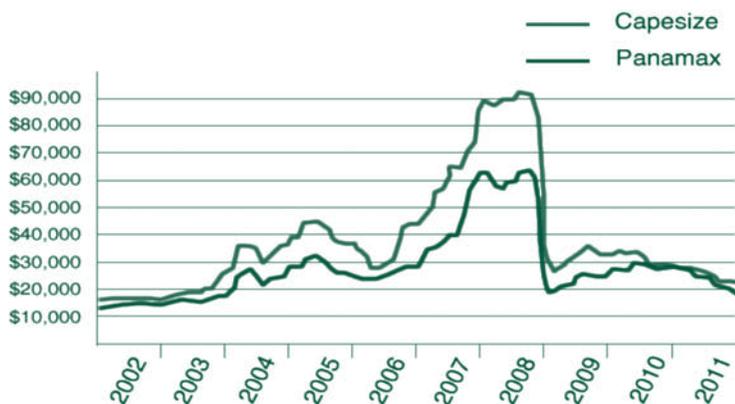
Backwardation reflects a similar “discrepancy”. A market is said to be in backwardation when the price of a forward agreement is lower than the spot price.

Why would somebody – a shipowner, for example – agree to hire out their vessel in six months for a price lower than the amount that is currently being charged? Once again, the motivation is to avoid volatility and get the benefit of a fixed price and a known cash flow in six months time. This is not exceptional: in normal market conditions the dry bulk market is in backwardation, reflecting the physical forward market where owners will accept a discounted daily rate for a longer term contract.

Arbitraging

One last thing to note about backwardation and contango is that spot prices and forward prices converge. As settlement day approaches, the reason for buying a contract priced higher or lower than the spot price gradually disappears. If for some reason the difference is irrationally high and there is demand for overpriced futures, a trader will soon wipe out the difference by arbitraging the prices: buying at the future price with one hand while selling at the spot price with the other. Arbitraging boosts the tendency for prices to converge towards their “true” levels. In a liquid market with plenty of buyers and sellers, traders cannot expect to make their fortunes on a single trade but will seek to exploit many small variations, and some take positions for very short periods.

Arbitrageurs use FFAs and swaps to take advantage of differences in price – arbitrage – between assets whose prices are correlated but which can show temporary discrepancies. A simplified example of the process will show what this means: The spot price of hiring a 15 year-old Capesize vessel and a 15 year-old Panamax is both similar in absolute dollar values and correlated in movement. In other words, when the price of the Capesize rises, the price of the Panamax has, historically, risen too. The Capesize is roughly twice the size of the Panamax and the relative pricing usually reflects this. In 2008, the chart shows there is a clear gap between the prices. Looking at this discrepancy, an arbitrageur might theorise that they are bound to converge, and will make a bet on that theory. The Capesize rate must fall, or the Panamax rate must rise.

Figure 5 : Capesize and panamax daily freight rates, 2002 - 2011**Daily freight rate correlation**

Source: Vincent Sochard 2013

Arbitrageurs are much less interested in the cargo or the fortunes of the ships carrying it. They make their decisions based partly on what's known as «technical analysis», and find the sort of chart shown above useful in their work. But their presence in the market is actually helpful for those involved in shipping. They bring liquidity and trading volume to the market for FFAs and swaps. Every additional trader is another participant available to buy and sell a contract, and as a result it is more difficult to exploit scarcity and the process of price discovery (finding a true market price) is made easier.

Conclusion

Together we have seen how and why FFAs are used in the freight industry, although it should be mentioned it is still a relatively young market. Hence, some products or maturity remains fairly illiquid avoiding market participants to tailor their hedging strategy with their actual physical market exposure. Having said that, the liquidity of the market has improved significantly the past two years, most of the new comers are based in the Far East region which is a recent and promising change for the market.