



Shipping Cycles & COVID-19

Baltic - ICS Lunchtime Lecture, 13th May 2020

Mr David K. Jordan – Regional Director, MSI



Shipping Cycles & COVID-19

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Contact Details

David K. Jordan

Regional Director, Asia

david.jordan@msiltd.com

Tel: +65 8754 3450



Introduction to MSI

Market leading, independent maritime consultancy firm

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MSI's Management Team has more than 125 Years of Combined Industry Knowledge and Experience

Adam Kent



Will Fray



David Jordan



Tim Smith



James Frew



Stuart Nicoll



Niklas Carlén



**A globally renowned,
independent maritime
consultancy firm
specialising in model-based
forecasting and structured
quantitative analysis,
supporting business
decisions to shipping,
offshore and allied
industries.**

MSI Credentials

Strategic Advantage

Approach

MSI specialises in model-based forecasting of shipping, offshore and allied industries and offers structured quantitative analysis to support business decisions.

Expertise

MSI's team is comprised of professionals with extensive academic credentials, deep industry knowledge and many years experience of delivering successful client projects.

Coverage

MSI's depth and quality of market coverage is unparalleled, providing reports, models, valuations and consultancy across all commercial shipping and offshore sectors.

Independence

MSI provides unbiased, independent market forecasting and business advisory services.

Network

MSI can draw upon a number of corporate partners and our extensive network of industry contacts to offer a broad range of consulting and analytical services.

MSI Credentials

Services Overview

Since its inception in 1985, Maritime Strategies International (MSI) has established itself as one of the leading independent commercial maritime forecasting and management consulting firms, offering high level, independent market forecasting and business advisory services for shipping and its allied industries.

MSI's clients are supported through a combination of sector reports, forecasting models, consultancy and ship valuations. MSI balances analytical power with service flexibility, offering a comprehensive support structure and a sound foundation on which to build investment strategies and monitor exposure to market risks and compliance requirements under alternative scenarios.

MSI Credentials

Services Overview

Market Reports

- Monthly reports with a short-term outlook
- Comprehensive quarterly reports for medium-term market prospects
- Analysis of structural and cyclical drivers
- Topical market risk and sensitivity analyses

Asset Valuations

- Certificated spot valuations
- Forecast residual Fair Market Value
- Forecast earnings and operating costs
- Charter attached valuations
- Option price valuations
- Forecast value sensitivity and stress testing
- RVI support including soft value, forced value, recessionary value, cautious plausible value, 1 in 100 value etc.
- Valuation reports
- Valuation briefing notes
- Fleet portfolio reviews
- Online vessel specific valuations

Forecasting Models

- Interactive econometric models
- Market analysis and project evaluation
- Quantitative and transparent processes
- Underpinned by extensive proprietary databases






Strategic Advisory Services

- Project evaluation and market studies
- Business case development
- Market risk and sensitivity studies
- Strategic market positioning
- Business valuation services
- Competitor intelligence and benchmarking
- Mergers and acquisitions
- Port planning and feasibility studies
- Bespoke model development and data feeds
- Niche market modelling
- Advanced credit modelling
- PD and LGD modelling
- Corporate restructuring and insolvency
- Expert witness testimony and litigation support

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MSI Credentials

Sector Coverage

Dry Cargo	Wet Cargo	Passenger / Cruise	Offshore	Infrastructure
Bulk	Oil	RoRo / RoPax	PSV	Shipbuilding
Container	Chemicals	Ferries	AHTS	Container Boxes
PCTC	LNG	Cruise	MODU	Ports & Services
Multipurpose	LPG		MOPU	
Shortsea	Shuttle		Specialised	
				

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MSI's reports and forecasting models are available to subscribe to via our online platform:

<https://horizon.msild.com/>



Market Reports

Forecasting Models

Asset Valuations

Strategic Advisory Services

Timeseries	1982	1983	1984	1985	1986
Seaborne Steel Scrap Cargo	16.94	18.72	18.46	21.09	22.31
Seaborne Other Ferrus Pig...	3.65	3.90	5.55	7.32	8.06
Seaborne Other Ferrus Ste...	94.52	99.48	111.74	116.19	107.99
Seaborne Other Ferrus DR...	0.85	0.87	0.69	0.81	0.99
Seaborne Semi-Ferrus Alum...	5.76	6.00	6.54	6.44	6.75
Seaborne Semi-Processed F...	10.37	10.41	10.54	10.63	10.46
Seaborne Semi-Processed C...	9.49	11.38	11.20	10.62	12.26
Seaborne Semi-Processed C...	56.09	58.84	60.53	49.79	47.58
Seaborne Minor Ores: Mangan...	6.67	6.26	6.58	7.37	6.38
Seaborne Minor Ores: Nickel...	3.03	2.32	2.83	3.13	2.89
Seaborne Minor Ores: Chrom...	2.32	2.53	2.63	3.13	3.33
Seaborne Minor Ores: Zinc C...	3.23	3.23	3.64	3.74	3.64
Seaborne Minor Ores: Lead C...	0.91	0.91	0.91	0.81	0.71
Seaborne Minor Ores: Coppe...	2.81	2.54	2.44	2.39	2.28



Sector Reports & Data

Vessel Search

Model Simulations

My Saved Vessels

Vessel Name	Sector	Year of	IMO No. (IMO)	Access
Gona	Dry Bulk	1998	2019/2019 10:50:45	Subscriber
Mercury Hope	Tanker	2011	2019/2019 08:43:49	Subscriber
Advantage Spring	Tanker	2010	2019/2019 08:43:49	Subscriber
Fx Endeavor	Tanker	2012		Subscriber
Ulla Regina	Dry Bulk	2013		Subscriber
Paradise Bay	Dry Bulk	2023		Subscriber
Yin Bamboo	Containership	2001	1919/2019 11:04:12	Subscriber
Joko De Solis	Containership	2017		Subscriber
Maersk Ghana	Containership	2015		Subscriber
Orma Cgm Amber	Containership	2008	1919/2019 11:10:44	Subscriber
Sava Nydia	Dry Bulk	2011	1919/2019 11:46:28	Subscriber
Triton Bulk	Dry Bulk	2029	2019/2019 08:43:49	Subscriber
Javor	Dry Bulk	2010		Subscriber
Jawory	Dry Bulk	2010		Subscriber
Formosabulk Brave	Dry Bulk	2001		Subscriber

My Subscriptions

Forecast Market eValuation (FM) (FULL WIDTH)

Name	Order Type	Start Date	Expiry Date	Quantity	Factor
Forecast Global	Report	2019/01/01	2019/12/31	1000	100%
Forecast Global	Report	2019/01/01	2019/12/31	1000	100%

Current Scenario (1/3 WIDTH)

Latest Data Updates by Sector (2/3 WIDTH)

Integrated Data / Reports Packages (1/2 WIDTH)

Name	Start Date	Expiry Date
Dry Bulk Reports in Modeling	2019/01/01	2019/12/31
Containership Reports in Modeling	2019/01/01	2019/12/31
Oil Tanker Reports in Modeling	2019/01/01	2019/12/31

Other Reports / Models / Data (1/2 WIDTH)

Name	Start Date	Expiry Date
Dry Bulk Freight Forecaster - Report	2019/01/01	2019/12/31
Dry Bulk Freight Forecaster - Data	2019/01/01	2019/12/31
Containership Freight Forecaster - Report	2019/01/01	2019/12/31
Containership Freight Forecaster - Data	2019/01/01	2019/12/31
Oil Tanker Freight Forecaster - Report	2019/01/01	2019/12/31
Oil Tanker Freight Forecaster - Data	2019/01/01	2019/12/31

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Cycles in Shipping

A quick look at fundamentals

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Cycles in Shipping

An inescapable reality

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

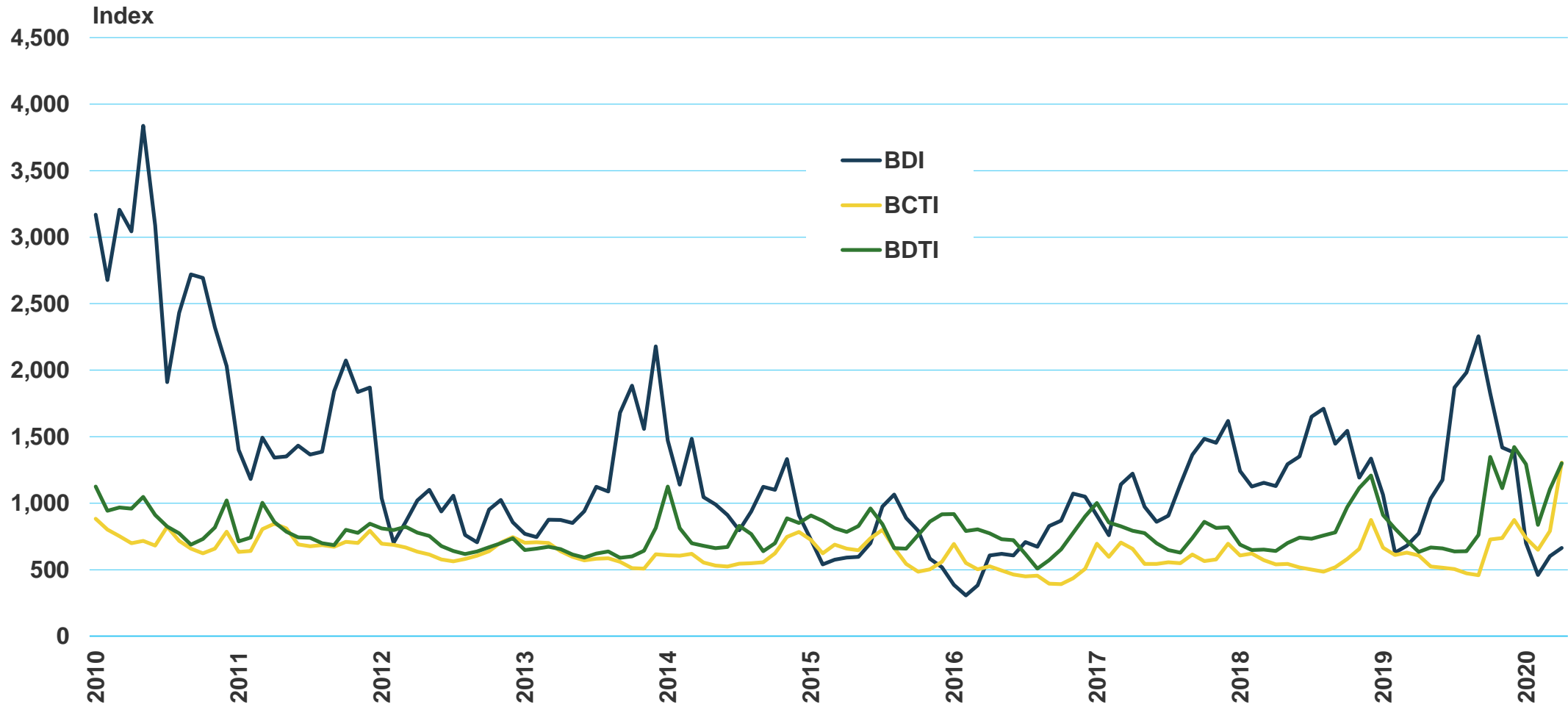
Dry Bulk Market

Containership Market

Oil Tanker Market

Moving Beyond COVID-19

Baltic Exchange Indices, 2010 – Present

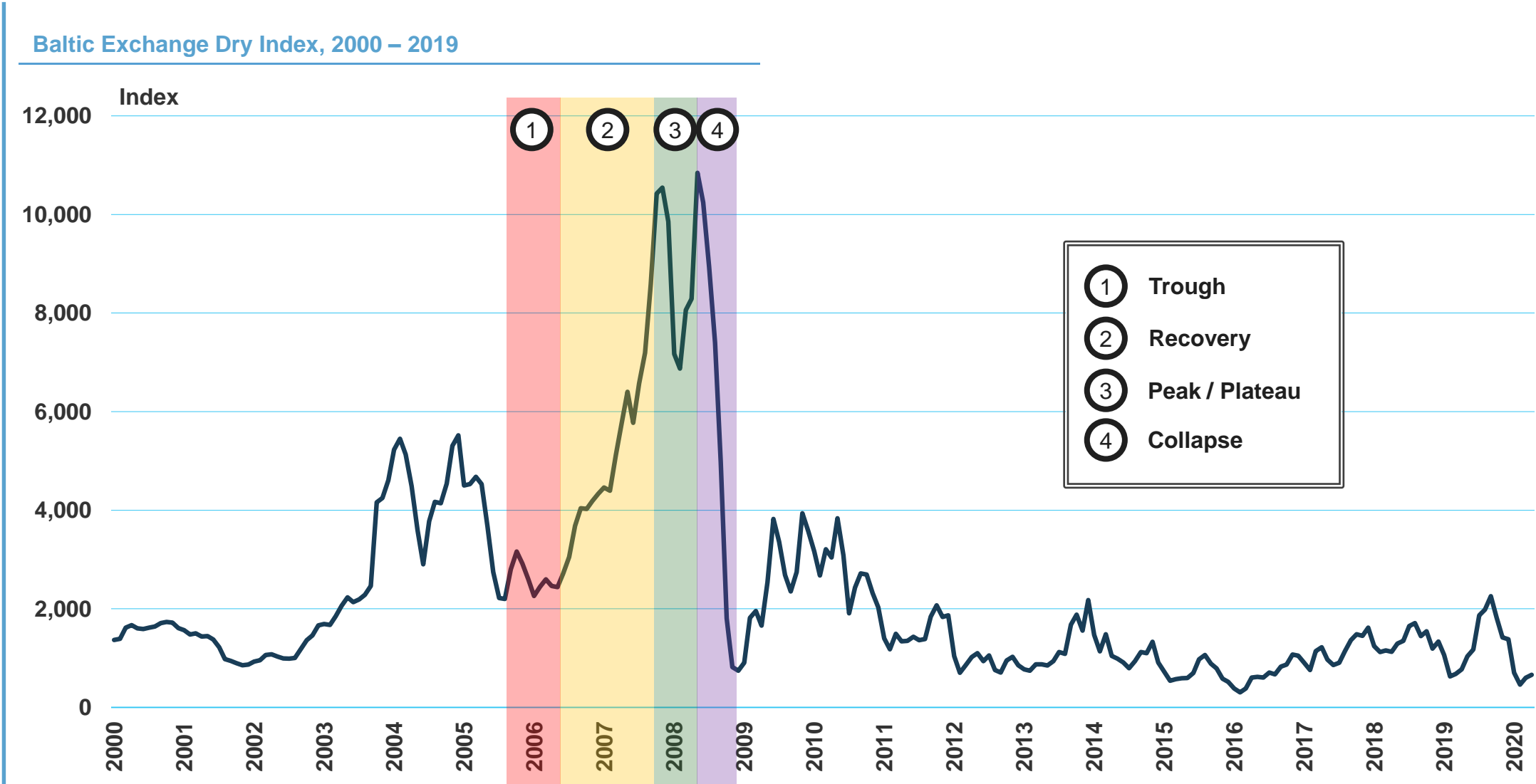


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Cycles in Shipping

A four stage process

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19



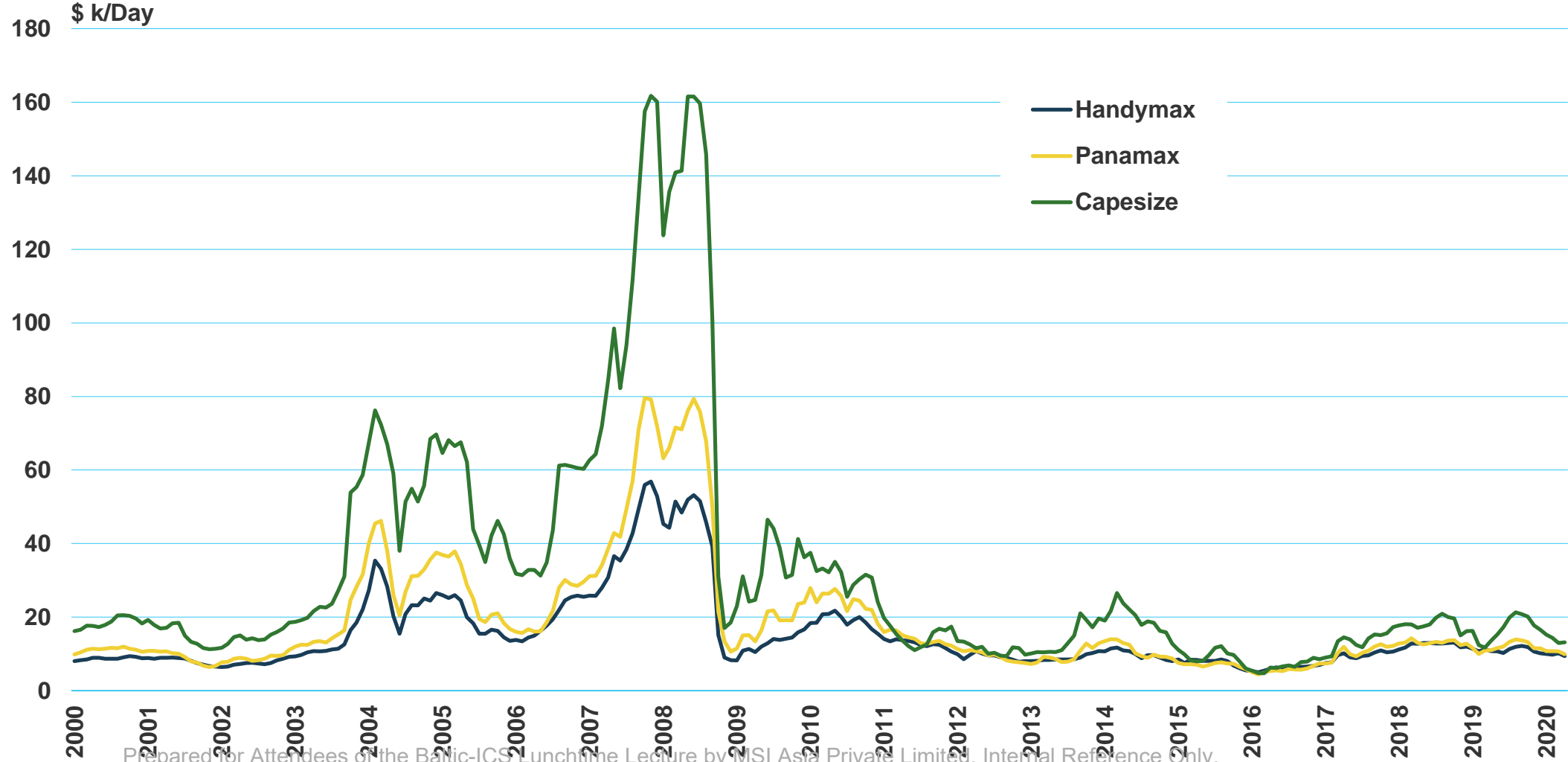
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Features of Shipping Cycles

Rate correlation (1)

- Cycles in Shipping
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Benchmark Bulk Carrier 1 Yr T/C Rates



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Features of Shipping Cycles

Rate correlation (2)

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

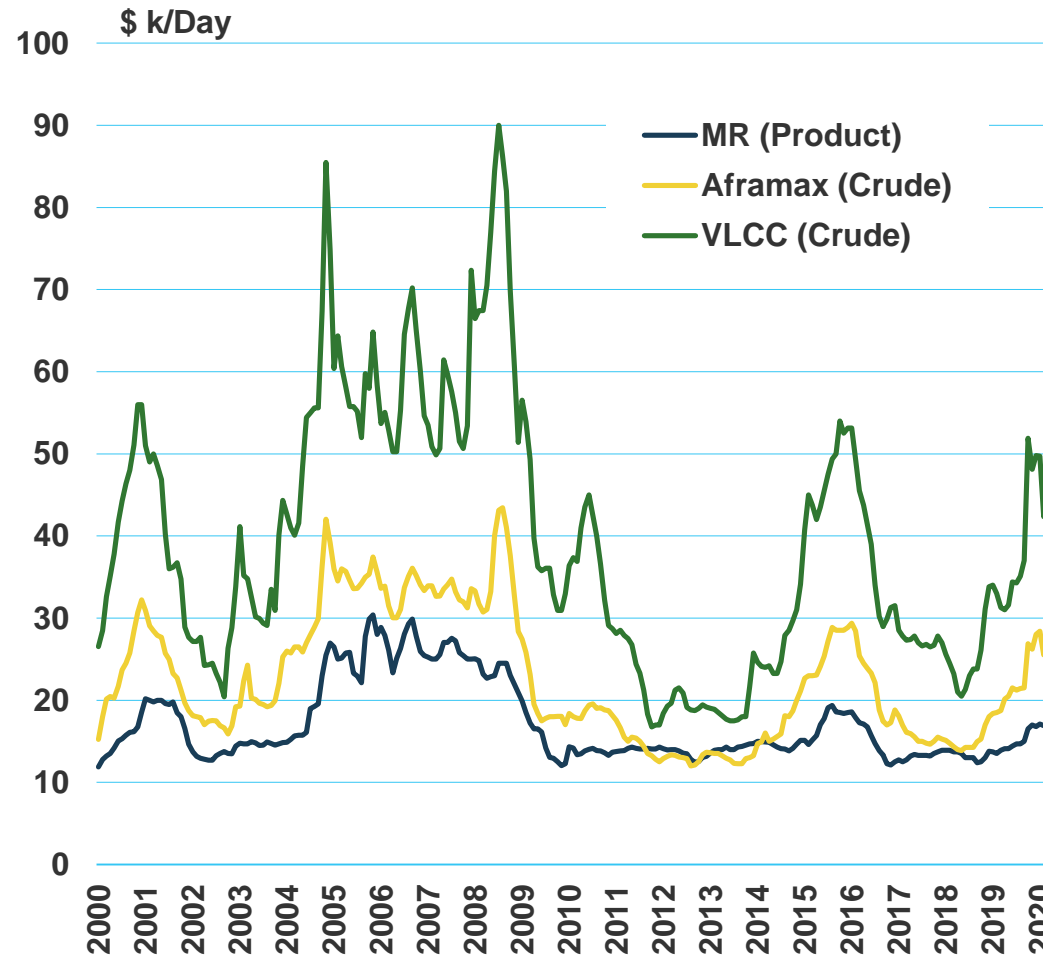
Dry Bulk Market

Containership Market

Oil Tanker Market

Moving Beyond COVID-19

Benchmark Tanker 1 Yr T/C Rates (\$ k/Day)



Benchmark Tanker 1 Yr T/C Rate Correlation, 1990 – 2018

	Handy	MR	LR1	LR2	Aframax	Suezmax	VLCC
Handy	1.00						
MR	0.99	1.00					
LR1	0.98	0.97	1.00				
LR2	0.91	0.91	0.95	1.00			
Aframax	0.94	0.93	0.97	0.97	1.00		
Suezmax	0.91	0.91	0.95	0.95	0.98	1.00	
VLCC	0.87	0.87	0.92	0.93	0.97	0.98	1.00

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Features of Shipping Cycles

Volatility (1)

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

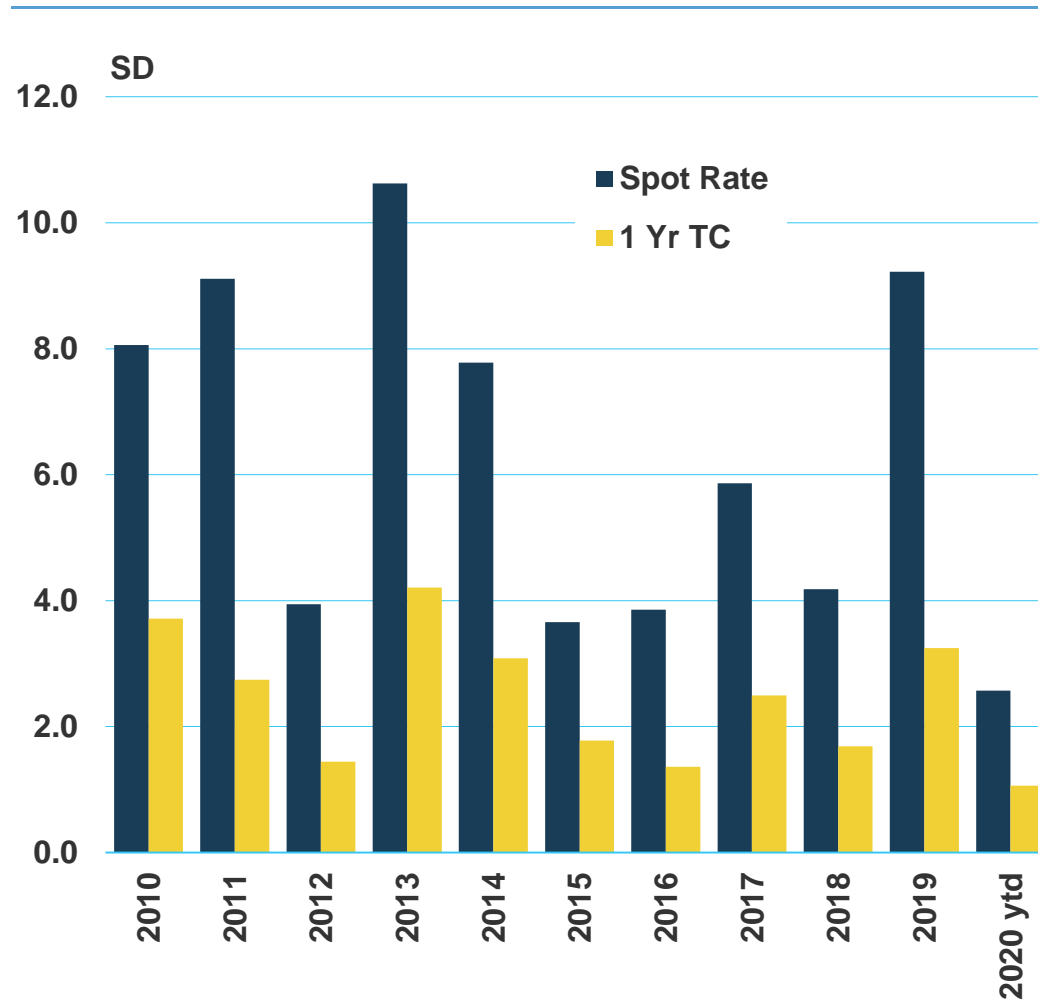
Dry Bulk Market

Containership Market

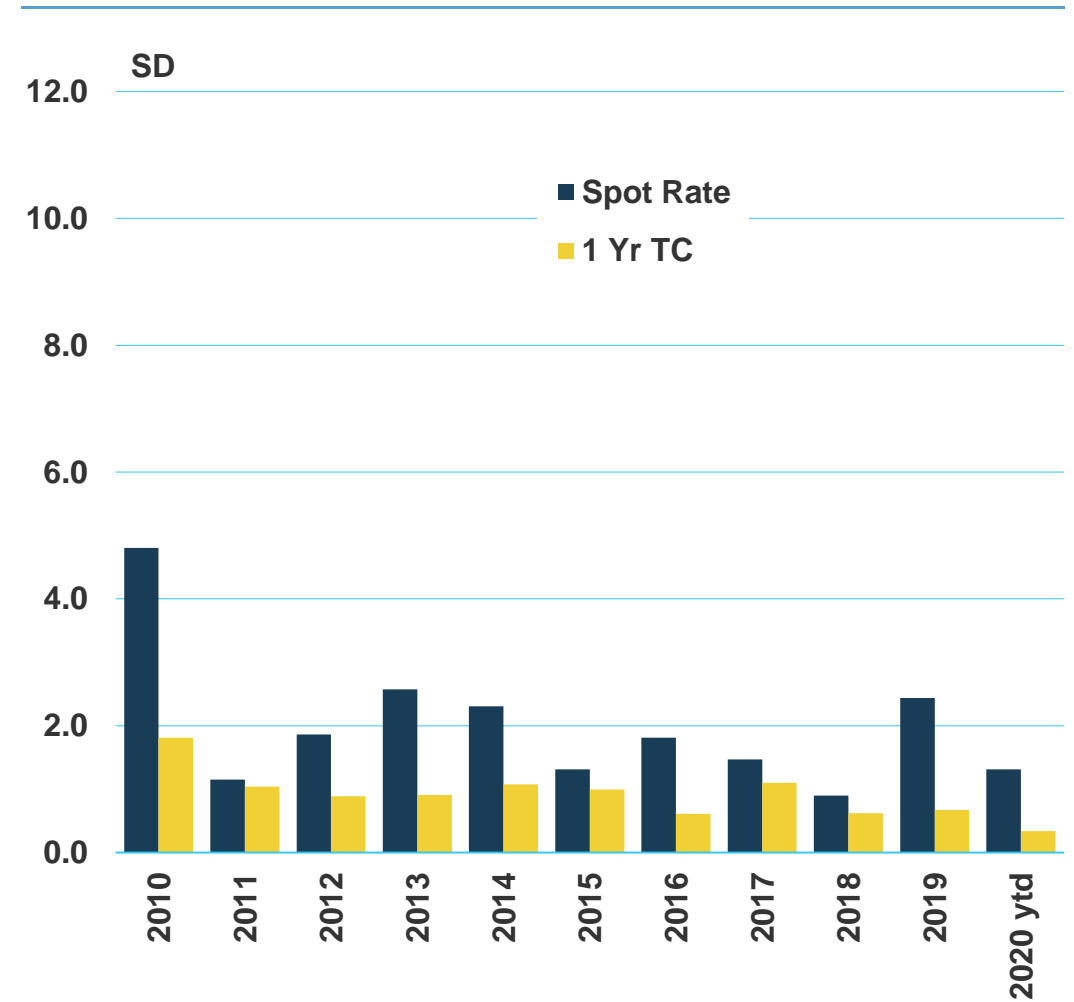
Oil Tanker Market

Moving Beyond COVID-19

Capesize Bulk Carrier: Annual Standard Deviation



Handymax Bulk Carrier: Annual Standard Deviation



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Features of Shipping Cycles

Volatility (2)

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

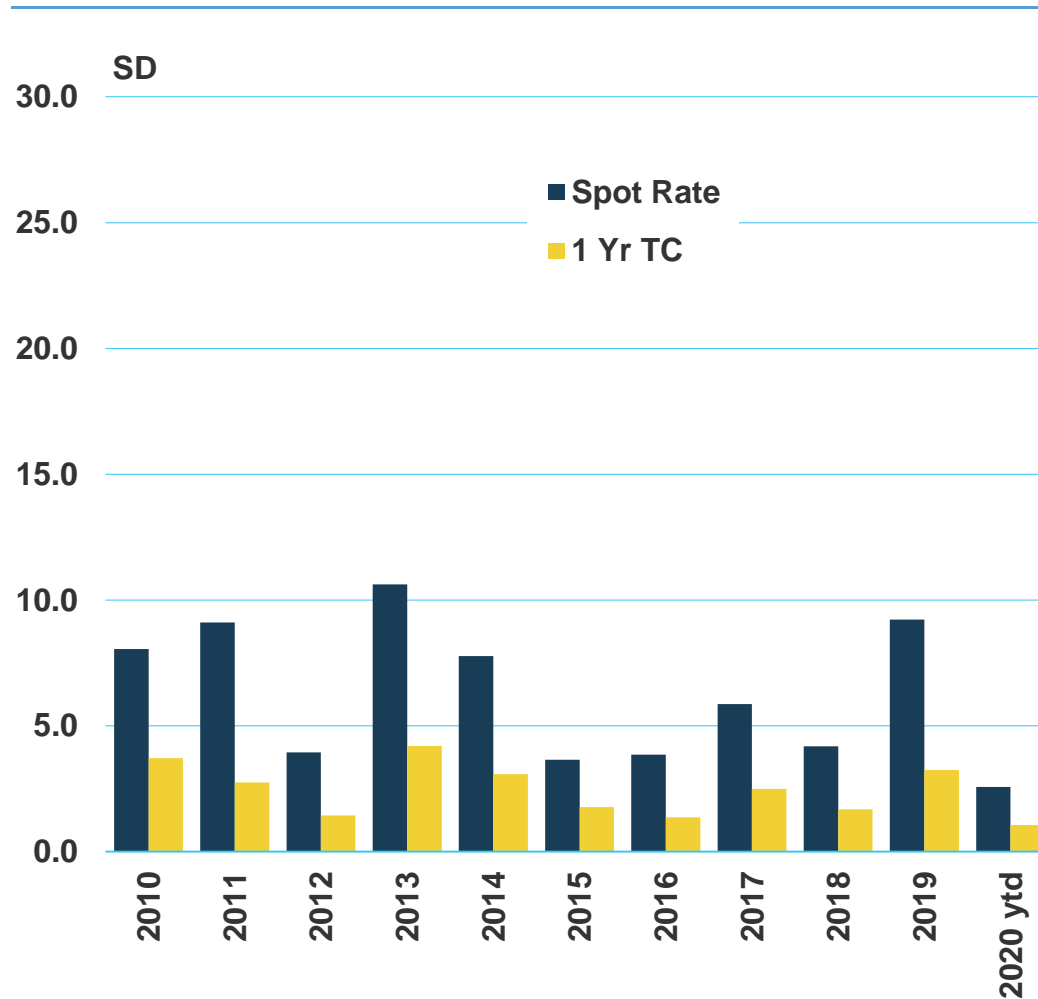
Dry Bulk Market

Containership Market

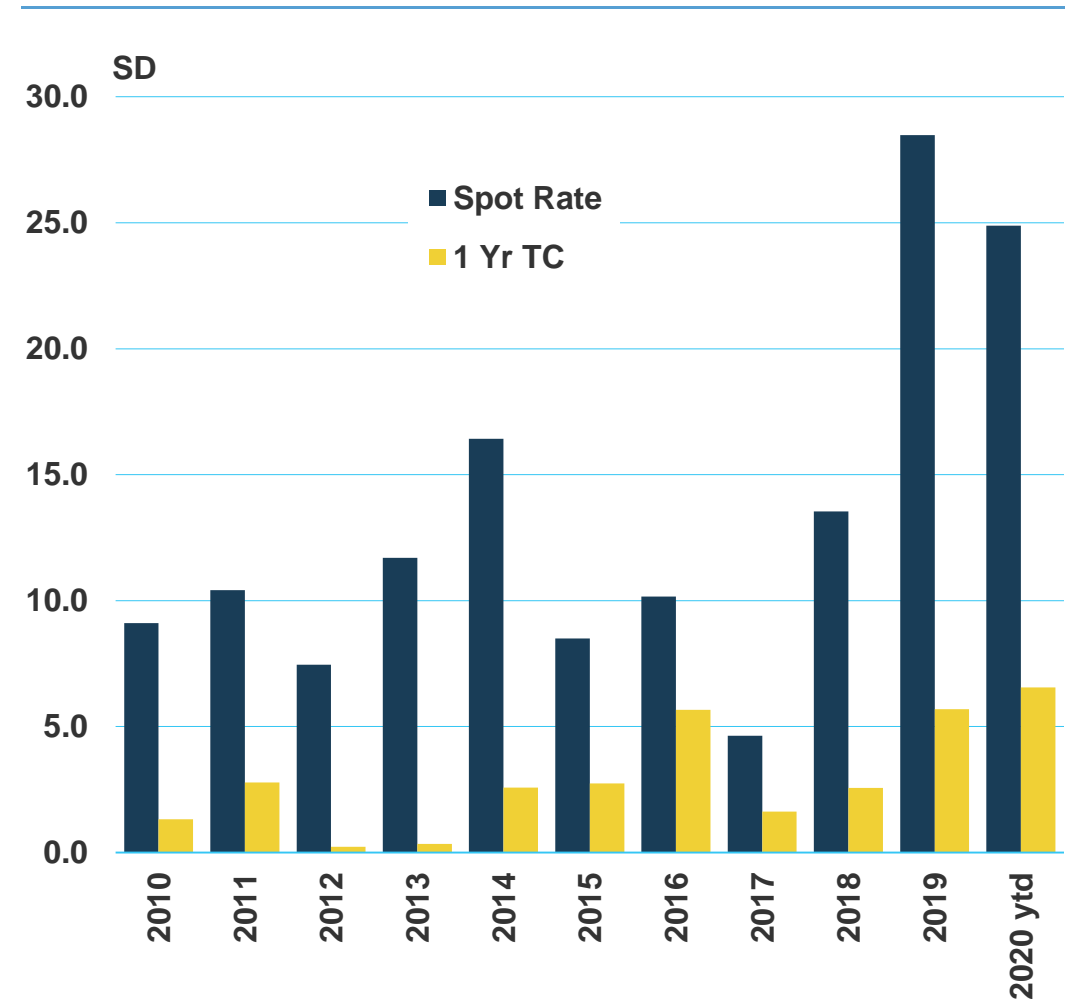
Oil Tanker Market

Moving Beyond COVID-19

Capesize Bulk Carrier: Annual Standard Deviation



Suezmax Crude Tanker: Annual Standard Deviation



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Market Cycles, 2000 – 2019

Simpler times?

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The Demand Side

Global Seaborne Trade

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

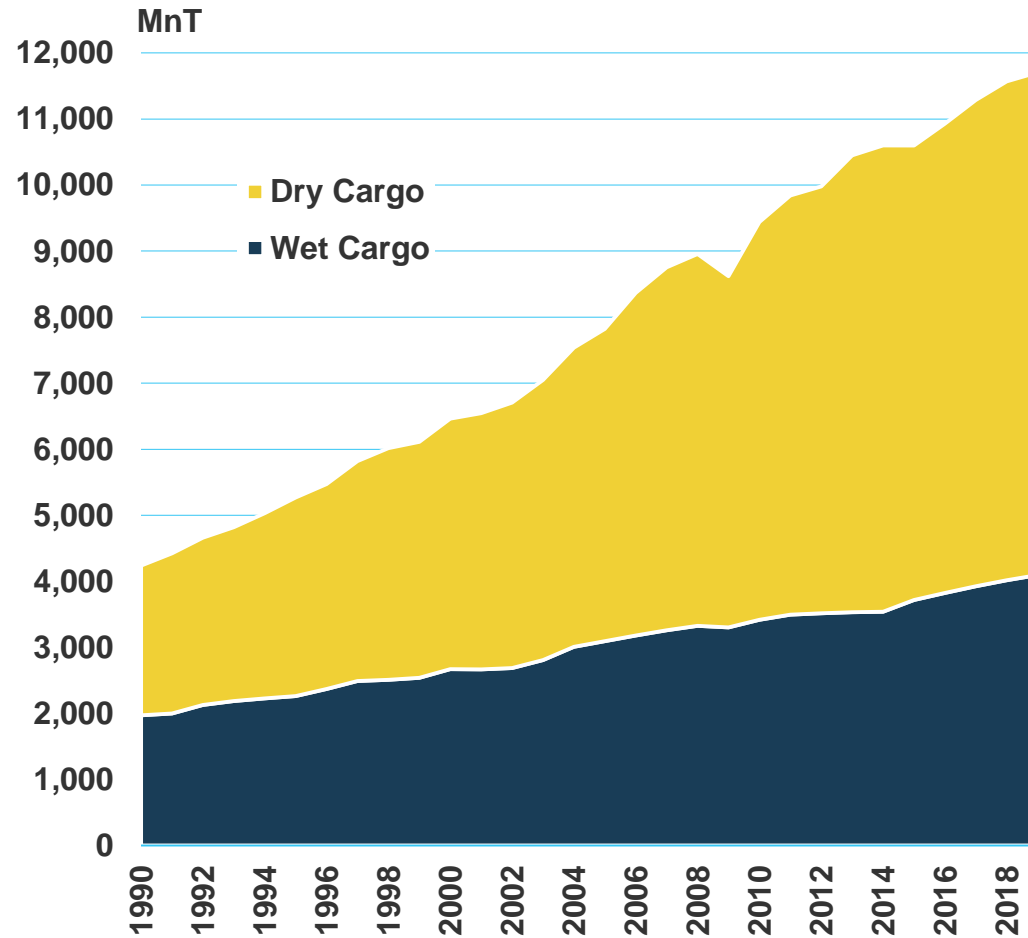
Dry Bulk Market

Containership Market

Oil Tanker Market

Moving Beyond COVID-19

Global Seaborne Trade, 1990 – 2019



Global Seaborne Trade Growth Rates, CAGR

	1990s	2000s	2010s
Crude Oil	2.9%	1.3%	0.6%
Oil Products	2.2%	5.1%	3.5%
Chemicals	7.4%	7.0%	3.8%
LNG	6.8%	7.0%	7.0%
LPG	4.7%	1.4%	7.4%
Dry Bulk	2.1%	4.8%	4.8%
Container	8.6%	8.1%	4.8%
Total Cargo	4.1%	3.5%	3.1%

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The Demand Side

Growth in the last 20 years has been underpinned by China

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

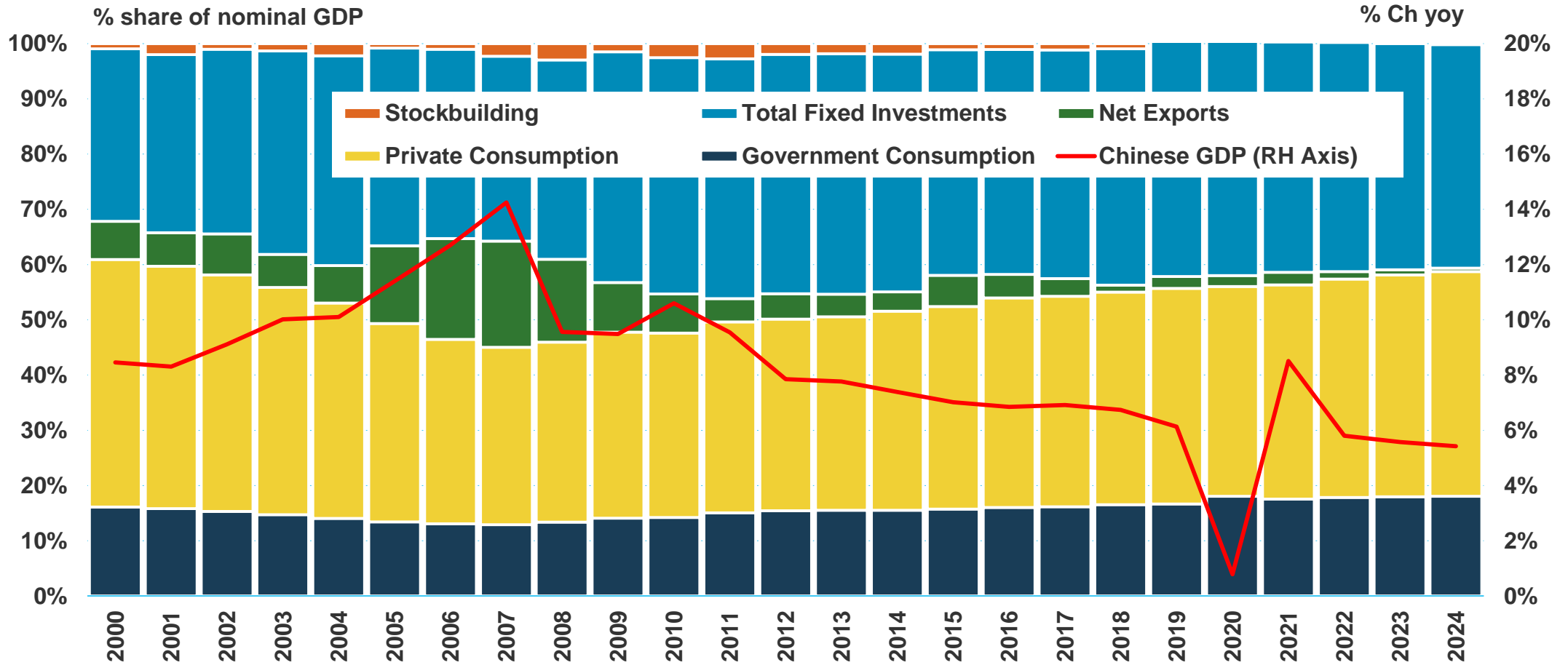
Dry Bulk Market

Containership Market

Oil Tanker Market

Moving Beyond COVID-19

Chinese GDP Growth, 2000 – 2024



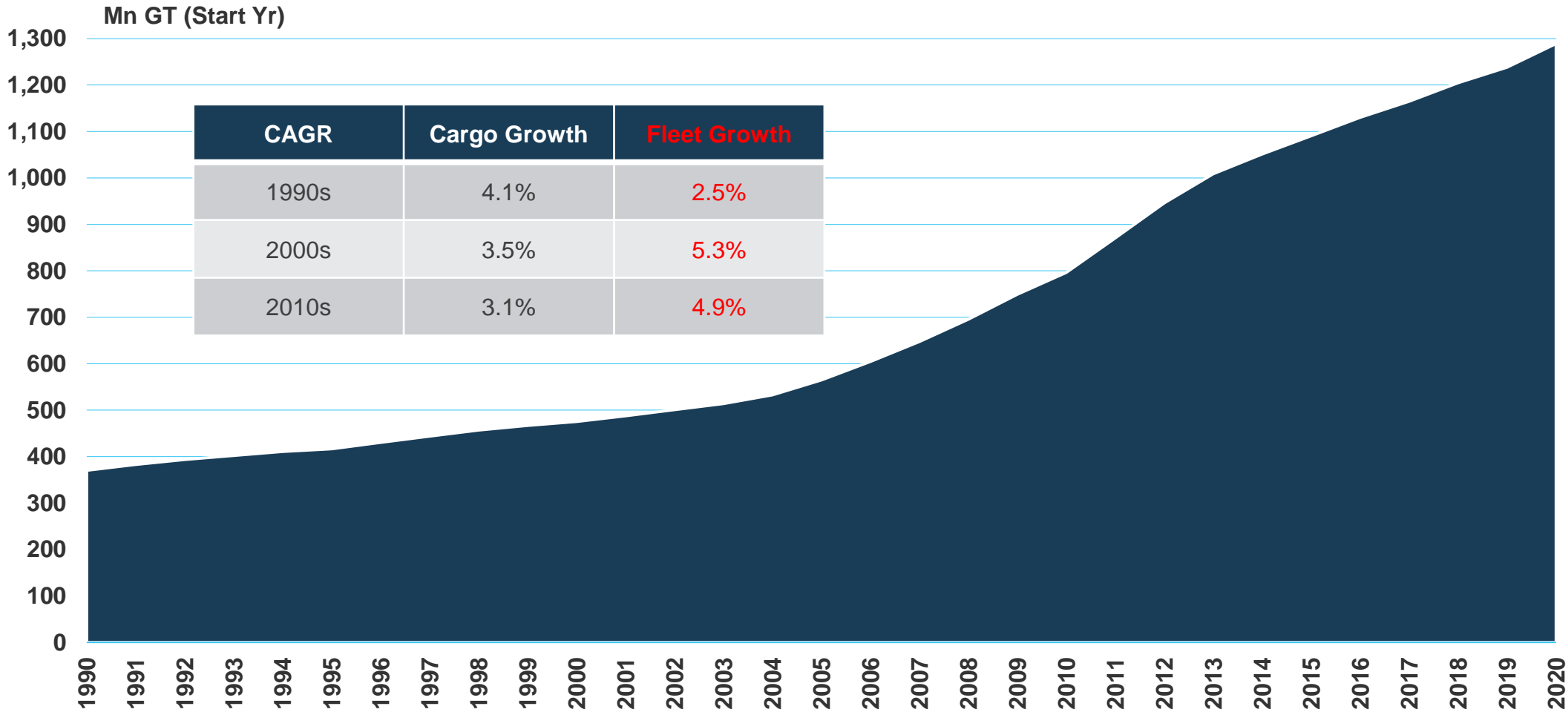
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The Supply Side

Global fleet of merchant vessels

- Cycles in Shipping
- [Market Cycles in the 2010s](#)
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19

Global Fleet, 1990 – 2020 (Start Year)



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The Supply Side

Why was fleet growth in 2010s so high?

Cycles in Shipping

Market Cycles in the 2010s

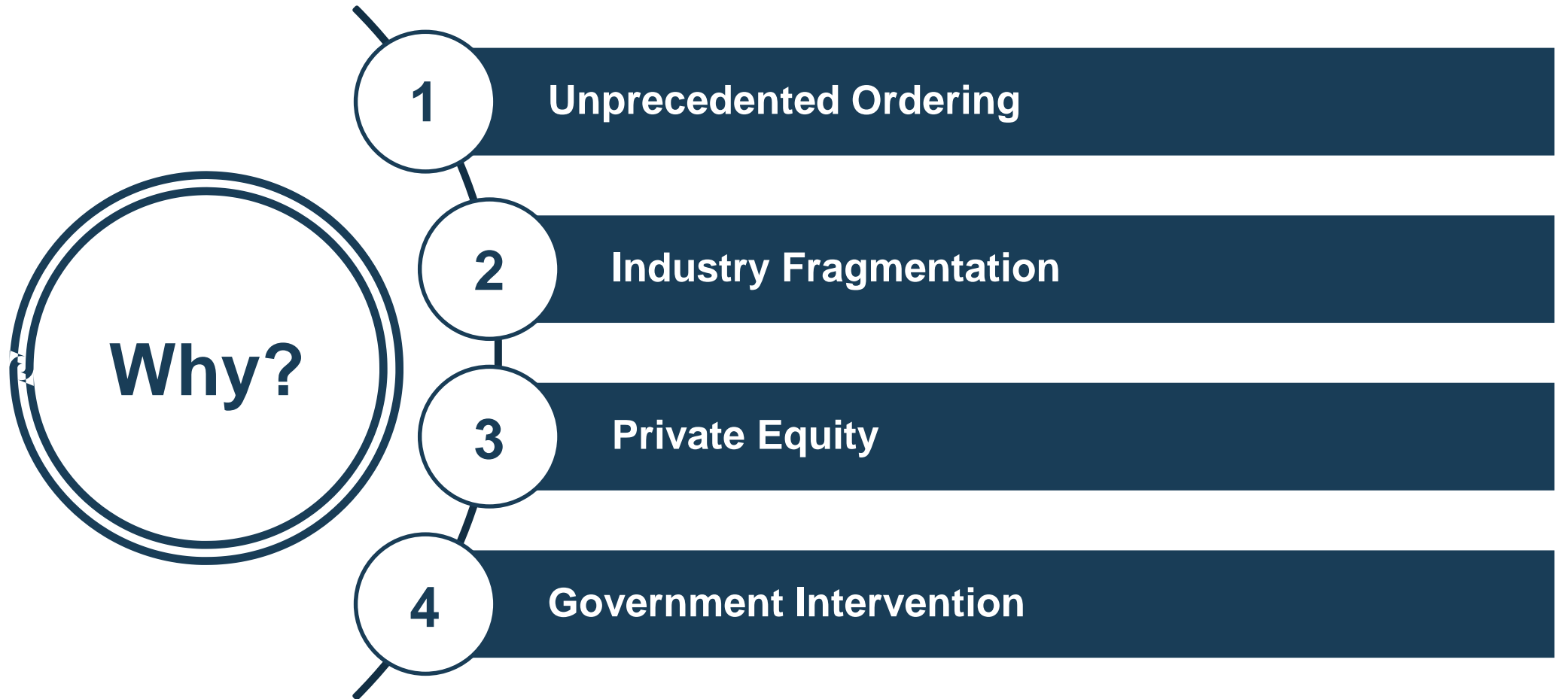
Scenario Based Analysis

Dry Bulk Market

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Moving Beyond COVID-19

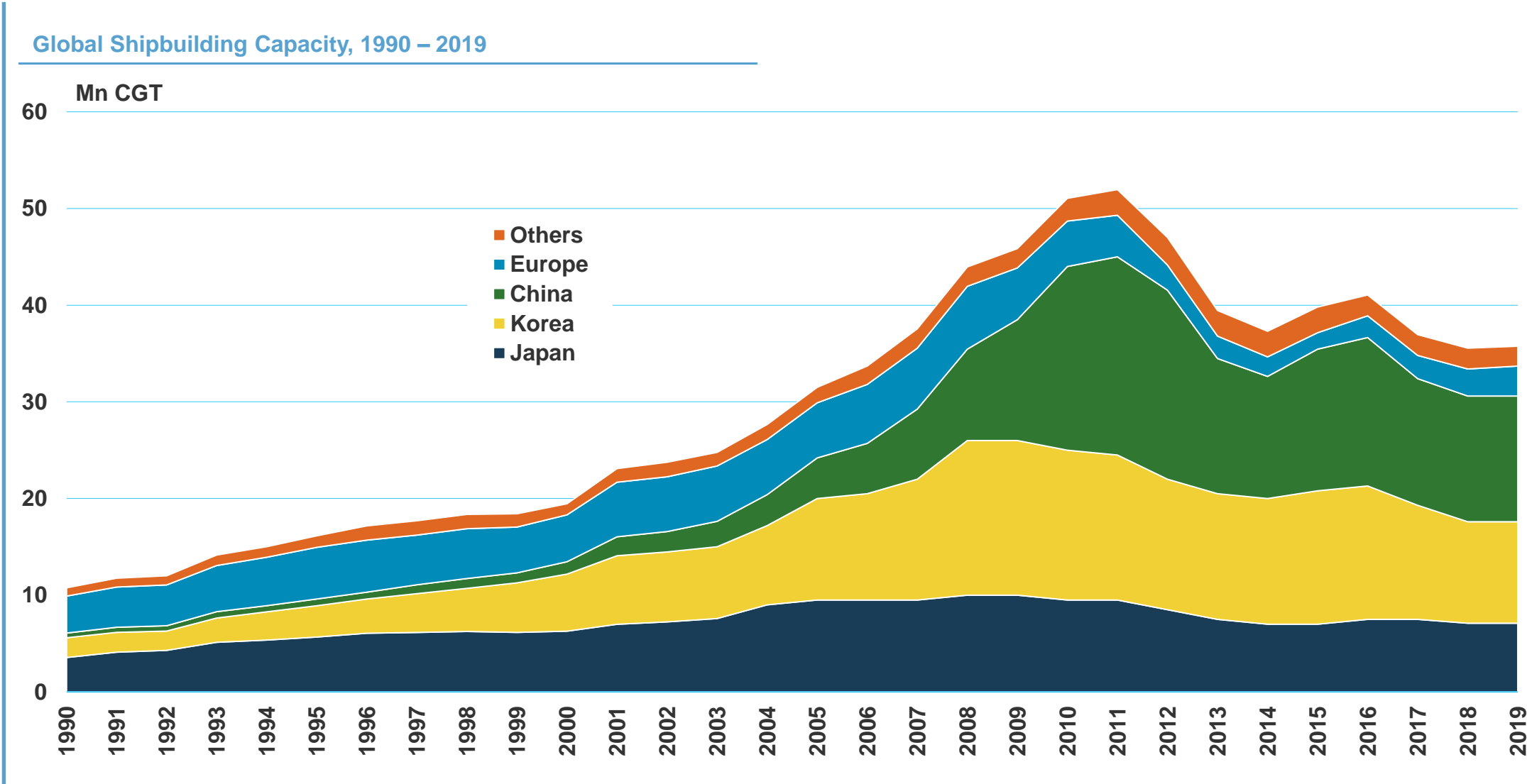


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Shipbuilding Capacity

Retreating from the peaks of the early 2010s

- Cycles in Shipping
- [Market Cycles in the 2010s](#)
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19



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The Supply Side Effect

Too much tonnage has suppressed rates for the last decade

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

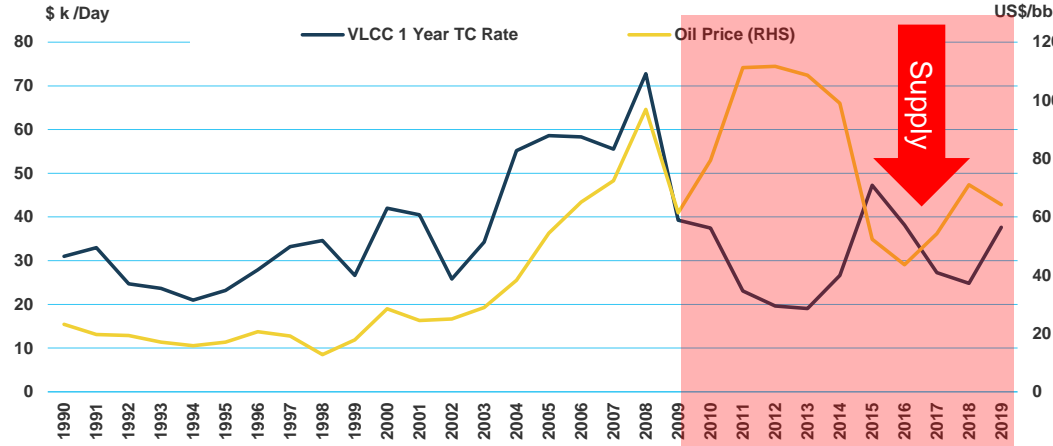
Dry Bulk Market

Containership Market

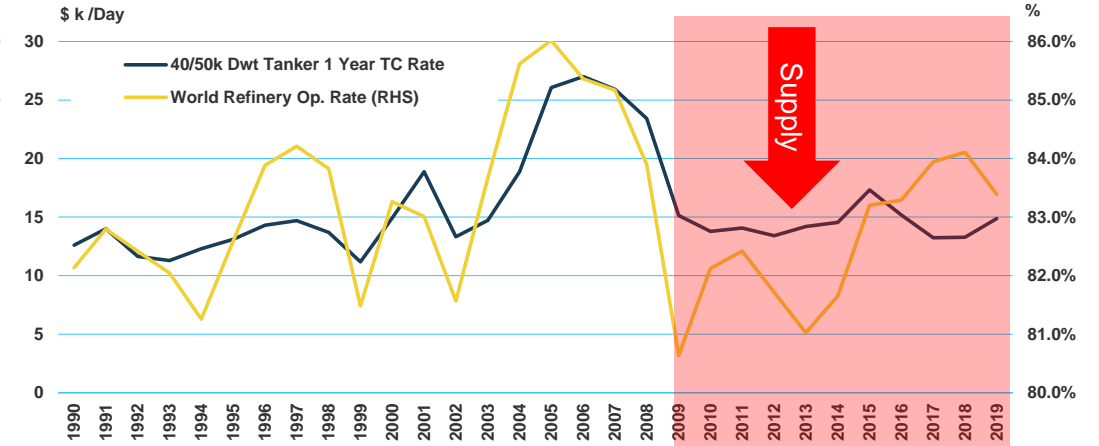
Oil Tanker Market

Moving Beyond COVID-19

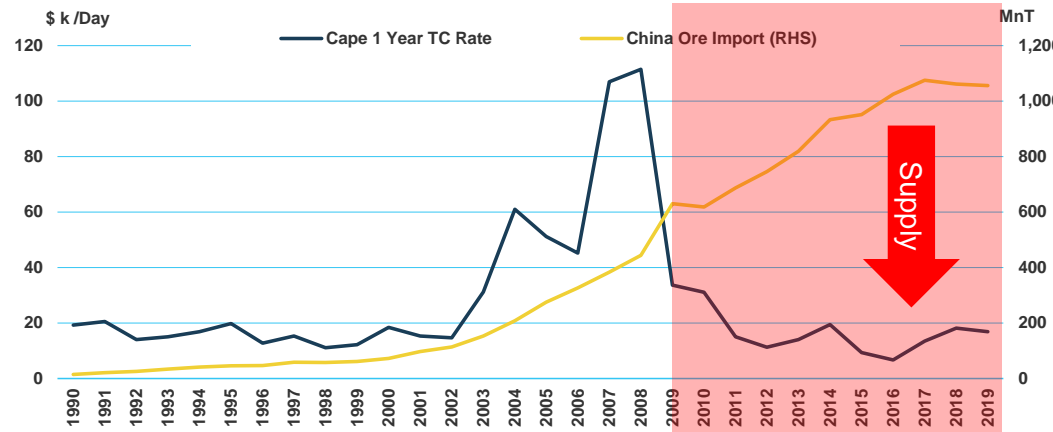
Crude Tankers



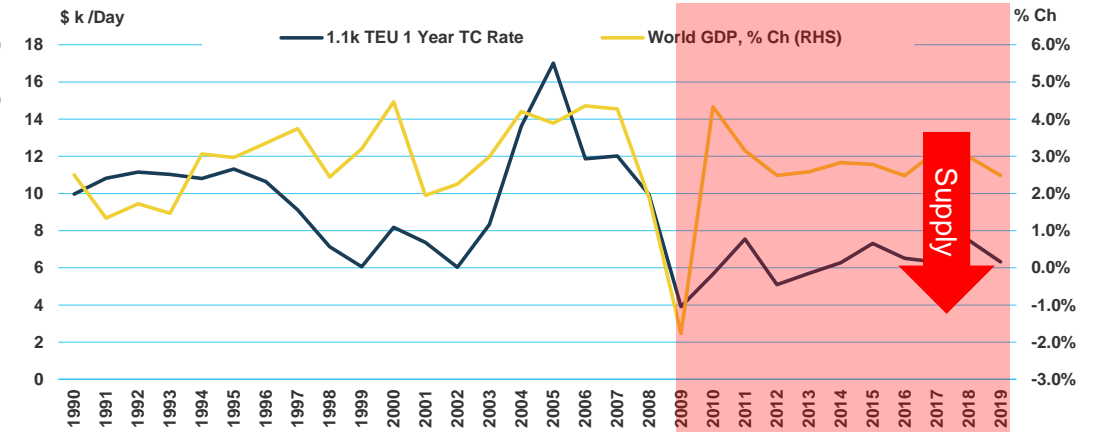
Product Tankers



Capesize Bulk Carrier



Handymax Bulk Carrier

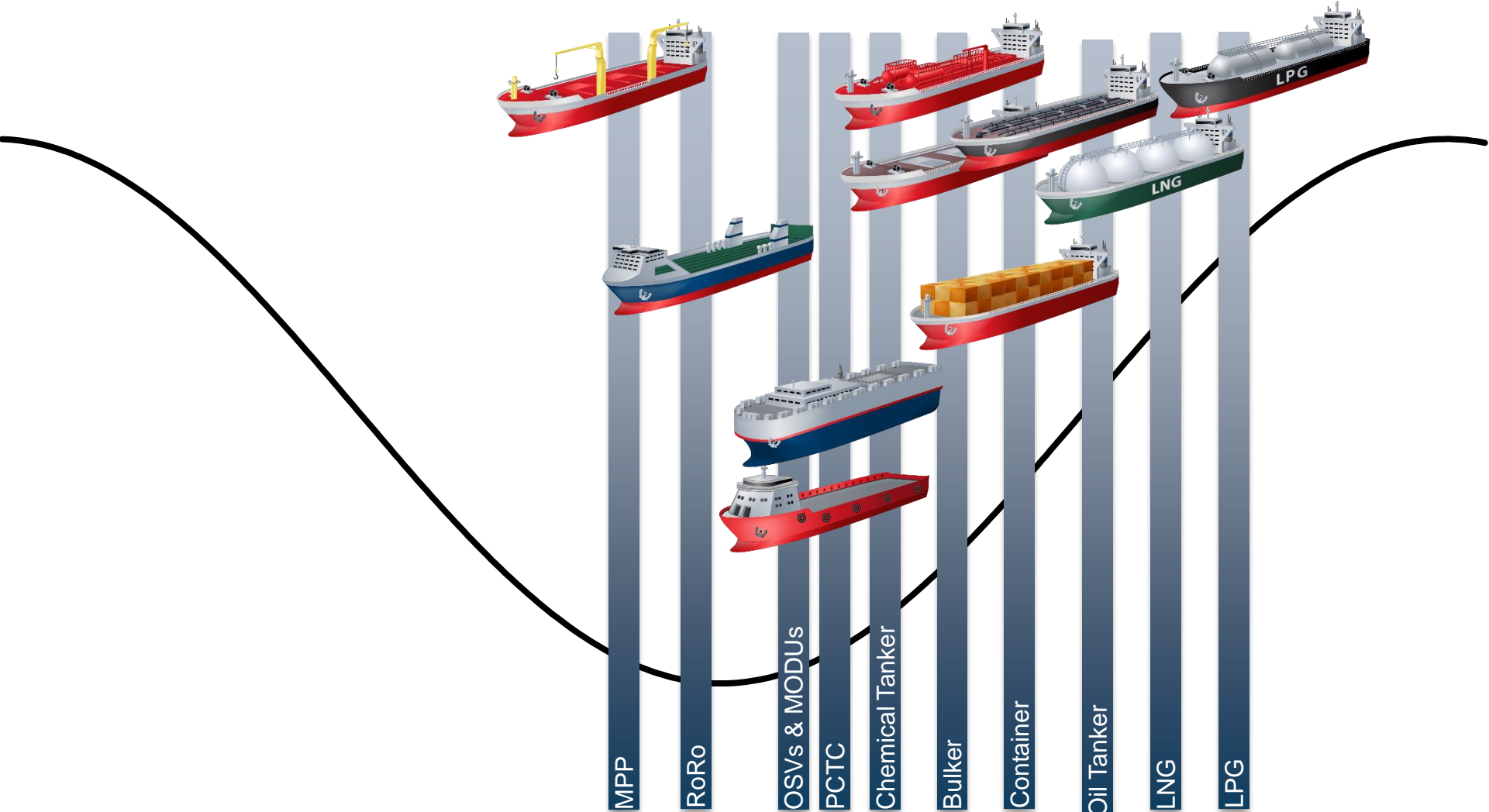


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The Market Cycle: End-December 2019

So, where exactly were we?

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19



Note: Schematic for illustrative purposes only

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Scenario-Based Analysis

MSI Horizon and Analysing Shipping Cycles

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MSI Horizon

The key to scenario-based analysis

Cycles in Shipping

Market Cycles in the 2010s

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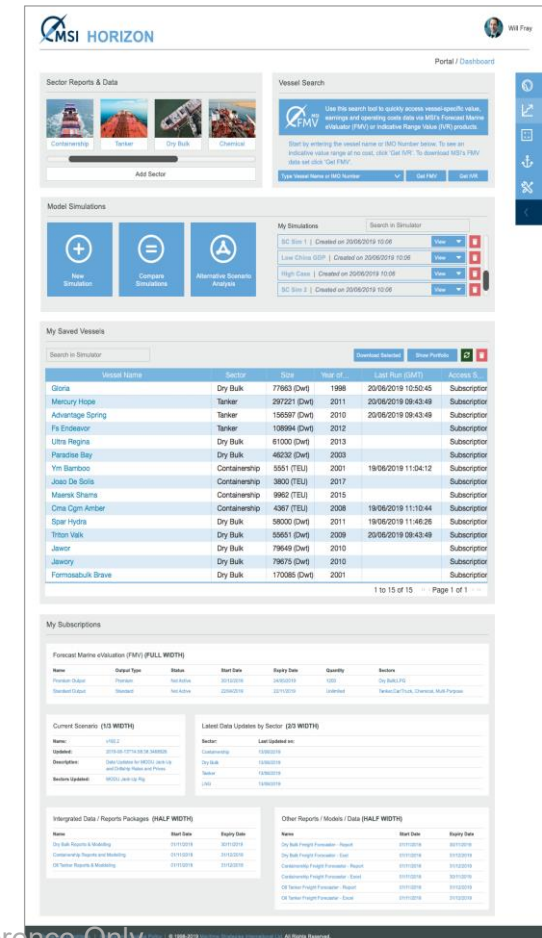
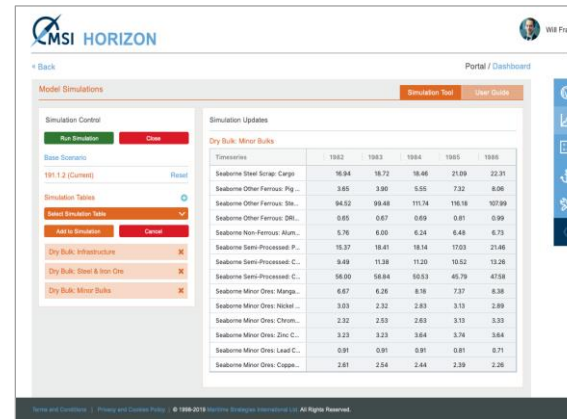


Market Reports

Forecasting Models

Asset Valuations

Strategic Advisory Services



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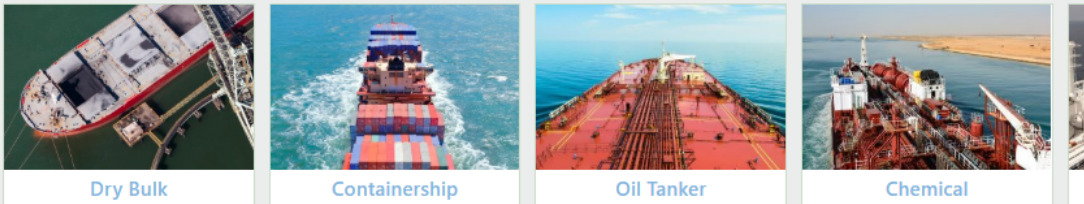


<< Back

HORIZON / Dashboard



Sector Reports and Data



Dry Bulk

Containership

Oil Tanker

Chemical

Add Sectors

Vessel Data



Use this search tool to quickly access vessel-specific value, earnings and operating costs data via MSI's Forecast Marine eValuator (FMV) or Indicative Value Range (IVR) products.

Start by entering the vessel name or IMO Number below. To see an indicative value range at no cost, click 'Get IVR'. To download MSI's FMV data set click 'Get FMV'.

Type Vessel Name or IMO Number

Get FMV

Get IVR

Scenario Analysis



Create New Scenario



Compare Scenarios

My Scenarios

Search in Scenarios

Surplus Upside Created on 12/03/2020 14:40:11

View



CV Global 2020 Created on 28/02/2020 10:06:21

View



2020 Recession 1 Created on 28/02/2020 09:39:07

View



GDP 2020 Down Created on 27/02/2020 13:45:41

View



Alternative Marine eValuator



By combining the functionality of MSI's FMV product with HORIZON's integrated market models, Alternative Marine eValuator (AMV) produces alternative value and cashflow forecasts for specific vessels, or entire portfolios. This is available only for sectors fully integrated into HORIZON.



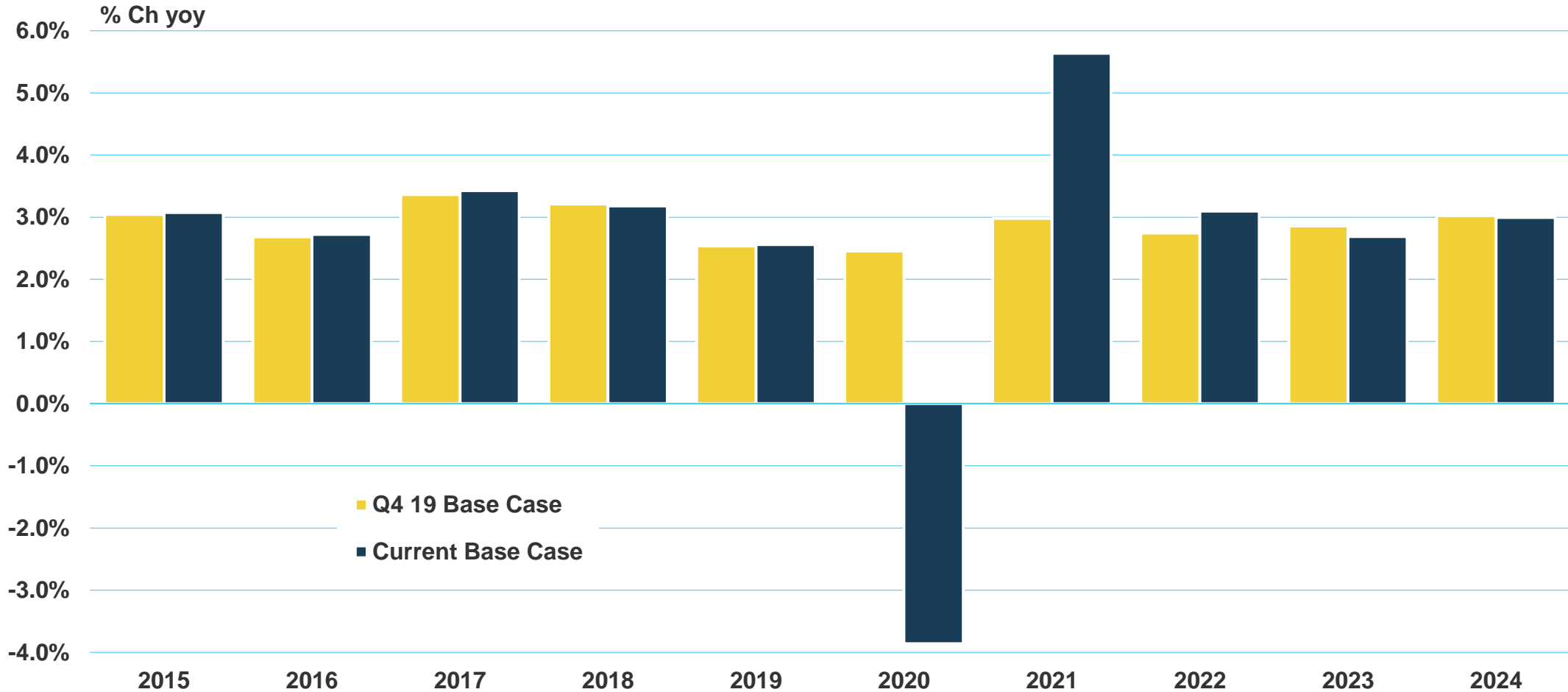
Alternative Marine eValuator

Global Growth

COVID-19 hit the breaks hard

Cycles in Shipping
Market Cycles in the 2010s
Scenario Based Analysis
Dry Bulk Market
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Oil Tanker Market
Moving Beyond COVID-19

Global GDP: Constant Prices and Exchange Rate (USD 2015)



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Dry Bulk Market

A delayed recovery

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Dry Bulk Market

COVID-19 is not happening in isolation...

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

Dry Bulk Market

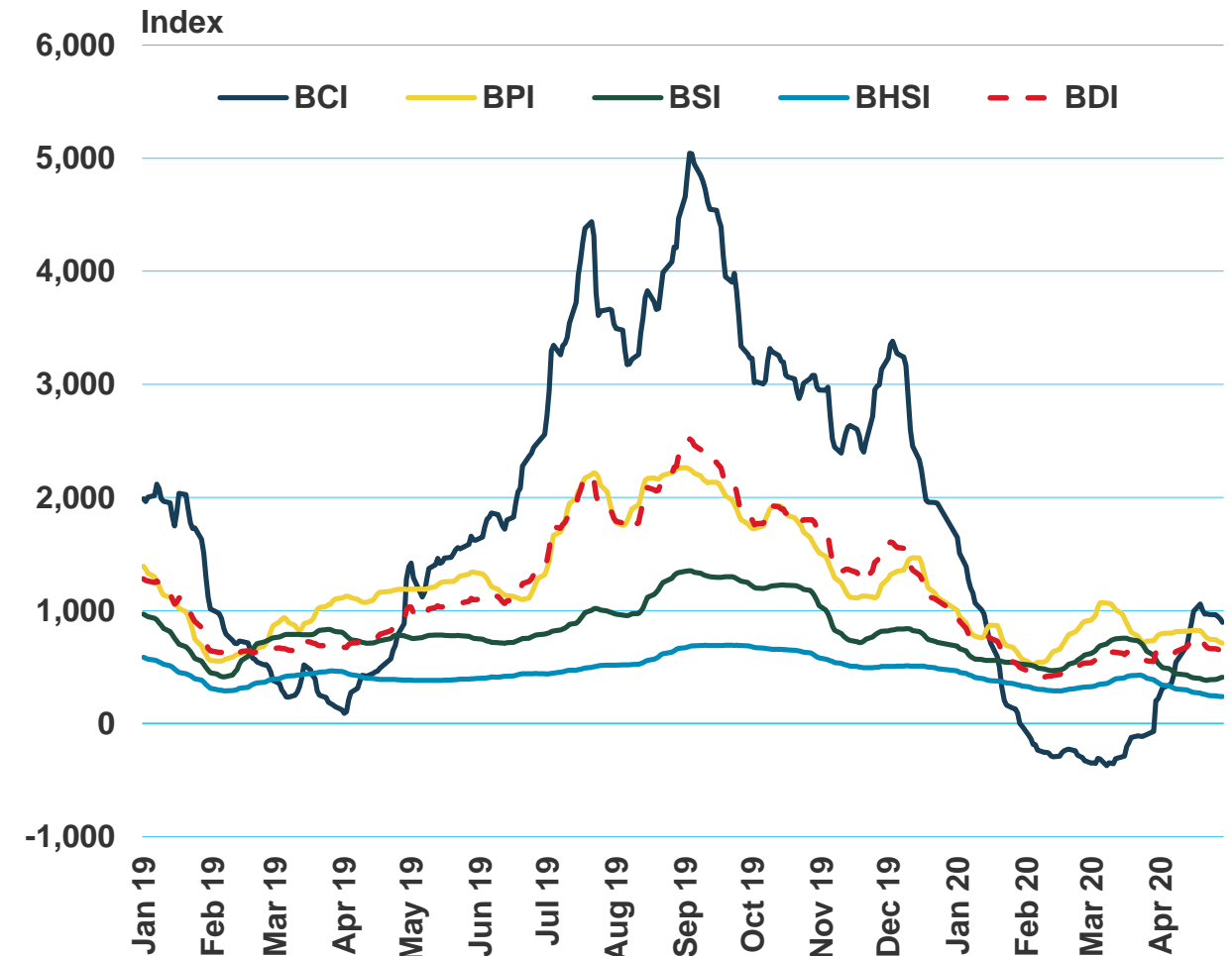
Containership Market

Oil Tanker Market

Moving Beyond COVID-19

- 2020 began with a precipitous drop for dry bulk carrier spot earnings. A slide that began in December accelerated through January with the outbreak of the COVID-19 virus towards the end of the month.
- The COVID-19 outbreak has clearly had an impact on sentiment, and will continue to disrupt both the demand and supply side of the dry bulk market this year.
- However, low earnings in the first few months of the year are not unusual, and weaker spot markets are not solely a result of the virus.
- A range of seasonal factors undermined rates before the escalation of COVID-19.

Baltic Exchange Dry Indices, January 2019 – Present



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Increment Dry Bulk Trade

COVID-19 is undermining previous expectations of stronger demand growth this year

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

Dry Bulk Market

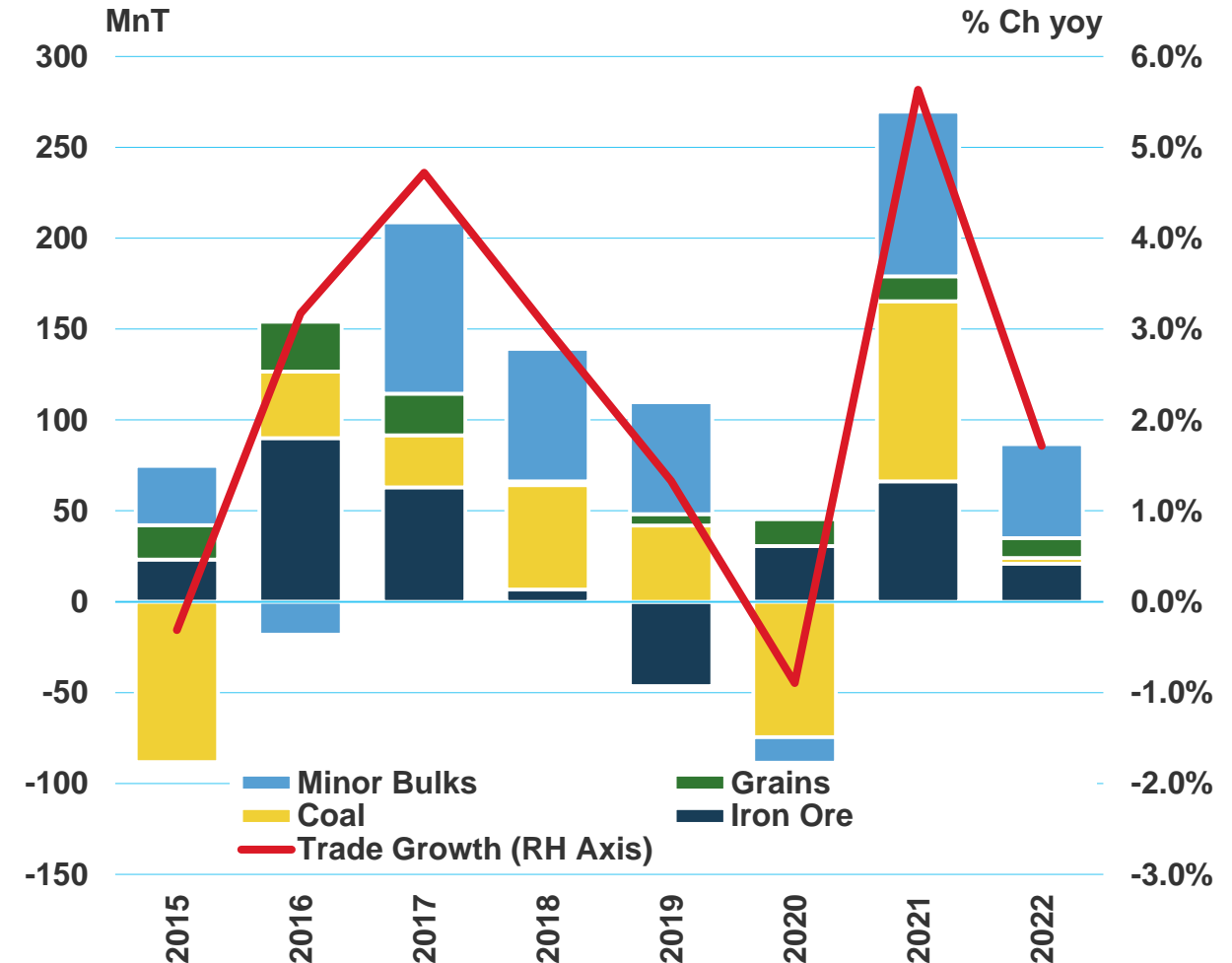
Containership Market

Oil Tanker Market

Moving Beyond COVID-19

- Dry bulk trade grew by just 1.2% yoy in 2019, the lowest yoy growth since 2015. The significant loss of iron ore trade (-46 MnT) offset growth in coal (+42 MnT) and minor bulks (+62 MnT) to some extent.
- At the start of this year, it was anticipated that a recovery in iron ore trade in 2020 (+66 MnT) and further expansion in 2021 (+77 MnT) would support cargo growth of 3.7% and 3.4% yoy respectively.
- However, the escalation of the COVID-19 outbreak has led to us slashing our short-term outlook on demand. We now anticipate a decline of c. 1% in overall trade in 2020, with risks on the downside.
- We anticipate that trade levels will recover in 2021, passing the 5 BnT mark for the first time.

Annual Increment Seaborne Dry Bulk Trade



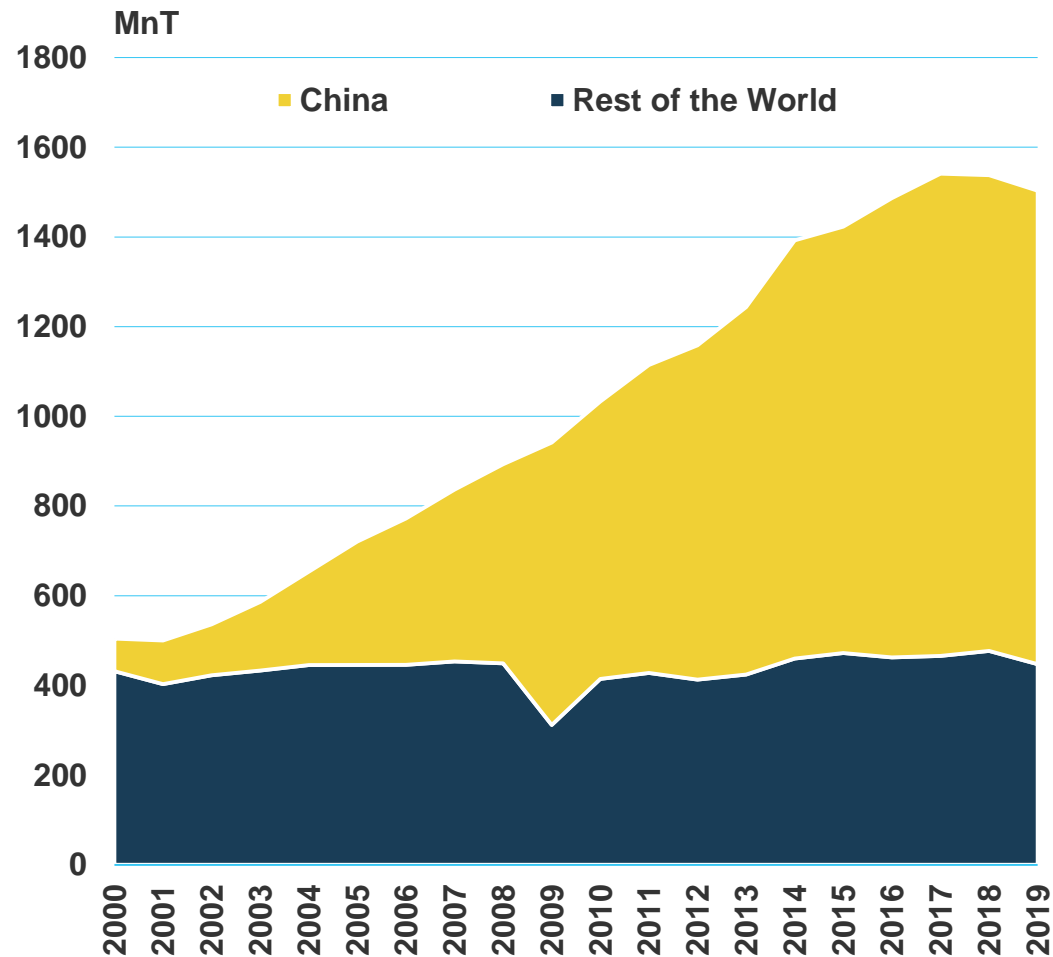
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Dry Bulk Trade (1)

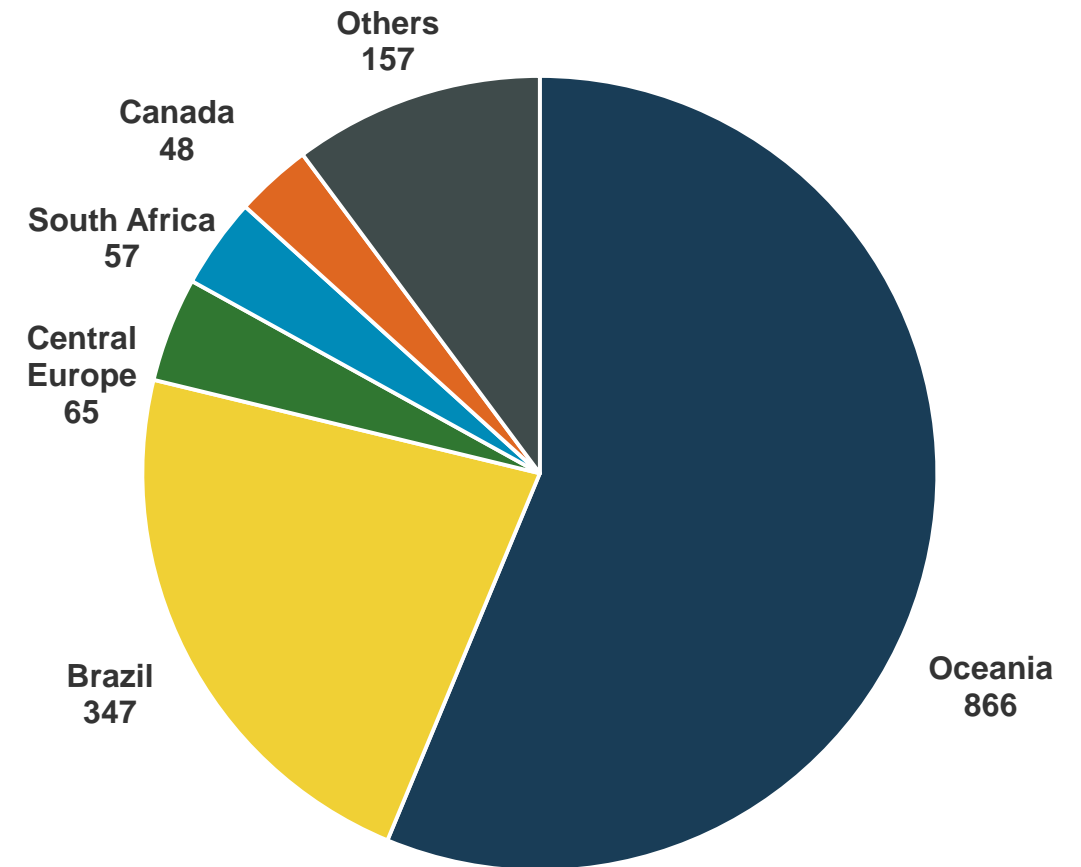
Demand and supply side risks of iron ore

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market**
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19

Historical Iron Ore Seaborne Imports



2019 Seaborne Iron Ore Trade by Exporters (MnT)



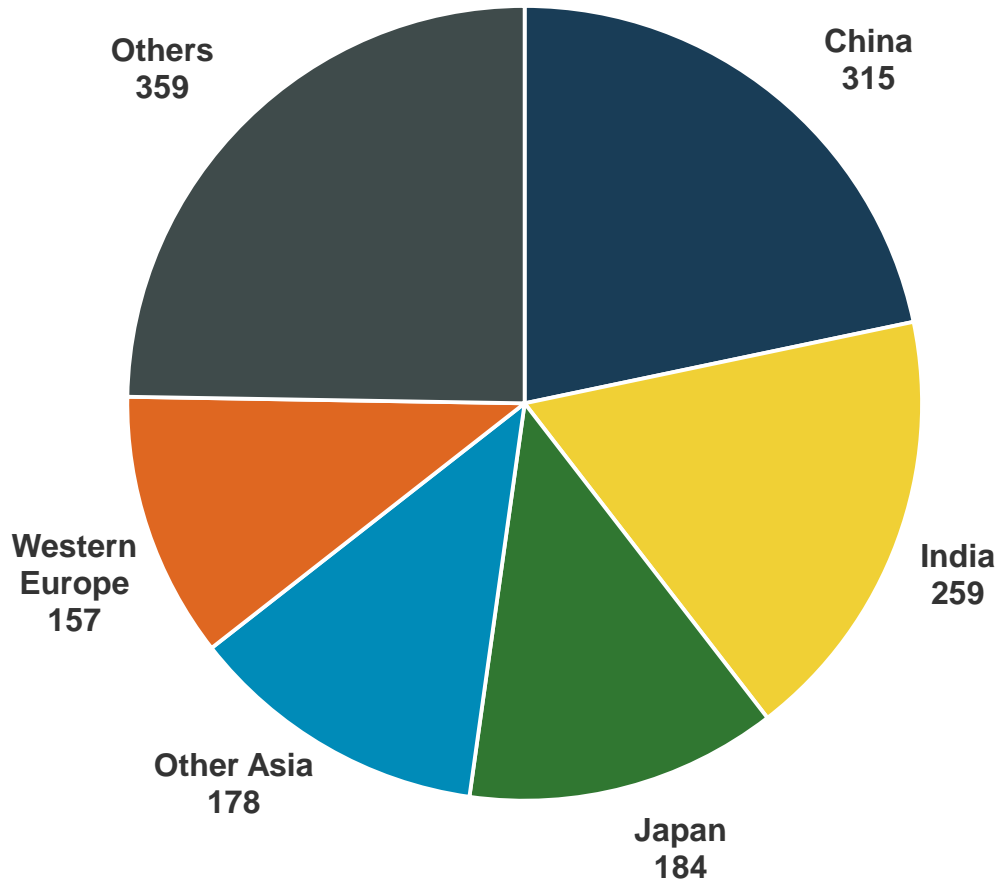
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Dry Bulk Trade (2)

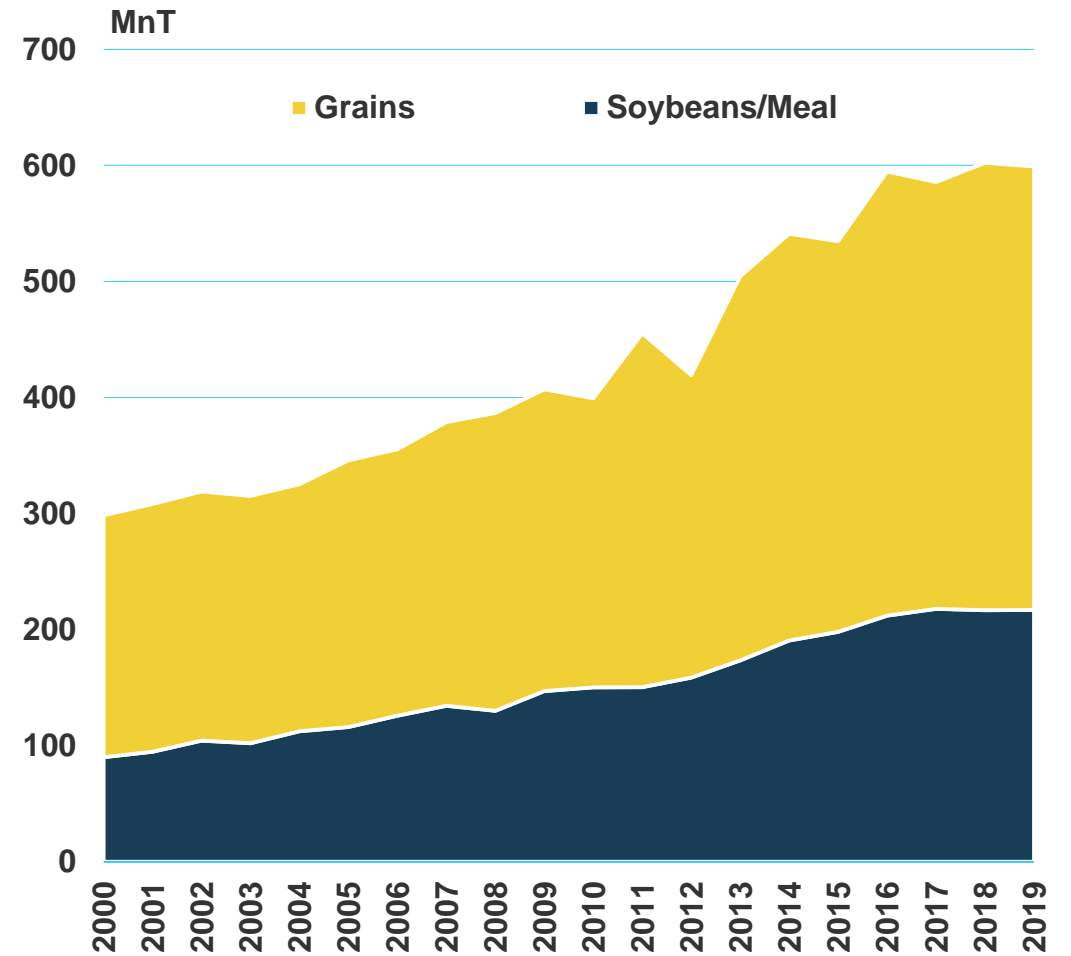
What about coal and agribulks?

- Cycles in Shipping
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2019 Seaborne Coal Trade by Importers (MnT)



Seaborne Agricultural Exports (MnT)



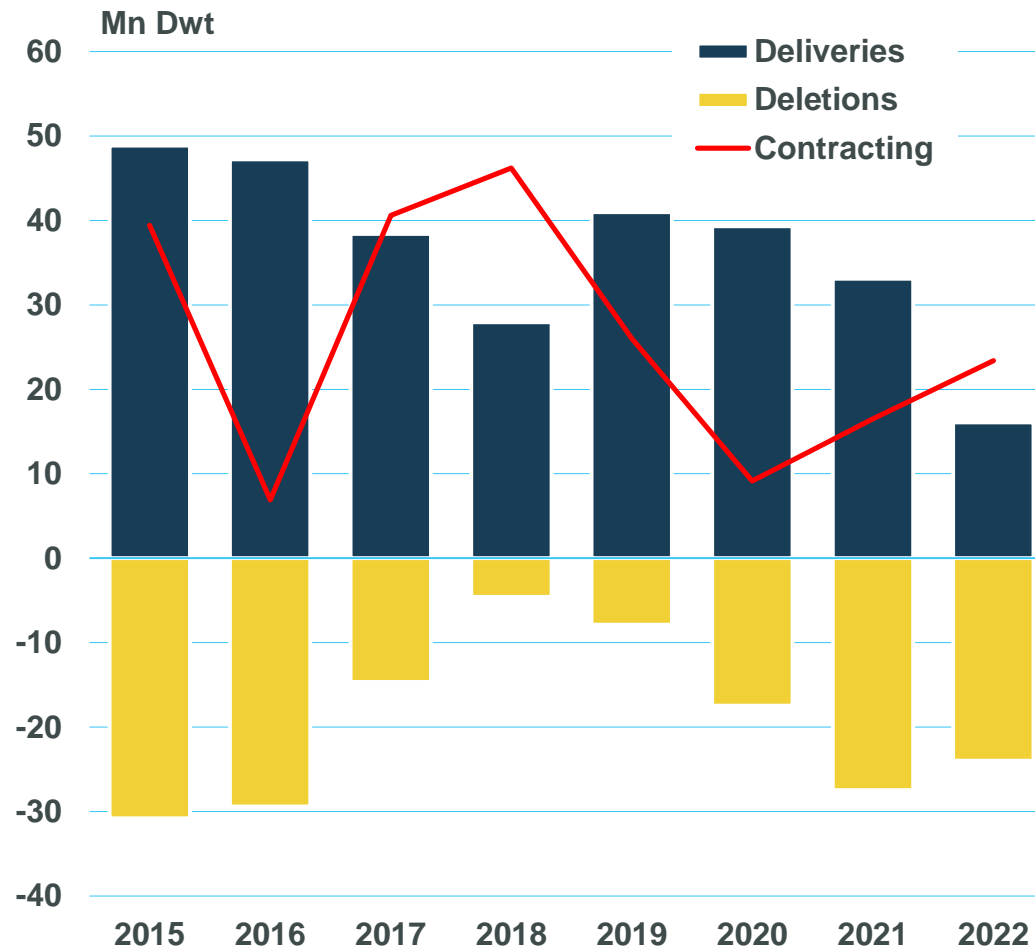
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Bulk Carrier Fleet Dynamics

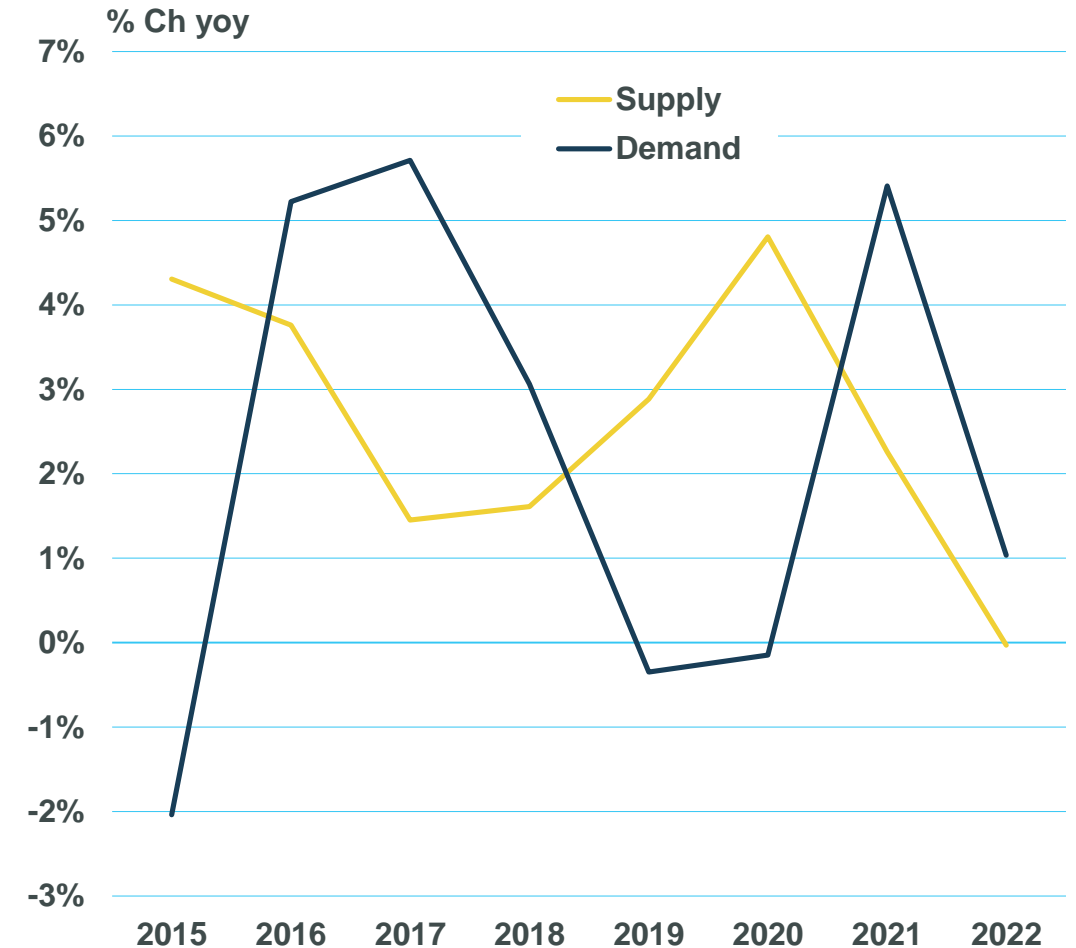
Orderbook front loaded, scrapping paused and less vessels fitting scrubbers...

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market**
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19

Bulk Carrier Fleet Dynamics



Bulk Carrier Supply / Demand Balance



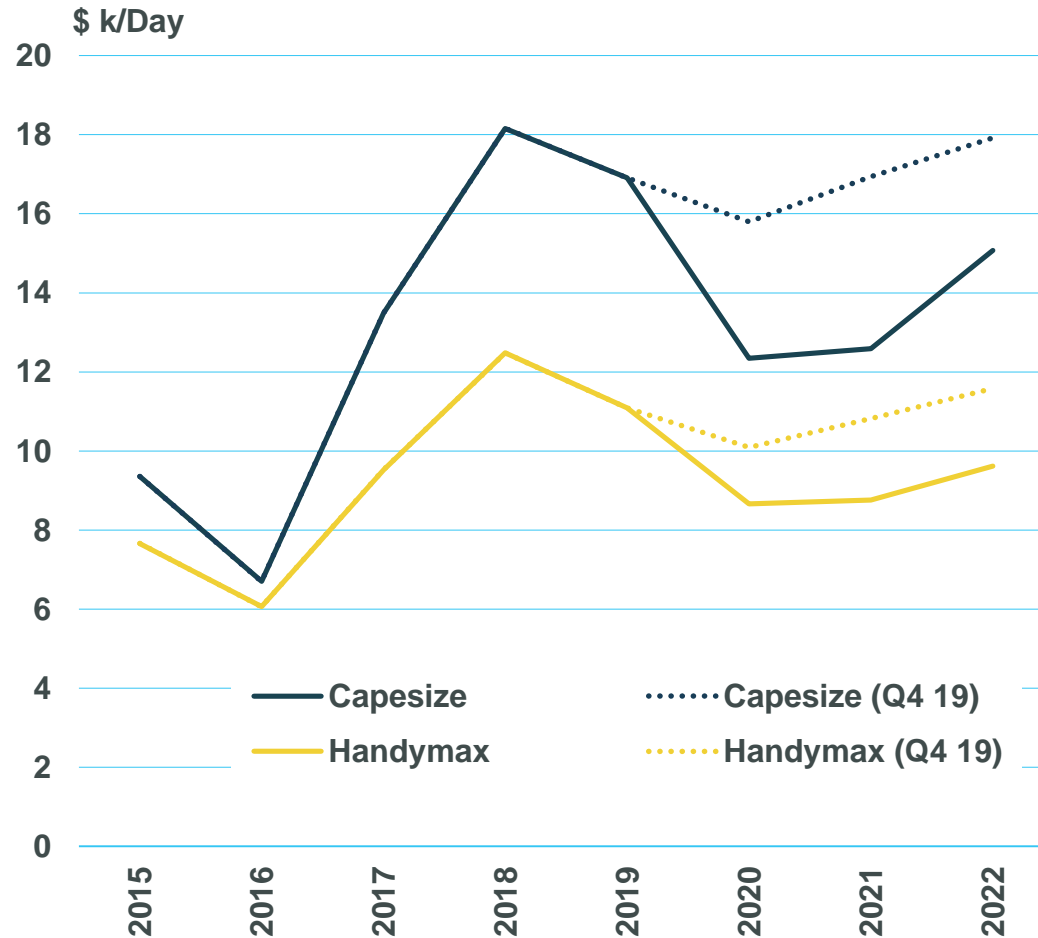
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Bulk Carrier Earnings and Asset Price Outlook

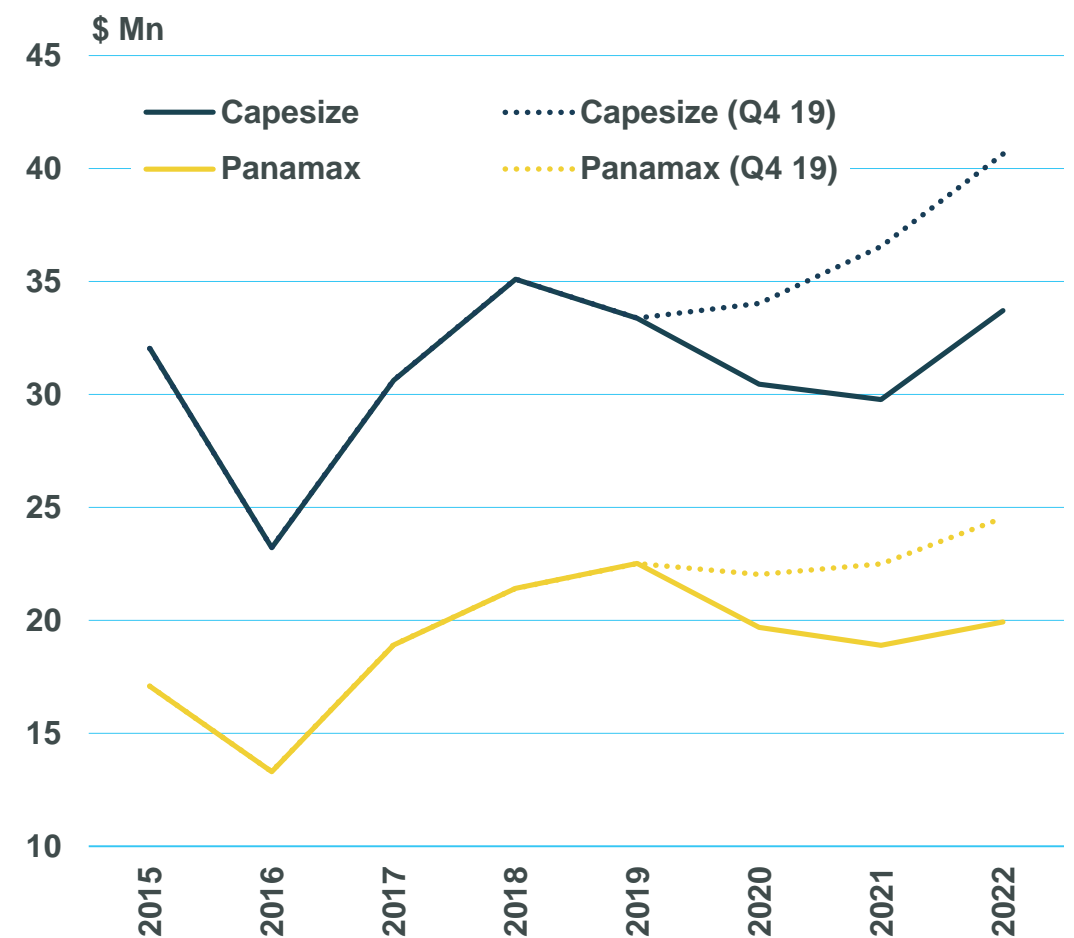
Difficult to recover...

- Cycles in Shipping
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Benchmark 1 Yr T/C Rates



Benchmark 5 Yr Old Asset Price



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<< Back

HORIZON / Compare Scenarios



Compare Scenarios

My Scenarios

- v201.3 (Current)
 - Base Case
 - Chinese GDP - 200 bps

- + v201.2
- + v201.1
- + v194.9
- + v194.8
- + v194.7
- + v194.6
- + v194.5
- + v194.4
- + v194.3
- + v194.2
- + v194.1

Category

Dry Bulk: Timecharter Rates

Timeseries

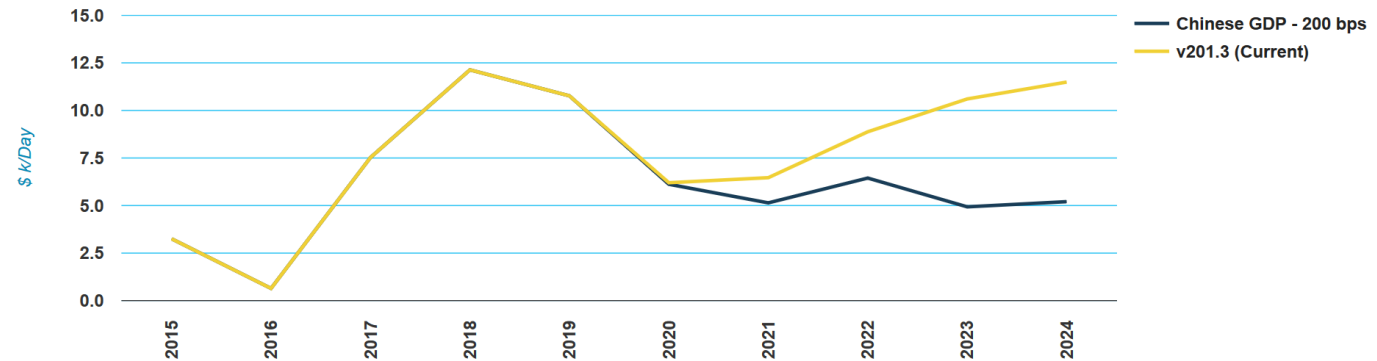
150/180k Dwt Bulker: Bareboat (\$/Day)



Data

150/180k Dwt Bulker: Bareboat (\$/Day)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Chinese GDP - 200 bps	3.25	0.65	7.53	12.13	10.77	6.12	5.14	6.44	4.93	5.20
v201.3 (Current)	3.25	0.65	7.53	12.13	10.77	6.20	6.46	8.88	10.60	11.49

Chart





Containership Market

Coming down from recent highs

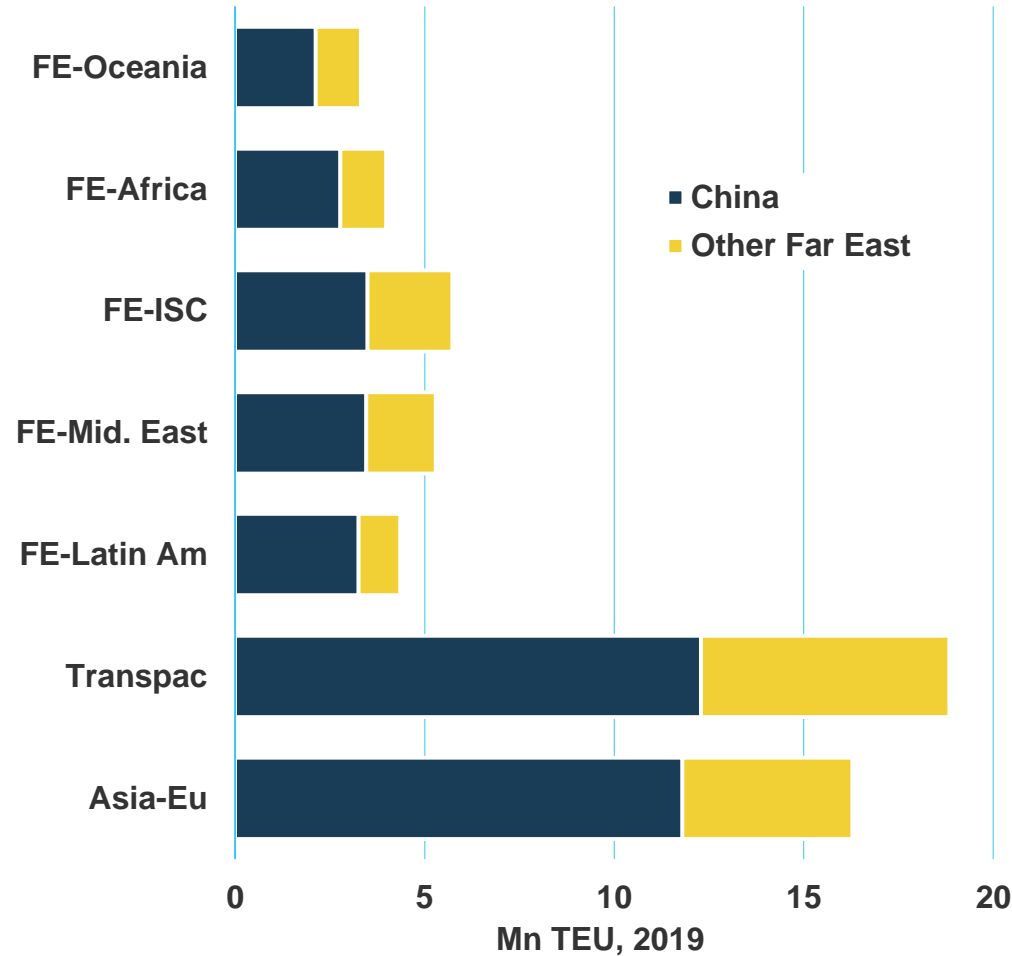
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Container Trade

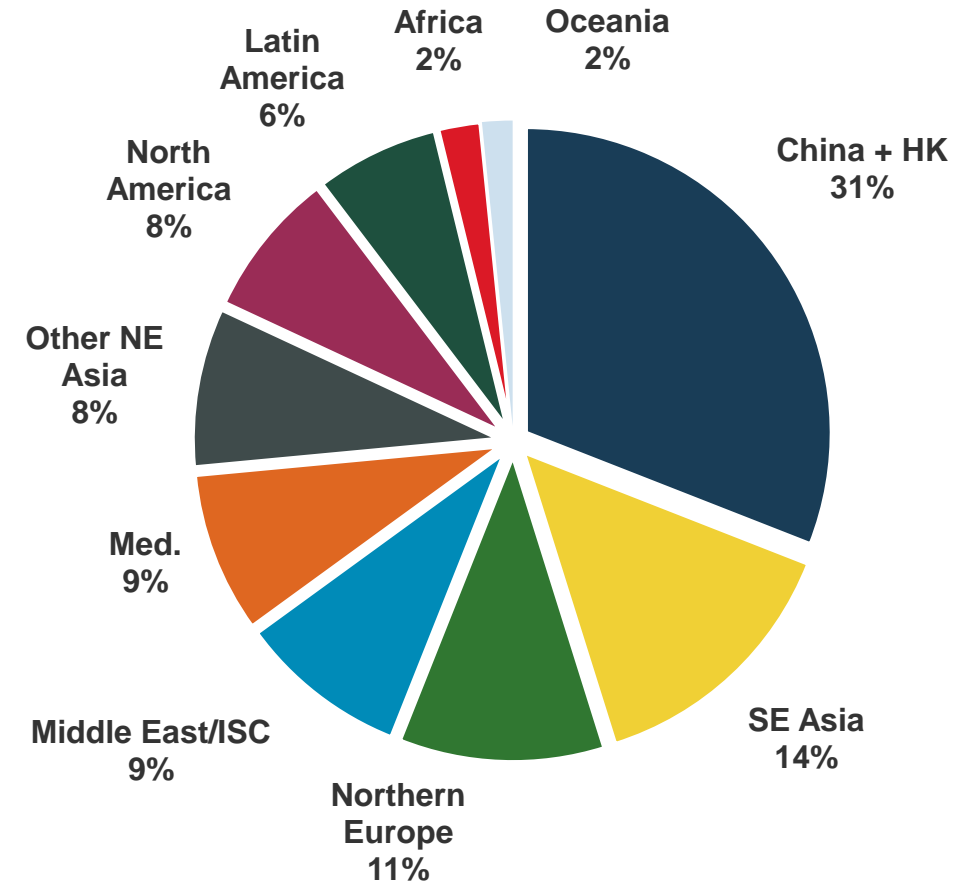
Initial problems with supply have spread to demand

- Cycles in Shipping
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Chinese Export Share on Key Trade-Lanes, 2019



Global Container Port Throughput by Region, 2018



Source: MSI / UNCTAD

Note: Includes transshipment and empties.

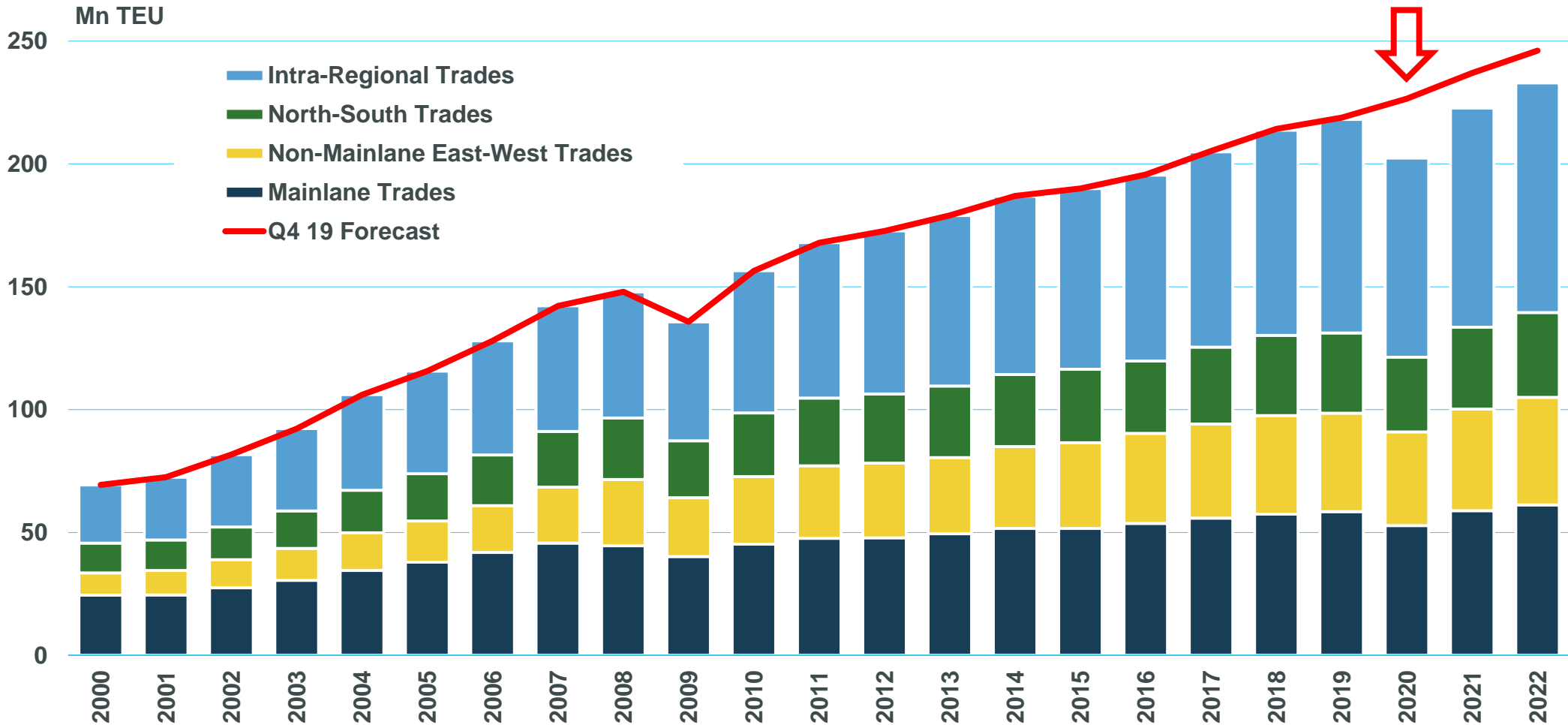
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Container Demand Trends

COVID-19 will drive a substantial fall in containerised trade in 2020

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Global Seaborne Trade in Containers



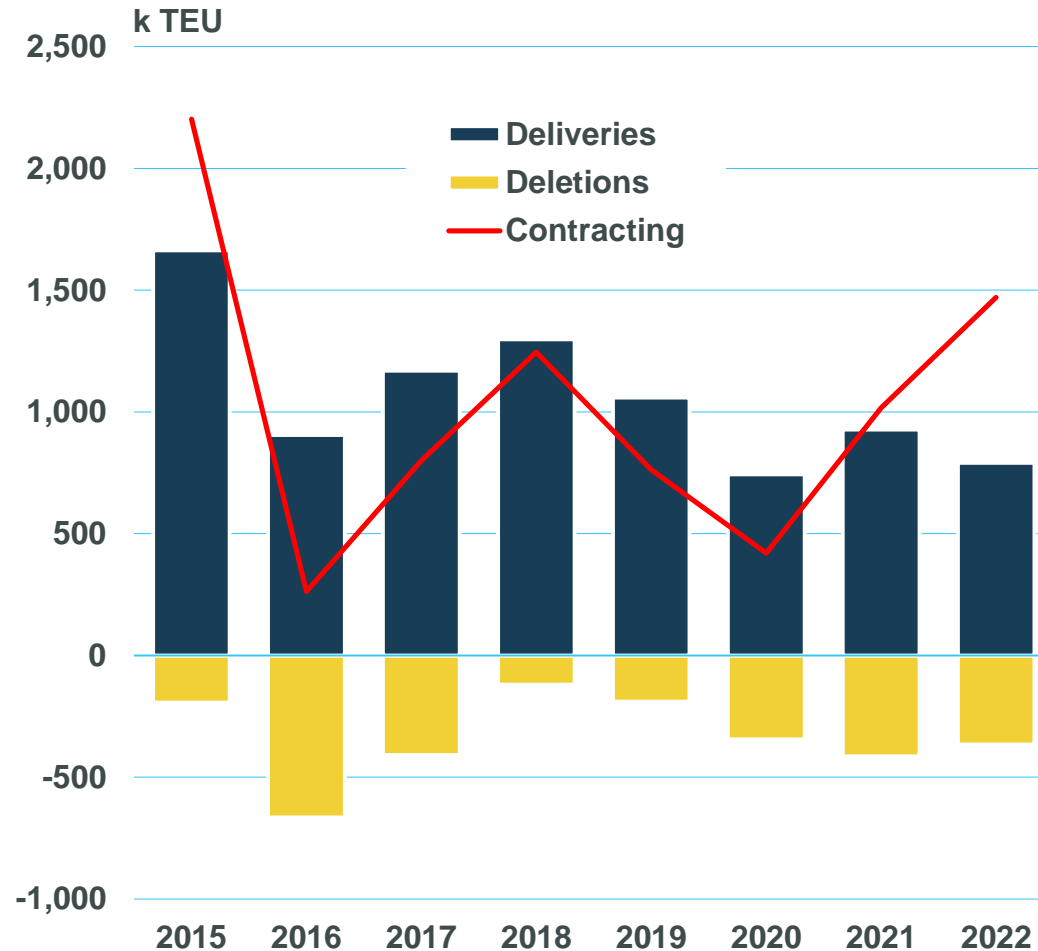
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Containership Fleet Dynamics

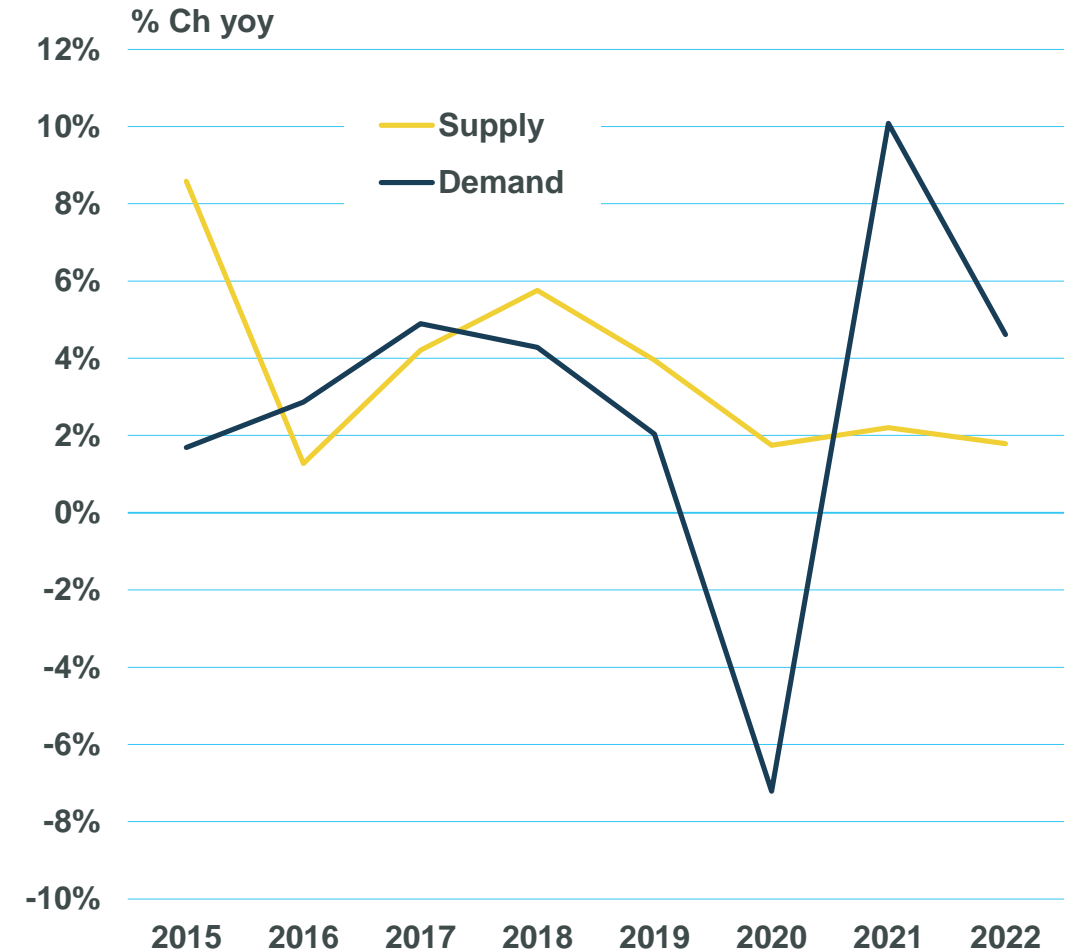
A slowdown in fleet growth won't compensate for trade loses

- Cycles in Shipping
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- Scenario Based Analysis
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- Oil Tanker Market
- Moving Beyond COVID-19

Containership Fleet Dynamics



Containership Supply / Demand Balance



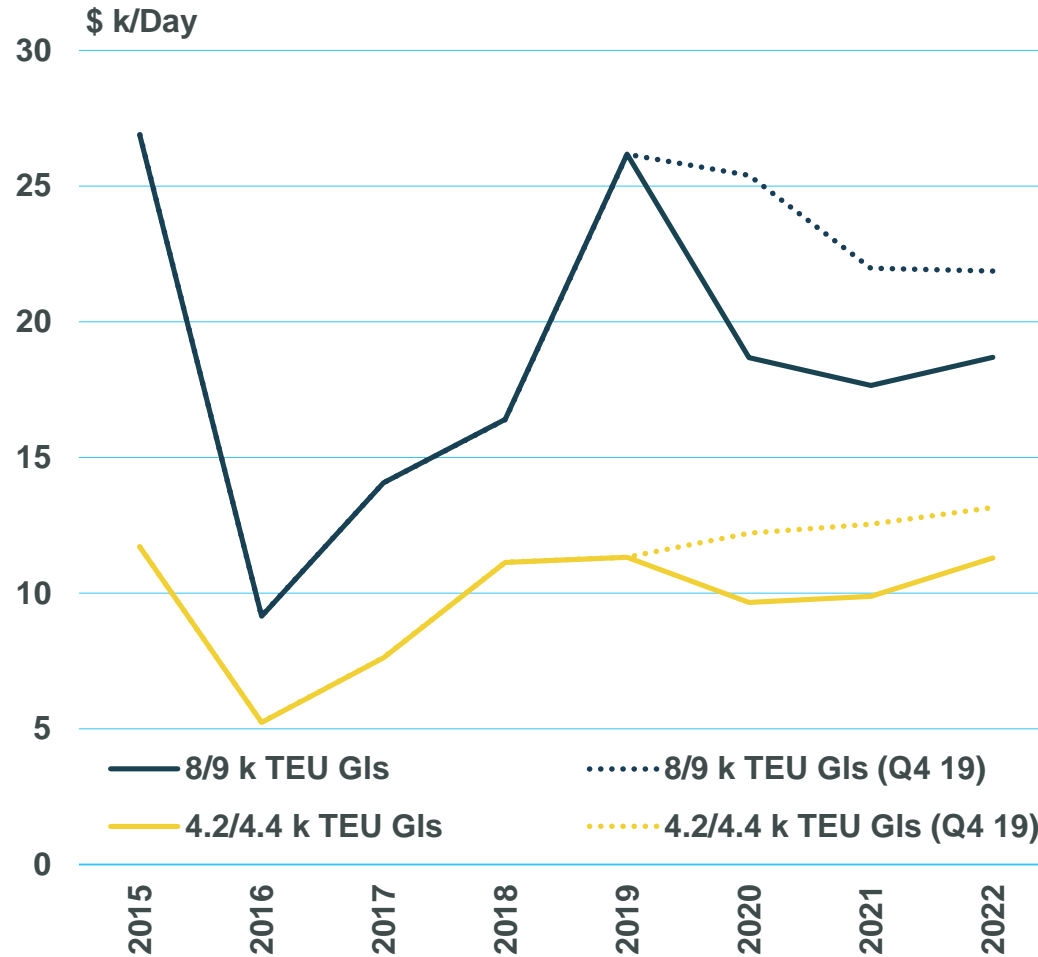
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Containership Earnings and Asset Price Outlook

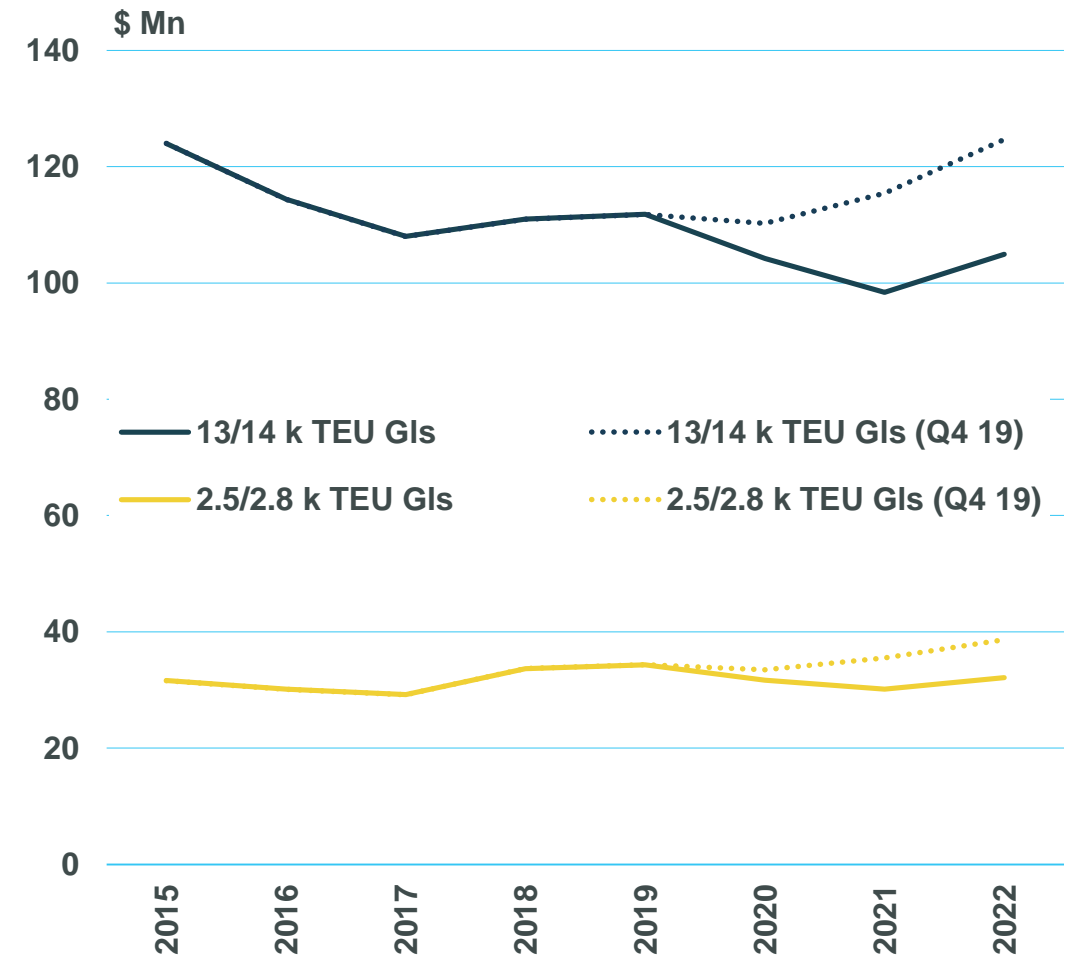
Difficult to recover...

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Benchmark 1 Yr T/C Rates



Benchmark Newbuild Price



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Oil Tanker Market

How long can the good times last?

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Oil Tanker Market

COVID-19 is not happening in isolation...

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

Dry Bulk Market

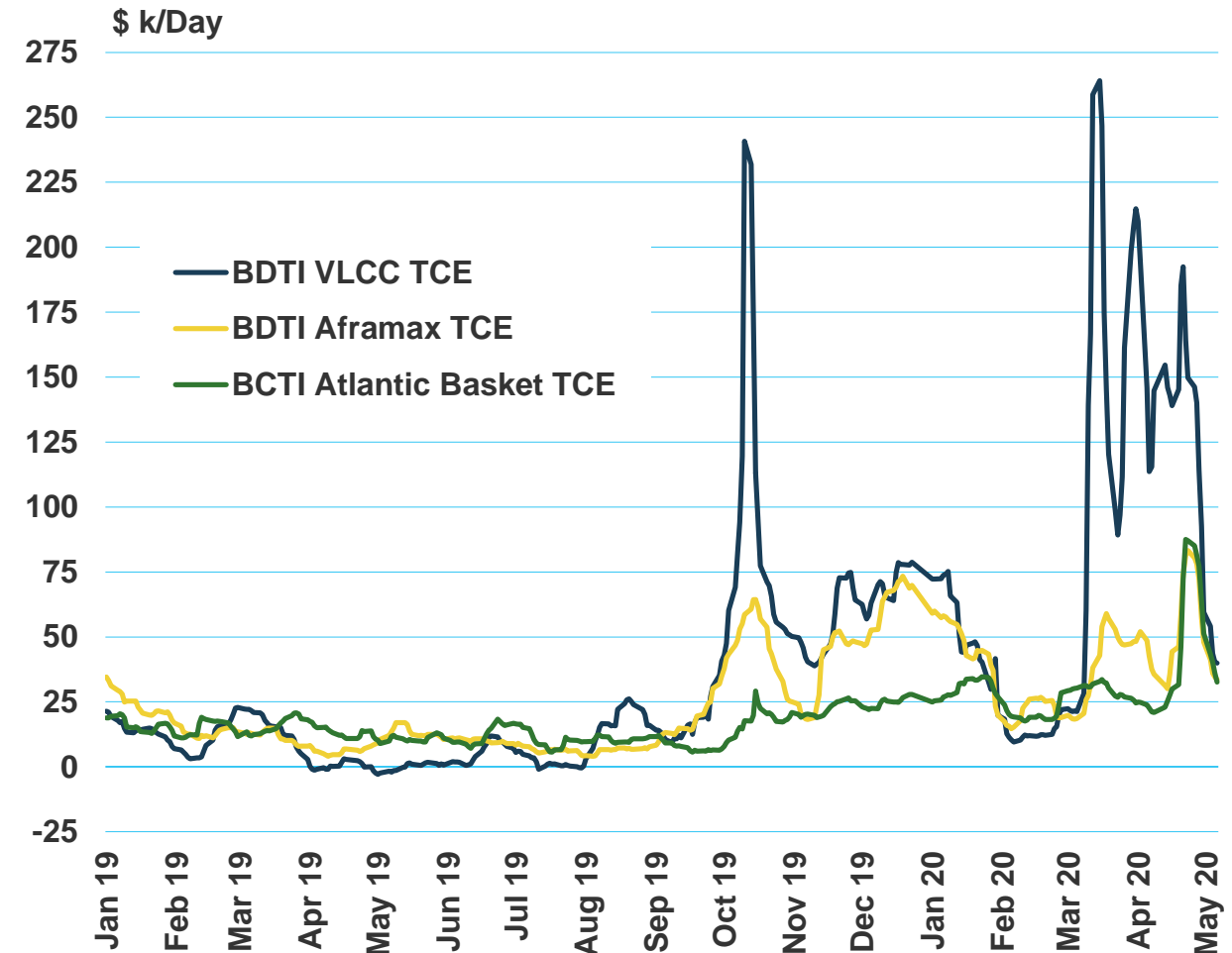
Containership Market

Oil Tanker Market

Moving Beyond COVID-19

- Tanker earnings have surged at the back end of Q1 and into Q2, driven the exceptional imbalance between oil supply and demand which is driving up floating storage demand.
- Tanker markets were squeezed upwards over the last couple of months. Oil storage activities were key to this.
- VLCC spot earnings hit “heroic” levels in mid-March, just shy of an astounding \$300 k/Day.
- However, increasingly front-weighted position list in the last couple of weeks have resulted in a severe correction in the levels of achievable rates. As of 7th May 2020, BDTI VLCC-TCE stood at around \$40 k/Day.

Baltic Exchange Dirty and Clean Tanker Indices, January 2019 – Present



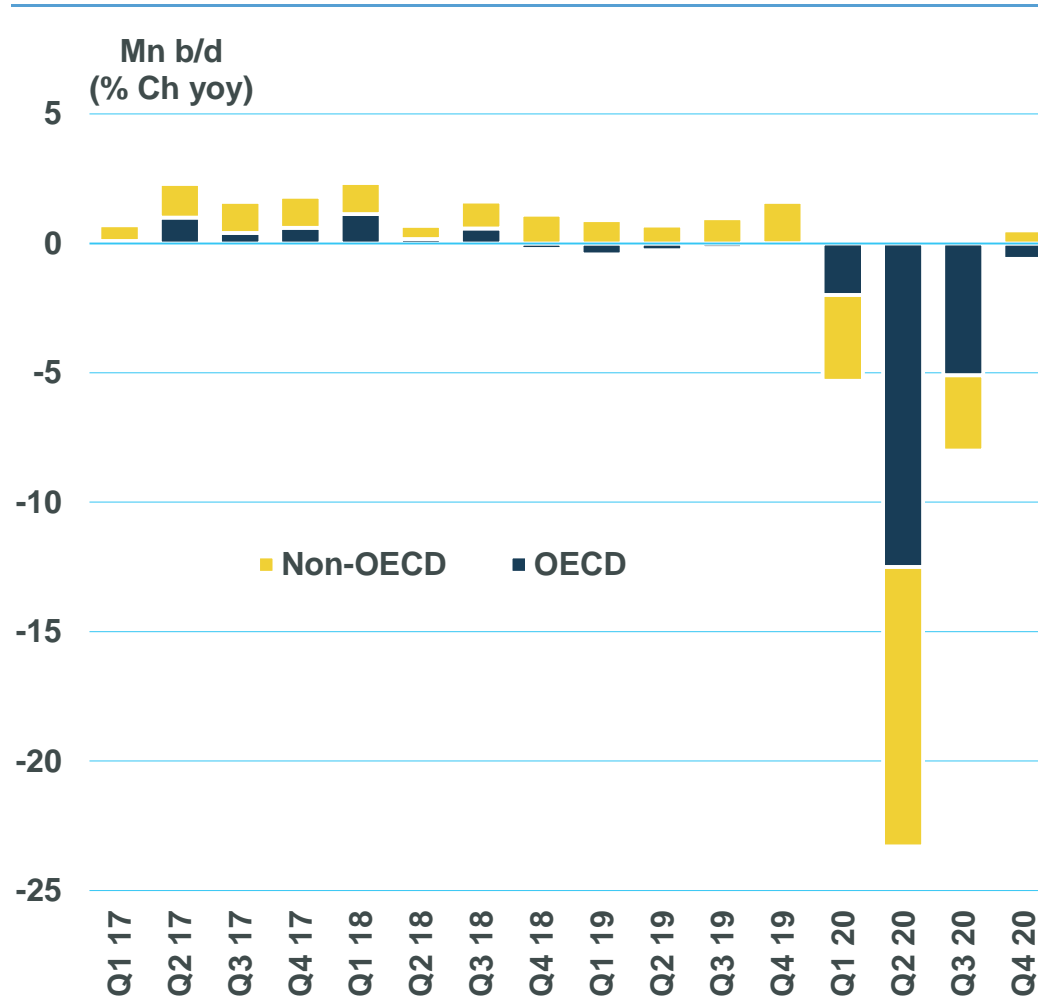
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Oil Demand

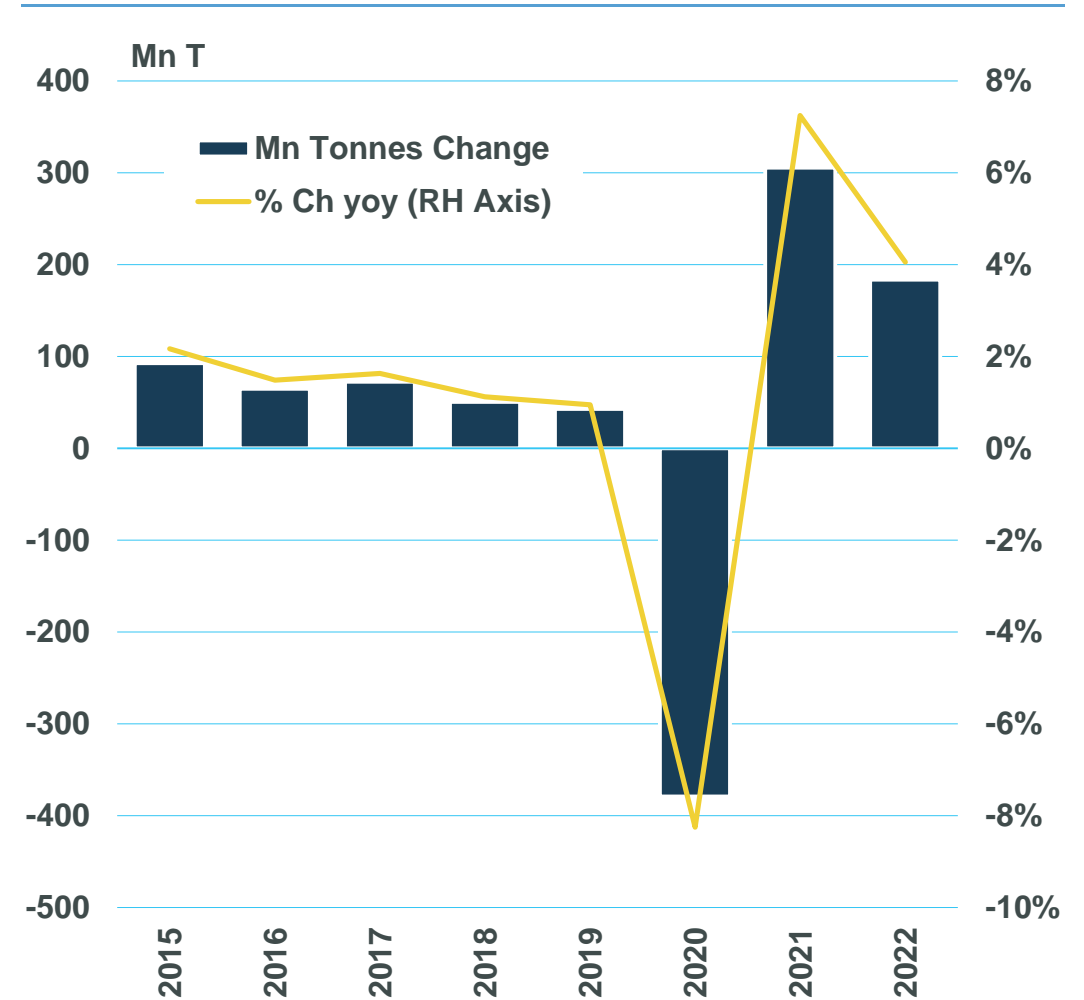
COVID-19 driving collapse in oil use

- Cycles in Shipping
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- Oil Tanker Market**
- Moving Beyond COVID-19

Global Oil Demand: Quarterly Change



Global Oil Demand: Annual Change



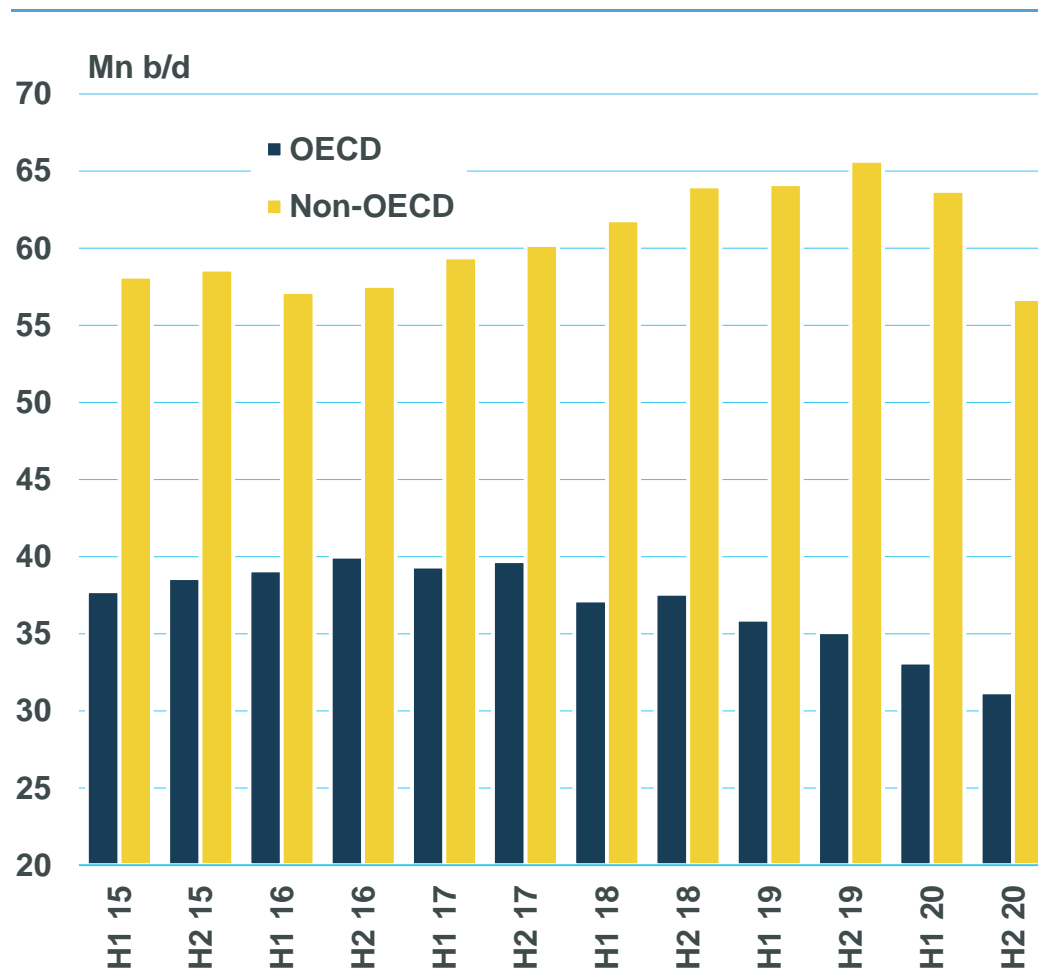
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Oil Production

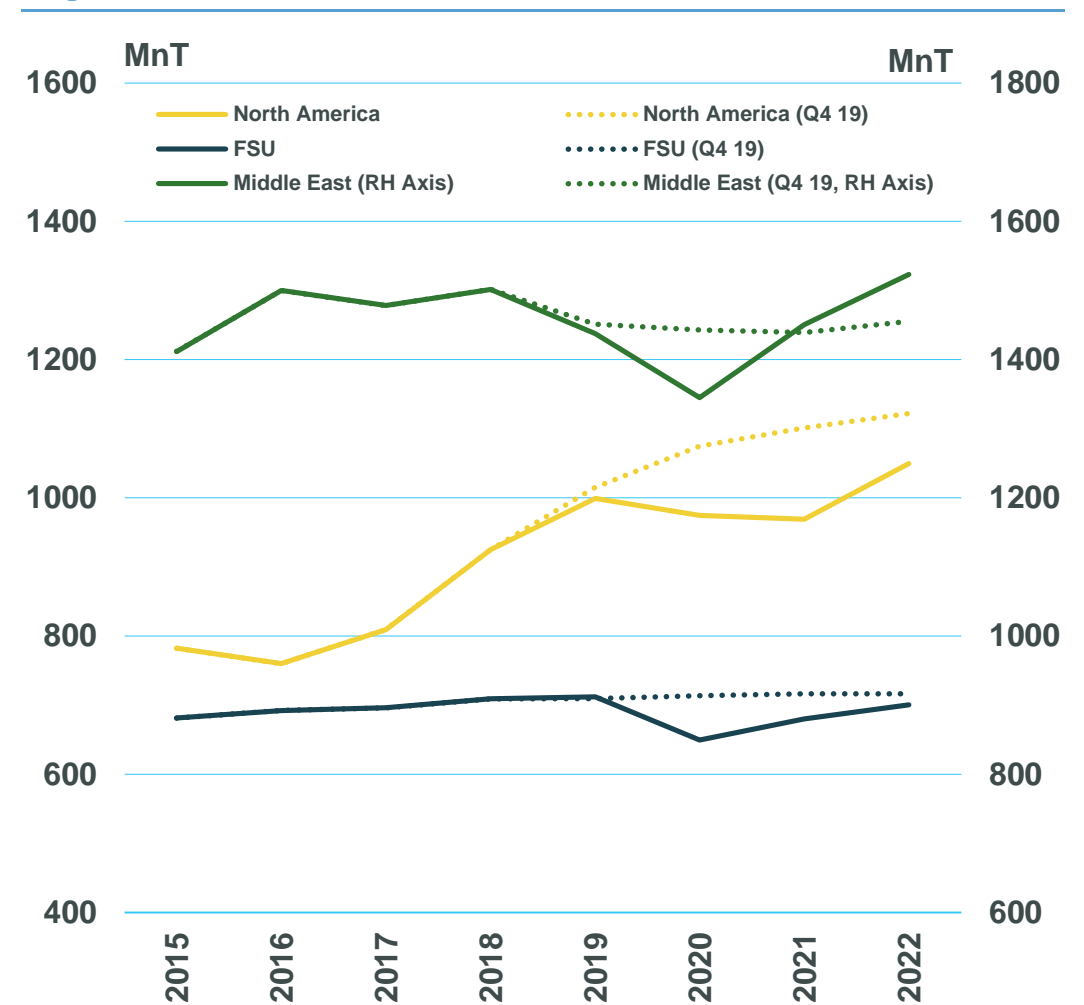
Declining output, but too slow to track demand

- Cycles in Shipping
- Market Cycles in the 2010s
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- Dry Bulk Market
- Containership Market
- Oil Tanker Market**
- Moving Beyond COVID-19

Indicative Global Oil Production



Regional Oil Production



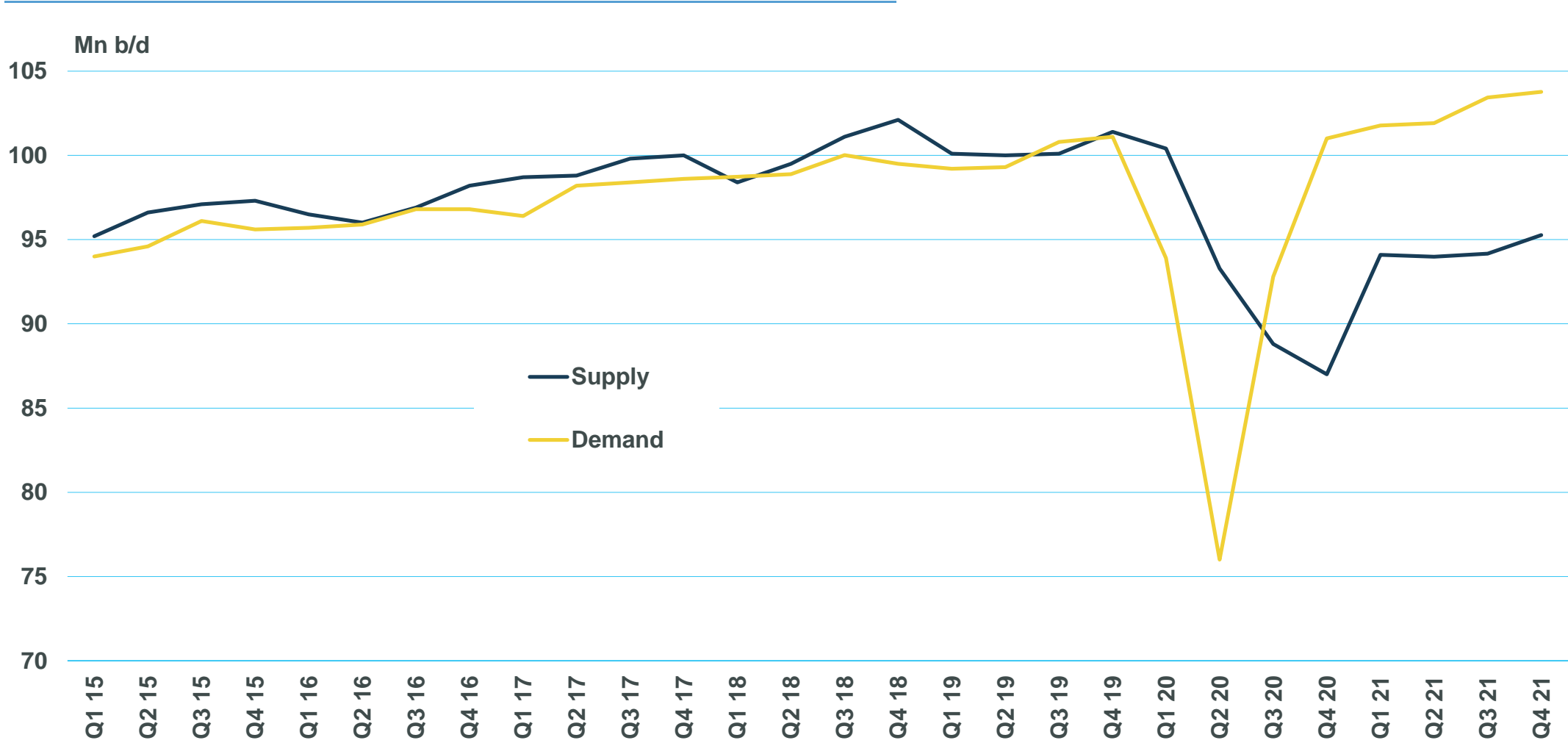
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Oil Market Balances

One word ... oversupply

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
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- Oil Tanker Market**
- Moving Beyond COVID-19

Oil Market Supply / Demand Balance



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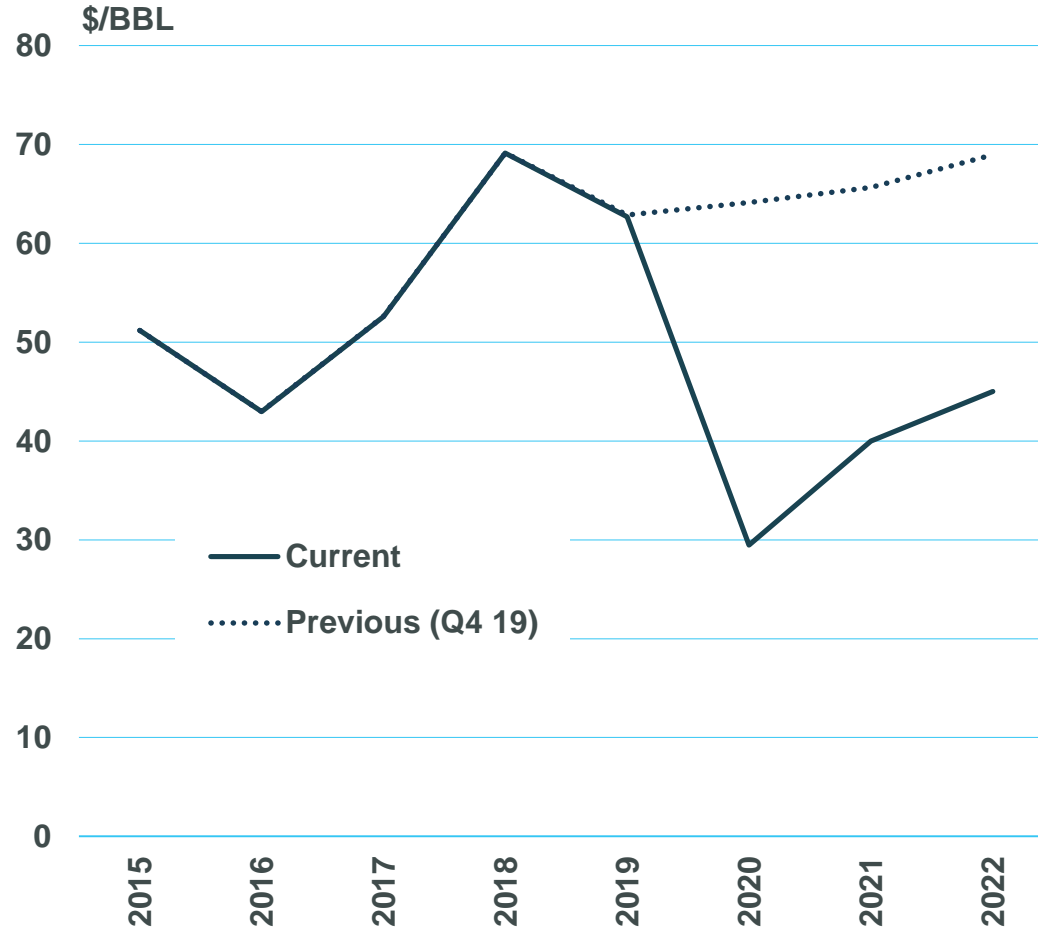


Oil Market Balances

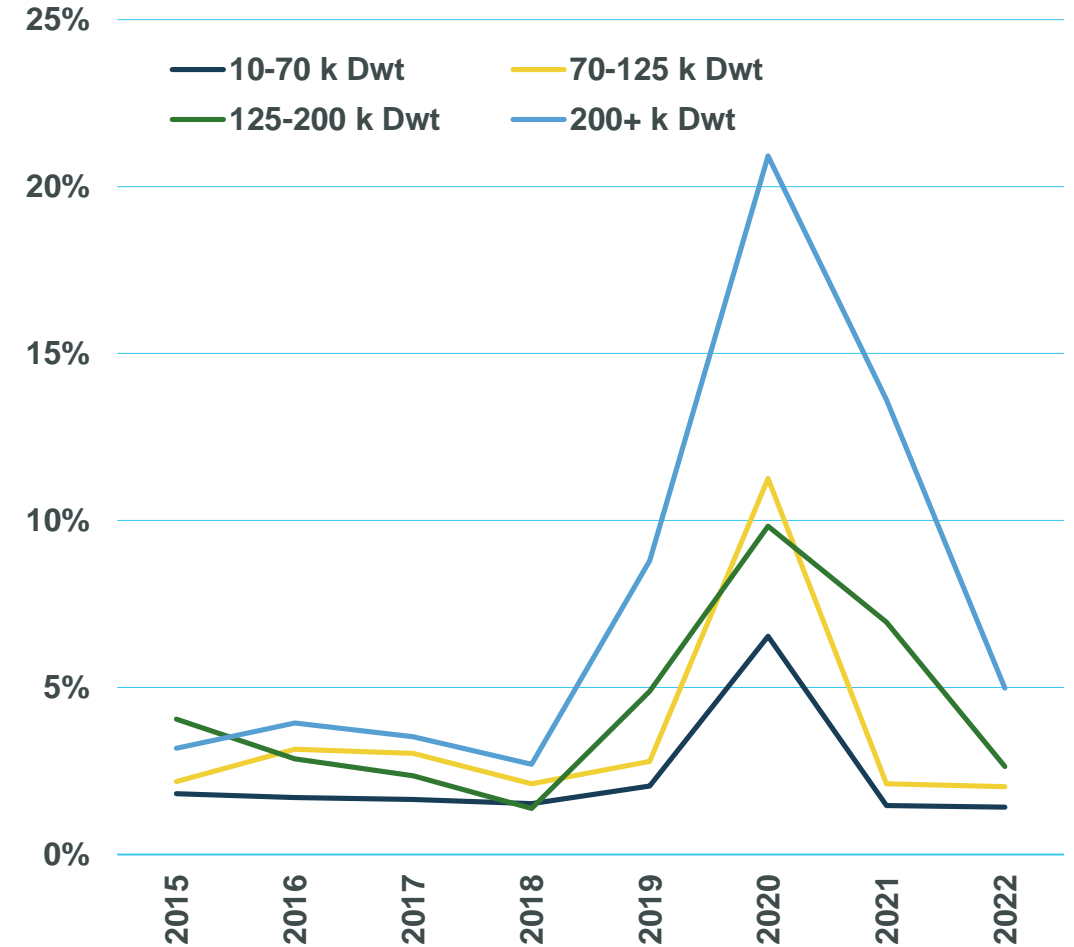
Oil price collapse and floating storage build

- Cycles in Shipping
- Market Cycles in the 2010s
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- Containership Market
- Oil Tanker Market**
- Moving Beyond COVID-19

Oil Price



Proportion of Tanker Tonnage being Used for Floating Storage



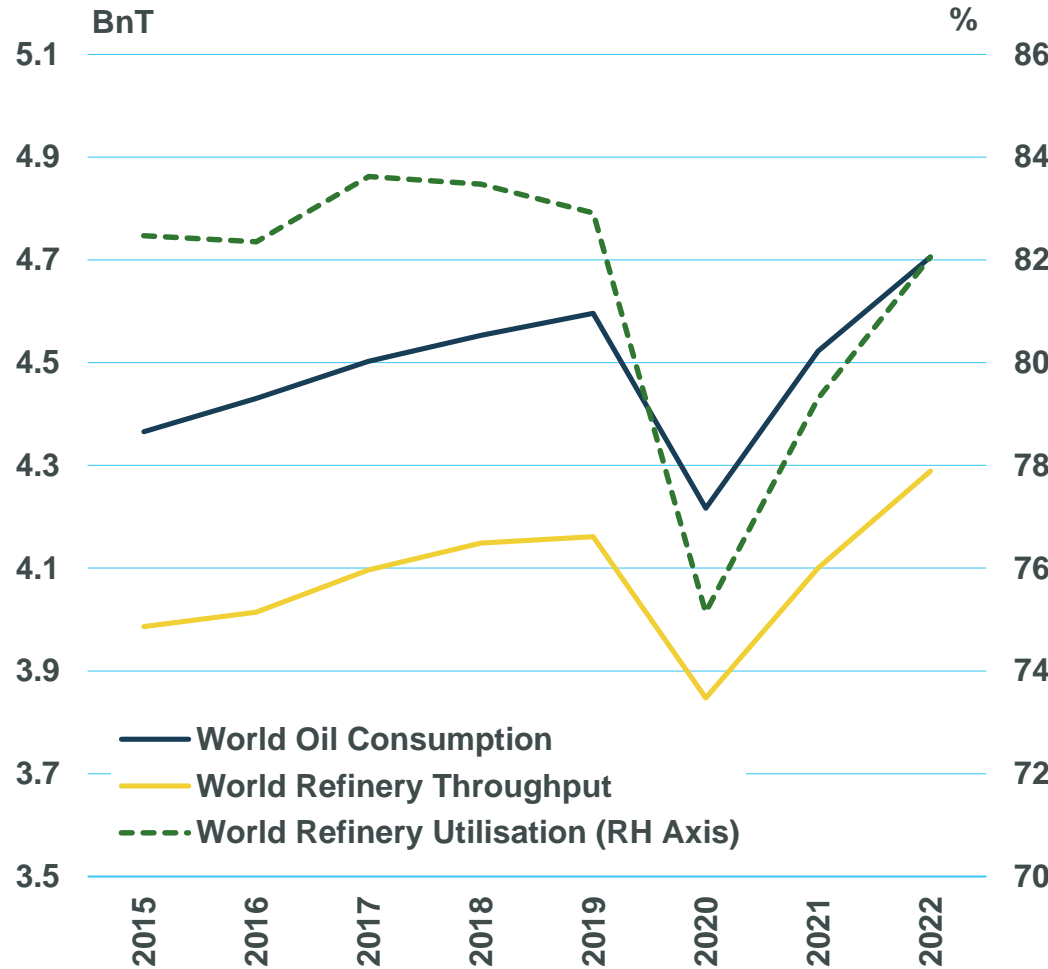
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Refining and Oil Trade

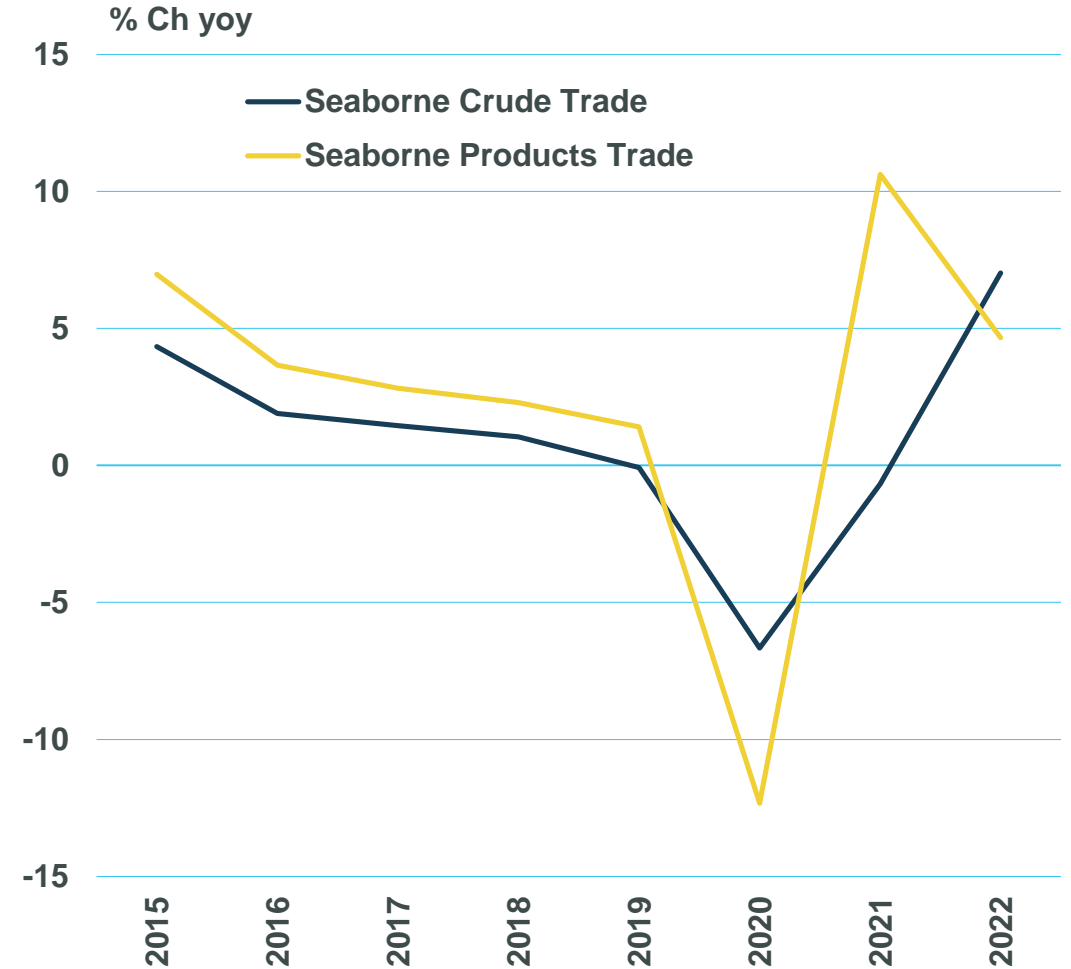
Trade dynamics driven by production response and refining activity

- Cycles in Shipping
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- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market**
- Moving Beyond COVID-19

Global Refining Throughput and Utilisation



Seaborne Trade Growth



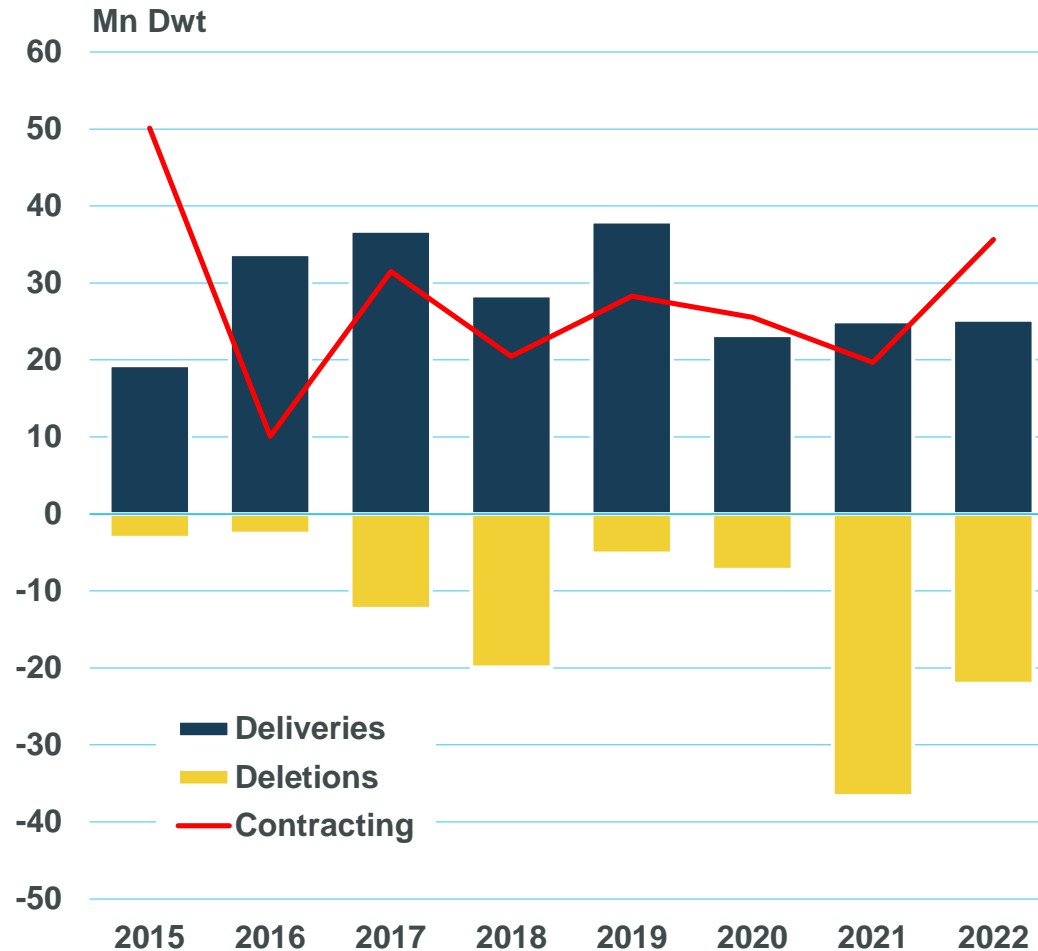
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Tanker Fleet Dynamics

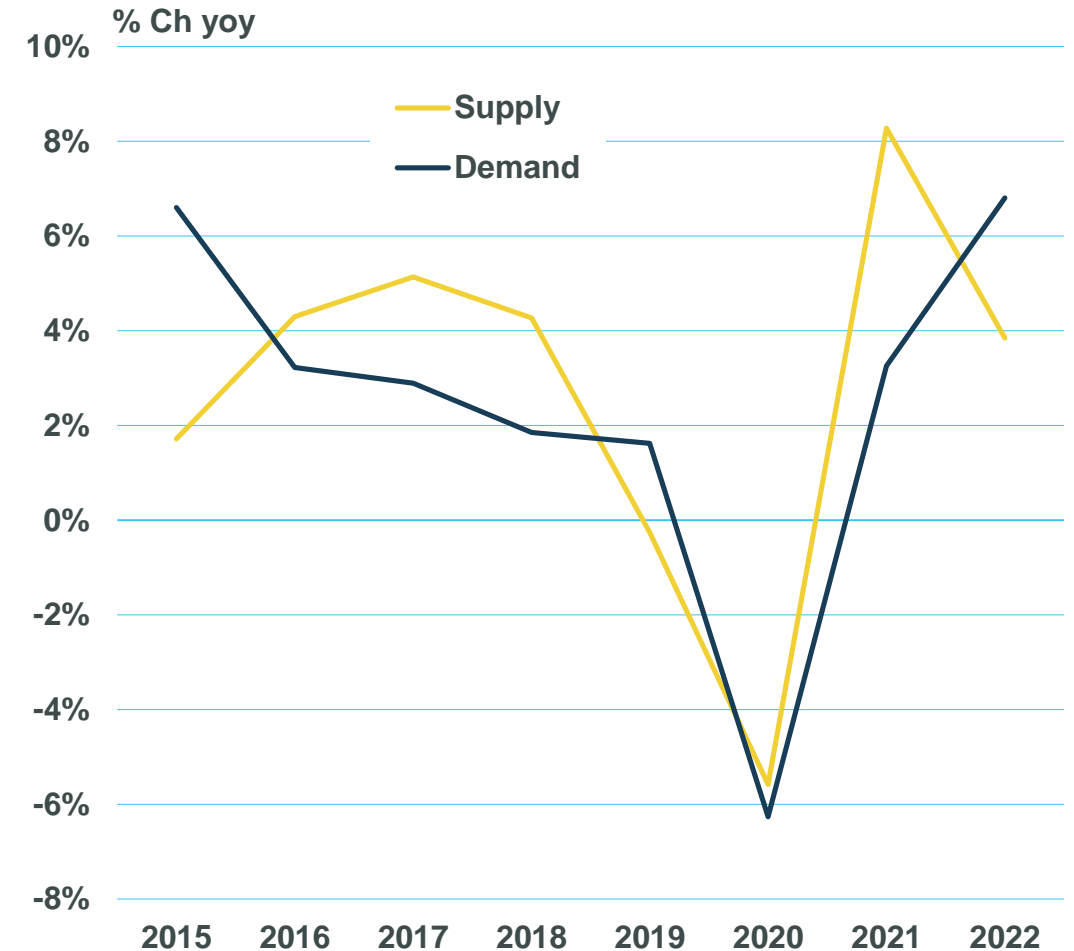
Stable fleet growth spells trouble...

- Cycles in Shipping
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- Oil Tanker Market**
- Moving Beyond COVID-19

Tanker Fleet Dynamics (10+ k Dwt)



Tanker Supply / Demand Balance (10+ k Dwt)



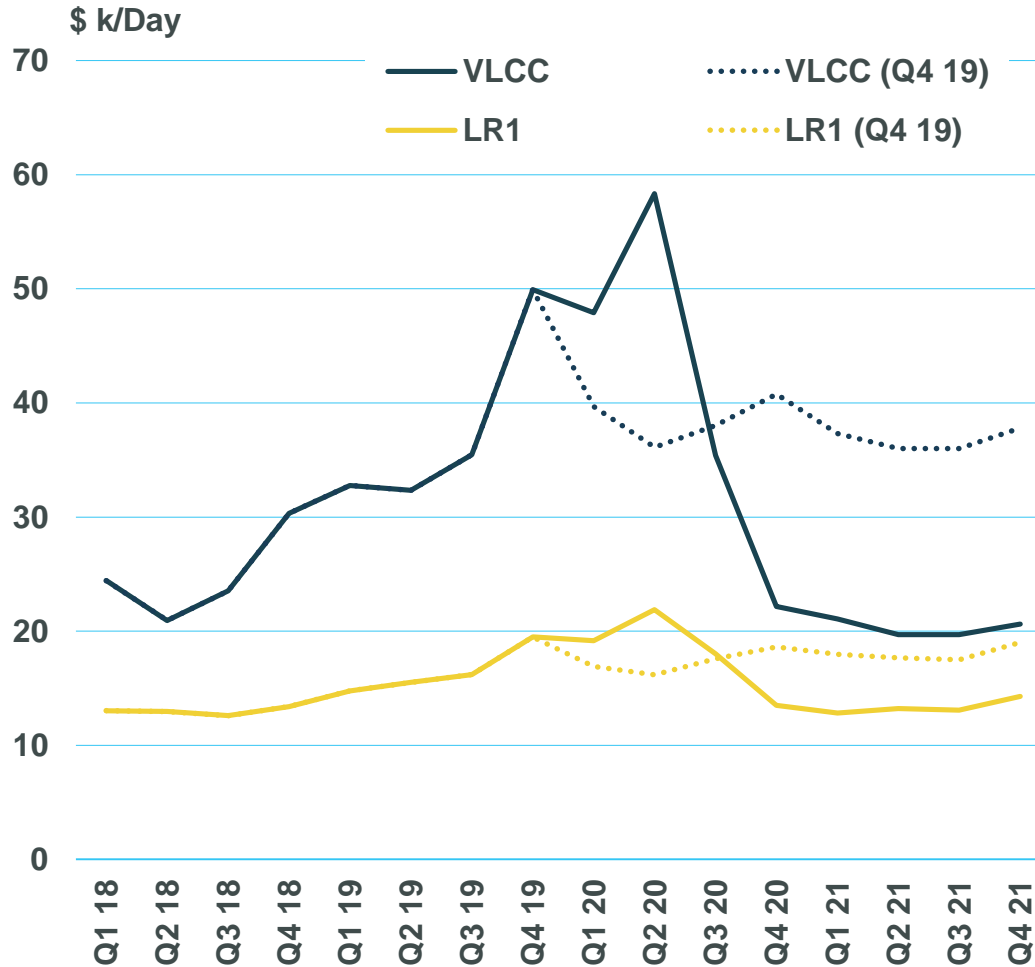
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Tanker Earnings Outlook

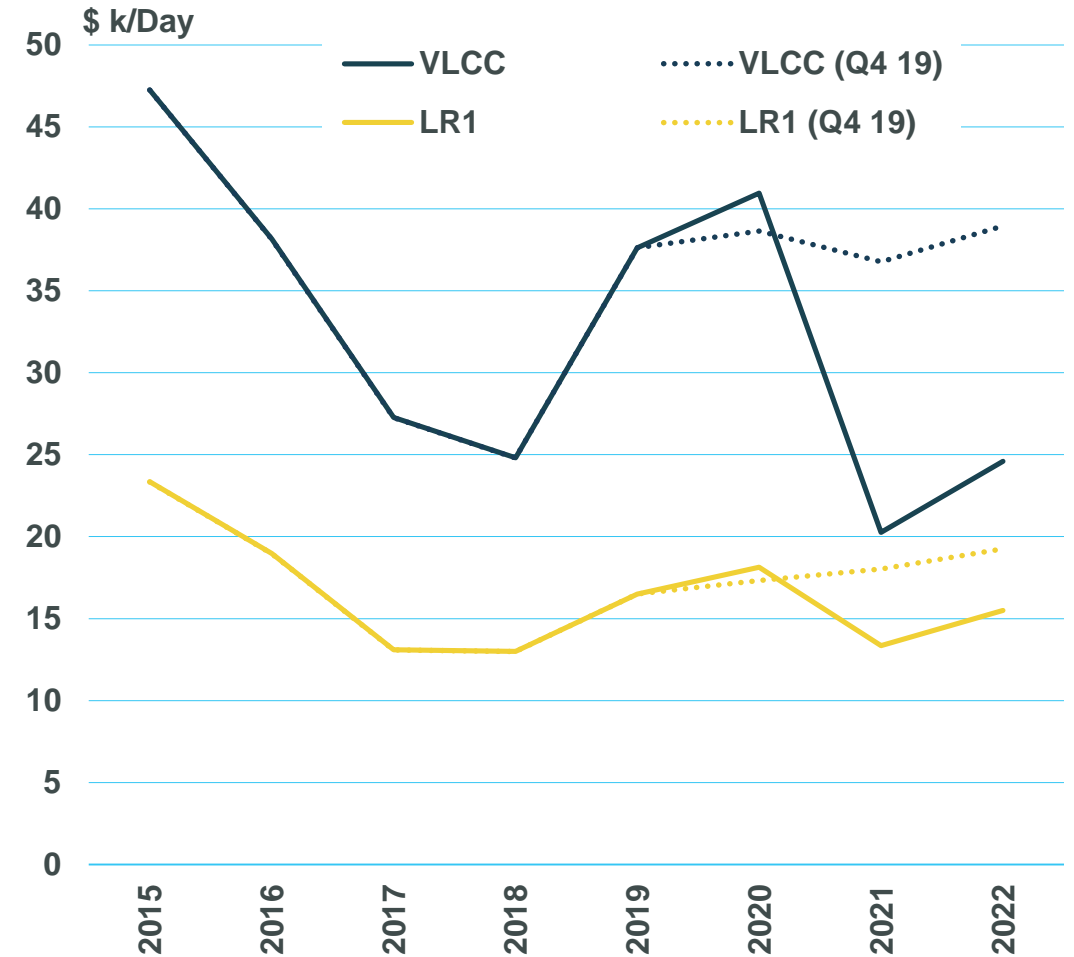
Strength of today based on the weakness of the future

- Cycles in Shipping
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Benchmark 1 Yr T/C Rates: Quarterly Averages



Benchmark 1 Yr T/C Rates: Annual Averages

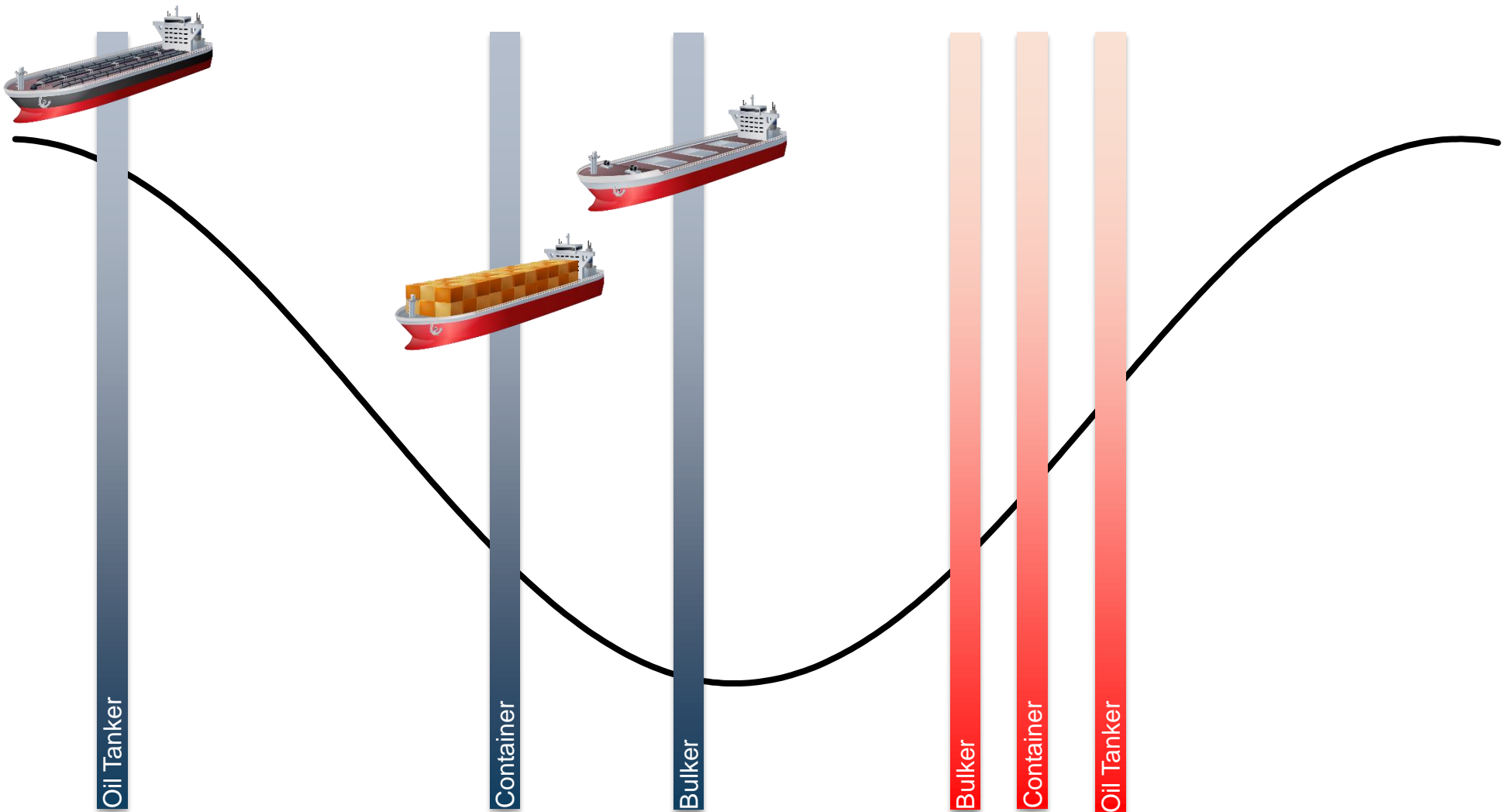


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The Market Cycle: 13th May 2020

So, where are we now?

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market**
- Moving Beyond COVID-19



Note: Schematic for illustrative purposes only

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Moving Beyond COVID-19

Factors affecting the longer term

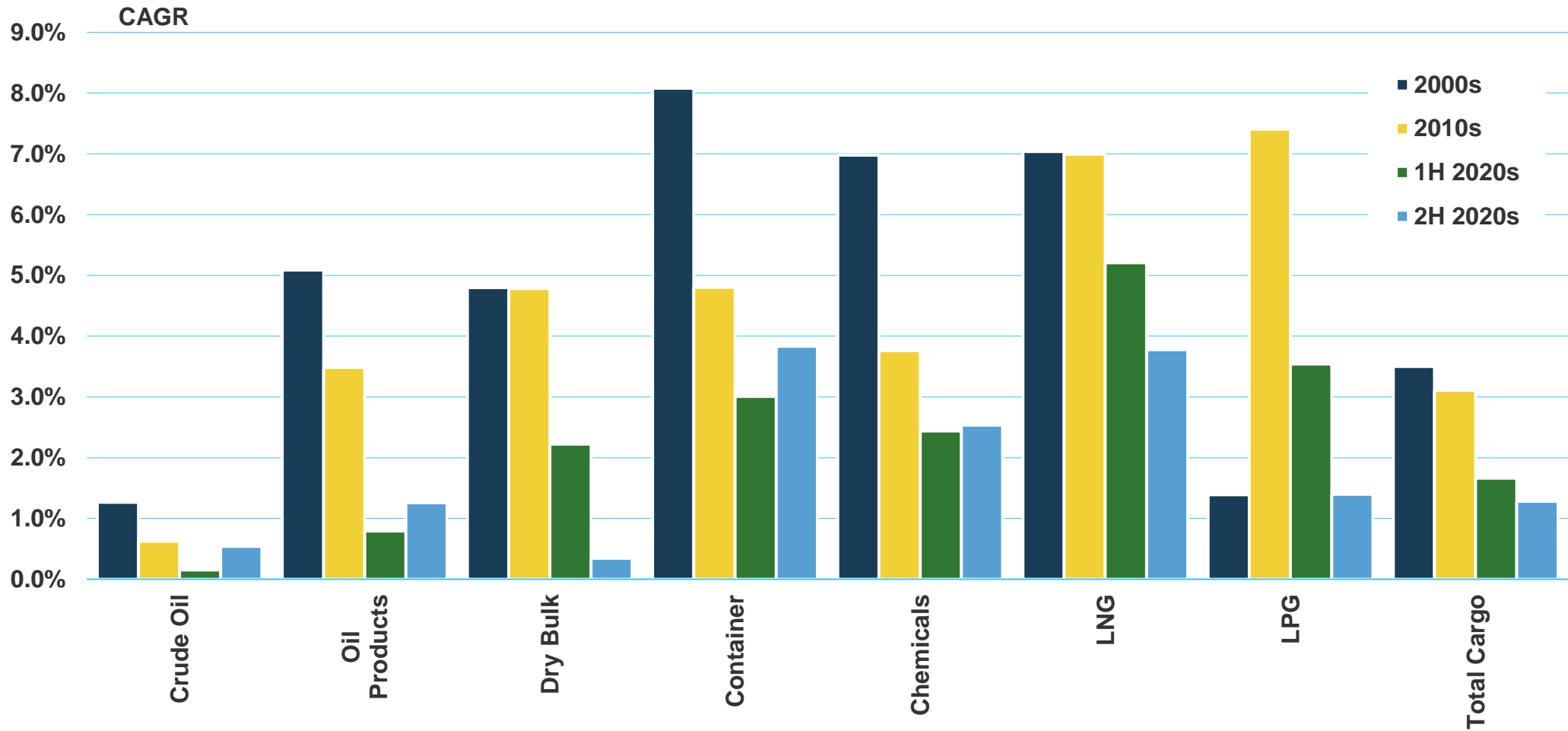
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Future Trade Growth

A notable slowdown throughout the 2020s

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19**

Annual Growth in Seaborne Trade by Commodity Type



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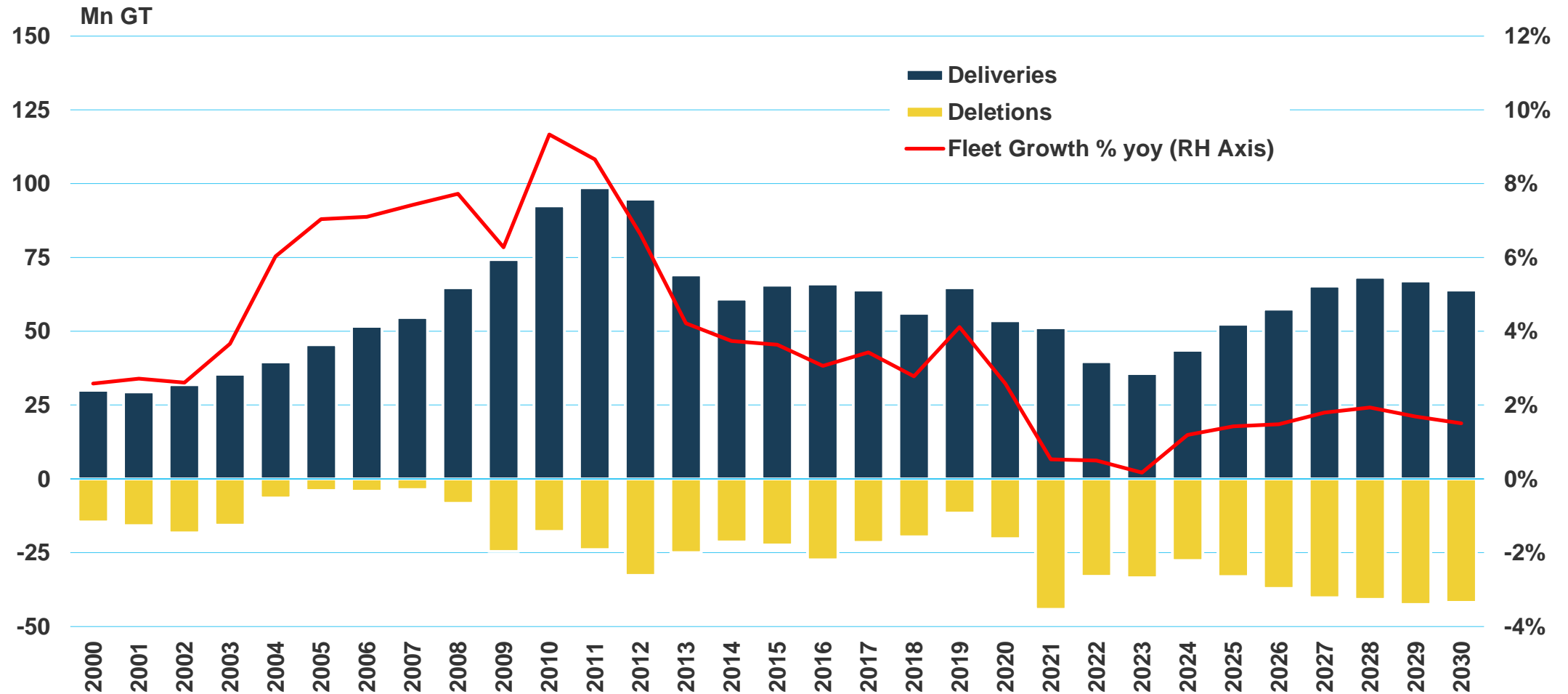


Future Fleet Growth

A moderation in growth rates

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19**

Global Merchant Fleet Dynamics



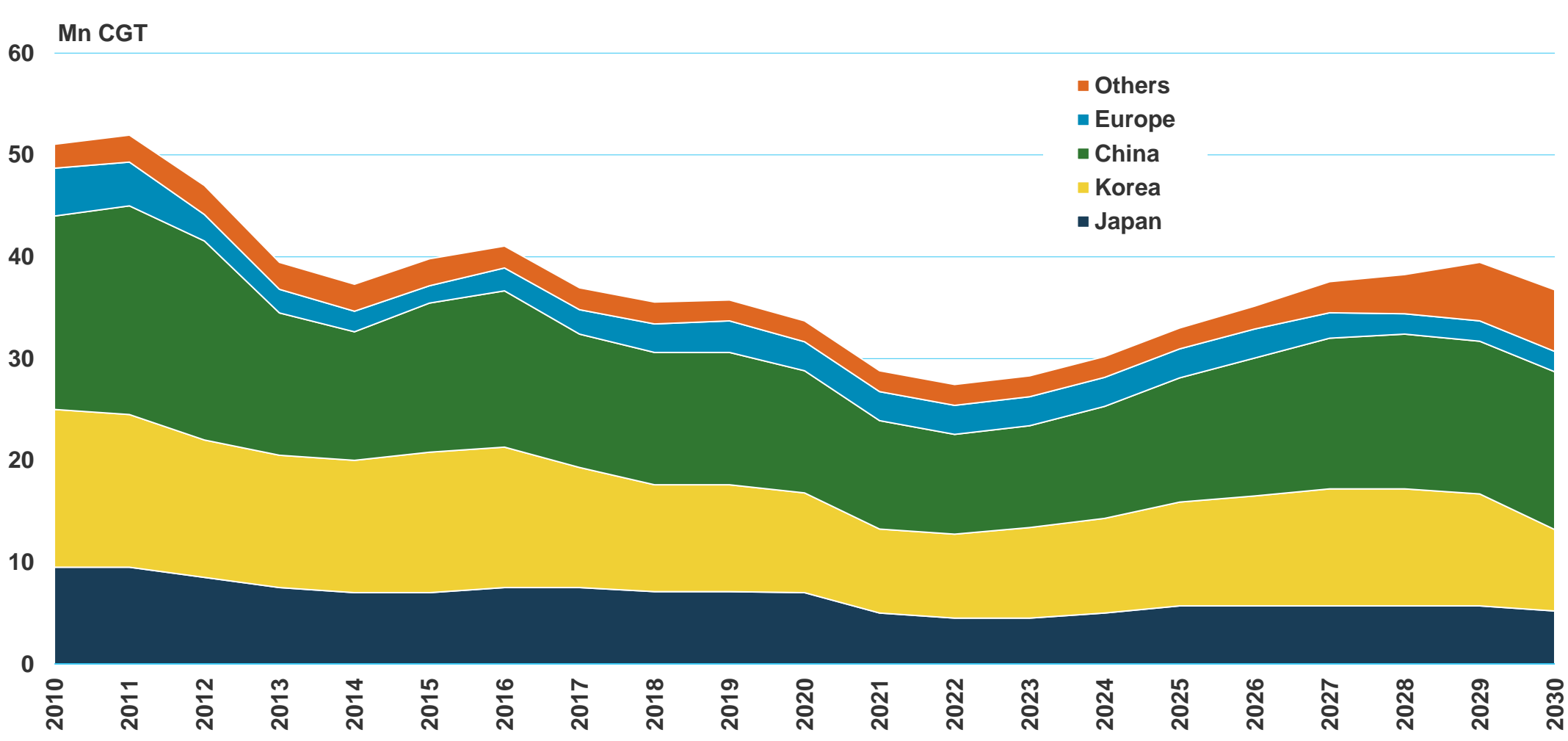
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Future Shipbuilding Capacity

Continued rationalisation followed by moderate increases, with China dominating

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19**

Global Shipyard Capacity



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The Move Towards Protectionism

The US-China Trade War “Phase One” Deal & COVID-19

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

Dry Bulk Market

Containership Market

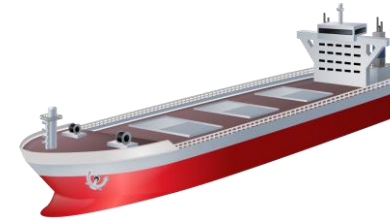
Oil Tanker Market

Moving Beyond COVID-19



Containers

Did not proceed with schedule 15% tariff; cut tariff rate on list of Chinese goods to 7.5%



Dry Bulk has seen limited impact on net basis. Phase One unwinds main market impact factor



Tankers likely to see resurgence in US-China crude flows after effective hiatus



LNG cargos diverted away from China



LPG rearrangement between Middle East and US supplies within North East Asia



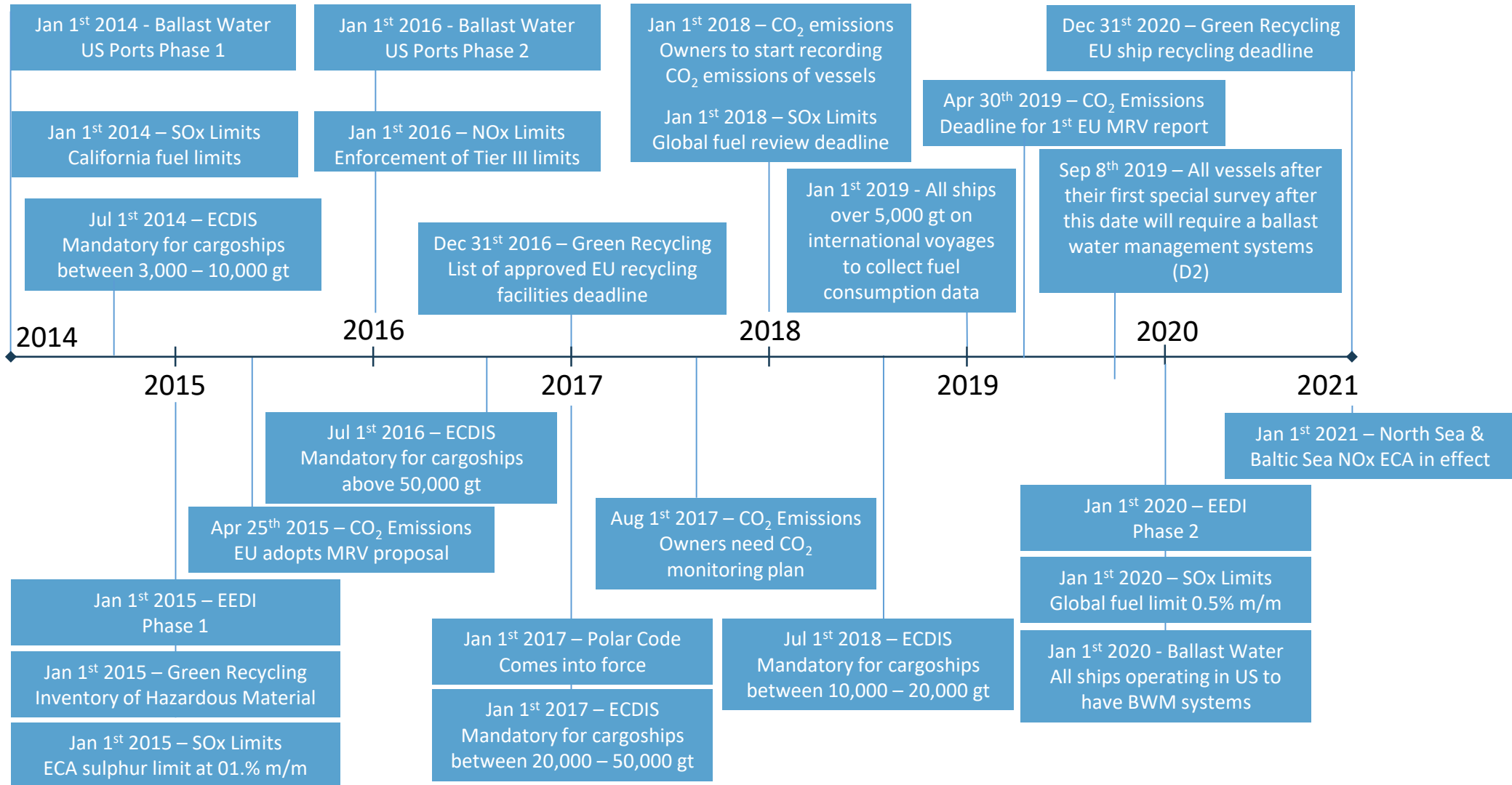
Offshore not directly impacted – potential for higher input costs

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Shipping and the Environment

An accelerating agenda

- Cycles in Shipping
- Market Cycles in the 2010s
- Scenario Based Analysis
- Dry Bulk Market
- Containership Market
- Oil Tanker Market
- Moving Beyond COVID-19**



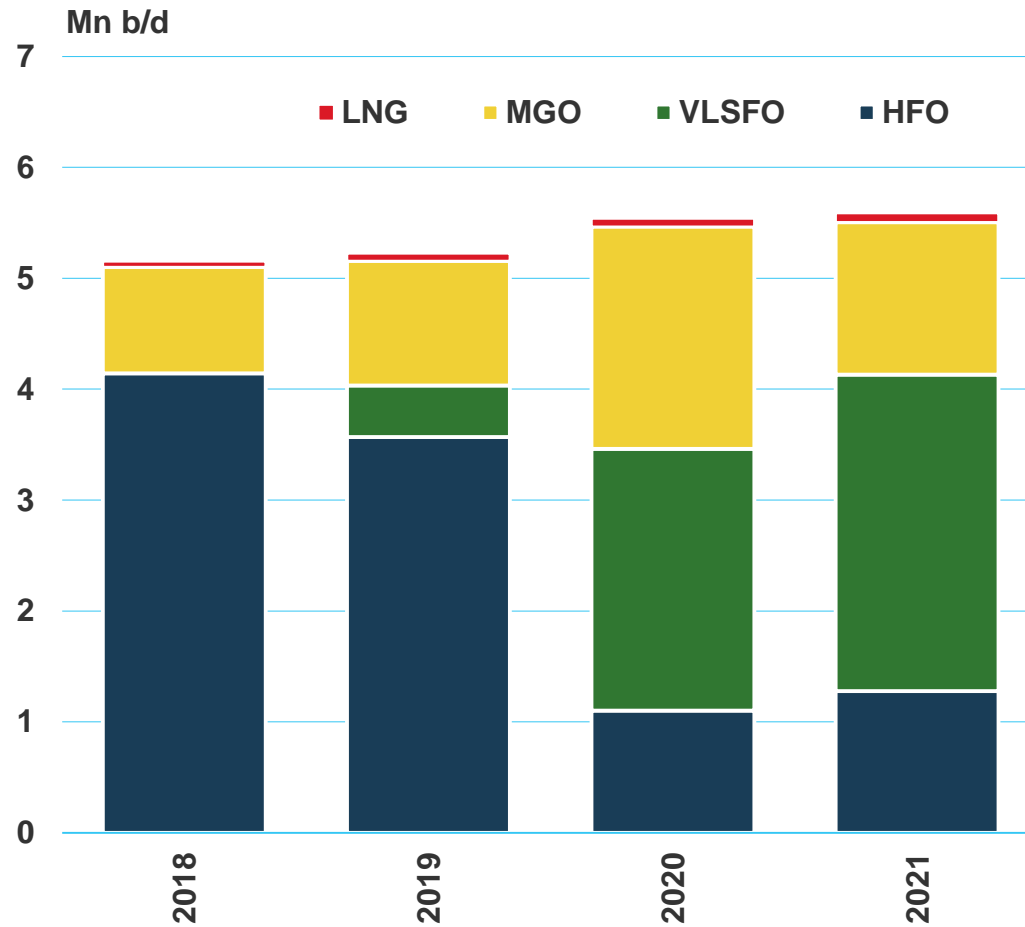
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IMO 2020

The changing bunker fuel mix

- Cycles in Shipping
- Market Cycles in the 2010s
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- Oil Tanker Market
- Moving Beyond COVID-19**

Global Marine Fuel Consumption



Historical Singapore Bunker Prices



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Oil and Bunker Prices

Lower levels, narrower price spread

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

Dry Bulk Market

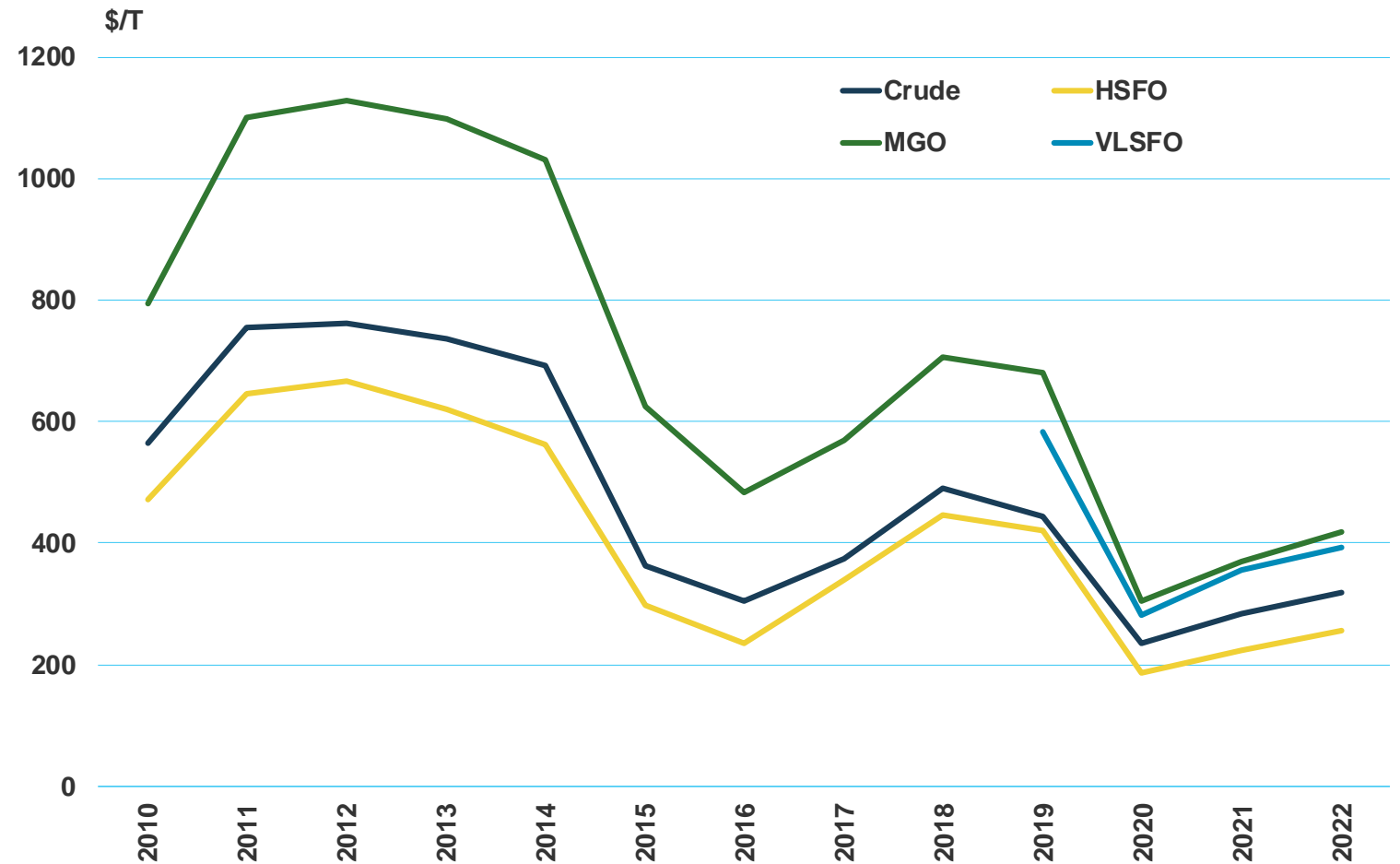
Containership Market

Oil Tanker Market

Moving Beyond COVID-19

- Assumes crude prices average \$30-40/bbl across 2020
- Bunker prices drop with crude prices
- Spread between reference HSFO and VLSFO narrows to <[\\$100/T](#) in 2020
- Notable and major disparities in regional prices for bunker types.

Oil and Bunker Prices, 2010 – 2022



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IMO 2050 & Decarbonisation

Multi-faceted approach required

Cycles in Shipping

Market Cycles in the 2010s

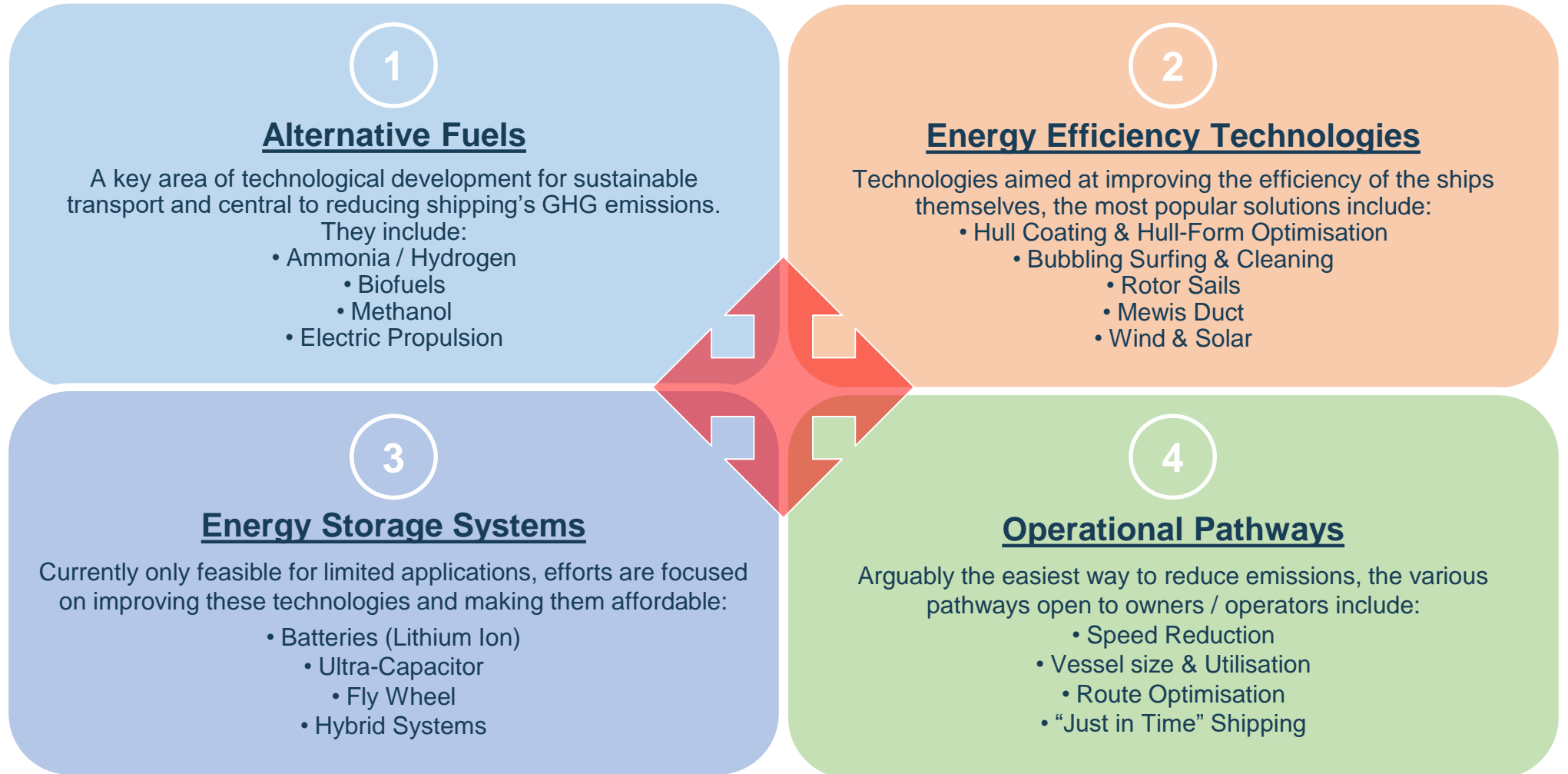
Scenario Based Analysis

Dry Bulk Market

Containership Market

Oil Tanker Market

Moving Beyond COVID-19



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Alternative Marine Fuels (1)

No clear front-runner...

Cycles in Shipping
Market Cycles in the 2010s
Scenario Based Analysis
Dry Bulk Market
Containership Market
Oil Tanker Market
Moving Beyond COVID-19

	LNG	Ammonia	Hydrogen	Biofuels	Methanol	LPG	Battery
Technical Feasibility							
Infrastructure							
CAPEX							
Energy Cost							
Fuel Availability							
Regulatory Framework							

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Alternative Marine Fuels (2)

Ammonia and hydrogen are amongst the most promising longer-term, but need testing on a larger scale

Cycles in Shipping

Market Cycles in the 2010s

Scenario Based Analysis

Dry Bulk Market

Containership Market

Oil Tanker Market

Moving Beyond COVID-19

	Ammonia: Combustion Engines / Fuel Cells	Hydrogen: Combustion Engines / Fuel Cells
Overview	<ul style="list-style-type: none"> Often cited as currently being the only viable option as a stand alone zero-emission fuel for deep sea shipping. Has a more mature supply chain than other alternative fuels. Ammonia is already transported at scale by sea. No ammonia-fuelled vessels are currently being built. But, designs are available and ammonia fuelled combustion engines are under development. 	<ul style="list-style-type: none"> As a potentially abundant and clean fuel, hydrogen is widely regarded as a longer term solution as its use does not generate any GHG emissions. Allows for more autonomy than battery / electric powered ships. Fuel cells are already available, but costs remain high. Combustion engines are under development and likely to be commercially available in the next 5 years.
Current Issues	<ul style="list-style-type: none"> Cost: Not cost-competitive against existing fuel types (e.g. MGO), but eventual cost-parity seems possible. Safety: Ammonia is highly toxic. The use of toxic substances as a bunker fuel under IGC code needs to be addressed. Storage & Transportation: Must be stored in large volumes and at very low temperatures. 	<ul style="list-style-type: none"> Cost: Not cost-competitive against existing fuel types at present, but eventual cost-parity seems possible. Production: Expensive and energy intensive. Storage & Transportation: Must be stored in large volumes and at very low temperatures (-253°C). Limited Range: Due to space constraints on vessels and investments in tanks.
Current Use	<ul style="list-style-type: none"> On a vessel level, none are underway with units under construction. However, several are in the developmental stage. There is the Norwegian Ammonia Project. SHI, MISC, LR and MAN also recently embarked on a JV project to develop an ammonia-fuelled tanker. Several green ammonia production projects are under development or at pilot stage, e.g. Yara plants in the Netherlands and Western Australia, and Siemens in the UK. 	<ul style="list-style-type: none"> For short distances, hydrogen fuelled ferries are already in development. The two projects are the Water-Go-Round Project in the US and the Hjelmeland Ferry owned by Norled A/S due to enter service in 2021. Future Use: Cruise ships offer a pathway for demonstration. Large scale projects for green hydrogen are underway, e.g. Port of Hamburg and Port of Rotterdam.

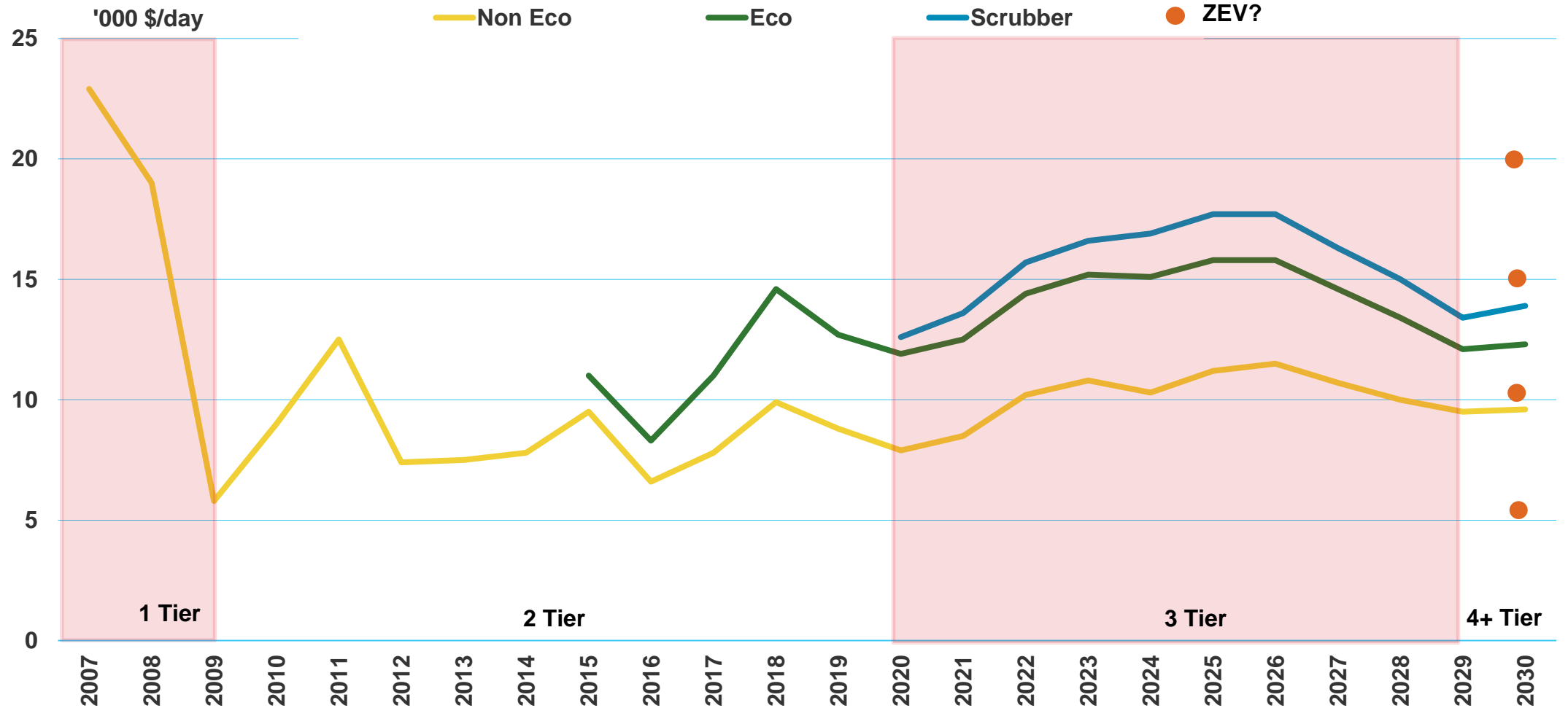
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Tiered Earnings Market

1, 2, 3, 4...

- Cycles in Shipping
- Market Cycles in the 2010s
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- Oil Tanker Market
- Moving Beyond COVID-19**

Example of a Tiered Earnings Market



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Maritime Strategies International Ltd



24 Southwark Bridge Road
London SE1 9HF
United Kingdom

Tel: +44 (0)207 940 0070



8, Shenton Way
#13-01, AXA Tower
Singapore 068811

Tel: +65 8754 3450

Email: info@msiltd.com

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MSI's expertise covers a broad range of shipping sectors, providing clients with a combination of sector reports, forecasting models, vessel valuations and bespoke consultancy services.

MSI's team is comprised of professionals with extensive academic credentials, deep industry knowledge and many years experience of delivering successful client projects.

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