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The Principles of the Dry Bulk FFA Market

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THE PRINCIPALS OF THE DRY BULK FFA MARKET
by Ron Wilson FICS
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December 2013.
I would like to thank the following companies and institutions for permission to use their material in this publication.

DS-Norden A/S.

Berge Bulk Pte Limited.

Freight Investor Services Pte Ltd.

The Baltic Exchange.
Ron Wilson was born and educated in South Africa. He immigrated to Singapore in 2004 and became a Singapore Permanent Resident two years later.

Whilst in South Africa he worked for some 20 years with Clarkson’s South Africa as a Dry Cargo Shipbroker and Senior Director of the company. On coming to Singapore he worked for Lorentzen and Stemoco as a Senior Ship Broker concentrating on the Supramax market within the Asia Pacific trade. In 2006 he joined the International Maritime Exchange (IMAREX) to reestablish the company’s Dry Desk in the FFA market becoming the Head of Desk, Asia and Senior Vice President. He joined Braemar Seascope’s Handy and Supramax Dry desk in 2010 to help grow the company here in Singapore. Retiring from day to day broking in 2012 he became a consultant to NOS Clearing/NASDAQ OMX to assist in the company’s internal migration and growth of FFAs, Bunker Fuel and iron Ore products in Asia Pacific.

He is a Fellow of The Institute of Chartered Shipbroker and currently the Singapore Branch’s Vice Chairman and Education Officer. He is an Adjunct Professor on Shipping Business at SMU (ITI@SMU) since 2006 and Guest Lecturer at NTU for the MSc. Maritime Studies program. A member of the Maritime Law Association of Singapore the Singapore Chamber of Maritime Arbitration and Economic Society of Singapore. He has been an expert witness in a London High Court FFA default case and Charter Party Arbitration here in Singapore.

He studied Business Administration in Cape Town (Economics and Company Law). Business Strategy Analysis, Darden School of Business. Currently he is studying a Finance and Marketing course at The Wharton School.
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PART 1

THE PHYSICAL DRY BULK MARKET
Understanding the Dry Bulk Cargo Market

The dry bulk market revolves around three main cargo types within that international trade sector, these are known as the Majors – **Iron Ore, Coal and Grains**. It is not that some of the Minors have no significance on market influence – Alumina, Bauxite, Nickel Ore, Sulphur and Sugar do have their bearing in the certain size category which we will look at in the slides that follow.

We will look at these cargoes, the ship types that carry them and the significant trade routes they cover in order to have a better understanding of the Freight Forward Agreement (FFA) market and how it works and its application.
We will look at and discuss the influence that affect the market and analysis the change over the past 10 years. This was the time that we saw a significant change as freights rate shot up dramatically in 2003 settled back down and then went back up to levels never before imagined. The dramatic affect this had until the financial crisis of 2008 and the aftermath of this event.

This will all highlight the importance of putting mechanism in place to manage risk within price fluctuation scenarios.

Fuel Oil prices plays a major role in voyage calculations affecting freight rates – hedging this risk will be dealt with here too.
The projected Iron Trade flow in 2015 and the geographic trade route
Iron Ore and Coal Trade route for Cape and Panamax vessels
Vessel types in the dry bulk market

**Handy size 26-38000 DWT**

**Supramax 51-61000 DWT**

**Panamax 67-82000 DWT**

**Cape Size 125-180000 DWT**

**Valemax 388-402000 DWT**
Iron Ore

- Export countries – Brazil, Australia, Canada, South Africa, India
- Import countries – China, Japan, S.Korea, EU
- Vessel types – Valemax, Cape Size and Panamax
- Voyage transit times
  - Brazil to China, Japan and S.Korea = approx. 55 days
  - Australia to China, Japan, S.Korea = approx. 18 days
  - Brazil to Europe = approx. 22 days
Major cargo trade routes

Coal

• Export countries – Australia, Indonesia, South Africa, Colombia

• Import countries – global excluding those with domestic supply, even some of these import coal like the US.

• Vessel types Cape, Panamax and Supramax

  Example transit time Indonesia to China = approx. 15 days to mid-China.

  South Africa to Europe = approx. 23 days
Components that make up a Voyage Calculation

Cost
• Daily Hire (the daily time charter market rate US$ per day)
• Bunker cost (the daily fuel consumption per day)
• The load and discharge port costs
• Incidental expenses
• Commissions (brokerage)

Revenue
• Quantity of cargo carried at US$ per ton
Simple Voyage Calculation

This is a basic voyage calculation to show how a freight rate is arrived at and how a change in these costs in the market can affect the voyage. The numbers are assumptions based on current market levels. The cargo is 150000 tons of Iron Ore.

• Brazil to China time charter market rate = $ 50000 per day
• Bunker fuel cost IFO = $ 594 per ton + MDO $ 914 per ton
• Port cost for loading Iron Ore in Tubarao Brazil = $ 120000
• Port cost for discharging in Qingdao China = $ 75000
• Incidentals (agency, surveys etc.) = $ 20000
• Brokerage commission 1.25%
**Calculation**

Daily hire of $ 50000 x 55 days = $2 750 000

Bunker Fuel IFO $594 x*50 tons x 50 days = $ 1 485 000

MDO in port $ 914 x 1.5 tons x 5 days = $ 6 855

Port cost at load = $ 120 000

Port cost at discharge = $ 75 000

Incidental = $ 20 000

Brokerage Commission = $ 34 375

Total Cost = $4 491 230

*the IFO fuel consumptions per day.
Voyage cost in $ per Ton

\[ \frac{4,491,230}{150,000} \text{ tons of cargo} = \$29.94 \text{ per ton break even voyage cost} \]

If the market at the time on this trade was say at $31.00 and was a rising market the owner would try an secure a fixture (deal) at 32.00 say or as close thereto as the market on that day will support.
The application of the market is essentially divided into Time Charter and Voyage Charter.

Time Charter is the daily hiring of the vessel over an agreed period of time at $ per day. Time can be for one voyage or anything up to a number of years.

Voyage Charter is the freight applied to the carriage of cargo from a port of load to a port of discharge at a cost of $ per ton loaded. A **Contract of Affreightment** is an agreement between a Charterer and Owners for the carriage of a number of cargoes spread over a period of time, usually one year, at an agreed rate and terms.

In the previous slide we saw how the market Time Charter rate is the basis from which the Voyage rate is derived.
The freight market like any other market (stocks, commodities, exchange rates etc.) fluctuates daily.

Market movement is affected by supply and demand within that market segment, trade or area.

- More ships / Less cargo =
- More cargo / Less ships =

The freight market is split globally in two **ATLANTIC** and **PACIFIC** these two market can differ vastly by asset class vessel – we will see this when we go into the FFA section.
SUMMARY

• We have looked at what dry bulk shipping is, this is so we have an idea what the underlying is and how it basically works before we start the second part of the course – Foreword Freight Agreements.

• It is important to have a knowledge of what drives a market and the elements that are involved in that market before one considers hedging or speculating in that market.

• We looked at two of the main seaborne cargoes, Iron Ore and Coal these have the main constant influence on what drives freight levels globally.

• The ship types, the two main classes we will looking at are Cape and Panamax going into FFA’s.
A MARKET ANALYSIS

PAST ~ PRESENT ~ FUTURE
Market Review and Forecasts

We will take a view of how the market has behaved over the past 10 years, so from 2002 to the present breaking this period into segments to show influencing events during the time lines. This is based on the CAPE SIZE Market as the dominant class that influences the market.

Then by using the Forward Curve tool and FFA activity in the Futures market what expectation might be in the coming months and years ahead.

We will discuss the correlation between the Physical market and Forward or Future market.
Overview

• During the 90’s and coming into the 2000’s the freight market remained low but I would say it met its CAPEX for the cost of running ships at that time. Profit was marginal and volatility was a word not yet introduced, it has its peaks and troughs shall we say.

• During the later part of 2003 and totally unexpected freight rates increased almost over night – China went on a buying spree for raw materials to build its cities and steel was needed, lots of steel.

• Iron Ore prices shot up which could be expected but what was not anticipated was the price of freight, in a very short period of time it went up as much around 300%.
Overview – *Enter Volatility*

- Between September 2003 and February 2004 the Cape Size average went from around $35000 daily to $95000 daily.
- During the balance of 2004 until the last quarter, again starting September the market spiked this time up to $100000.
- Come the end of 2004 going into 2005 the cracks started to show in the market, the first quarter this became realized – an opinion or theory is that CNY holidays came and gave China time to re-evaluate their intake?
- 2005 a *last quarter spike again, down again* in Q1 2006 around *CNY before a full Bull Trend developed.*
2003 and 2004

Baltic Exchange Capesize Index

Balanced Market
2004 to 2007
Key Notes

• **Last Quarter Trend.**
  This is not unexpected, Sales contracts for a number of commodities are by Calendar Year January to December so we can expect to see an increase in seaborne trade to meet contract quantity commitments. End year holidays as Europe and the US ease back at their utilities and factories.

• **Chinese New Year.**
  More impact as China develops and its GDP grows, rapidly.
2007 through the GFC to 2013 present day

- A freight boom through 2007 with Owners ordering ships. The Order Book grows and delivery times from the yards push out to beyond two years due to capacity.
- Load and discharge port congestion keeps vessels out of the market as they await berths – this runs into months.
- Cape size rate levels reach all time highs of around $280 000 per day.
- All other asset class sizes follow suit.
- Long term time charter deals are agreed. Cargo interest’s fix long term Contract of Affreightment – all to lock in freight at a current level hedging against an increasing market.
All time market height to the crash of October 2008
Q1 2007 – Q4 2008 Snap Shot of the Cape, Panamax and Supramax markets
Q4 2008 a Black Swan and the Global Financial Crisis

- As Wall Street goes into crisis – Lehman Bros is allowed to file for bankruptcy and the snow ball effect thereafter.
- Credit gets frozen and trade goes on hold as money stops flowing as it should.
- The freight market drops around 95% almost overnight.
- Defaults seep into the trading and shipping world.
- Concerns over the vast new building program.
- Ships will deliver – Supply into a zero sum market.
- Delivery deferments a part solution or is the problem just being delayed for a later day?
2008 - 2013

• Rather than drag out each year we look at a quick synopsis.
• We see quick spikes at the end of 2008 as money is again released into the market and demand returns to move cargoes.
• Extreme market volatility during 2009 and parts of 2010, each occurrence in these times at much lesser levels than the previous.
• An extremely low below OPEX market on average over 2012 and ¾ of 2013.
Volatility during this period
Part 3

THE FFA MARKET
THE NEED TO HEDGE AND HOW IT WORKS
The Futures Market

- What is a Futures market? In the simplest terms its two parties agree a price now for something that is delivered at an agreed future time.
- The Agricultural market was the first formalized Futures market, which makes logical sense. A farmer who still has to plant, grow and then harvest his crops agrees to sell to a willing buyer now at an agreed price.
- Both parties are happy by locking in their needs. A Farmer has sold his crop and the buyer has his supply secure.
- The story has that the first “futures” trade took place in the 1700’s when there was a Tulip Bulb shortage in Europe – this also the first market "bubble".
How does this relate to the Freight Market?

• Firstly, separate the FFA business from the Physical. Look at Freight like any other commodity (grain, oil, soy bean...)

• A mistake a number of ship owners, in particular, do is try and relate the FFA market to a Charter Party.
  • Remember we are taking about a future market, so it is a price expectation at some time in the future – a month from now or a year from now and so on.
  • There is no physical delivery it is a Financially Settled Contract
  • A Future or Forward Contract that is price settled is know as a Contract For Difference (CFD). This will be explained later on in this section.

I am going to leave it at that for the moment, but remember “look at Freight as a commodity” which will hopefully help in a clearer understanding.
The BFA Forward Curve for the CS4TC
Historical background

• BIFFEX – The Baltic International Freight Futures Exchange, was formed in 1985 by some market participants and was traded not very successfully on the Baltic Exchange, London floor as open “out cry”.

• One of the major broking houses in conjunction with some of the major grain trading companies realized the need of a more aligned futures market to what was actually happening in the physical market and the trades area involved. Liquidity was also a major issue, so in the mid 1990’s the FFA market as we have it today came about.
The Baltic Exchange

• The Baltic Exchange which traces it legacy back to the 1700’s coffee shop trading era is the provider of Freight information and settlement prices based on the indices that it posts daily to the market.

• In days gone by Owners, Charterers and broker would gather on the floor daily to trade information, vessel positions and orders, but time has moved on and a world of emails, Apps and instant information.

• The Baltic Exchange now has an office here in Singapore and is opening a representative office at the end of the year in Shanghai as well.
The Baltic Dry Index is a composite of the 4 dry market segments – Cape, Panamax, Supra and Handy, each having its own separate composite Index BCI, BPI, BSI and BHSI the collective average of these thus making up the BDI.

The BDI does not trade – in order for a product to trade in a market there has to be liquidity stemming from market interest who see volatility. The BDI is a barometer of price movement like any other Index (Dow Jones, STI, MSCI etc.). Economists look at the BDI as use it as a tool to help gauge global economic trade movement. If the BDI goes up and continues to do so for a certain period that indicates commodities are moving from one part of the world to a buying nation in another part of the world.
The Baltic Dry Index

<table>
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<th>Code</th>
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<th>Value</th>
<th>Movement</th>
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<td>Baltic Exchange Capesize Index</td>
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<td>UP 94</td>
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<td>BHSI</td>
<td>Baltic Exchange Handysize Index</td>
<td>558</td>
<td>UP 4</td>
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*The BDI was started in 1985 at a base of 1000
The Baltic Index comes out each business day in London indicating the Physical price movement (freight) for each of the defined Voyage and Time Charter Routes. The Time Charter Routes are each weighted which then gives the “basket” Time Charter Average for each of the four asset classes.

The Index is comprised of the submissions from an approved panel of ship brokers, some 20 companies on average. The submission figures are then averaged out establishing the averaged price for that day.

This methodology is independent, by this I mean the brokers do not have a direct vested price interest. Any submission outside the market parameter, high or low, gets excluded.
### Baltic Exchange Capesize Index - 20 September 2013: 4018 (UP 94)

<table>
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<th>Route No.</th>
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<th>Weighting</th>
<th>Average in USD</th>
<th>Movement in USD</th>
<th>View</th>
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<td></td>
<td>170,000</td>
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<td>170,000</td>
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<tr>
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<td>Reported</td>
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<tr>
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<td>Not</td>
<td>Reported</td>
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<tr>
<td>C8</td>
<td>Del. Gib - Hbg T/a r/v</td>
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<td>0%</td>
<td>Not</td>
<td>Reported</td>
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<tr>
<td>C9</td>
<td>Del. Cont - Med Trip F/E</td>
<td>161,000</td>
<td>0%</td>
<td>Not</td>
<td>Reported</td>
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## Baltic Exchange Capesize Index - 24 September 2013: 4253 (UP 142)

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<td>C2</td>
<td>160000t Tubarao - Rotterdam</td>
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<td>+0.311</td>
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<td>160000mt or 170,000mt Tubarao - Qingdao</td>
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<td>C8</td>
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### Time Charter Average - 24 September 2013: $40005 (UP $1608)
## Panamax Index

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<td>74000mt SKAW-GIB/FAR EAST</td>
<td>25%</td>
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<td>-181</td>
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<tr>
<td>P3A_03</td>
<td>74000mt Japan-SK/Pacific/RV</td>
<td>25%</td>
<td>7096</td>
<td>-69</td>
<td>-</td>
<td>-</td>
<td></td>
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<tr>
<td>P3A-IV</td>
<td>Implied Voyage Newcastle - Qingdao</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>14.23</td>
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<td>P4_03</td>
<td>74000mt FAR EAST/NOPAC-AUST/SK-PASS</td>
<td>25%</td>
<td>-804</td>
<td>+63</td>
<td>-</td>
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<td>P1</td>
<td>55,000lt Lights US Gulf/ARA</td>
<td>0%</td>
<td>Not Reported</td>
<td></td>
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<tr>
<td>P1A</td>
<td>70,000 DWT Transatlantic RV</td>
<td>0%</td>
<td>Revised</td>
<td></td>
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<tr>
<td>P2</td>
<td>54,000lt HSS US Gulf / Japan</td>
<td>0%</td>
<td>Not Reported</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>P2A</td>
<td>70,000 DWT SKAW-GIB/FE</td>
<td>0%</td>
<td>Revised</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3</td>
<td>54,000lt HSS NOPAC/Japan</td>
<td>0%</td>
<td>Not Reported</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P3A</td>
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<td>0%</td>
<td>Revised</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P4</td>
<td>70,000 DWT FE/NOPAC/SKAW-p</td>
<td>0%</td>
<td>Revised</td>
<td></td>
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</tr>
</tbody>
</table>

**Time Charter Average - 19 October 2012: $7020 (DOWN $122)**
The foremost reason is to manage price fluctuation; to **Hedge**. You have taken a ship in on a one year time charter and you are locked into price X for the next 12 months, once you have say done your first own cargo voyage you are then exposed to the markets mercy.

If the rates go down to Y by a $1000 per day, you are out of pocket by that $1000 and any further amount the market might go down. To mitigate losses you would do an FFA Contract – in this case you would SELL a contract.

**Speculation**, would be another approach by either BUYING or SELLING a Contract depending on which way you believe the market will go in the future. Mostly Traders seeing an opportunity.
Rule of Thumb

• If you have Freight as in the case of a Ship Owners (you are “long” freight) you will want to hedge against the market going down so you will **Sell a Contract**.

• If you do not have freight cover as in the case of a Charterer (you are “short” freight) thus you will want to do the opposite and hedge against the market going up whilst you are uncovered so you will **Buy a Contract**.
What a Ship Owner might hedge.

• Lets assume you have Chartered in a Panamax for one year delivery 15 /30 October at $11000 per day and this will carry a cargo under one of your CoA’s as its first cargo. You have fixed the vessel for this period as a physical hedge against an anticipated averaged out rising market over the next 12 months.

• What is at risk:-

  1. Once you have completed your first voyage you will have to secure a cargo or trip from the market.

  2. What if at that time you come free after completing your first voyage the market has dropped to $10000 per day. This is realized half way through your first voyage that the market is coming off.
• This is a concern at any time even before any decrease is realized. This concern is known as the Value at Risk or VaR.

**VESSEL HIRE = FIXED DAILY COST**

- Vessel fixed in = $11000 and above = Neutral to Positive
- Time Charter Rate $ 11000 per day = Underlying
So any hire below the $11000 is the VaR and it is this that you want to insure against.

$11000 underlying

\[ \text{VaR} = \text{Neutral to negative} \]

SHORT POSITION HEDGE
This graph highlights what can be at risk taken over a 6 month period. Look at the first arrow that is a drop over a one month period – about the time of a Richards Bay to Europe coal cargo voyage!
Basic hedge strategy

• At the time of fixing in your ship for 15/30 October laycan for her first own cargo she will come free again in say a months time so second half November = YOUR RISK PERIOD.

• To hedge against the possibility of the market being less than $11000 at this time **SELL 15 days of the month of November – PMX 4 TCT Contract.**

• Hold your position until such time that you fix the vessel and then close our your FFA Contract by BUYING it back in the market as now the price risk no longer exists.
Price Difference

• You are trying to Neutralize the risk, but more realistically your are managing your risk exposure so you are wanting to reduce it as much as possible.
• You are paying the head Owner $11000 per day and you have say sold a 15 day Contract at $11000 per day.
• The market when you fix the vessel is at $10000 per day at which time you close out your FFA Contract at say $9750 per day – you have reduced your risk value by $750 per day. Your loss is $250 per day as opposed to $1000 per day.
• If are able to close out the FFA at $10000 per day you are 100% risk neutral.

I have used the $9750 to highlight imperfect markets and time, one obviously tries and it is very possible to close out the FFA at the hire rate as the FFA and Physical market is +95% correlated.
Charterers Hedge

- In the case of a Charterer, they need to acquire freight to cover their cargo transport needs.
- To give a clearer understand lets assume we are a mining company who has sold CFR a contract to supply 800 000 MTS of Coal from Australia to China evenly spread of one cargo per month over 2014. Shipments are Panamax size lifting's of about 70 000 MTS each.
- We have used a freight element in our sale based on a market assumption for such a contract with no firm backing.
- We believe that we should cover some cargoes under a mini CoA, but leave some uncovered to ship Spot when the market is below the freight rate assumption we used in our CFR pricing.
Charterers Hedge - Exposure

• Even though we are confident of our assumption there is RISK that the market could go above or CFR Freight Rate. We have determine that the months of February – March and May – June is when the market will be “soft” and when we should fix our “spot” cargoes.

• In order to manage our Price Risk in this period we should Buy FFA contract for these months.

• To Hedge against a price increase above our fixed price you BUY a Futures or Derivatives contract.
We will use a Time Charter rate equivalent to what our voyage rate was based on. Panamax FFA products / markets are all based on Time Charter (TC). We will also go through this later.

Lets use the PM4TC basket which is the more liquid contract and lets just cover the early cargoes so February - March. We BUY the PM4TC Q1 contract 60 days @ $10500, the current market and ideally at our CFR freight rate basis as it turns out.

Price Risk and freight rate income loss

$10 500 underlying

No price risk and freight rate income gain
THE MECHANICS OF THE FFA MARKET
What is it you should contract?

We have given two scenarios which hopefully are straightforward and easy to grasp, but what is it you should be trading and why.

Simply, you can only trade to what is available in any given market – an obvious statement I know.

Go back and look at the Baltic Index for Cape and Panamax – here you will see a list of each of the Routes available to trade. Look also at the bottom of the Panamax, here you will see the Time Charter Average – this is the weighted average of all the Routes making up the Basket.

It is the Baskets or Average TC that are the most traded as they are the most liquid.
Choose the Market that you are exposed in, the Period and the anticipated Volume.

- **MARKET** - Cape, Panamax, Supramax or Handy Size
- **PERIOD** - Month / Quarter / *Calendar
- **VOLUME** - Number of Days or Lots equal to the VaR
- **PRICE** - Price is market price at the time of the trade.

* Calendar is equal to one year of 360 days in total. Months = 30 days and Quarters = 90 days.
Period and Volume

The *Market* and *Price* are logical so we don’t need to spend time discussing that to much.

The FFA market is traded in Months / Quarters and Calendars or any part thereof. In other words you can buy or sell any number days in any of these period. The usual minimum volume is 5 days and volume less than this is very illiquid. You can if needed buy/sell 60 days in the month or even more – another example could be 200 days in the Quarter.
Period and Volume continued.

The Period is not time specific it is an instrument not a measure of actual time. The question is often asked “can I buy 15-30 October to suit my laycan?”. What you would do is Buy 15 days in the October 2013 Contract and Sell it to close it out once you have fixed your ship.

Going back to our Charterers scenario in the earlier slide if we were not sure which months we would be uncovered but knew it would be about 90 days in total we could Buy 90 days in the Calendar 2014 Contract, the Cal14 as Calendar contracts are referred to as.
Price Curve of Bids and Offers

The “Chg” is the Mid price change to the previous day.

<table>
<thead>
<tr>
<th>Per</th>
<th>Bid</th>
<th>Offer</th>
<th>Mid</th>
<th>Chg</th>
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<tr>
<td>Dec 13</td>
<td>32500</td>
<td>33000</td>
<td>32750</td>
<td>625</td>
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<tr>
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<td>Cal 16</td>
<td>17150</td>
<td>17300</td>
<td>17225</td>
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Source FIS
Bids and Offers

• The previous slide shows the market on that day. FFA Brokers will through out the day show the Bids and Offers to market participants as the market changes.

• Assuming the “curve” is all firm numbers anyone of these can then be “taken out” and the deal is done.

• The trades are instant against firm numbers. Bid are “hit” and Offers are “lifted”.

• The majority of Dry trades are carried out by IM like Yahoo or MSN and voice broked.
Trading the Bid or Offer

An example of a trade over a phone would go like this.

Broker - “firm offer $11000 for 15 days Panamax Q1- NOS”
Buyer - “MINE”

The buyer has just bought 15 days PM4TC in the first quarter of 2014 to be cleared through NOS Clearing.

This is a perfect trade for the Broker with no back and forth countering which is more the norm. You could have the Bid against $11000 at $10750 which may get countered at $10900 and so on until a mutually agreeable price is agreed – then the deal is done.
Market participation can be divided into trading companies, ship operators, ship owners, banks, and hedge funds.
Asset or Product participation

Cape and Panamax the most active markets and volume leaders.
FFA Volume 2007 to September 2013

*See the drop off of the OTC trades after 2008.
FFA Volumes over the past year
Settlements

- Through the Clearing process trades are Marked to Market daily.

What this means is that all trades are off set against each other by the Clearing House at the end of every business day – so if the FFA market has gone up money moves from the sellers account into the buyers account. M2M settlement is against the Baltic Forward Assessment which is published each London business day.
Baltic Forward Assessment (BFA) for M2M Settling – how the prices are arrived at.

In the case of the Baltic Index – market pricing or returns are given by a panel of physical ship broker.

For the BFA the daily assessment are given by a panel of approved and vetted FFA Brokers and the same averaging of return pricing is applied.

Remember this is for daily M2M purposes only and not final settlements which we will deal with next.
# BFA – Baltic Forward Assessment

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**Rollover dates for 2012**
M2M Multilateral Settlements within the Clearing house

Source SSY
Trade Counter Parties
~How a trade flow would go~

The previous slide shows multiple transactions.

When you go into a trade with one counter party and you want to close out your position it will be with another counter party. So now you have two counter parties, say one Buy side and one Sell side. The Clearing House manages all of this for you.

In OTC (over the counter) bilateral trades done directly between two parties, each party has to keep an account of every trade. We cover this later on in the course when deal with Clearing and Exchanges.

Market participants have any number of trades at any one time, the like of the major trading companies can do 10, 20 or more trades in one day and in different markets – Cape, Panamax etc.
Actual Settlements

• FFA contracts are settled monthly.
• Each trade is settled against the Baltic Index for that particular market and period. So against the hedged physical market. The Baltic Index being a physical assessed return.
• An example would be Q1 PM4TC – come the last working day of the month the contract is entered into the monthly average price of that instrument – Q1 – would be the settlement price against the price the trade was done at.
• Once we go into the Q1 i.e. January, each month is settled individually at the end of that month (end January then end February and so on). At the end of March the contract is then closed as the Q1 now longer exists.
Actual Settlements -2

- Settlements at the end of each month take place once you “own” the contract.
- You do a Q1 PM4TC contract today settlement assessment and transaction take place at the end of October.
- Remember it is a financial instrument called PM4TC Q1/14 so once you “own” it you are financially responsible for it i.e. the price fluctuation that occurs until it comes to an end.
Summary

• We have covered how the FFA market works and hopefully demystified it.
• FFA’s are what is known as vanilla swaps – very simple derivative application as opposed to those exotic swaps that created the problem of the GFC in 2007/2008.
• We have seen the trade flow scenario through to how each is settled.
• Settlement – daily M2M accounting and then monthly settlement against the physical index.
• hopefully by now you have a better understanding of how this financial instrument plays its part in the freight market.
• I have not delved into Speculative Trading as this is rare today as the FFA market does not have sufficient volatility or liquidity to substantiate Spec Trading.
Part 5

CLEARING AND REGULATIONS
Clearing in the FFA market

- The FFA market evolved out an OTC market during the course of 2006 over to a Cleared market. It grew from about 10-15% at the beginning of 2006 to about 37-40% by the end of 2006.
- Post the 2008 GFC it became a 90-99% Cleared market, 99% being what it is today.
- In the following slides we will cover how Clearing works, the role of banks in this process, the new regulations and exchange traded products to comply with these regulations.
Clearing House

• A Clearing House manages a trade by insuring that there is sufficient funds from each of the parties to support the trade throughout its life span.

• Trades are secure within the Clearing House taking out the risk of counter party default.

• The Clearing House takes on the role of the counter party for each side of the trade.

• In the Dry FFA market there are three Clearing House – NOS NASDAQ OMX, LCH Clearnet and SGX Asia Clear.
How a Clearing House works

Clearing House becomes the Counter Party to the respective parties
Clearing Process

• The two parties Trader A and Trader B conclude a Trade direct via a broker, at the time of entering the trade they agree which Clearing House they wish to use.

• The Trade is concluded and their respective General Clearing Member Bank is advised of the trade by the broker, the broker gets a confirmation from each traders GCM that the trade is financial good, the broker then enters the trade into the Clearing House and once matched internally in the Clearing House the trade is confirmed Cleared.
The Parties involved in Clearing

• Lets take a step back and go through what a General Clearing Member is – GCM.

• A GCM is a commercial bank that provides a service for the facilitating of derivative trades between parties. It holds the funds and manages the flow of those funds to the counter party – the counter party now being the Clearing House.

• SGX Asia Clear and LCH Clearnet only clear using a GCM, there is now direct clearing. NOS NASDAQ OMX offers both.

• The GCM charge a fee for this service. To be a direct member of NOS NASDAQ the risk management membership vetting criteria is very stringent.
Setting up a Clearing Account

Whether direct (nos nasdaq) or via a GCM the following is required by the Clearing House to set up the account.

- Base Collateral – a minimum amount of around $150 000 to establish the account, like opening a bank account.
- Once a trade take place a Margin amounts must be placed into the account based on a percentage of the value of the trade. The percentage is calculated on the volatility of the respective product i.e. PM4TC or CS4TC.
- Margin Calls are made as and when the account needs topped up and when the Volatility of an asset/product changes affecting what amount is current held in the clients account.
Futurization and Exchange Trading

• In the past few years regulations governing how derivatives are traded have been put in place and is still an ongoing process.
• These regulations are to try and prevent what happened in the GCF and hopefully so it doesn’t happen again.
• Dodd-Frank Ruling is being implemented via the Commodities Futures Trade Commission (CFTC) in the U.S and the European Market Infrastructure Regulation (EMIR) is implementing similar regulation affecting Europe.
What are these and how do they affect the Freight derivatives market?

Are we not already a 99.99% Cleared market? This was the question raised as early as a year ago, so why should we have to do anything – we are already there.

Well, in effect as these ruling came into play it turns out we were only half way there.

What CFTC and EMIR require is that all swaps become Futures. In the next slide we go through what each derivative product is.
Swaps, Forwards & Futures

• A SWAP is a bilateral trade done directly between two parties outside of any regulated market.
• A Forward is a similar to a SWAP, a non standardized contract in which a delivery of goods or finance is made at the end of the contract at the pre agreed price at the time the contract was struck.
• Futures are Exchange traded products, it does not need to be traded on an Exchange per say but it must go through the Exchange process to be valid.
Futurization and FFA’s

• The U.S and EU are saying that any derivative traded with one of our “persons” must be a Future.
• What has been added into the FFA clearing process is that all trades now pass through the Exchange process.
• What the regulators want is that all derivatives are accounted for and recorded – which an electronic exchange does.
• Once an FFA goes through the Exchange process it changes from being a Cleared SWAP into a Future and everyone is happy, hopefully.
The Broker having done the trade confirms with the GCMs that each is financially good for that trade then enters it in the Clearing House.
Once the trade is entered into the Clearing House the mechanism accepts it.

Almost simultaneously it passes via Market Surveillance to insure the pricing is within a market parameter span i.e. a market related price.

Then it passes through the Exchange pipe line and is counted and recognized – it is now a Future.

It is then held in the Clearing House as the “new counter party” to the trade and for financial management against M2M pricing.
Screen Trading Comment

• Screen Exchange trading in the Dry FFA market has not been a successful story. It is my opinion that apart from other factors I am sure, it is not in the nature of the Dry Freight Trader.
• Screens like IMAREX in the past and the current BALTEX screen have not attracted the interest needed to allow them to work effectively.
• A number of the FFA Brokers have their own screens for the market but again, very interest from the participants.
• The BALTEX owned and operated by the Baltic Exchange would be a logical single screen independent solution if screen trading attracted the necessary market interest. This looks very doubtful though.
Part 6

SPREADS AND OPTIONS
Spreads

• A spread is simultaneously buy on asset and at the same time selling another with in the same product market.
• There are two types of Spreads in the FFA market – Time Spread and a Quality Spread.
• Time Spreads are those in the same asset class, where one period in the asset is say expected to drop in price whilst in another period it is expected to rise so there is a gain in the difference of the two.
• A Quality Spread is similar basis except is it the realized difference or expected difference between two asset classes.
Example of the two spread

**Time Spread.**
- In the PM4TC we expect the price in Q1 contract to decrease whilst we expect the Q2 to increase in price.
- So you Sell the Q1 and Buy the Q2 at the same time as a single traded instrument in the FFA market

**Quality Spread**
- It is the idea except you see value in Selling the PM4TC Q1 and Buying the CS4TC Q2 which you expect to increase in value.

In both of these Spread plays you profit from the difference if the market is in you favor.
Freight Options

- Options are more involved mechanically than SWAPS. I will keep it as simple as possible for this course so we will look at straight forward vanilla type Options and leave the Exotic Options like Butterflies, Condors and Iron Butterflies for another course and another day.

- Some history on Options – these were created into the financial world in the 1980’s by MIT mathematical professors who were employed into Wall Street investment banks to trade these new instruments relative the bond and other markets.
Options

- Pricing models were created to calculate the variants in the markets upon which profit can be made.
- Myron Scholes and Fischer Black are the creators of the famous Black & Scholes pricing model which is still popular today and the basis of its successors.

- Options give the Holder, the one who owns the Option, the right but not the obligation to exercise the Option. If the Holder chooses not to exercise the Option at the agreed time or price the Option falls away.
Options

• Options are either **CALL** Options which give the Holder the right to **BUY** underlying asset and **PUT** Options which give the Holder the right to **SELL** the agreed price (Strike Price).

• A Freight option is sold by the Writer to the Holder at a Premium (the price) and with an agreed Strike price.

• The benefit is that it gives the Writer is payment up front which is his to keep and it gives the Holder insurance that they will get paid out if the price rise (Call Option) above the Strike price or below the Strike price in the case of a Put option. Its also cheaper compared to an FFA same hedge.

• Freight Options are also Cleared and in the process of being Exchange traded as well.
A Freight Call Option Example

Using our PM4TC market which is at $11000 per day, we agree that this is the Strike Price (underlying value - Delta). The Premium which we have run through our Pricing Model against current market Volatility (Vega) comes out at say $2000 for the Q1 2014.

$2000 Call Option

- Q1 = 90 days x $2000 per day premium = $180 000. Paid up front to the Writer (seller).
- Whilst the market stays below the Strike price or reaches the Strike price no money changes hands.
- If the market goes above the Strike price in say January being the first month of settlement in the Q1 to say $12000 then the difference is paid to the Buyer (Holder) by the Writer.
  $1000 x 30 days = $30000 is paid to the Buyer by the Seller.
Option example

• A PUT option would give the opposite affect – if the price dropped below the Strike price that difference would be paid to the Holder or Buyer.

• In our CALL Option example when the Underlying FFA is below the $11000 it is Out of The Money (OTM) when it is at $11000 it is then At The Money (ATM). Our example landed up In The Money (ITM) by $1000 per day for the month of January i.e. 30 days.
Summary

• We have covered the basics of Option trading and hopefully you have a better understanding of how these instruments work. As I said there is a number of varieties of Option mechanisms, but to do a simple hedge strategy like this example is more than adequate.

• Both parties get a benefit, the Writer gets the premium paid up front and is his and the Holder get insurance against price risk cheaper than the same hedge doing an FFA. An FFA would cost $990 000 ( $11000 x90 days).
HEDGE ACCOUNTING AND OTHER HEDGES SHIP OWNERS SHOULD CONSIDER
The International Financial Reporting Standards (IFRS) requires all “realized” and “unrealized” P&L from derivatives to be taken into the P&L at the end of a reporting period.

These are placed on Balance Sheets away from the P&L accounting until “realized”

Hedge accounting requires a high degree of correlation to the physical underlying business it is hedging.

To meet IFRS compliance work can be in depth to be able to prove the hedge is effective.

These are things to consider particularly for public listed companies.
Other hedges a Ship Owner should consider

• The course has covered Shipping Risk Management and the use of FFA’s to help achieve this. Owners or Operators of ships face other price fluctuating markets like Bunkers and Foreign Exchange.
• To be Risk Management effective it would be remise to not brings this within the portfolio as well.
• Bunker Fuel Oil Swaps/Futures are available in the market just the same as FFA’s
• FOREX hedging is easily available in the market and probably through your own bankers.
Appendix
Hedge Result Analysis

• **Situation**
  - May 1 – Shipowner charters out his 75K dwt Panamax in the spot market on a 60-day contract at $15,000 per day. He thinks that freight rates will drop in the near future and wants to lock in the rate that he can charter out his ship after the current contract expires.
  - On May 1 – Shipowner sells a Q3 Panamax 4TC contract (20 day per month) for $12,250.
  - On Aug 1 – Shipowner receives his ship back and fixes it out on another 60-day contract at the prevailing rate of $11,000 per day.
  - On Aug 1 – Closes out his FFA position by buying back a Q3 Panamax 4TC contract (20 days per month) for $10,000 per day.

• **Calculations**
  - **Receipts from chartering out ship on 60 day contract:** $11,000 x 60 days = $660,000  
    **Profit from closing out FFA position:** ($12,250 - $10,000) x 60 days = $135,000  
    **Total receipts:** $795,000 or $13,250 per day

• **Conclusions**
  - Shipowner manages to secure his subsequent fixing on a 60 day contract at $13,250 per day (a rate which is $2,250 better than the current market rate) from the use of FFAs. The shipowner can then continue to pursue such a policy further on by buying/selling FFAs should he find rates attractive and wants to lock them in again.

Source FIS
## Schedules – Cape v Panamax

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Source: FIS
Cape Forward Curve

Source FIS
Panamax Forward Curve

Source FIS
Recommended Publications

Publications and relevant websites.

• Shipping Derivatives and Risk Management by Amir Alizadeh and Nikos Nomikos
• Maritime Economics by Martin Stopford

• [Website Links]