Seasonality in Dry Bulk Shipping

An exploitable inefficiency in shipping

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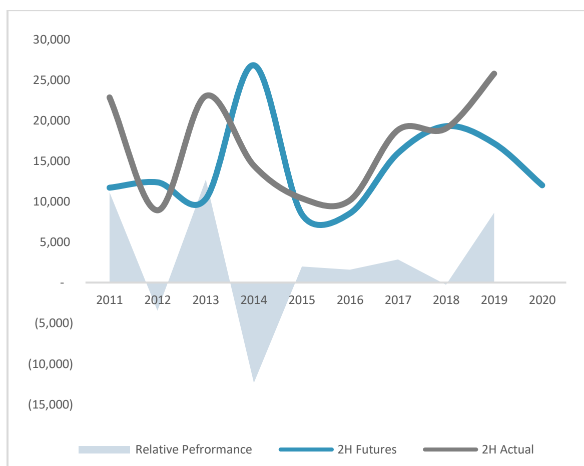
Key Takeaways

- Shipping is a seasonal business. Commodity producers and commodity consumers are subject to weather patterns that affect the flow of goods, both from a supply as well as a demand perspective. For dry bulk, seasonality is mainly focused on weather-related disruptions, seasonal construction demand, stocking cycles, heating degree days, and grain harvesting.

- Most industry participants know that the first calendar quarter of each year is the weakest period of the year. Our work confirms that, although it is not universal across all asset classes. In fact, March has proven to be one of the strongest months for smaller size vessels, while during years when the rainy season is not as profound in Brazil, Capesize rates have also thrived during March.

- Freight futures prices tend to reflect seasonality, with second half pricing usually above first half. However, the contango is not as wide as it should be, leaving significant upside, especially in the absence of "carry" in freight. We believe market participants should focus on sequential demand changes rather than relative pricing, to gauge the potential strength of seasonality in freight rates.
- Over the last 10 years, on average, market participants have underestimated the strength on the market's seasonality, with significant potential returns. We believe negative bias as a result of spot activity and of course the lack of "carry trade" in freight, are the main reasons for such discrepancy.

Figure 1. Futures versus Settlement. (Futures prices as of May 1st of each year)



Source: Bloomberg and Breakwave Advisors

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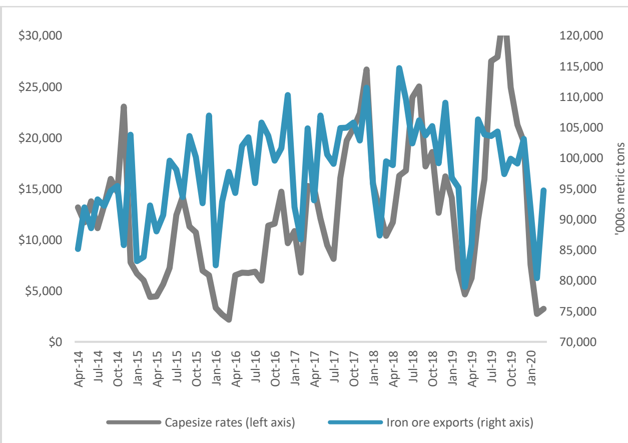
Seasonality rules when it comes to shipping

Shipping is a seasonal industry. For dry bulk, this is particularly profound. Demand for dry bulk goods, mainly iron ore, coal and grains, fluctuates throughout the year based on each segment's individual characteristics. Supply of dry bulk goods also shows strong seasonality, affecting loading schedules. As such, the strength of the market highly depends on the season of the year, generally accelerating as the calendar year progresses.

Figure 2: Capesize rates and iron ore exports (Brazil and Australia combined)



Source: Bloomberg and Breakwave Advisors

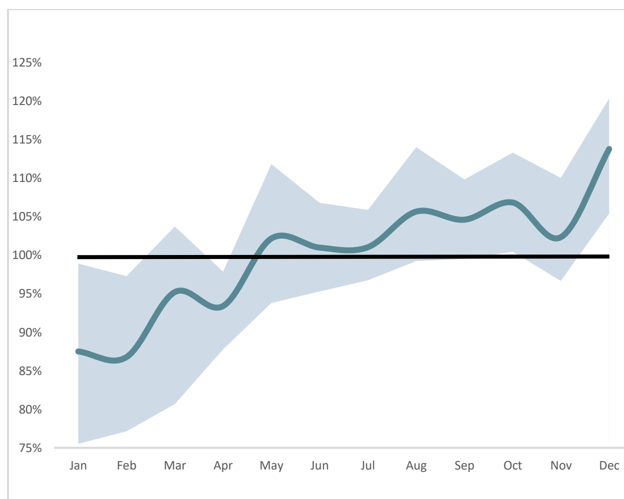
On the demand side, all three major commodities exhibit seasonality. Demand for iron ore, the main ingredient in the steelmaking process, exhibits the highest demand during the second half of each year. China, as the main center in terms of steel production, imports most of its iron ore during the second half of the year, in order to produce steel ahead of the construction season that starts in the following spring.

Coal, which is highly tied to power generation (and as a result heating or cooling demand), also exhibits strong seasonality, with winter and summer being the strongest periods of the year. Although the western hemisphere has gradually been reducing its dependence on coal when it comes to power generation, there is still considerable demand for thermal coal in the Continent, and thus transatlantic trading tends to follow similar patterns to seasonal power demand.

On the supply side, harvesting for grains and inclement weather for mining are the main drivers when it comes to seasonality. On harvesting, the winter months are usually the weakest when it comes to grain exports, while from March onward, both North as well as South America shows strong exports towards Asia, Africa and Europe.

When it comes to mining, the rain season in Brazil and the cyclone season in Australia could have quite of a negative impact on port operations, both of which usually happen in the first quarter of each calendar year.

Figure 3: Iron ore export seasonality, Brazil and Australia combined-2010 to 2019



Source: Bloomberg and Breakwave Advisors

Capesize rates exhibit the most seasonality

When it comes to dry bulk, Capesize vessels exhibit the most seasonality. That should come at no surprise, as Capesize vessels mainly transport iron

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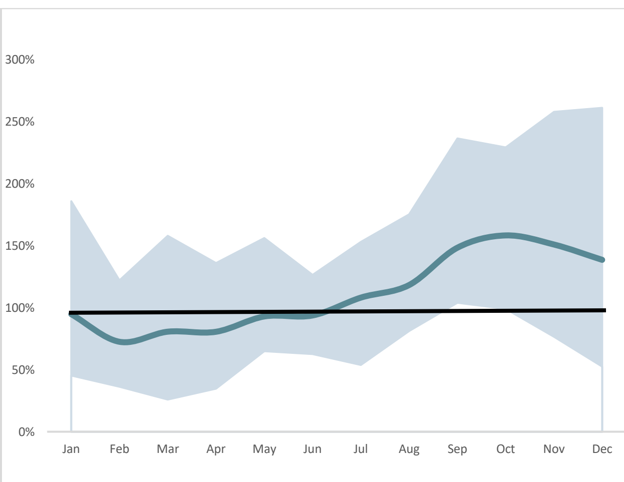
ore, which as the chart above shows, exhibits considerable seasonal fluctuations.

Most market participants know that the first quarter of the year is the weakest period for Capesize rates. Both Australia and Brazil produce and export less iron ore and that has an impact on Capesize freight rates. As the year progresses, freight rates tend to improve, in line with higher exports and thus increased demand for transportation. However, as we will later discuss, the degree that such improvements are priced into the futures market is quite low, an inefficiency which we think is exploitable.

To measure seasonality, we plotted the deviation of each month average spot rates from the annual average. For example, in a year that the average Capesize spot rate is 20,000 and the average March spot rate is 15,000, we assign a 75% value to the month of March. The results are shown in the figure below:

Figure 4: Capesize spot rate seasonality, 2011- 2019 settlements



Source: Bloomberg and Breakwave Advisors

On smaller sizes, seasonality is less profound. Except for the first quarter of the calendar year, and a brief deep in early summer (shoulder months), the year seems relatively stable in terms of fluctuations.

It is all about expectations

Given the seasonality in dry bulk freight, is there a way to profit from such expected uptick in spot rates?

Over the last 10 years, a structured trade where one buys Q3&Q4 freight futures during the second quarter and hold them to expiration, would have been profitable, on average. But it also highly depends on the absolute level of futures (i.e. market expectations): In 2014, freight futures were trading at a relatively high level versus historical settlements (Q3&Q4 has never settled above 26,000 in the last 10 years, and yet that year as of May 1st, Q3&Q4freight futures were trading at almost 28,000).

2012 was another year that the strategy would have generated a loss, despite the relatively low level of futures (~13,500 for Q3&Q4 versus a settlement of ~10,000). The table below shows the level of futures (Q3&Q4) versus final settlement for the last 10 years.

Figure 5: Freight futures as of May 1st of each year versus final settlement (all prices adjusted basis new 2014 Capesize Index)

Year	Q3&Q4 Futures	Q3&Q4 settlement	Gain/loss
2011	12,768	22,912	11,144
2012	13,429	9,980	(3,450)
2013	11,378	24,084	12,707
2014	27,881	15,499	(12,382)
2015	8,433	11,460	1,963
2016	8,535	10,140	1,606
2017	15,973	18,824	2,852
2018	19,295	19,018	(277)
2019	17,173	25,775	8,602
2020	12,000		

Source: Bloomberg and Breakwave Advisors

Although not a straightforward strategy, one could see that during years when the absolute number of futures is relatively high, the risk of loss is higher. Yet, a double-digit settlement is basically the norm (2012 the settlement is based on the previous Baltic Capesize index that has a ~1,000 difference to the

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new one, so technically even 2012 would have been a double-digit settlement). As a result, a strategy that buys Q3&Q4 as close to low double digits as possible has an attractive risk/reward profile, based on historical levels.

Conclusion

Seasonality is very profound in dry bulk shipping, especially as it relates to the larger Capesize vessels. The second half of each year should be expected to be stronger in terms of spot rates, reflecting higher iron ore trade flows, more coal trading as a result of expected heating demand and increased grain exports following the harvesting season in North America. A strategy of buying futures in the Spring would be a profitable one, on average, as the market tends to underestimate such rate seasonality. Exceptions to such rule exist, and it mainly relates to extremely bullish expectations (similar to 2014 most recently). Overall, we believe the seasonality in dry bulk freight is exploitable for an investor and could potentially be highly profitable one, subject to prevailing absolute levels on futures prices.

Investing in futures can be volatile and is not suitable for all investors.

Trading security futures involves the risk of loss, including the possibility of loss greater than your initial investment. Security futures may not be suitable for all investors.

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