

CII AND VESSEL VALUE

Impact Assessment

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WHERE WE ARE

LAUNCHED

2011

10 OFFICES

Worldwide

PEOPLE

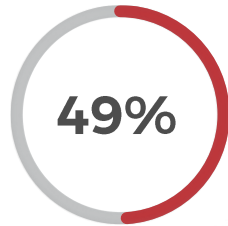
250+ (from 4 in 2010)

CLIENTS

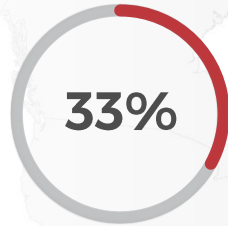
3,000+ users,
700+ companies,
48 countries

PRESS

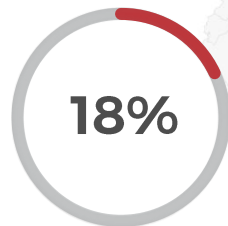
Quoted in c.500 articles
per month across multiple
global and regional
publications



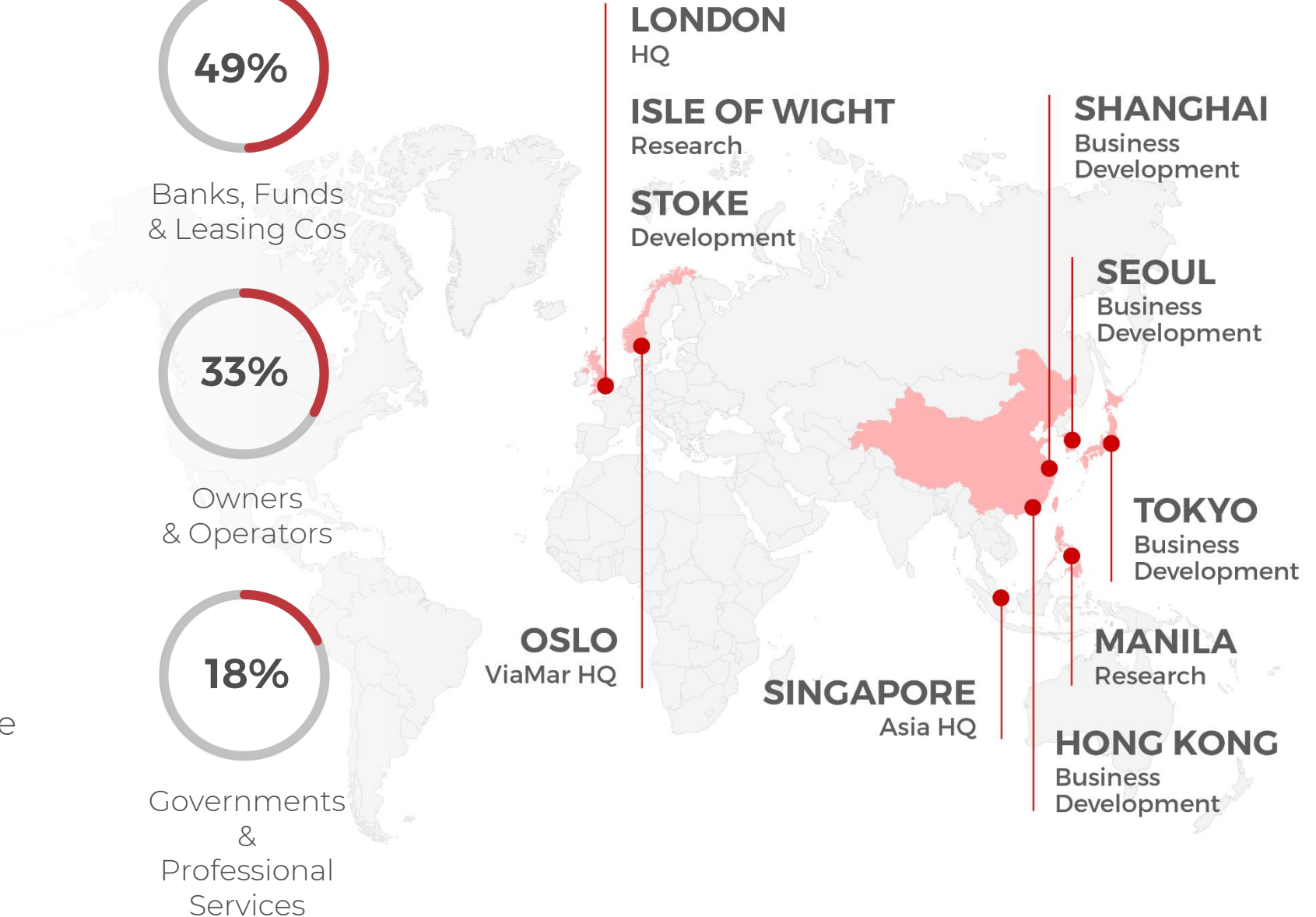
Banks, Funds
& Leasing Cos



Owners
& Operators

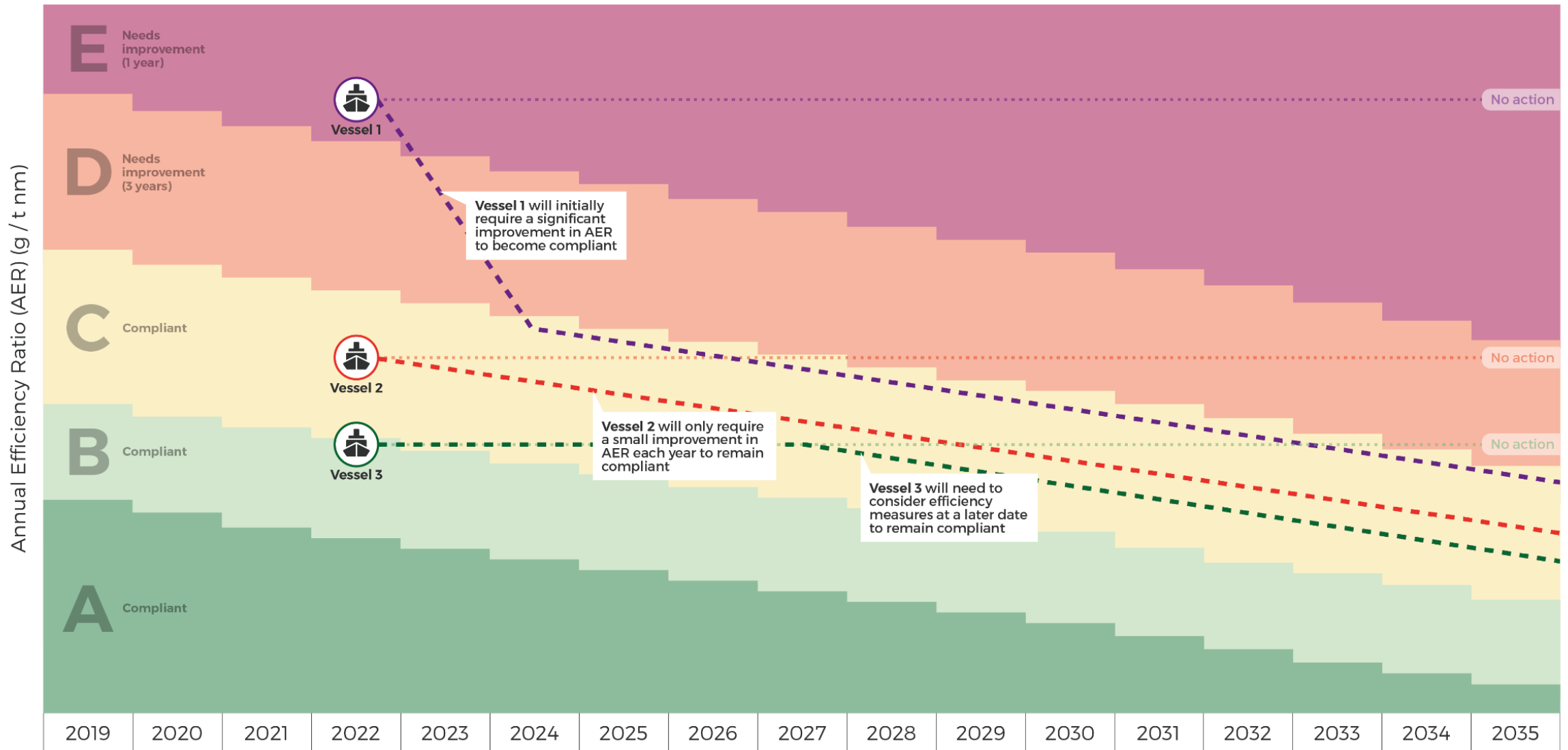


Governments
&
Professional
Services



CII OVERVIEW

IMO MEPC CARBON INTENSITY INDICATOR



OWNERS HAVE TWO BROAD CATEGORIES TO CONSIDER

Investment (Deploy Capital)

- New Vessels
- Energy Saving Devices
- Alternative Fuel Types
- Journey Optimisation

Operational Changes (Reduce Earnings)

- Engine power limitation
- Speed reduction
- Journey selection

The scale of the financial impact will be inversely proportional to current fuel efficiency.

The value of a vessel should therefore become proportional to fuel efficiency.

MODELLING CII AND VALUE

MARKET VALUE MODEL



We determine the Value of a Vessel using a 5 factor model:

$$\text{Value} = f(\text{Type}, \text{Age}, \text{Size}, \text{Sentiment}, \text{Features})$$

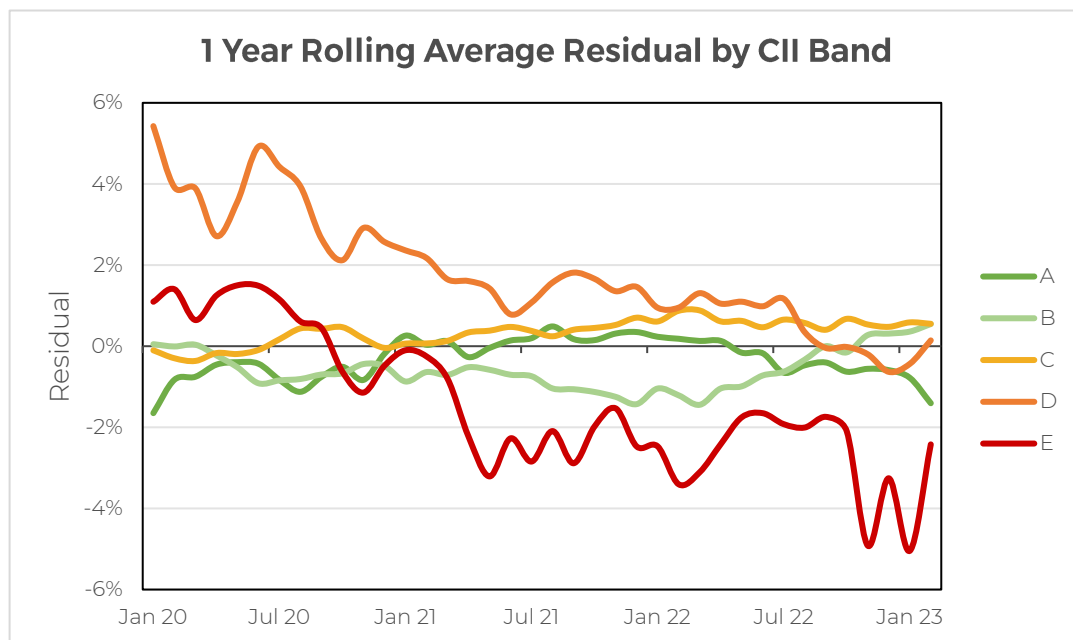
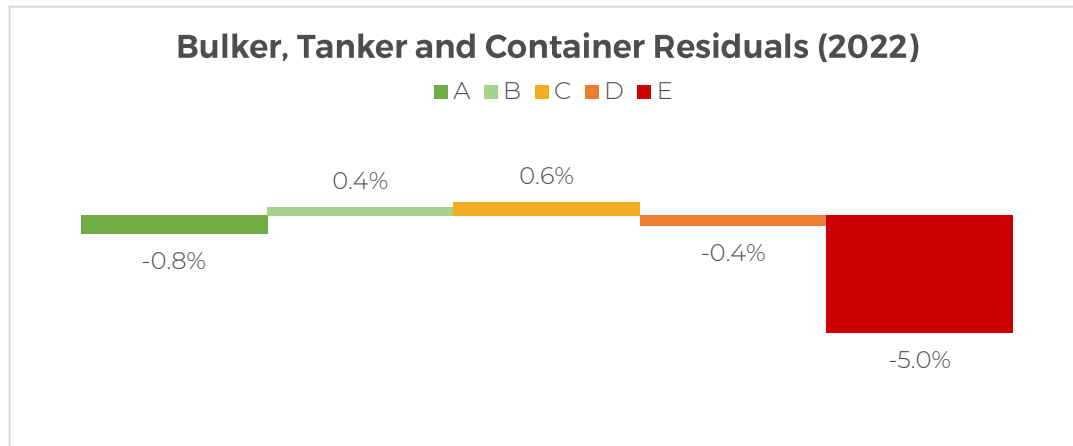
We now have a sufficient sample size to model the impact of CII on Value

We are able to include CII Band in the model and assess the effect on value.

$$\text{Value} = f(\text{Type}, \text{Age}, \text{Size}, \text{Sentiment}, \text{Features}, \text{CII})$$

Please Note: Our current live values do not include the impact of CII. We are currently assessing the long-term impact on the model.

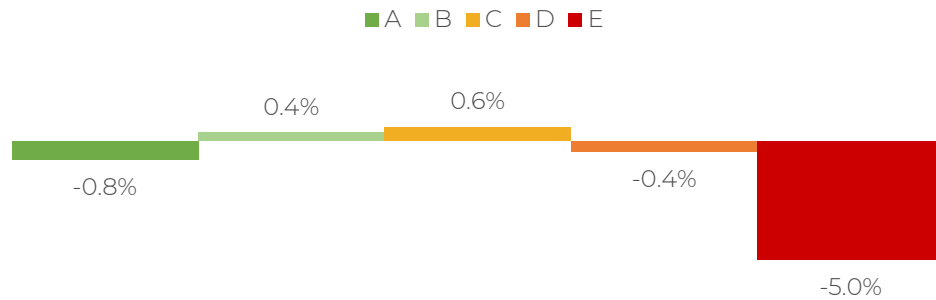
IMPACT ANALYSIS



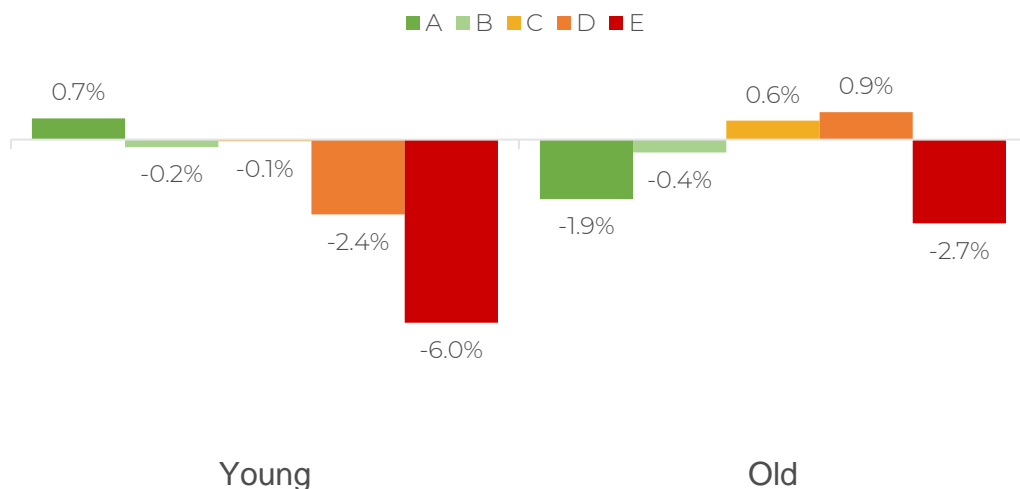
- There is no discernible relationship between CII Band and Value for vessels in Bands A to D
- Vessels in Band E are however worth ~5% less than vessels in other Bands
- This effect has come about over the last 2 years
- A 5% premium for Band D vessels has dissipated over the last 3 years

IMPACT ANALYSIS

Bulker, Tanker and Container Residuals (2022)

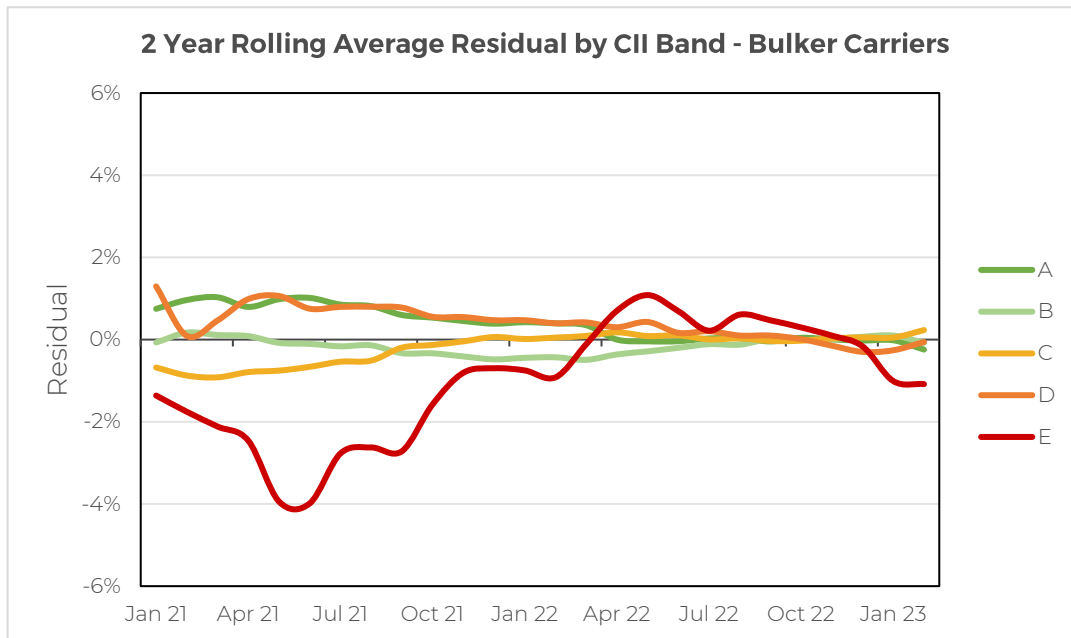
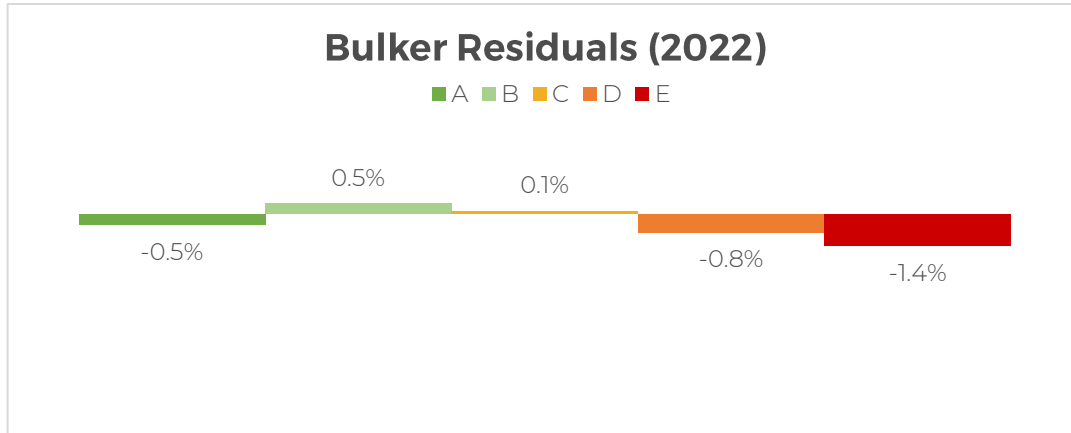


Bulker, Tanker and Container Residuals by Age (2020 to present)



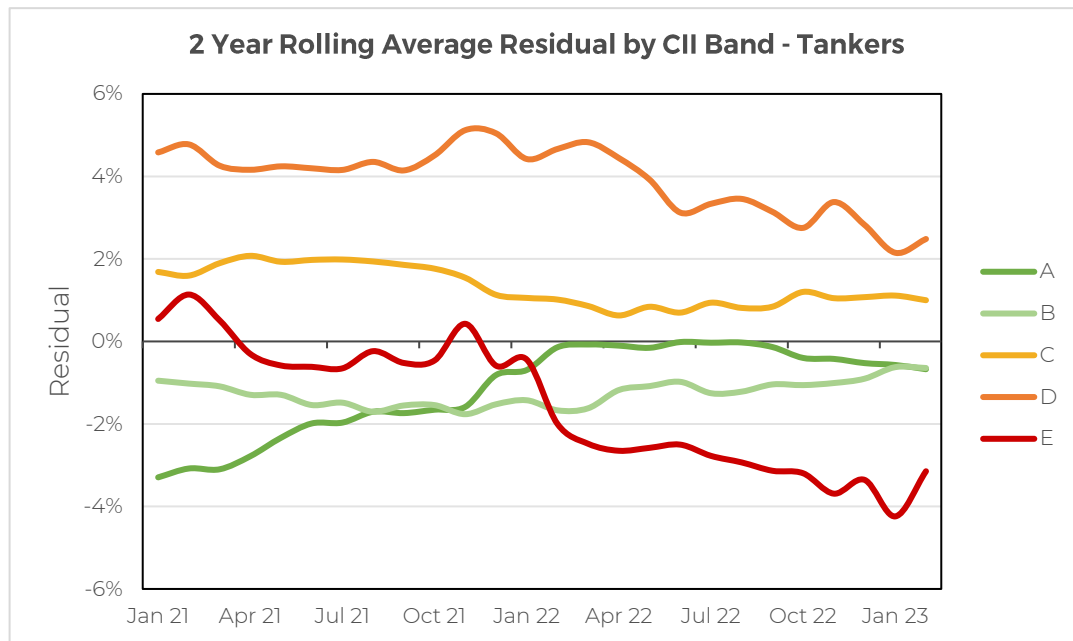
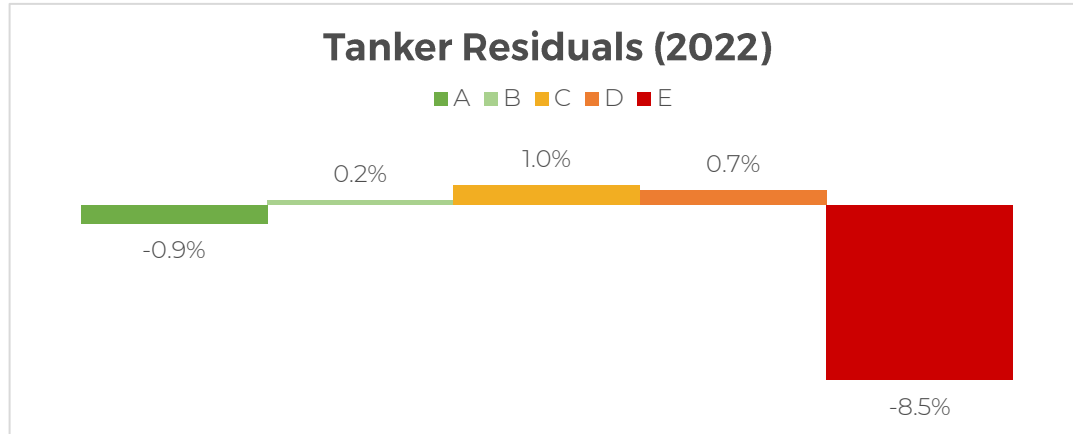
- There is no discernible relationship between CII Band and Value for vessels in Bands A to D
- Vessels in Band E are however worth ~5% less than vessels in other Bands
- The discount is more pronounced in younger vessels (less than 10 years old)

IMPACT ANALYSIS - BULKERS



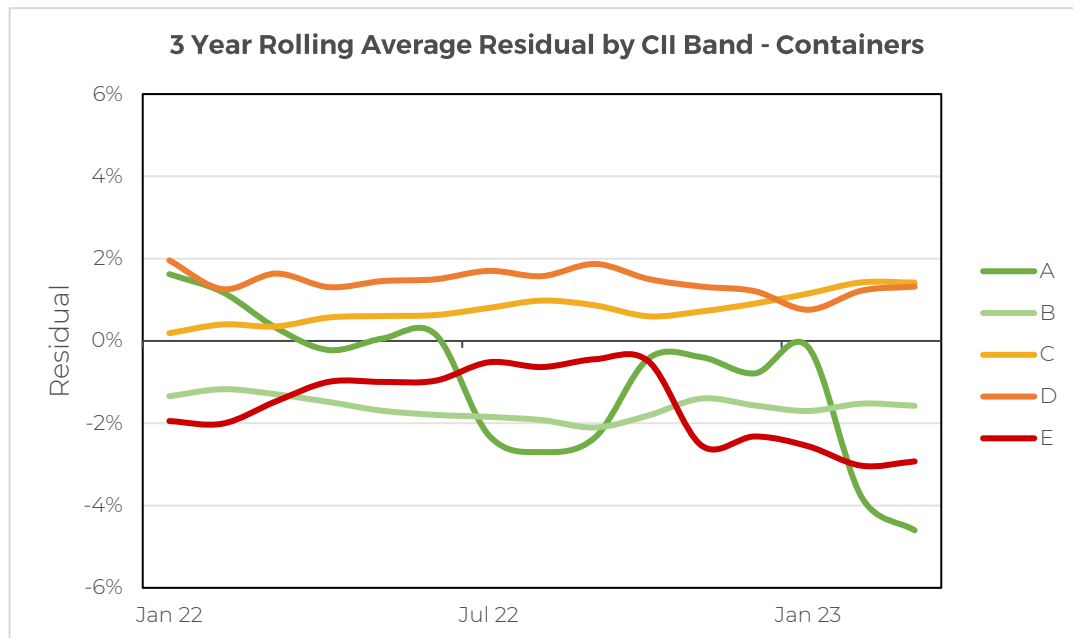
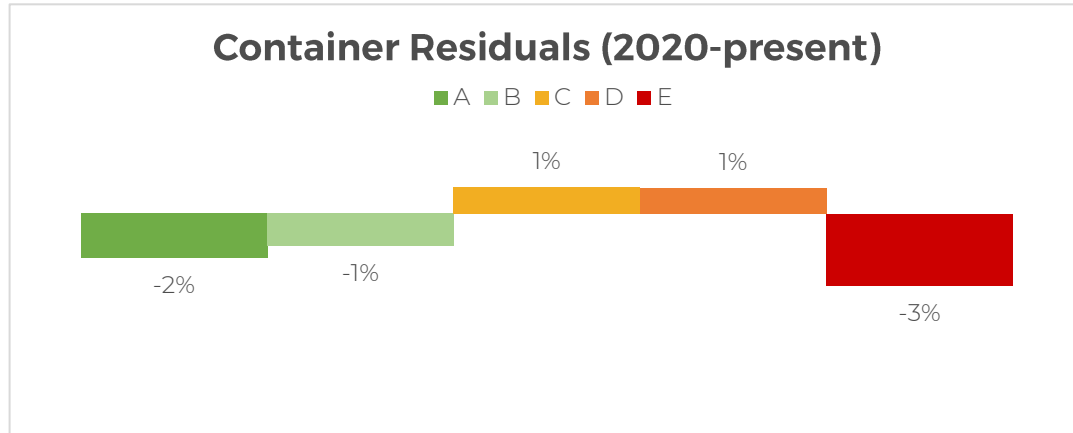
- There is no discernible relationship between CII Band and Value for Bulk Carriers
- A ~4% discount on Band E Bulk Carriers faded during 2022

IMPACT ANALYSIS - TANKERS



- There is no discernible relationship between CII Band and Value for vessels in Bands A to D
- Vessels in Band E are however worth ~8.5% less than vessels in other Bands
- The Band E discount has persisted over time
- A premium on Band D vessels has dissipated over the last 2 years

IMPACT ANALYSIS - CONTAINERS



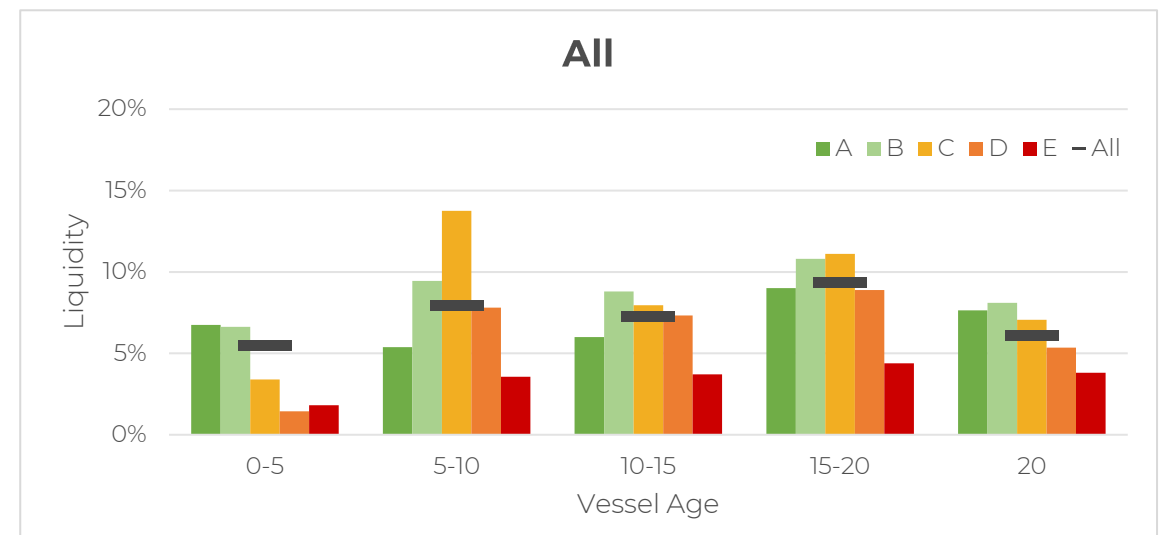
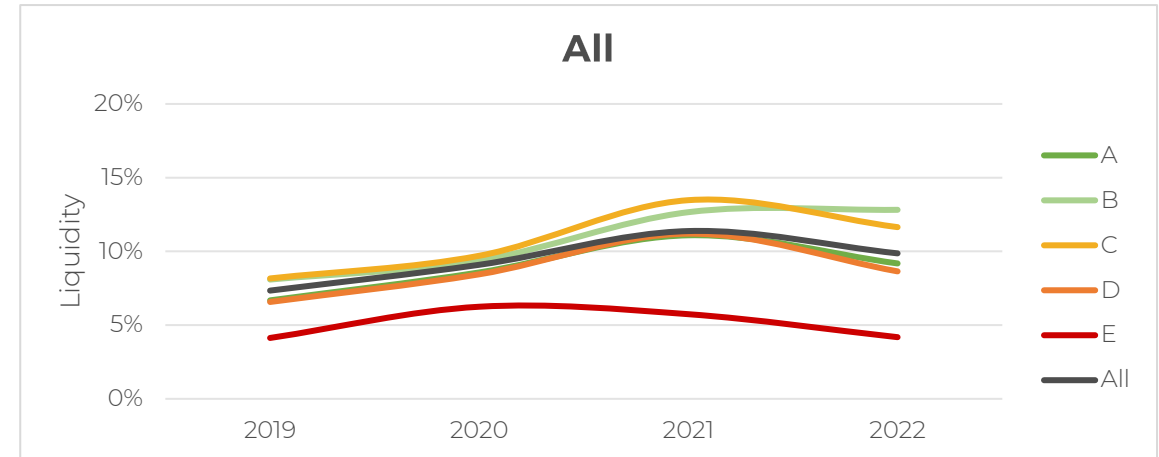
- Given the extreme demand for Container tonnage in recent history we wouldn't necessarily expect preference for efficient vessels
- We're forced to take a longer-term view in the Container market due to low liquidity
- There is significant turbulence in the Container market resulting from extreme rate movements
- A discount for Band E vessels appears to be developing

LIQUIDITY

The image features a solid red background. In the lower right quadrant, there is a large, semi-transparent red arrow pointing upwards and to the right. The word "LIQUIDITY" is centered in the upper half of the image in a bold, white, sans-serif font.

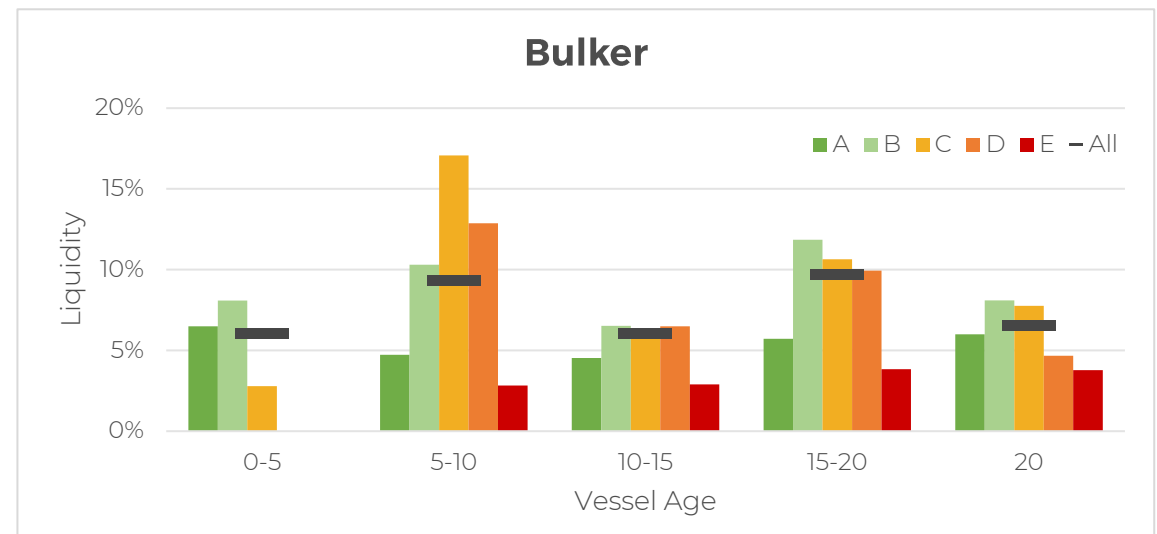
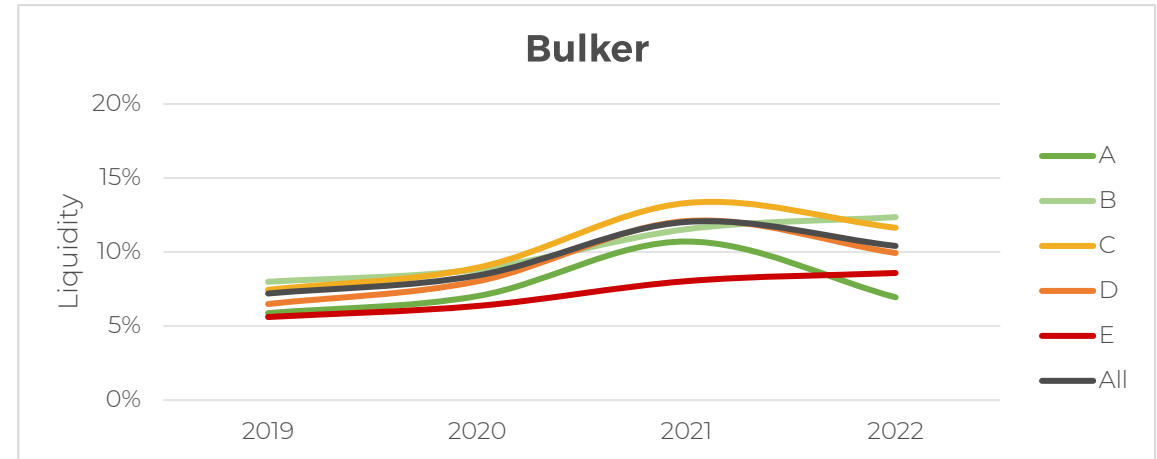
% OF THE FLEET SOLD EACH YEAR BY CII GRADE

- The liquidity of Vessels in Band E is less than half that of vessels in other Bands
- This gap has grown in the last 2 years
- The effect is largely independent of the age of the vessel
- 5 to 10 year old vessels in Band C have the highest liquidity



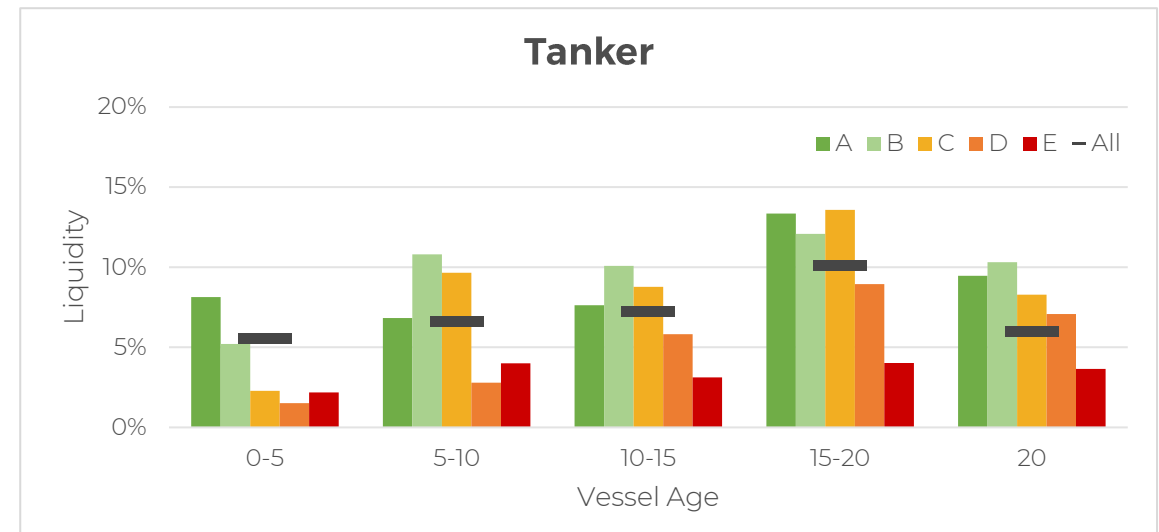
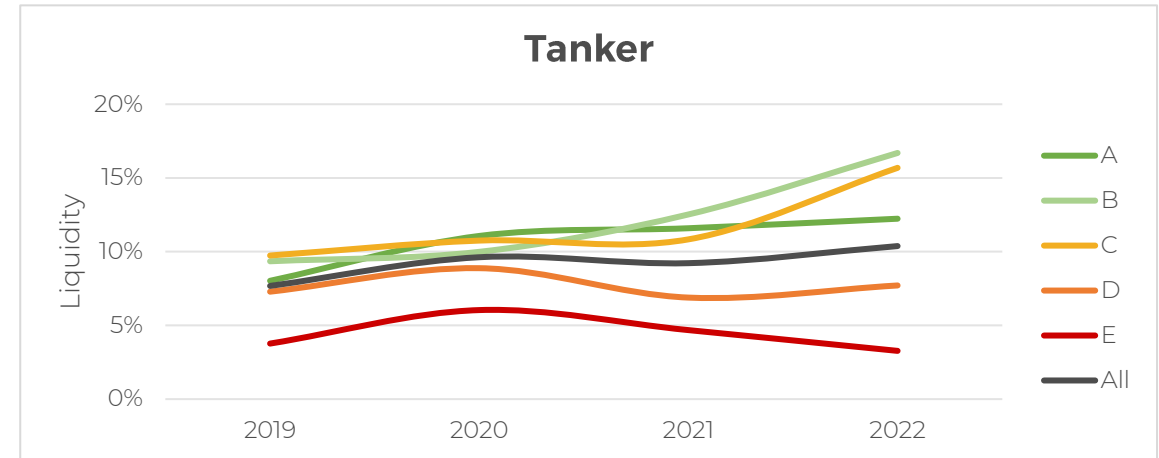
% OF THE FLEET SOLD EACH YEAR BY CII GRADE

- The liquidity of Bulkiers in Band E is generally lower than vessels in other Bands
- The effect is largely independent of the age of the vessel
- 5 to 10 year old Bulkiers in Band C have the highest liquidity



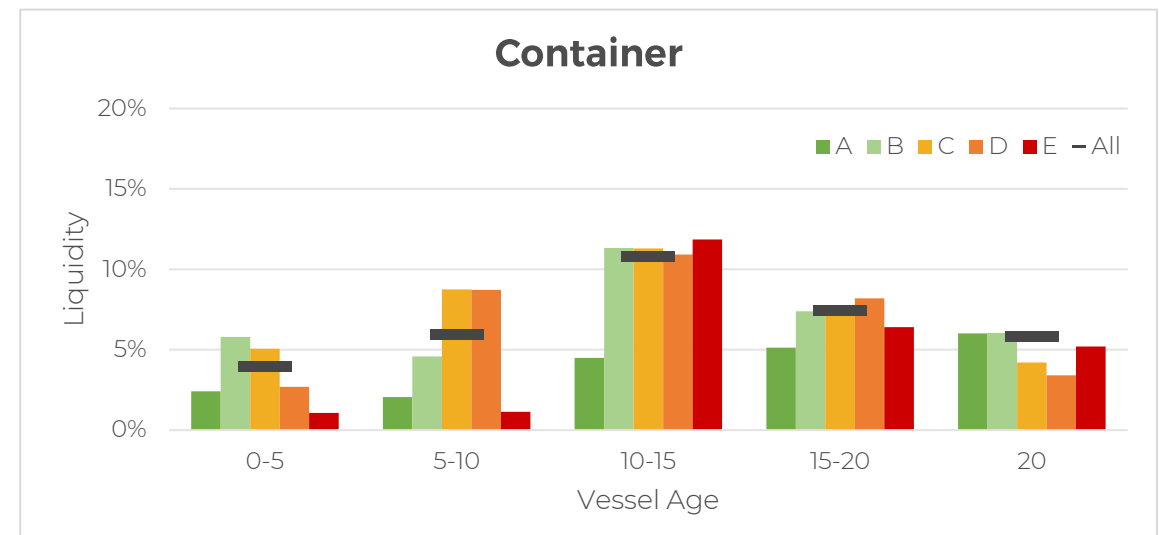
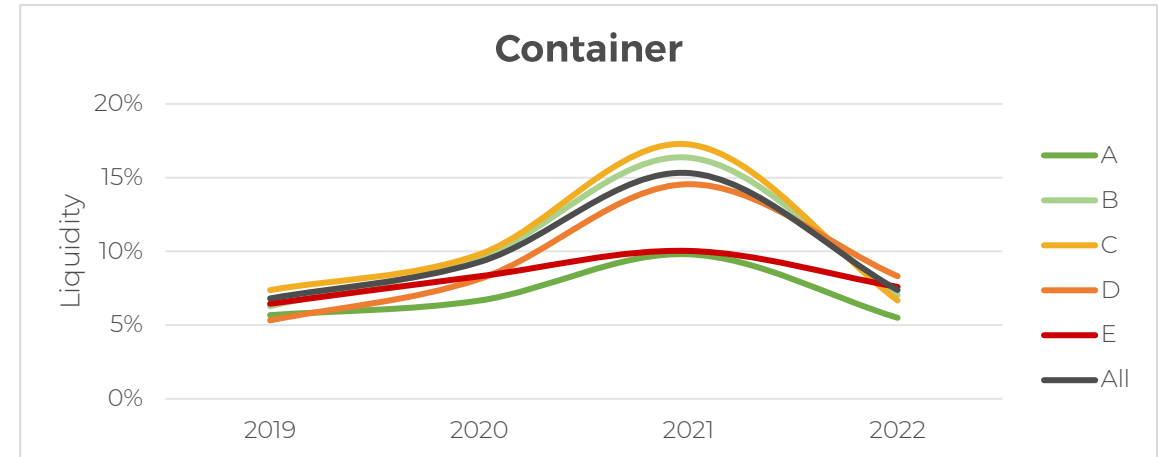
% OF THE FLEET SOLD EACH YEAR BY CII GRADE

- The liquidity of Tankers in Band E is less than half that of Tankers in other Bands
- Liquidity by Band is diverging over time
- The effect is largely independent of the age of the vessel
- 15 to 20 year old Tankers in Band C have the highest liquidity



% OF THE FLEET SOLD EACH YEAR BY CII GRADE

- Containers in Bands A and E did not participate in the increased liquidity in 2021
- 10 to 15 year old Containers in Band B, C, D and E have the highest liquidity
- The liquidity of Younger Containers in Band E is very low
- Low liquidity for Band A Vessels may be related to concentration of ownership and activity i.e. large liners



POTENTIAL COST OF COMPLIANCE

USING THE DISTANCE FROM BAND C WE CAN CALCULATE THE PREMIUM / DISCOUNT ASSOCIATED WITH CII COMPLIANCE FOR EACH VESSEL

One method of managing vessels in line with CII is changing the vessels speed

- If a vessel is non-compliant slowing down will reduce CO2 emissions and earnings
- If a vessel is compliant the vessel may be able to speed up, increasing CO2 emissions and earnings

Using the distance to the required AER (the centre of Band C) we can calculate the required changes in average speed

Changes in speed can be considered directly proportional to earnings

We can measure, via our Market Value model, the impact of earnings on Vessel Value

$$\sqrt{AER} \propto Speed \propto Earnings \propto f(Value)$$

WORKED EXAMPLE

South China Sea, Indonesia
 1h 16kts Under way using engine 11.2 / 20.6m Ballast
 Captain's Destination: AE KLF ETA: 10 Mar 2023 23:00
 Predicted Destination: Middle East Gulf ETA: 12 Mar 2023 10:08

EEDI/EEEXI

EEDIⁱ EEEXIⁱ
 - Non-compliant

CII ⁱ

YTD^e Past
 E D D D

Apollo Harmony Ex Nagaragawa

Type VLCC DH DWT 301,600 CBM 349,744 BLT ⁱ Mar 2010 IHI Age 12.92 years Status Live

- Chiba Shipping Japan
- Idemitsu Tanker Japan
- KATORI NAVIERA SA Panama

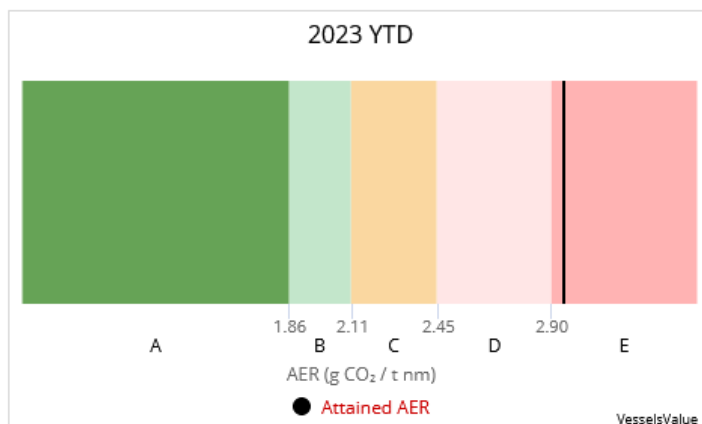
Wed 01 Mar 2023 **Historical** ⁱ

Market Value ⁱ	Newbuild Value ⁱ	Demolition Value ⁱ	DCF Value ⁱ	Forecast Market Value ⁱ
62.46	120.73	24.10	51.07	61.74
Show ACR ⁱ	-3 years <input type="text"/> <input type="text"/> <input type="text"/>		Show ACR ⁱ	+1 year <input type="text"/> <input type="text"/> <input type="text"/>

Values in USD mil unless specified. Values subject to disclaimer. This is not a valuation certificate.

EEDI/EEEXI | CII

Carbon Intensity Indicator



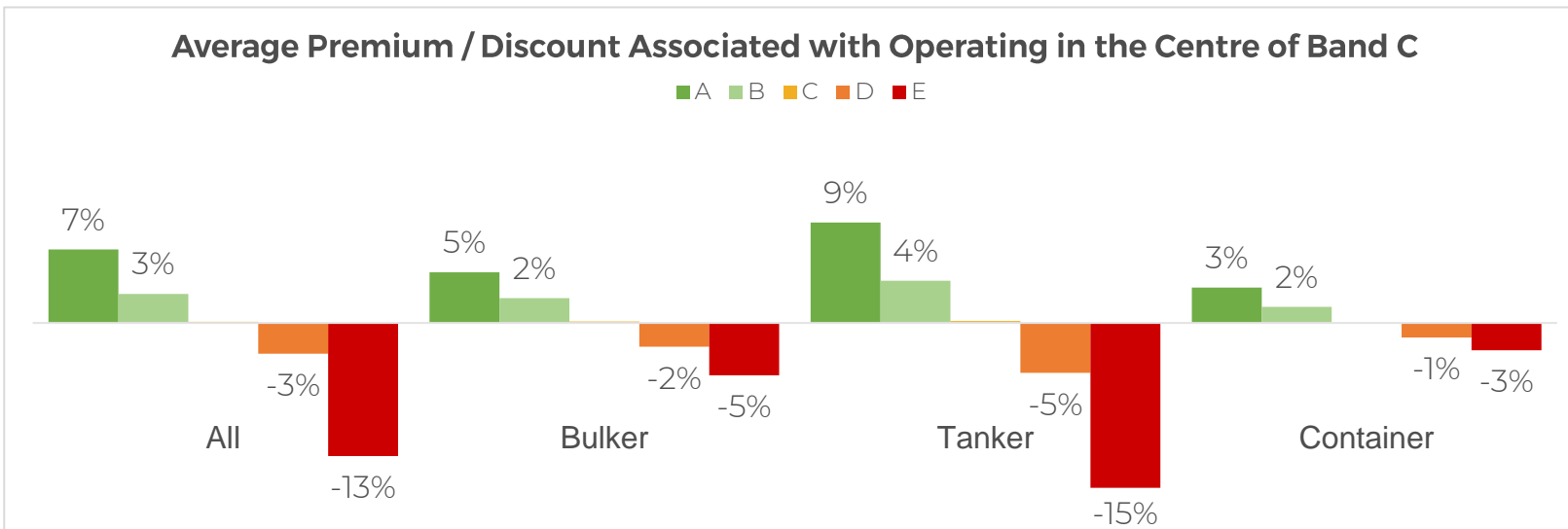
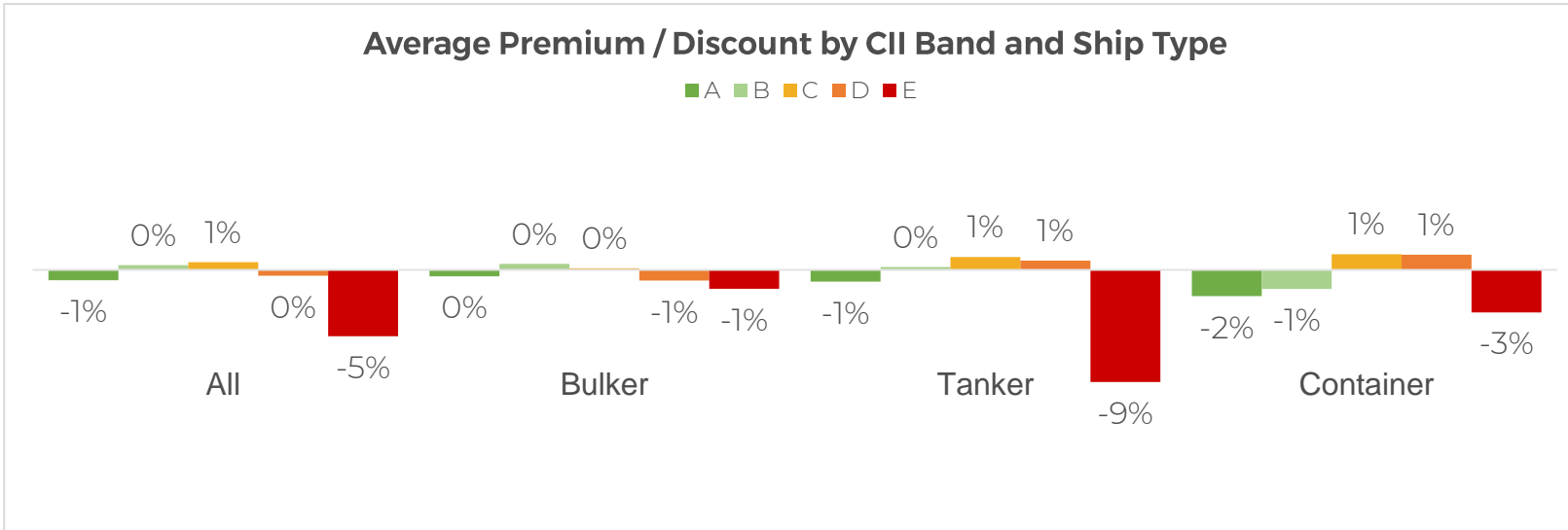
	2023 YTD as at: 22 Feb 2023 ⁱ	2022	2021	2020
CII Rating (A - E) ^e	E	D	D	D
Attained AER (g CO₂ / t nm) ^e	2.95	2.82	2.83	2.66
Required AER (g CO₂ / t nm) ⁱ	2.27	2.31	2.34	2.36
CO₂ Emitted (t) ^e	11,853	70,306	76,334	61,445
Fuel Consumed (t) ^e	3,806	22,577	24,513	19,732
Distance (nm) ^e	13,324	82,691	89,289	76,453
Time Underway (h) ^e	1,063	6,371	6,615	6,569

For more information see our [methodology](#).

2022

- Attained AER: 2.82
- Required AER: 2.31
- Average Speed: 13kts (82%)
- Speed Reduction: 6%
- Value Discount: \$3.2m (5%)
- CII adjusted value: \$59.3m

ANTICIPATED TRENDS ARE EMERGING



- Discounts for Band E vessels are emerging in line with expectations
- Premia for Band A vessels are yet to emerge

SUMMARY

IMPACT OF CII ON VALUES

- We see the biggest impact in terms of lower **Values** and **Liquidity** in the **TANKER** sector.
- Band E Tankers are subject to a Value discount of 8.5%
- Fewer than 5% of Band E Tankers are traded each year, compared with over 15% for Tankers in Band B

Given low earnings in the Tanker sector it is likely that we are seeing the results of fuel cost optimisation which may persist or steepen as a result of CII regulation.

- We do not see any impact on the BULKERS at this time.
- We are starting to see changes in the CONTAINER Market
- A 3% discount for Containers in Band E has emerged in the last year

TRENDS EMERGE BUT UNCERTAINTY PREVAILS

- It is currently unclear what the real world impact of the new green regulations will be.
- A small speculative discount is being applied to vessels operating in Band E which is impacting liquidity.
- No premium has emerged for Band A vessels, however, liquidity is low. Owners may be hesitant to part with assets which may increase in value in the near future.
- Liquidity of newer vessels operating in Band D and E is extremely low.
- Middle aged vessels operating in Bands B, C and D currently hold the lowest risk and are therefore the most liquid.

THANK YOU

Do you have any questions?

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