

Capital Markets Day 2019

CEO, Kristian Mørch

The future for Odfjell



ODFJELL

Agenda

- **Welcome and introduction**
- The future of Odfjell

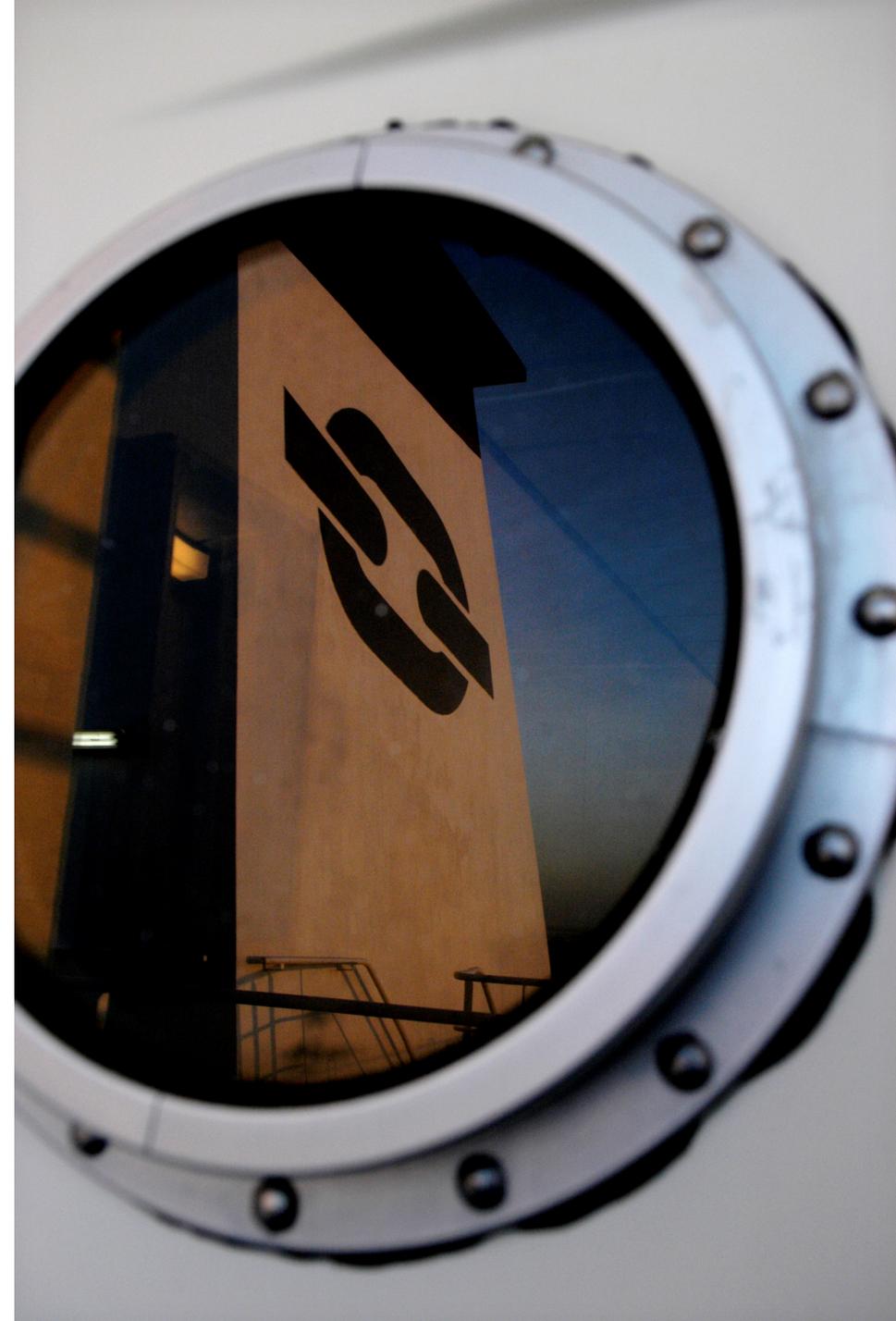


Today's agenda

Timer	Topic	Representative	
09:00 - 09:30	The future of Odfjell	Kristian Mørch	CEO Odfjell SE
09:30 – 09:55	Targeting our optimal capital structure	Terje Iversen	CFO Odfjell SE
09:55 - 10:05	Coffee break		
10:05 - 10:35	Meeting the future with a competitive and flexible chemical tanker platform	Harald Fotland	COO Odfjell SE
10:35 – 11:00	Market outlook	Bjørn Kristian Røed	Research Odfjell SE
11:00 – 11:05	Final remarks and summary	Kristian Mørch	CEO Odfjell SE
11:05 – 11:30/12:00	Lunch / Mingling session with light food and drinks		

Agenda

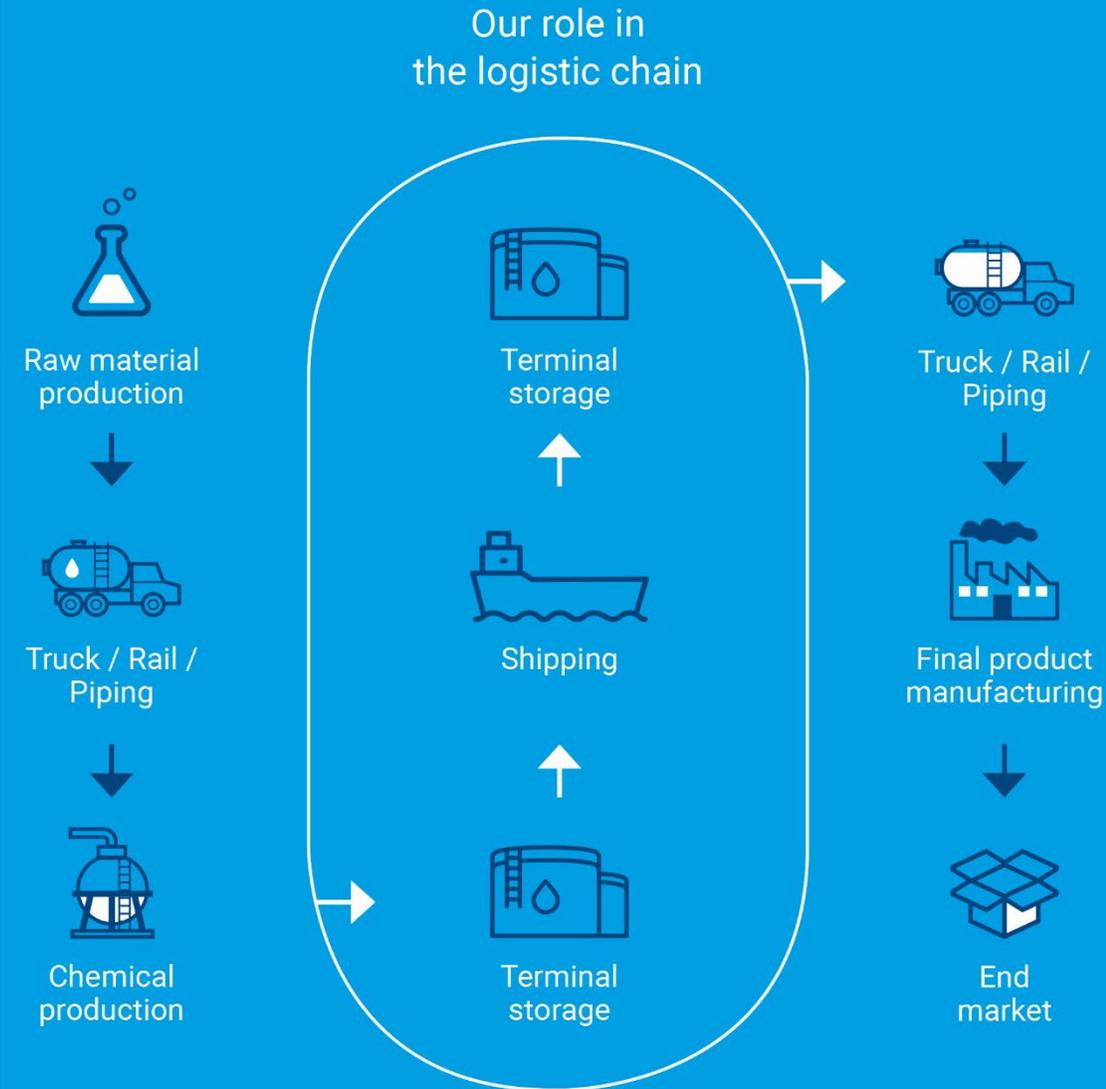
- Welcome and introduction
- **The future of Odfjell**



Odfjell SE

More than 100 years of experience

- Core business is shipping and storage of bulk liquid chemicals
- Headquarter in Bergen, with offices in 18 countries worldwide
- One of the world's largest operator of chemical tankers
- «Supersegregators» are our core tanker assets - trading in fixed patterns
- Global network of chemical tank terminals
- Listed on Oslo Stock Exchange since 1986



Key figures



Odfjell Group financials (2018)

- Gross revenue USD 851 million
- EBITDA USD 135 million
- Operating result (EBIT) USD -76 million



Employees and offices

- 2,530 employees globally (1,663 seafarers, 490 terminal employees, 377 on shore)
- 16 offices and 7 tank terminals



Safety

- Two serious incidents in 2018. fatality on Bow Sun and bunker spill on Bow Jubail)
- Tankers LTIF 2018: 0.40 (2018 target: 0.7)
- Terminals LTIF 2018: 0.19 (2018 target: 0.3)



Odfjell Tankers

- Number of vessels: 79 (dwt 2.5 million)
- Volume shipped: 15 million tonnes per year
- 4 595 399 nautical miles sailed by Odfjell fleet in 2018 = 212 times around equator



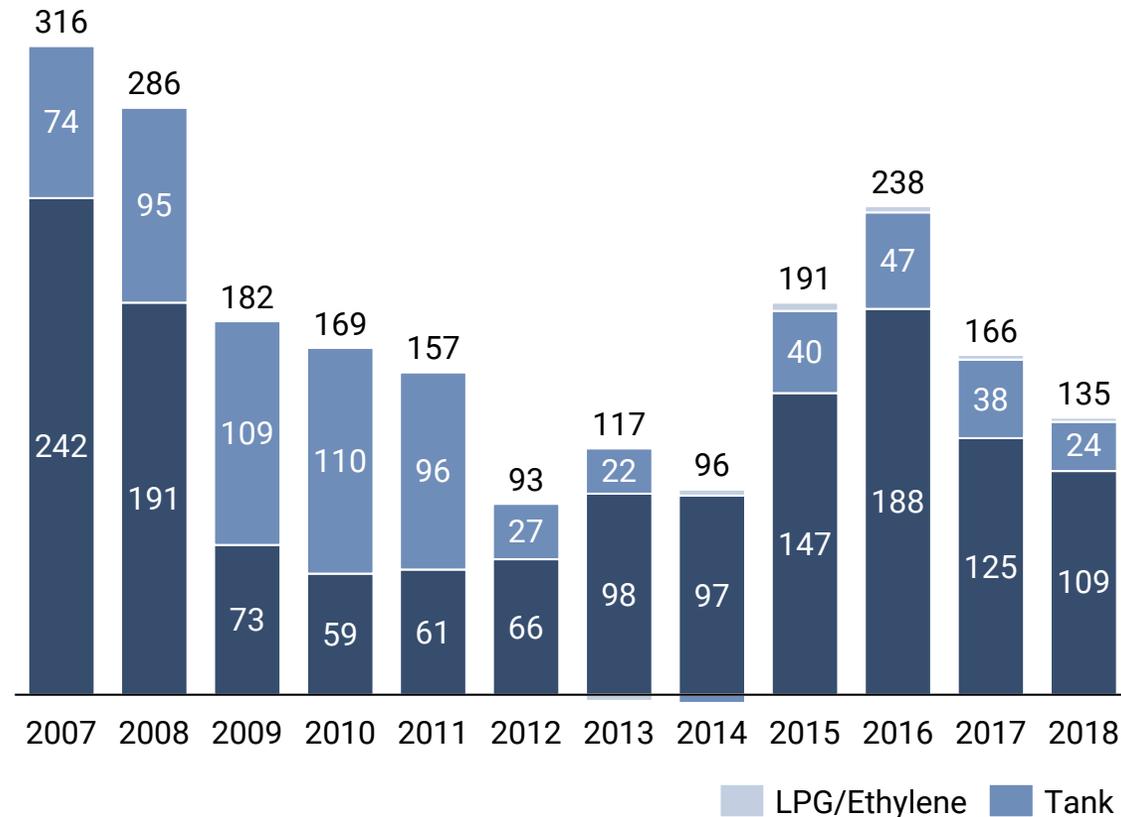
Odfjell Terminals

- Total tank capacity: 2.0 million cubic meters (incl. 550k cbm related party)
- Located in Asia, Europe and United States
- Ownership and governance setup in process of being changed

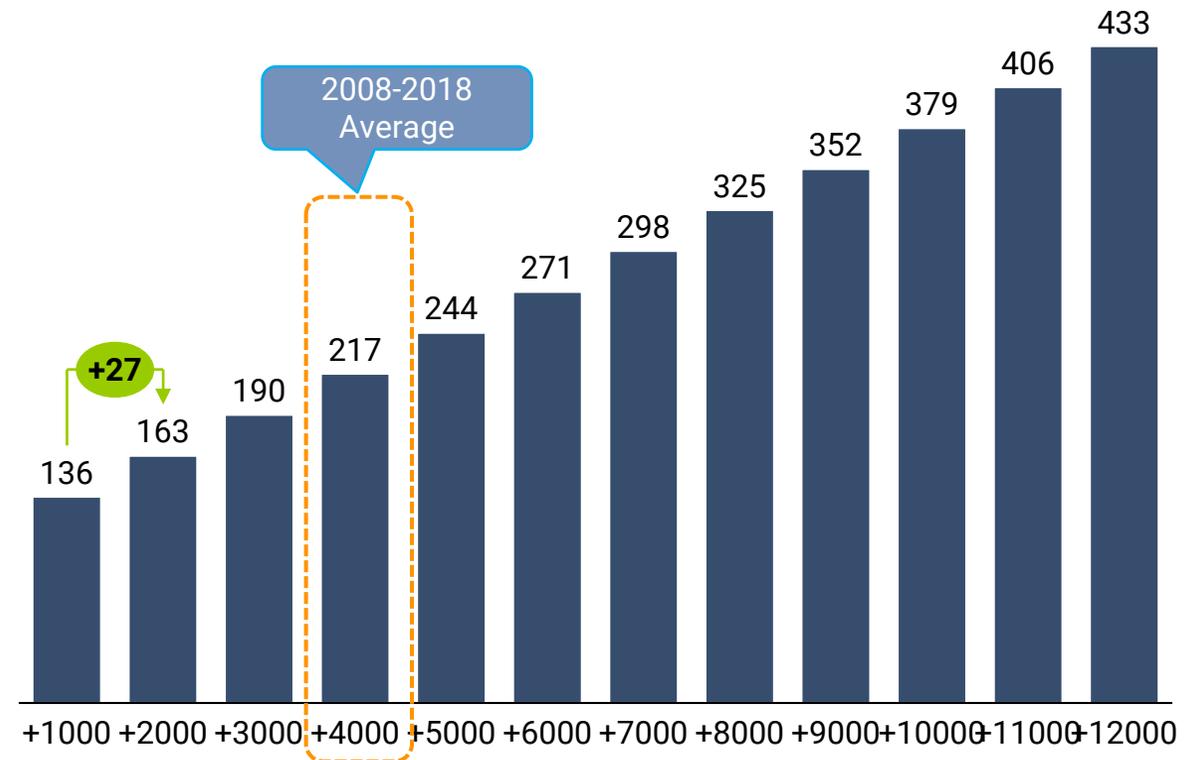


Our EBITDA performance has improved despite more challenging markets – there is a significant upside when markets improve

EBITDA per division, USD million:



Odfjell Tankers EBITDA for every USD1,000/day change in rates:

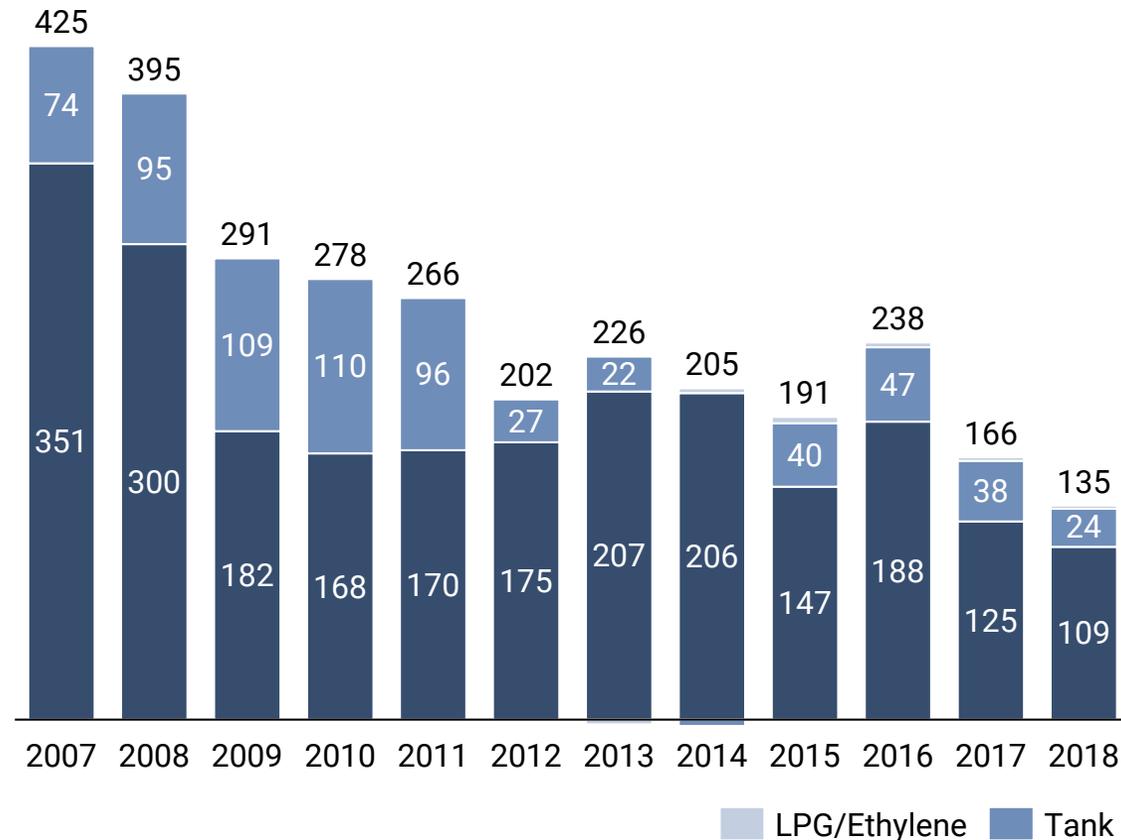


Source: Odfjell

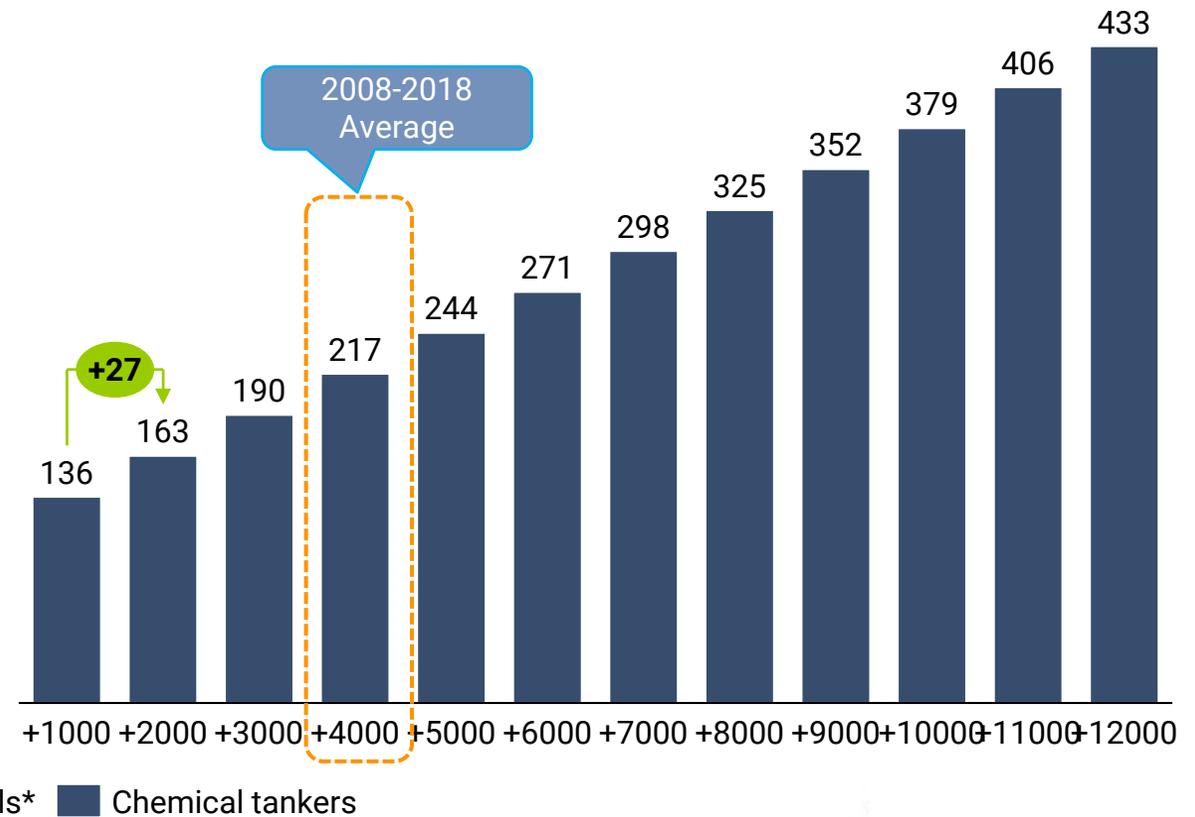
* 2017 and 2018 EBITDA reduced by USD 8 mill and USD 10 mill, respectively due to sale of Oman and Singapore

Our EBITDA performance has improved despite more challenging markets – there is a significant upside when markets improve

EBITDA per division adjusted for project Felix, USD million:



Odfjell Tankers EBITDA for every USD1,000/day change in rates:



Source: Odfjell

* 2017 and 2018 EBITDA reduced by USD 8 mill and USD 10 mill, respectively due to sale of Oman and Singapore

Our recent tonnage renewal and growth initiatives (28 vessels) are concluded at what looks like an attractive point on the asset curve

Clarksons newbuilding index



Timeline

- 1
 - Ordered six newbuildings at Hudong Shipyard
 - Delivery between July 2019 and September 2020
 - Values for similar vessel are up 15% since our ordersNewbuildings
 - 2
 - Two newbuildings concluded on long-term Timecharter
 - Vessels were delivered in October 2018 and January 2019
 - Replacing chartered vessels at 20% lower charter-in rateLong-term TC
 - 3
 - Two newbuildings concluded on long-term Bareboat
 - Delivery in December 2019 and July 2020
 - Replacing chartered vessel at 20% lower rate and growthLong-term BB
 - 4
 - Acquired 5 vessels and formed a pool with 5 CTG vessels
 - All vessels have been delivered and are now operated by Odfjell
 - Purchase options on CTG vessels and receive profit splitsCTGT transaction
 - 5
 - 4 vessels on long-term BB and formed a pool with 4 SC vessels
 - Purchase options and profit splits on SC vessels
 - BB rates secured 30% below comparable charters in our fleetSinochem transaction
- Investment timing secures attractive returns also in weak markets

We believe the markets passed the bottom in 2018 and that the fundamentals for chemical tankers and storage are healthy

Demand

GDP growth

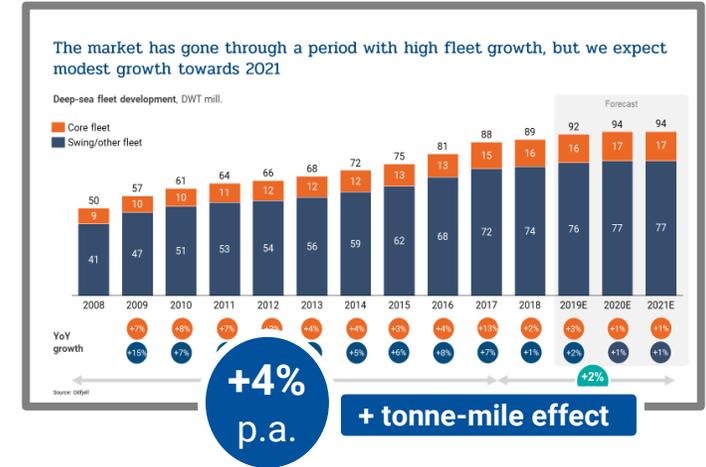
- Continued healthy GDP growth, but some uncertainty going forward

Structural shift

- Significant increase in production in US and ME with access to cheap feedstock – adding long haul transportation demand
- Continued high demand growth in Asia driving tonne-mile

IMO 2020

- IMO 2020 to drive demand for transportation of refined oil products (especially bunker trade)



Supply

Orderbook

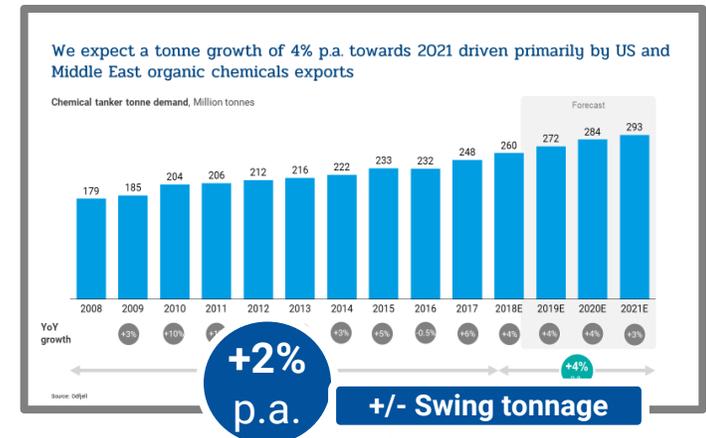
- Very limited orders in core segment (last stainless steel order was in July 2018)
- Chemical tanker ~7% orderbook which is ~2% fleet growth p.a.

Swing tonnage

- Strong CPP and vegoil market
- Swing tonnage reverting to their core market

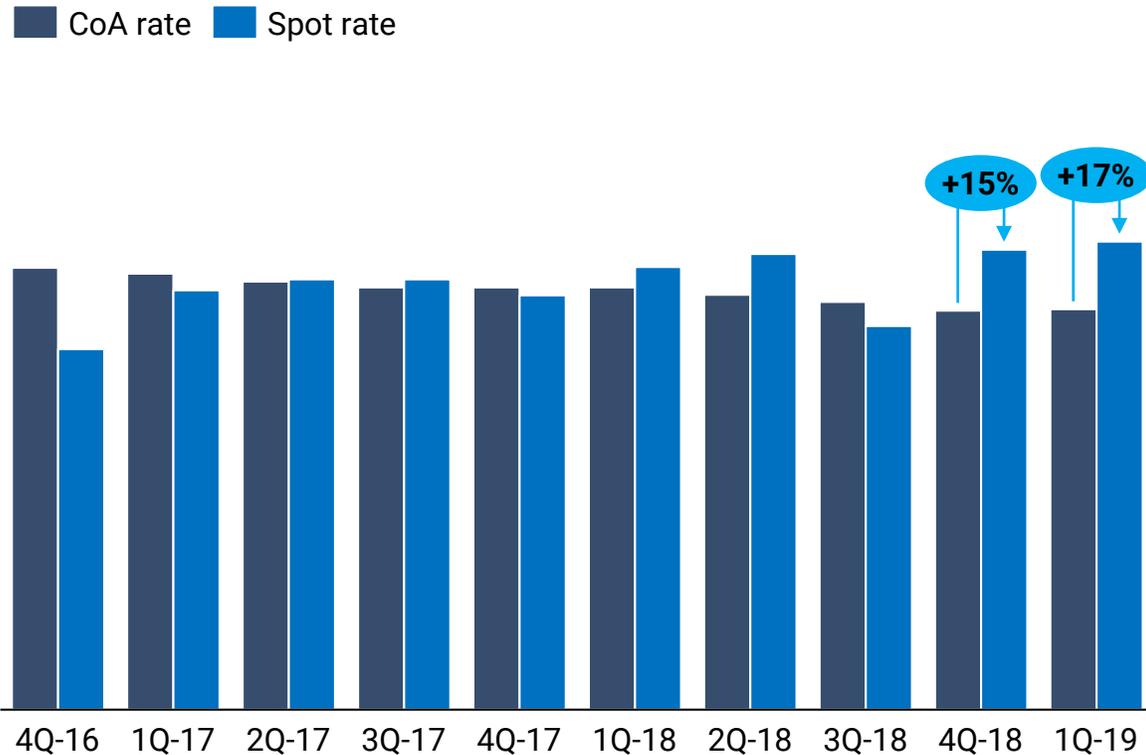
IMO 2020

- Increased scrapping (all things equal)
- Slow steaming and retrofitting to positively impact supply

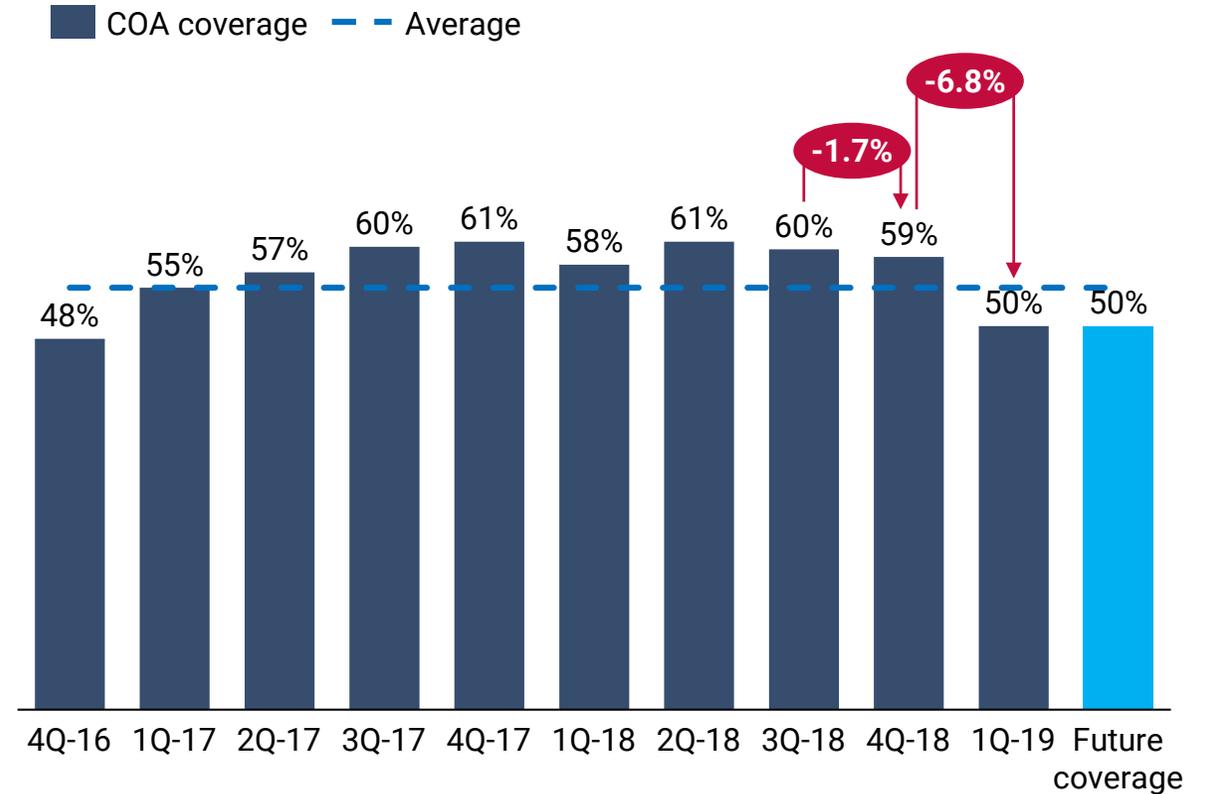


Historically about 50-60% contract coverage – with recent increase in spot rates we have reduced our share of contracts

Spot rate, USD per ton

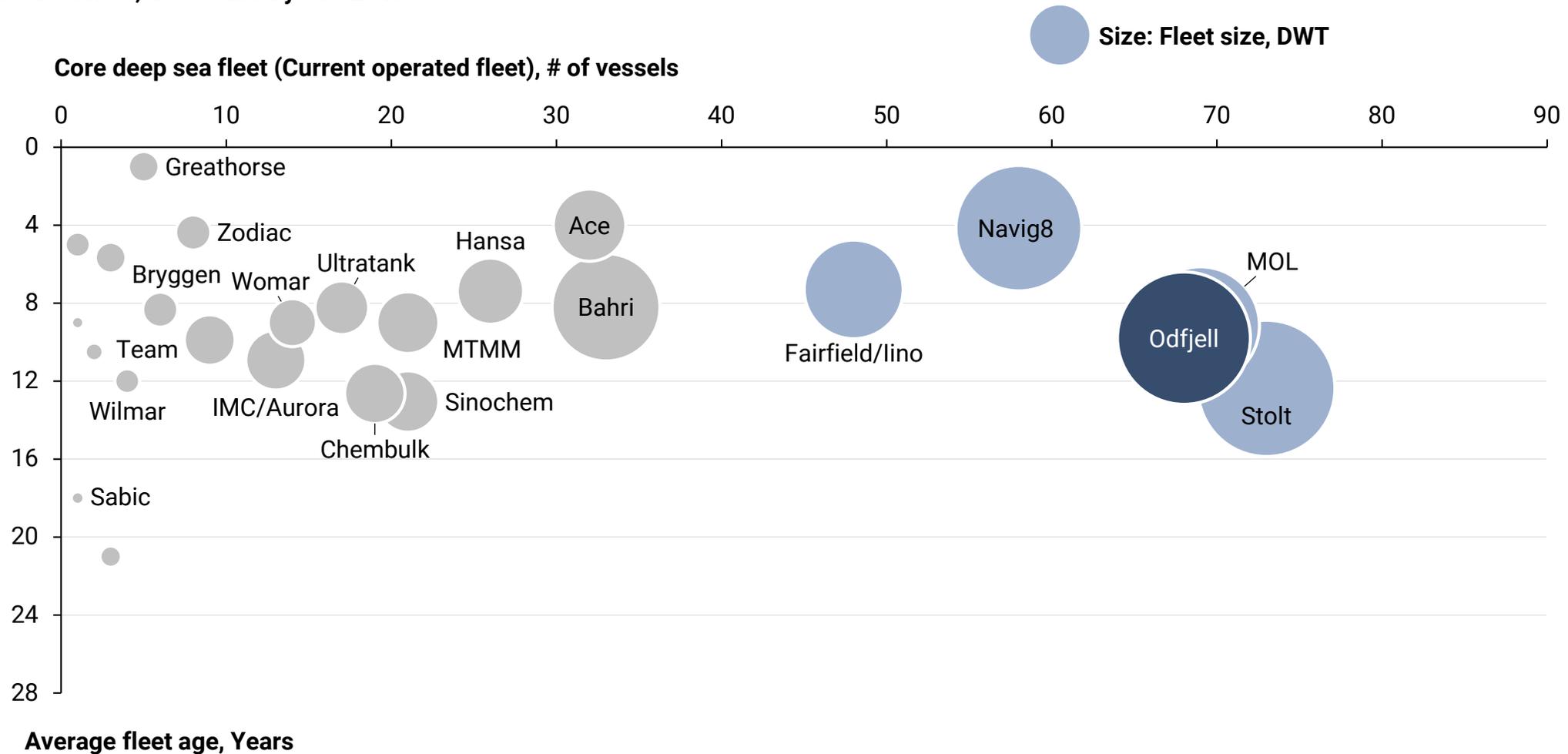


Contract coverage, percentage of total volume



The current global core deep sea market is dominated by a few players, but we still face competition from a wide range of competitors

Operated fleet, as of January 31st 2019



We have a network of 7 terminals with a mix of mature and growth terminals

	Europe	US		Asia			South America	Global	
	Antwerp (NNOT)	Houston (OTH)	Charleston (OTC)	Ulsan (OTK)	Dalian (OTD)	Jiangyin (OTJ)	Tianjin (ONTT)	Peru, Argentina, Brazil	
Storage capacity In k CBM	348	380	79	314	120	100	138	553	2,032
Start-up Year	Non-operated	1983	2013	2002	1998	2007	2016	Related party	-
Revenues ¹ USD mill	11	40	6	5	4	2	1	-	69
EBITDA ¹ USD mill	5	17	2	2	3	1	0	-	32 ²
Odfjell SE ownership (%)	25.0%	51.0%	51.0%	25.5%	25.5%	28.1%	25.0%		n.a.

1. All USD figures represents Odfjell SE's ownership share and is based on FY 2018, 25% ownership share at NNOT included

2. Total EBITDA excludes global management fee allocation being booked at Odfjell Terminals BV (Holding company)

Terminals - focus areas for the next years

Strategic priorities

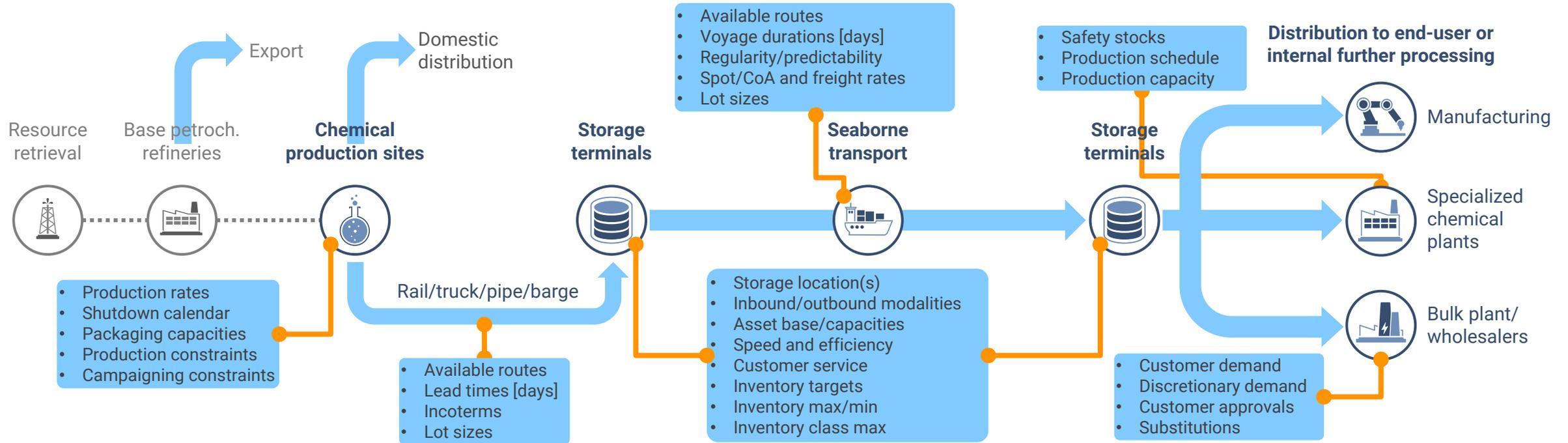
- **Complete Lindsay Goldbergs exit, and restructuring of our terminal governance setup**
- **Focus on terminals with synergies with Chemical Tankers**
- **Optimise and grow current footprint**
- **Grow outside current footprint**

Focus areas next 3 years

- 1 Reorganize our terminal setup with HQ integrated in Bergen, with 3 separate regions (US, Europe and Asia)
- 2 Focus on “Better solutions” with supply chain integration together with Odfjell Tankers
- 3 Improve and Optimize Houston
- 4 Growth within Houston footprint (3 available areas within current footprint that can be developed)
- 5 Growing outside current footprint is 2nd priority

A key focus is to improve synergies between Odfjell Tankers and Odfjell Terminals – helping to de-bottleneck our customers' supply chains

Supply chain for US exporter of chemicals (illustrative)



Chemical supply chain challenges:

- Supply chain complexity is growing
- Cost efficiency increasingly important
- Pressure to improve asset productivity
- Growing US & MEG production creates price pressure for Asia and Europe producers
- Increased seaborne trade versus domestic production creates logistics bottlenecks

Odfjell improvements will be through:

- Improve operational efficiencies for Odfjell and our customers
- Improve predictability for Odfjell and our customers' services
- Reduce berth congestion at Odfjell Terminals
- Reduce port time and uncertainty for Odfjell Tankers
- Improve customers and own competitiveness in a commoditized market

IMO 2020 less than 6 months away. We do not believe in scrubbers, so we are focusing on compliant fuel and reducing consumption...

LNG

- Retrofit not economically attractive
- LNG could be attractive for our newbuildings
- Access to LNG is a concern and creates uncertainty before 2020

Scrubber

- Installing scrubbers on all vessels is time consuming and not economically attractive
- Scrubbers are not sustainable in the long-term
- Majority of competitors are not installing scrubbers

LSFO

- We will meet IMO 2020 by using LSFO
- Current price indications around USD 49¹ above HFO prices
- Bunker adjustment clauses in our contracts to reflect new fuel

Scrubber picture



1. The LSFO price is a Platts estimation as the product is not sold/bought on the market yet.

...but we will be well positioned through significantly more economic fleet, and we work towards adjusting our BAC's to cover compliant fuel

Efficiency measures

Process and routines

- Weather routing with annual savings of 2,000 tonnes fuel
- Propeller polishing and hull cleaning with savings of 2.5 tonnes/day

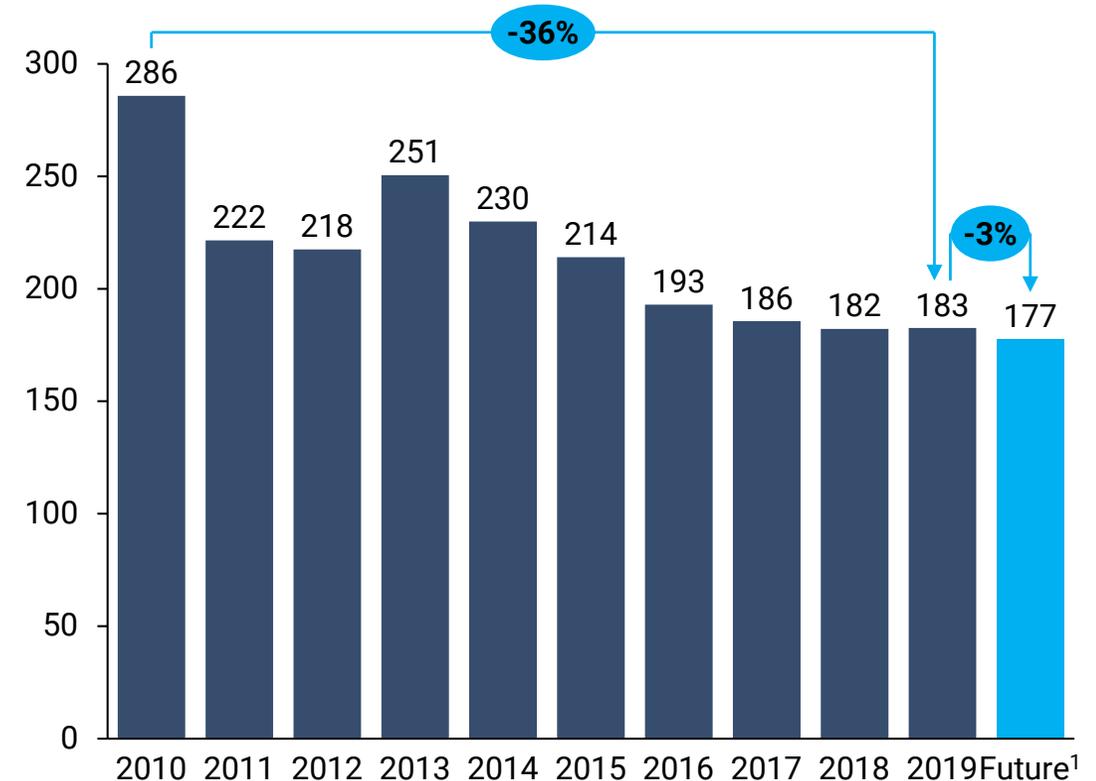
Retrofitting

- Anti-fouling program reduce need for hull cleaning
- Reversed Osmosis with savings of 1 ton fuel/day on boilers
- Propulsion System with savings of 20,000 tonnes fuel

Newbuilds

- Concluded 31 newbuilds to the fleet
- Newbuilds with a significant fuel advantage

Total bunker consumption per '000 DWT



1. Adjusting for older vessels expected to be redelivered/scrapped next 3 years and 6 x Hudong in addition to 3 x larger BB/TC to be delivered

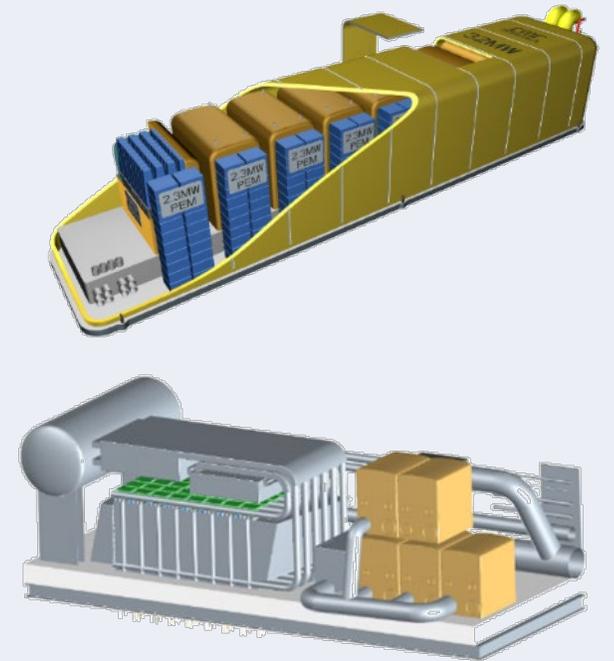
We continue to work on alternative fuels and energy solutions which includes a Fuel Cell Project – initially as auxillary engines

Features and mechanisms

- Zero emissions in port, significant emission reductions at sea
- Patented solution currently under development
- Odfjell represented in the project as the only ship owner
- The fuel cell will be piloted on an Odfjell ship within next two years

Estimated emission reductions

- ✓ **35 % fuel**
- ✓ **45 % CO2 emissions**
- ✓ **90 % SOx emissions**
- ✓ **80 % NOx emissions**

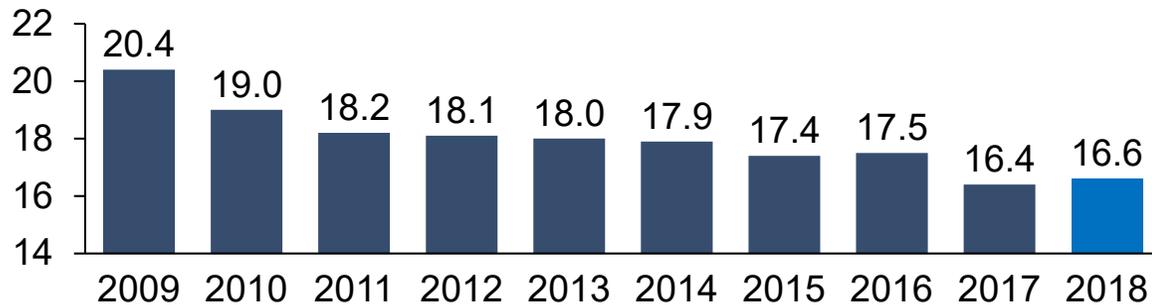


Sustainability is high on the agenda



Environment

EEOI trend for the Odfjell Fleet*
Gram CO₂ per tonne cargo transported 1 nautical mile



Safety



Anti-corruption



Health



Local communities



Our current strategic priorities



Tankers: From growth and renewal to quality of service to customers

- We have one of the most energy efficient and competitive fleets in the world and a solid business intelligence system – now this has to be converted to world class services



Operational excellence

- Continue improvement programs in Odfjell Tankers
- Focus on synergies between Tanker and Terminal



Terminals – Back to operations and profit

- Complete the restructuring and develop our tank terminal division
- Grow our Houston terminal



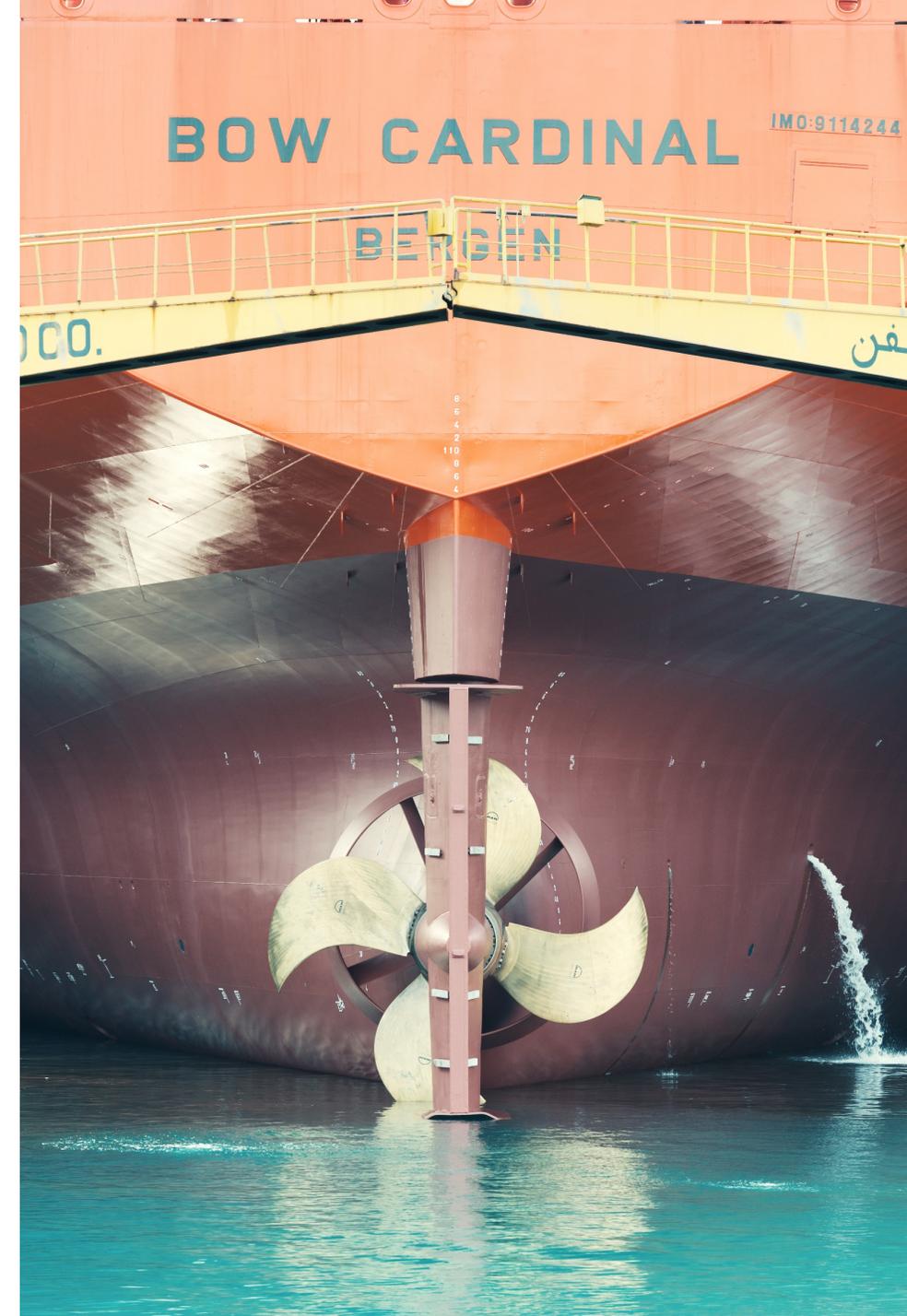
Financial strength

- Maintain our strong balance sheet
- Be able to act if attractive opportunity arises



Capital Allocation

- Investments: Look at growth opportunities in Houston
- Dividends: Target attractive dividends (market dependent)
- Deleverage: Reduce our debt levels (market dependent)



Our long-term ambition level and targets remain unchanged



Safety performance

Zero incidents



Customer service

Delivering safely, on time, on spec and being competitively priced



Revenue / Top-line

Average revenue growth of 10% per year (over time)



Profitability

Industry leading EBITDA margin



Tankers scale

Target an operated fleet of about 100 vessels, to benefit from scale advantages

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CFO, Terje Iversen

Targeting our optimal capital structure



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Our finance strategy

Efficient capital structure

- A capital structure that provides operational and financial flexibility at attractive cost of capital

Access to attractive capital resources

- A diversified portfolio of capital sources and counterparties to secure flexibility and a competitive cost of capital

Manage risk

- The financial strategy needs to manage the impact of operational and financial risks related to our business throughout cycles

Accomodate operational strategy

- To be financially capable to accomodate our operational strategy

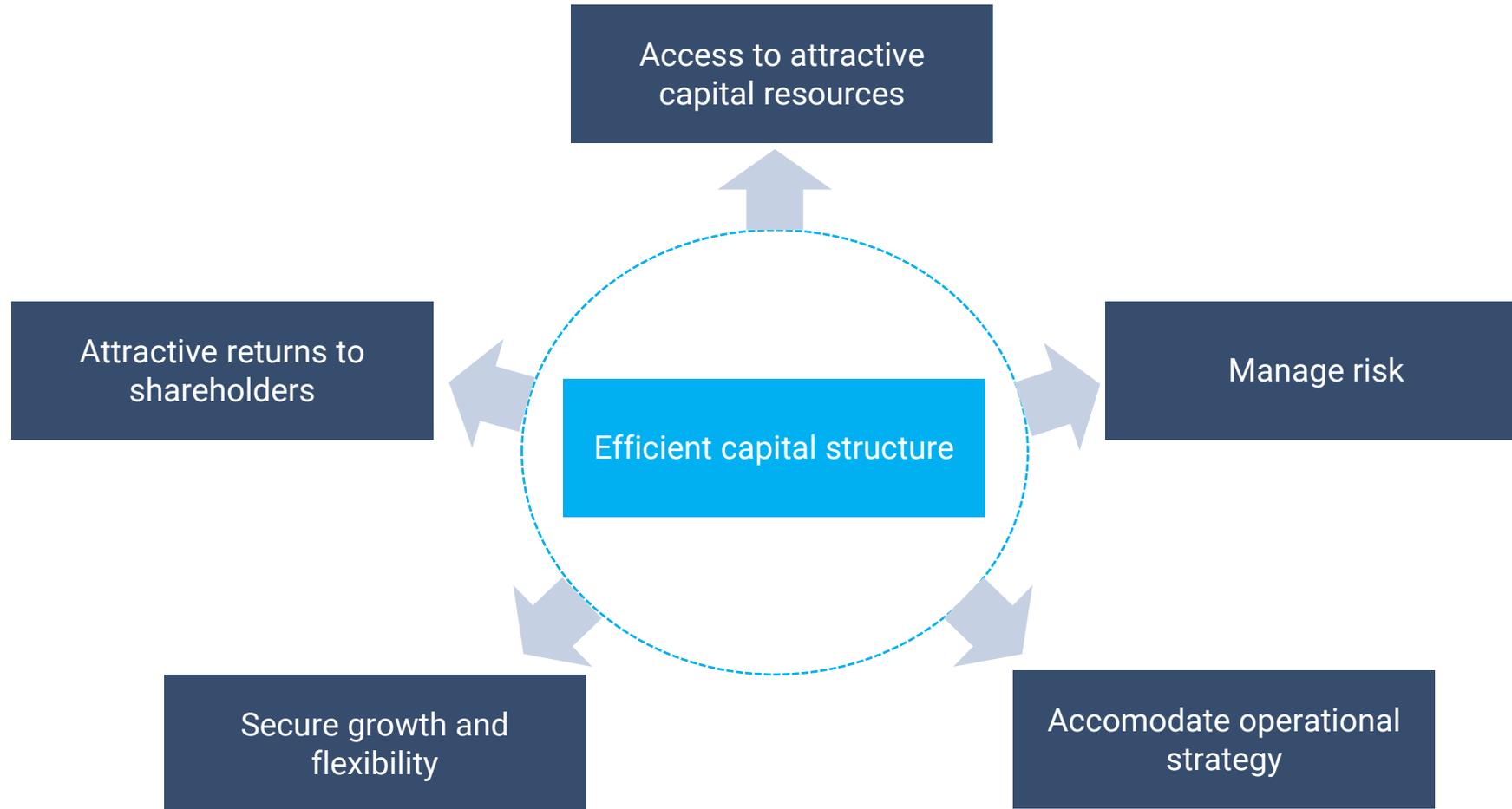
Secure growth and flexibility

- We need to have the financial capability to grow and be able to act quickly as opportunities arise

Attractive returns to shareholders

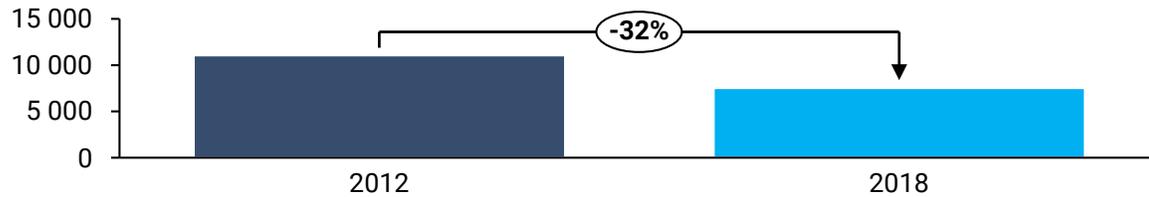
- Ensure to return surplus liquidity to shareholders throughout the cycle

An efficient capital structure is a key to succeed with our financial strategy

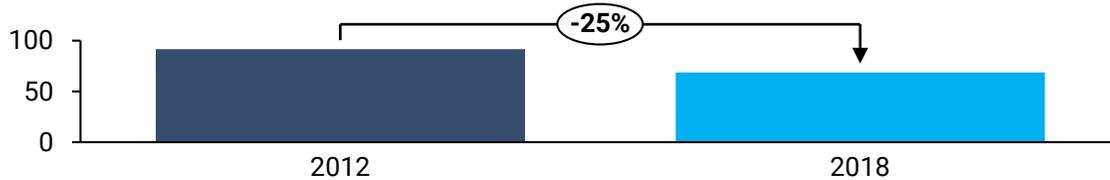


Achieving an optimal capital structure to ensure strong cash flows in any market a priority after achieved operational competitiveness in recent years

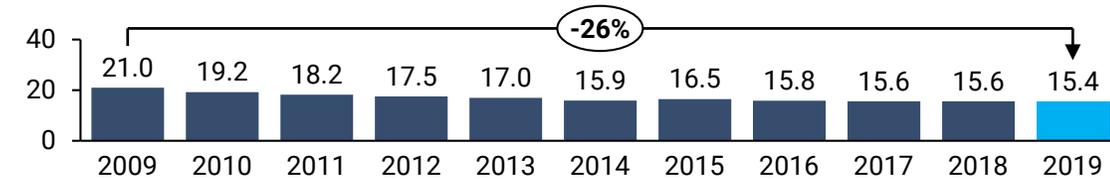
32% reduction in operating expenses



25% reduction in G&A



26% reduction in average daily fuel consumption

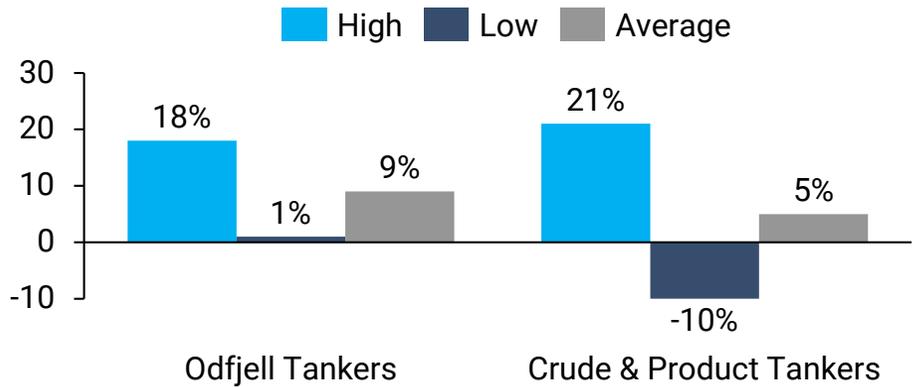


Terminals back to profit

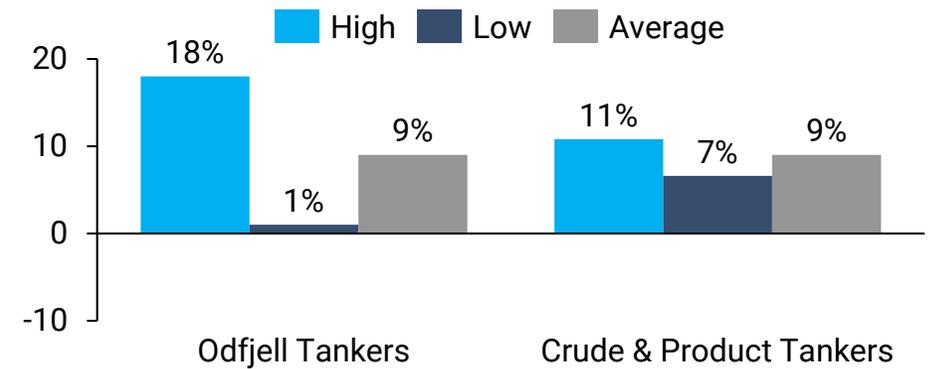


We are exposed to cyclical downturns with returns in line with the industry, but the downturn has disconnected our leverage from historical levels

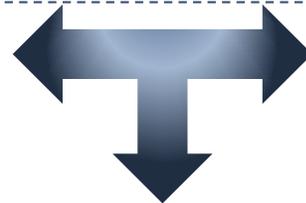
1987-2018: Odfjell Tankers ROIC vs Tanker peer group



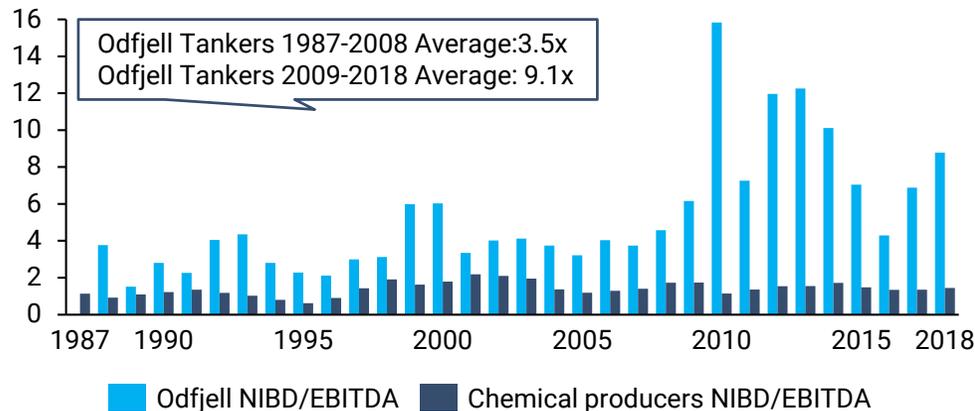
1987-2018: Odfjell Tankers ROIC vs Chemical producer peer group



Returns trends alongside tankers... But with lower high's, higher low's and higher average's...
 ...And we generate higher high's, lower low's and similar average's as the industry...

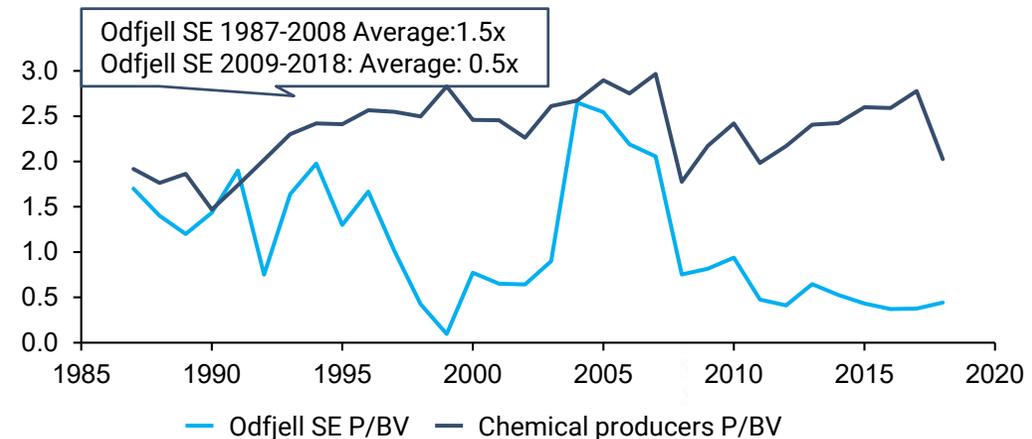


Odfjell Tankers NIBD/EBITDA vs Chemical producers



...But the extended downcycle has disconnected our leverage profile from the industry...
 ...Alongside a substantial increase in our cost of equity...

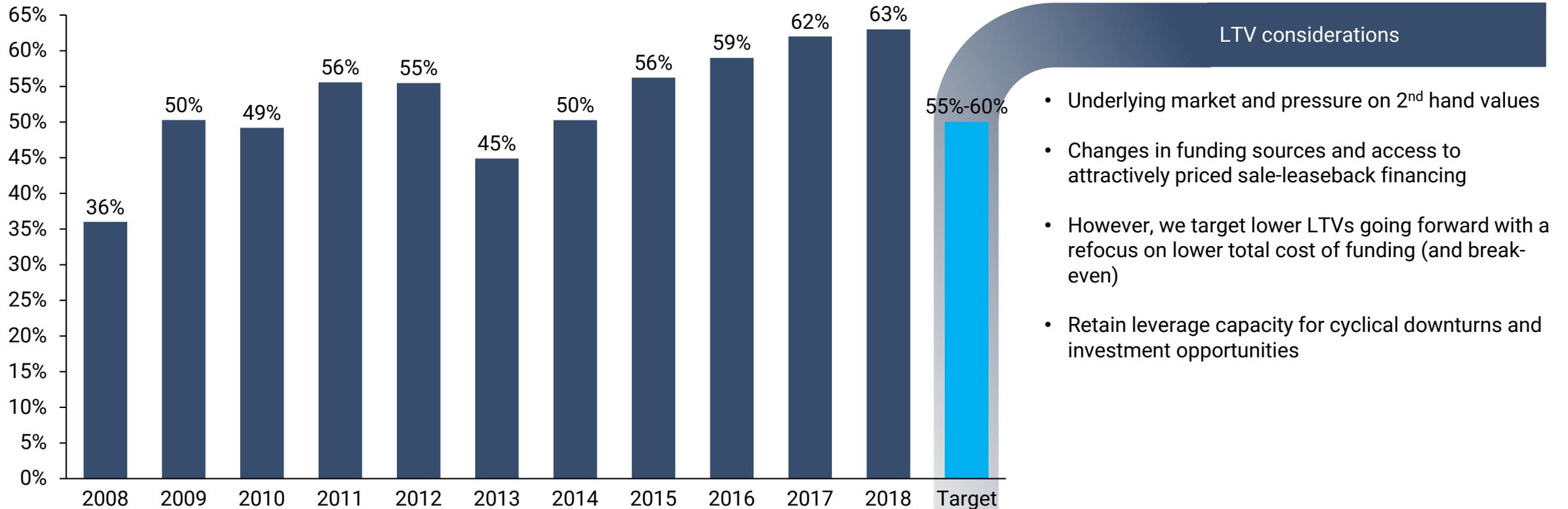
Odfjell P/BV vs Chemical producers



*Odfjell Tankers ROIC adjusted for savings related to Project Felix also pre-2015

10 years of weak markets has increased our loan-to-values and we target to reduce leverage going forward

Odfjell tankers : Historical loan-to-value

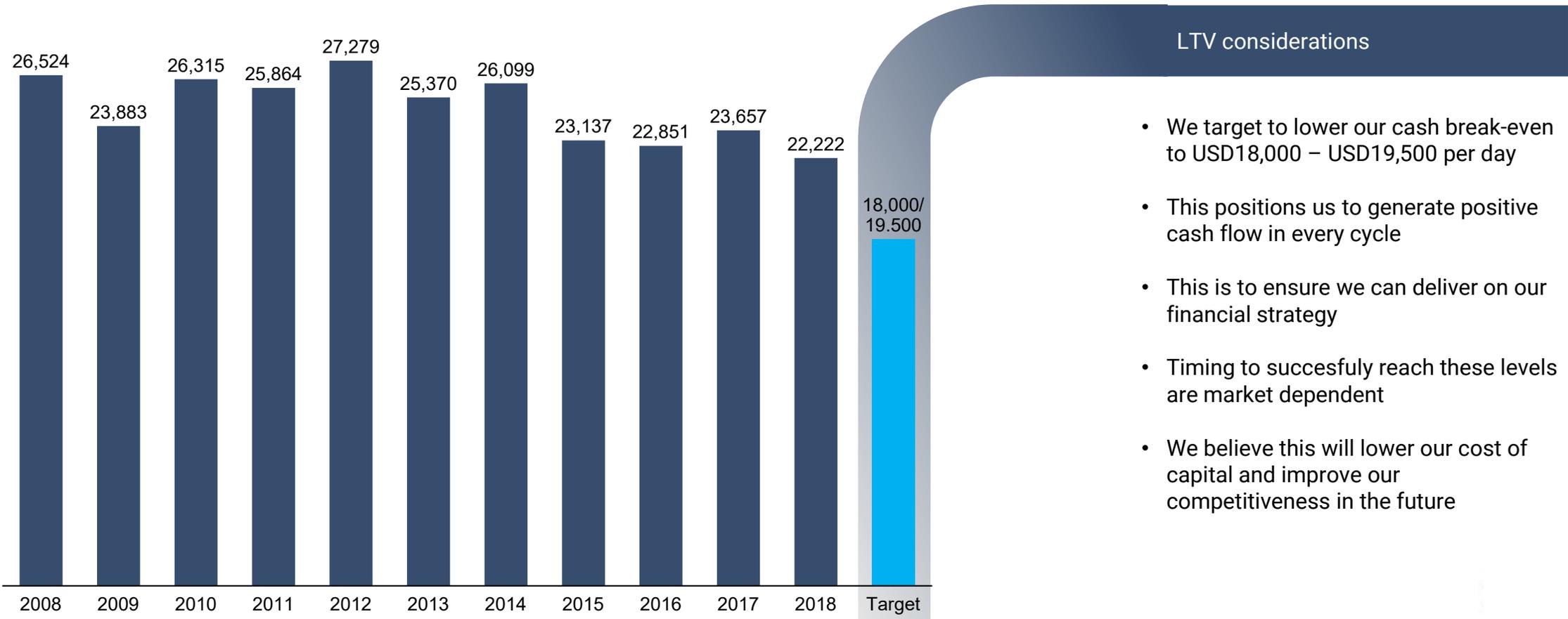


Odfjell continues to get strong support from close relationship banks – but debt markets have changed and we have to adapt to remain competitive

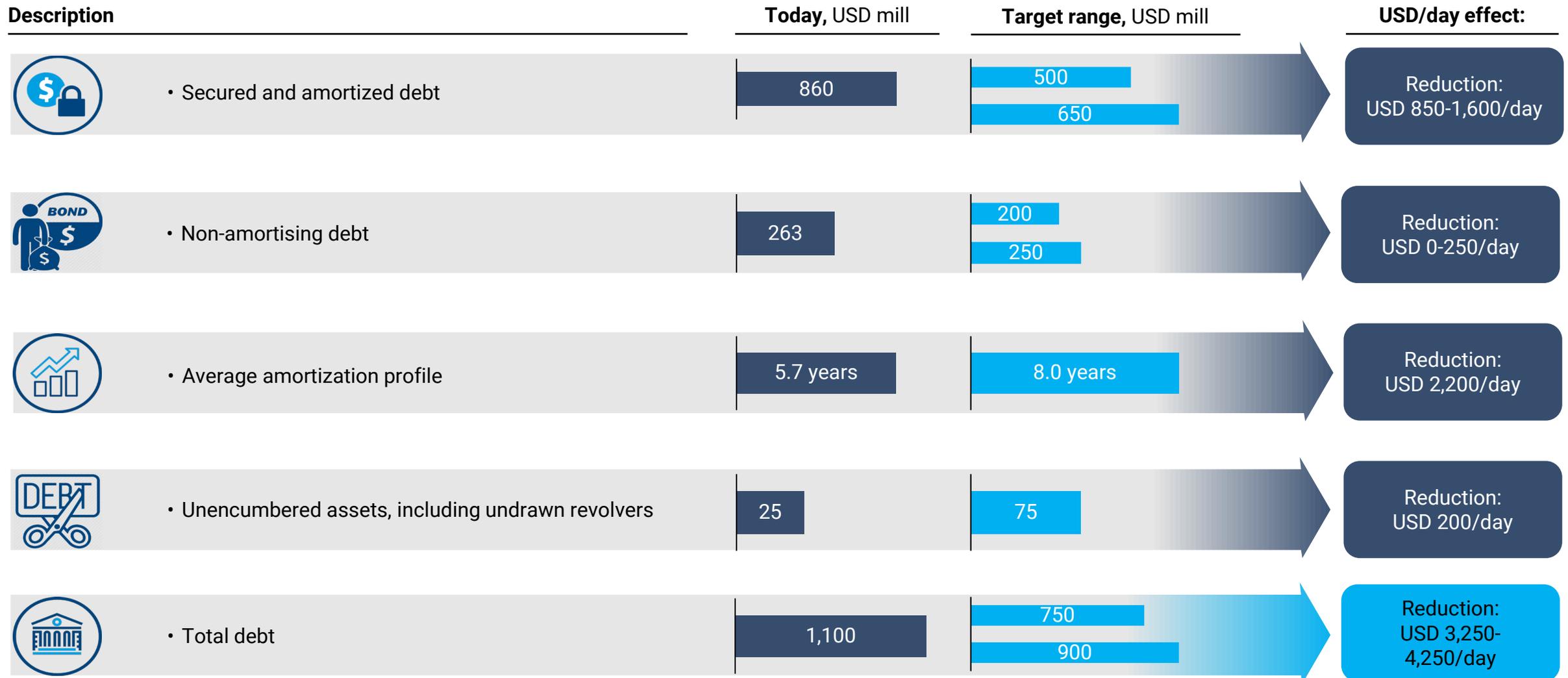
<p>Banks</p>	<ul style="list-style-type: none"> • Traditional shipping banks have reduced their exposure or exited the shipping space... • ... and Far East and Asian banks are moving up the league tables 	<table border="0"> <tr> <td>ODF IBD in 2009:</td> <td>ODF IBD in 2019:</td> </tr> <tr> <td>Bank loans: 60%</td> <td>Bank loans: 38%</td> </tr> <tr> <td>Finance lease: 20%</td> <td>Finance lease: 39%</td> </tr> <tr> <td>Bonds: 20%</td> <td>Bonds: 23%</td> </tr> </table>	ODF IBD in 2009:	ODF IBD in 2019:	Bank loans: 60%	Bank loans: 38%	Finance lease: 20%	Finance lease: 39%	Bonds: 20%	Bonds: 23%
ODF IBD in 2009:	ODF IBD in 2019:									
Bank loans: 60%	Bank loans: 38%									
Finance lease: 20%	Finance lease: 39%									
Bonds: 20%	Bonds: 23%									
<p>Age restrictions</p>	<ul style="list-style-type: none"> • Banks reluctant to offer attractive financing for older tonnage. Max. 20 year “target” for several lenders due to internal bank policies 	<p>Max. 20-25 years profile Substantial scrap value buffer retained in the group Average age of ODF fleet: 13yrs</p>								
<p>Pressure on margins on older tonnage</p>	<ul style="list-style-type: none"> • Lenders demands higher margins on older tonnage in order to compensate for higher capital ratio on “mature” vessels 	<p>~25 bps margin “premium” for longer profiles</p>								
<p>Odfjell impact</p>	<ul style="list-style-type: none"> • Steeper amortization profiles impacting our cash break-even as we repay loans over a shorter period of time and/or are pushed into the more expensive sale-leaseback markets 	<p>2019 “finance cost” per day: Mortgaged loans: ~USD 12,900 Finance lease existing vessels: ~USD 14,400 Finance lease new vessels ~ USD 13,425</p>								

Our long-term target is to reach a cash break-even level between USD 18,000/day and USD 19,500/day

Odfjell tankers : Historical break-even

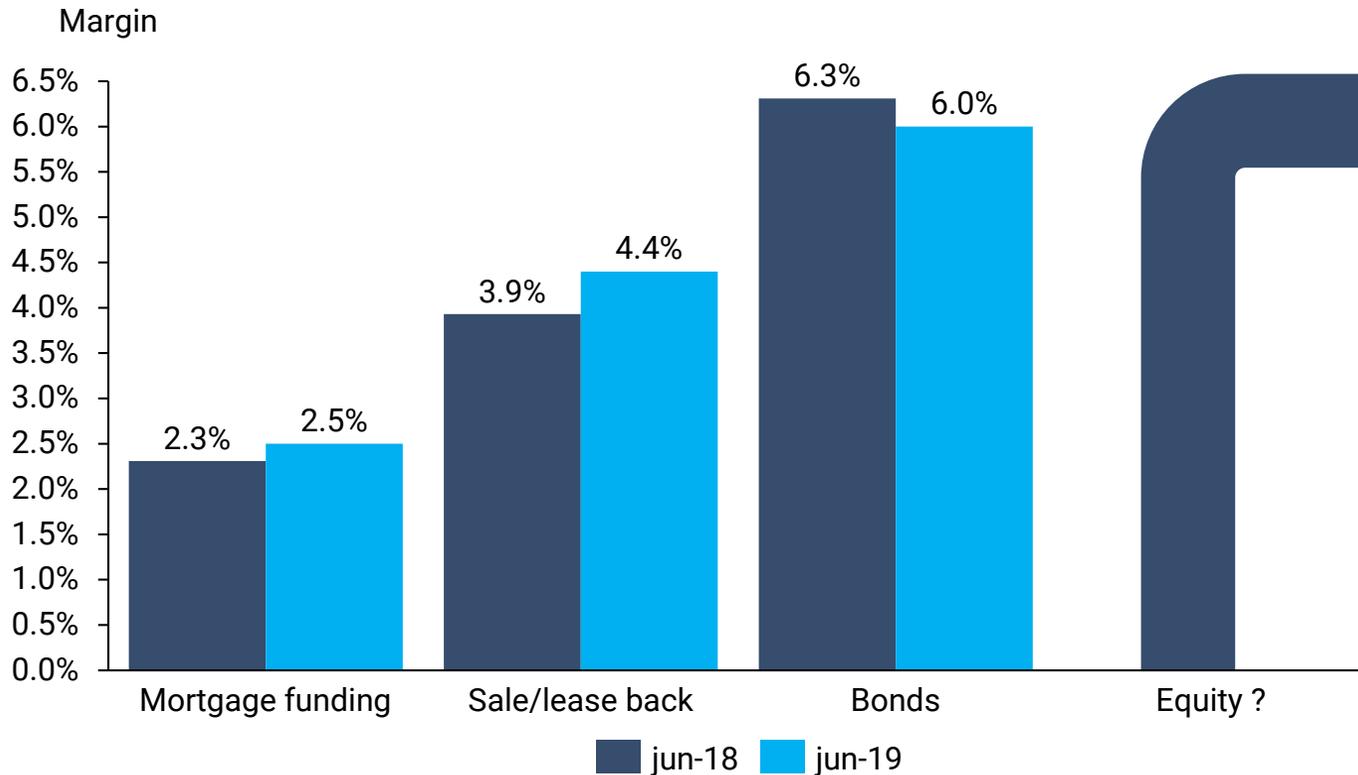


We are therefore targeting a future debt structure that ensures strong cash flow generation in every chemical tanker cycle...



...and our target is to have access to the equity capital markets as lowering our cost of equity is a key to lower our overall cost of capital

Funding sources



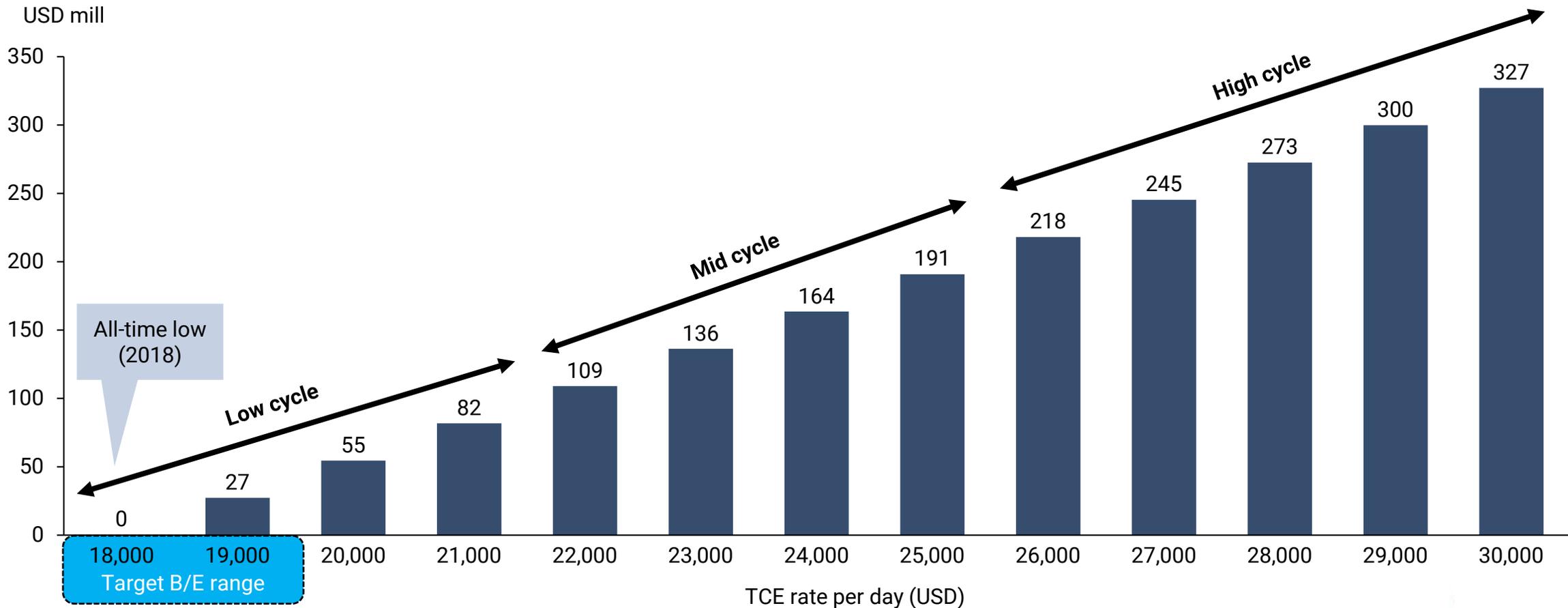
Equity

Odfjell Tankers external fleet valuation Dec-18 (USD mill) (excludes TC/BB vessels)	
Market value fleet	1,346
Equity instalments NB	54
Excess market value NB	79
Total	1,478
Odfjell Tankers vessel debt	878
Net fleet value	600
Odfjell Terminals Book value of equity Mar-19	
Odfjell Terminals equity value (Mar-19)	158

Source: Odfjell, Bloomberg, Steem 1960, * Valuation only accounts for Odfjell Tankers on-balance sheet vessels and their associated debt (i.e. no corporate or JV factors included)

Our long-term break-even target range translates into sustainable cash flow generation across all cycles

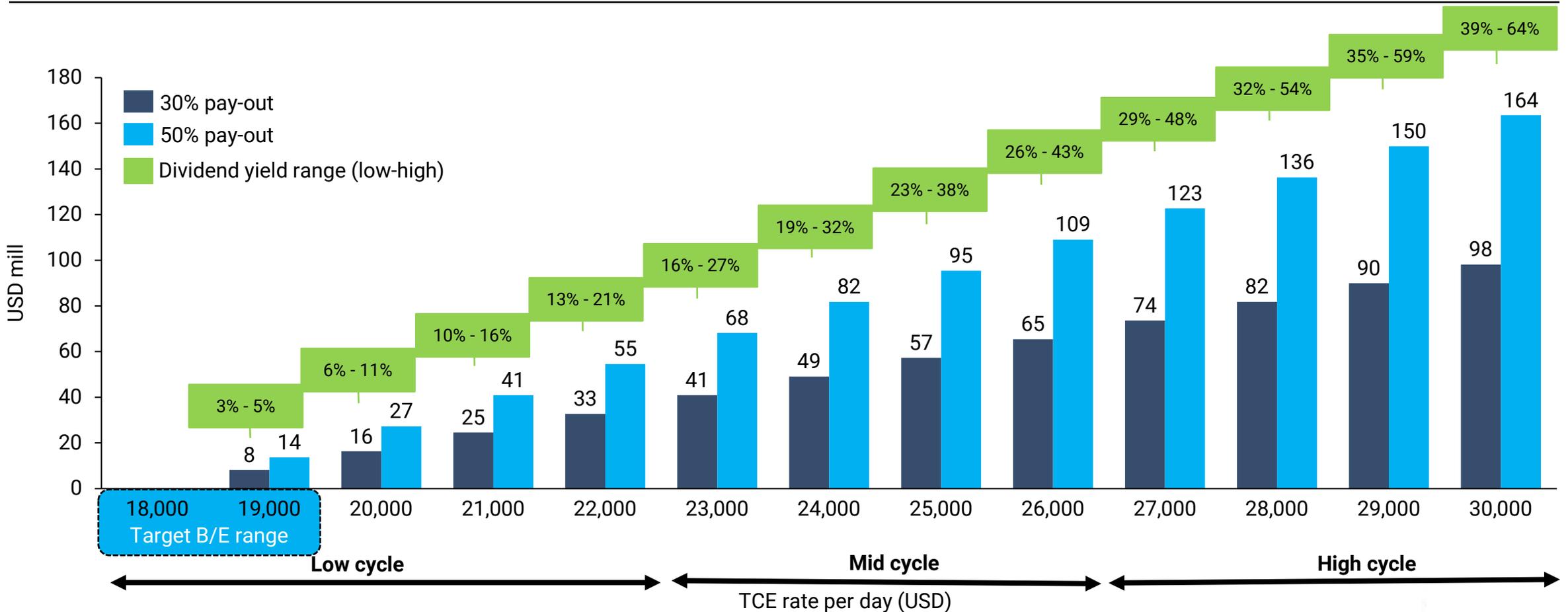
Odfjell Tankers : Cash flow in various rate scenarios and cycles



* Reflecting 2021 fleet composition (fully invested) and cash flow generated after all expenses paid (TCE revenues less opex, G&A, interest cost and 2021 amortisation schedule). Cash flow is based on how the fleet and capital structure would look like in 2021 as of today, and is therefore subject for change

These break-even levels will position us to distribute dividends to shareholders across the cycle...

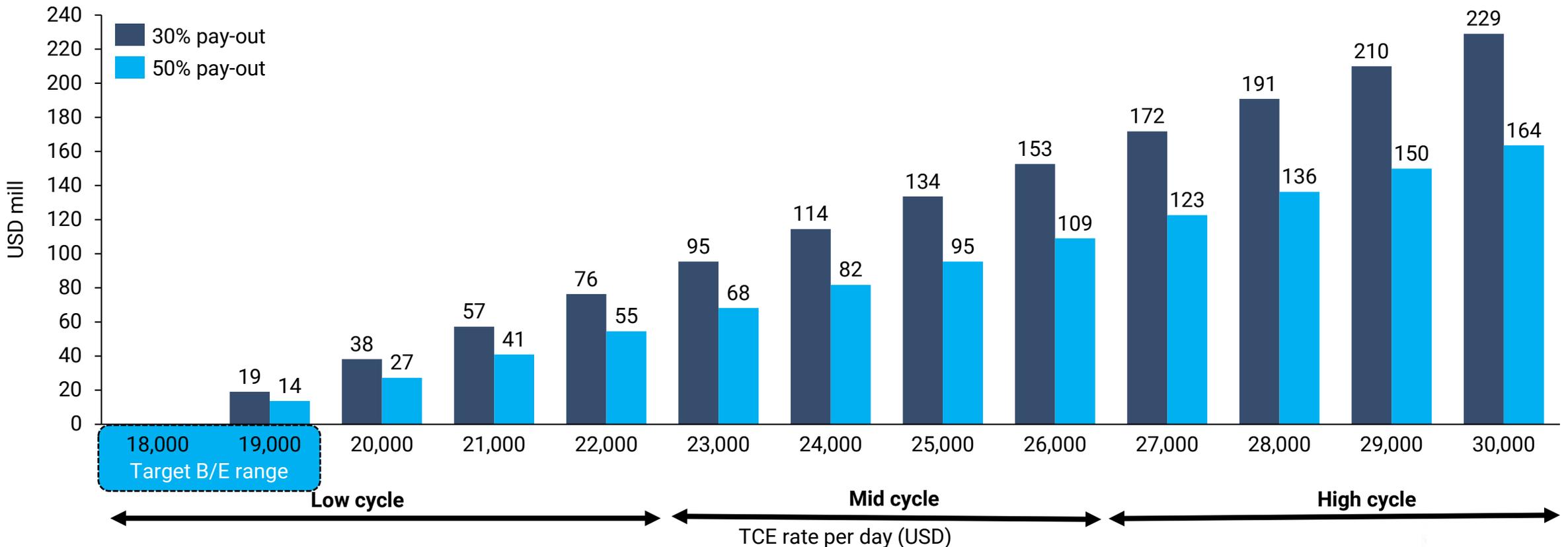
Odfjell Tankers : No dividend policy determined by Odfjell, but the below show dividend potential in various rate and pay-out scenarios across cycles



* Based on a break-even of USD18,000/day. Reflecting 2021 fleet composition (fully invested) and cash flow generated after all expenses paid (TCE revenues less opex, G&A, interest cost and 2021 amortisation schedule). Cash flow is based on how the fleet and capital structure would look like in 2021 as of today, and is therefore subject for change. Market cap based on closing price 28 May 2019 (NOK28.2) and USD/NOK8.73

...and at the same time generate sufficient cash for investments, debt balloons, extraordinary dividends and deleveraging if needed...

Odfjell Tankers : Excess cash potential in various rate and pay-out scenarios across cycles



* Based on a break-even of USD18,000/day. Reflecting 2021 fleet composition (fully invested) and cash flow generated after all expenses paid (TCE revenues less opex, G&A, interest cost and 2021 amortisation schedule). Cash flow is based on how the fleet and capital structure would look like in 2021 as of today, and is therefore subject for change.

An efficient capital structure is a key to succeed with our financial strategy



Capital Markets Day 2019

COO, Harald Fotland

Meeting the future with a competitive and flexible chemical tanker platform



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We have a zero incident ambition

Training

- Revised training program with enhanced focus on development of core competencies
- Three step leadership training program for senior officers
- Well integrated concept for onboard training and familiarization

Culture/ routines

- A unique safety quality system, developed and improved over decades
- Top tier retention rate for officers and crew
- Frequently consulted by class, maritime authorities, port authorities and manufacturers on issues related to transportation of liquid chemicals
- Open and honest dialogue promoted through a no blame culture
- Focus on safety programmes and campaigns, accompanied and followed-up by frequent onboard visits by responsible Superintendents and Senior Management

Data/ systems

- On-line monitoring of key vessel parameters
- Digitalized systems for cargo stowage, cleaning and condition monitoring
- Systematic monitoring of consumption, port performance, predictability, and reliability



Our commercial and operational platform is second to none in the industry



Marine Support Group

- Five dedicated cargo handling advisors at Head Office, offering support on board and within shore organization
- All with sea service time from our super segregators, as Captain or Chief Officer



Port Captains (Houston, Singapore, Dubai and Santos)

- Four Port Captains with strategic location, enabling trade specific guidance
- All with sea service time from our super segregators, as Captain or Chief Officer



Technical and Marine Superintendents

- Seventeen Superintendents at Head Office, coordinating daily activities with vessels
- 11 of 17 have sea service time from our super segregators. Captain/Chief Officer – Chief Engineer/2nd Engineer

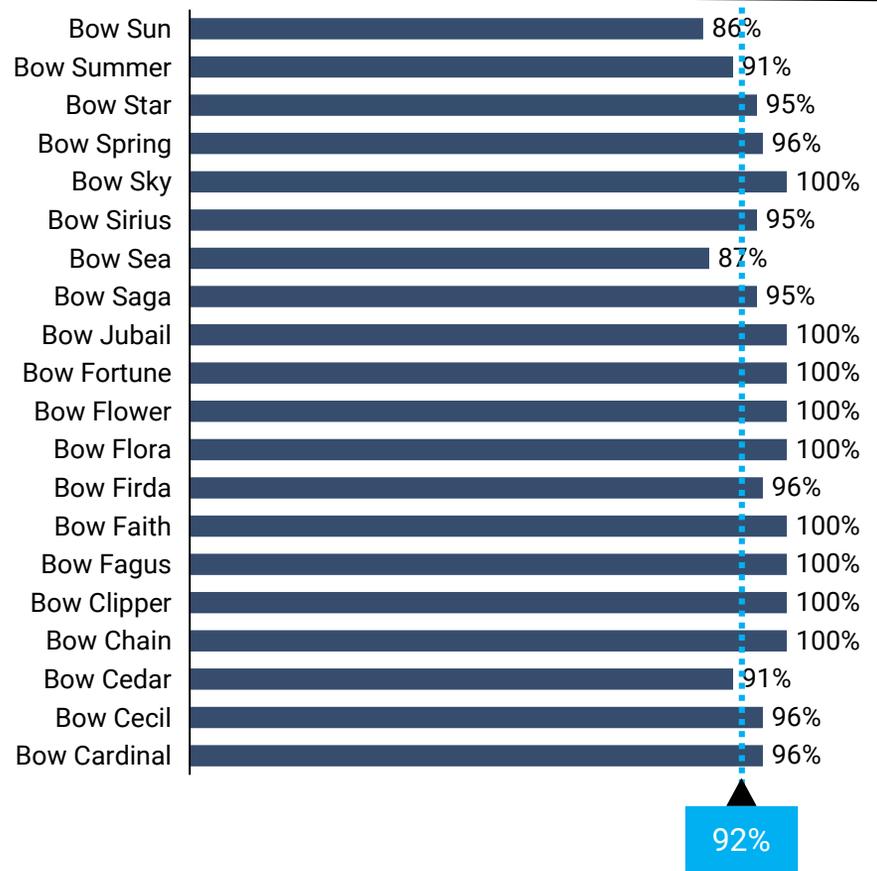


Vessel operators

- 21 operators at Head office
- 8 of 21 vessel operators at Head Office have sea service time from our super segregators, as Captain or Chief Officer

Our crews have unique familiarity with our super-segregators

Class familiarity

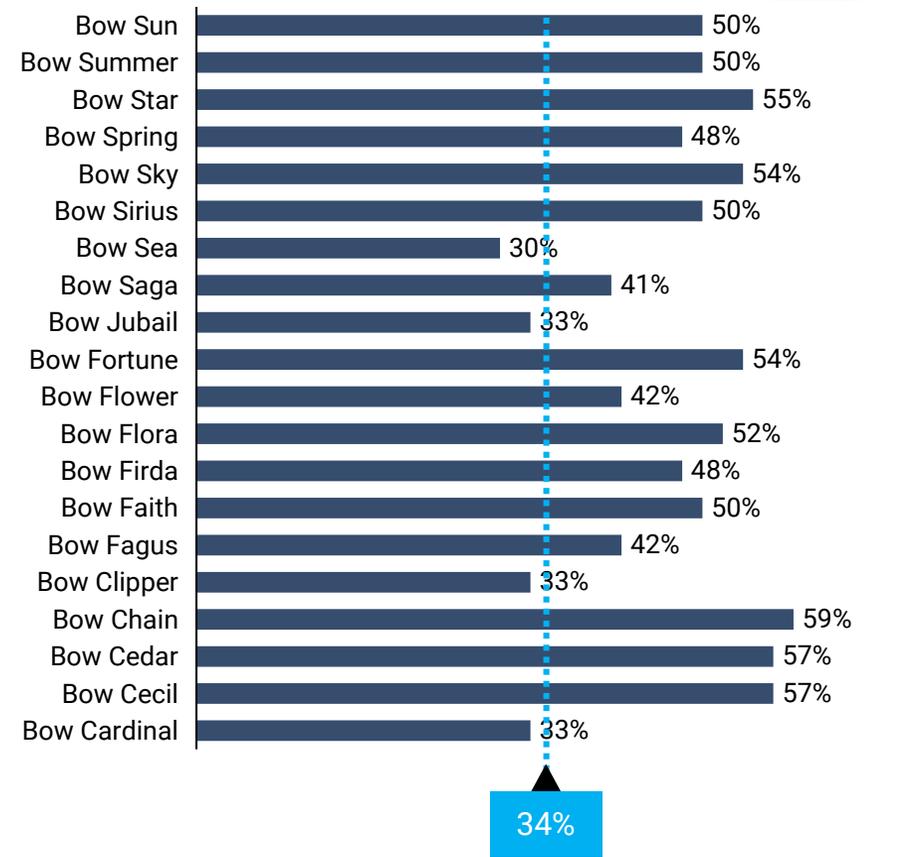


At least 24 of 26 crew members have served on board same class before

96% of all officers have served on board same class before

At least 12 of 26 crew members have served on board same vessel before

Specific vessel familiarity



Fleet performance is continuously improving for Odfjell vessels

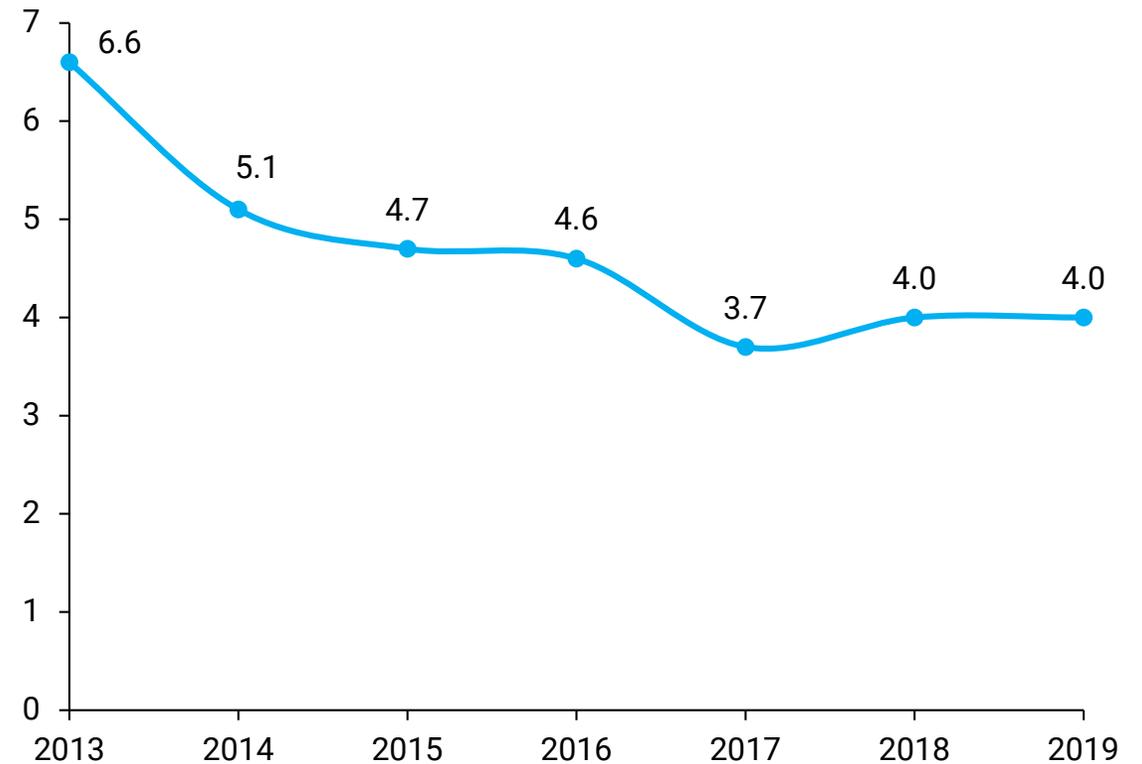
Rigorous focus on safety has led to continuous improvement in fleet performance

- Extensive training program
- Stringent assessment prior to promotions
- Company-wide knowledge sharing of “lessons learned”
- Improved vessel monitoring system

CDI & SIRE inspections

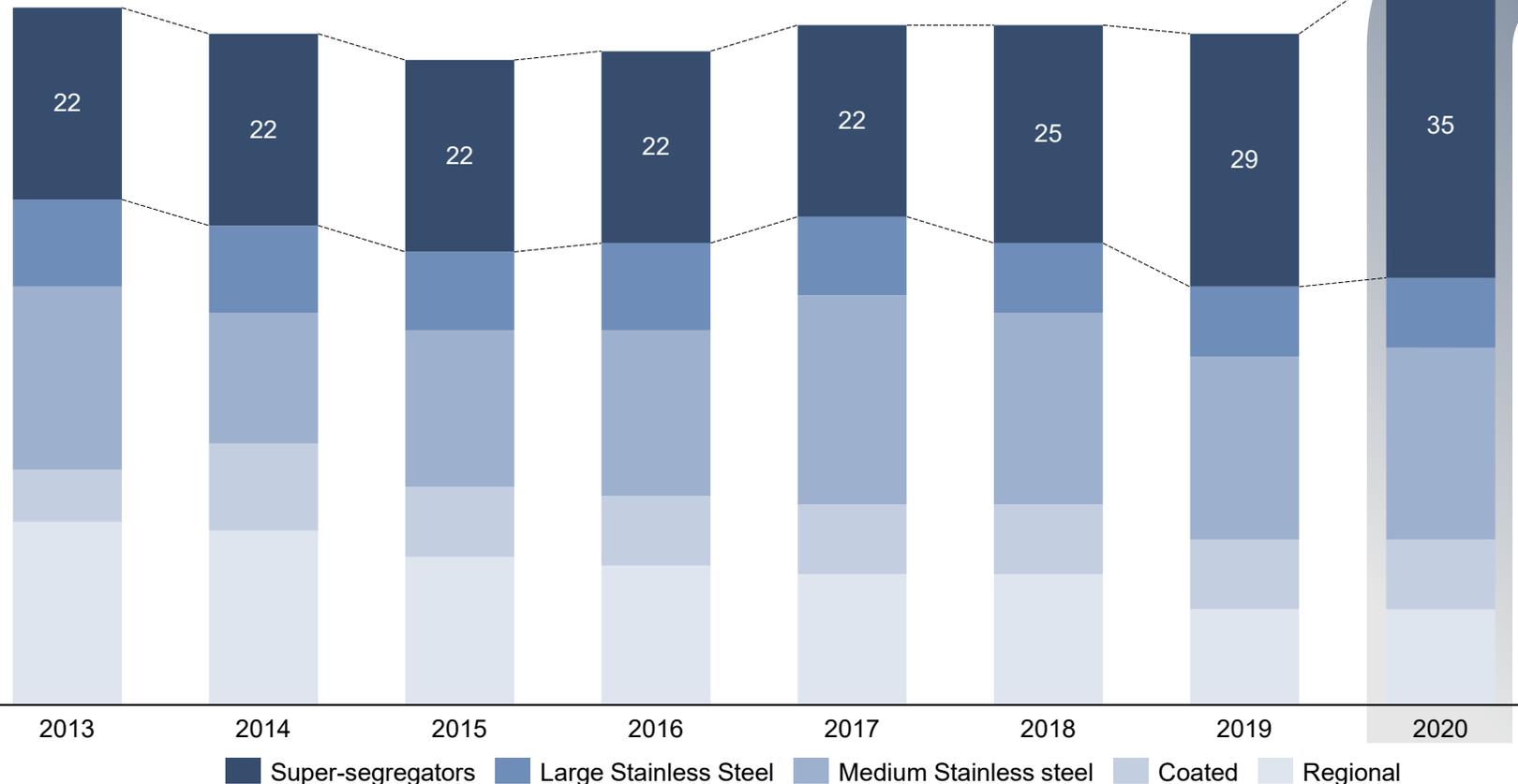
- All ships under Odfjell management participate in both the Chemical Distribution Institute and Ship Inspection Report Program inspection regime
- The scores are assessment of compliance at the time of the inspection

Fleet performance all Odfjell vessels, Average number of observations CDI & SIRE



We are growing our super-segregator fleet which adapts our fleet to the evolution of the super-segregator trade

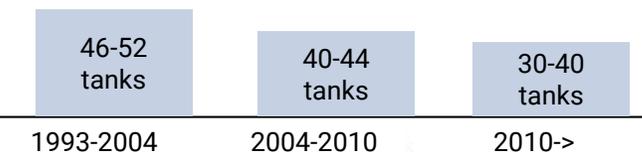
Odfjell Tankers: Fleet development by vessel type



Comments:

- Adapting to the evolution of the super-segregator trade
- Stronger margins through higher share of speciality chemicals shipped
- Size matters – We are able to satisfy customer needs globally
- Improved flexibility through more cargo space and tanks
- Increased exposure to strong demand for deep-sea shipments

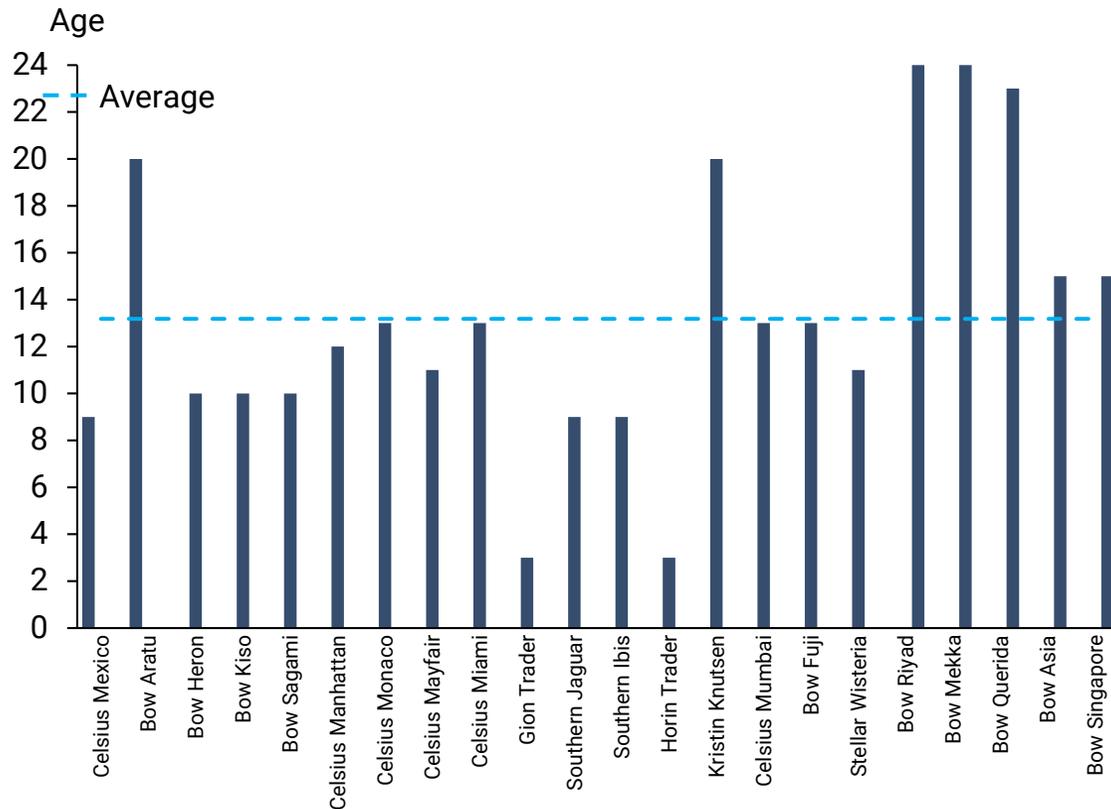
Maturity of super-segregator trade by no of tanks



* Fleet as of year-end. 2019 and 2020 fleet assumes renewals of all our current short-term TC

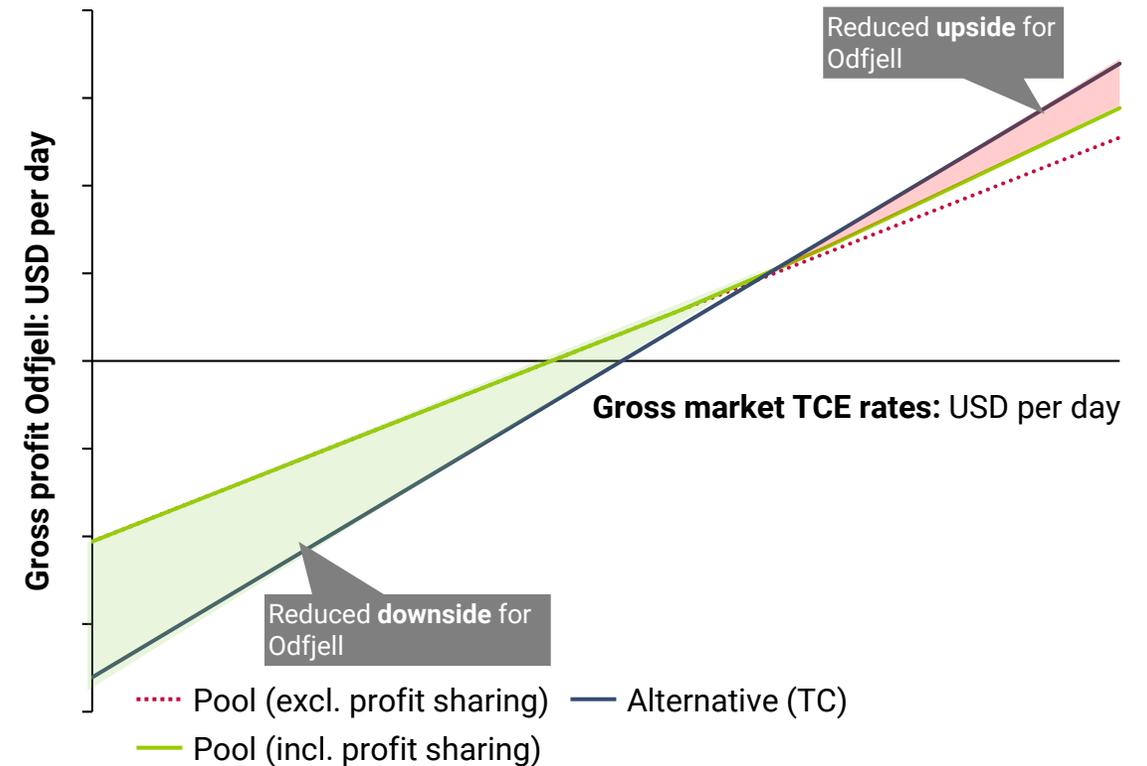
We have redelivered older inefficient vessels on charter of which some have been replaced by efficient pool vessels with valuable economics for Odfjell

TC/BB redeliveries in 2017-2019:



Average age of TC/BB redeliveries of 13 years

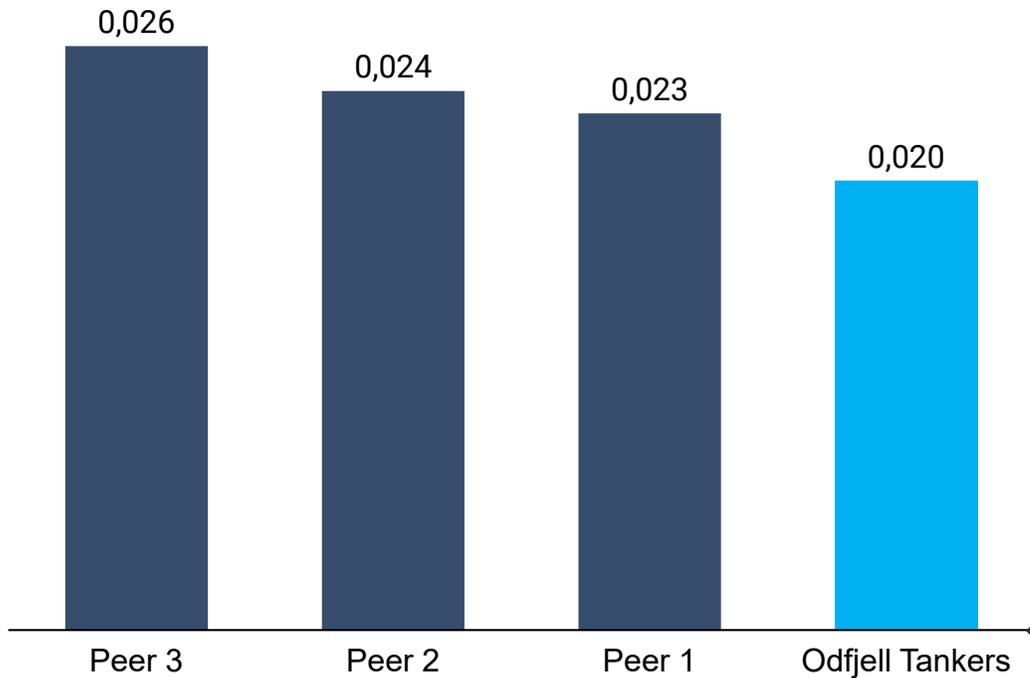
Pool set up explained:



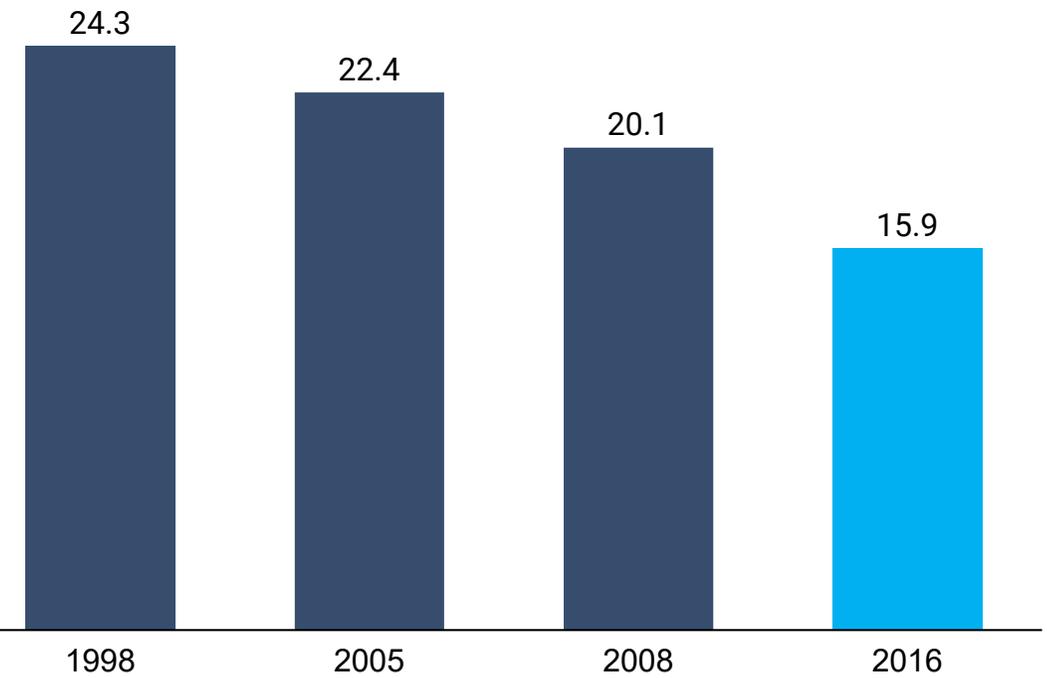
Pool significantly reduces downside vs external vessels on normal TC and only some upside is capped in very favorable market conditions

We operate one of the world's most fuel-efficient stainless-steel tanker fleets

Energy efficiency index: Odfjell vs peers



J19 fuel consumption by year of construction*

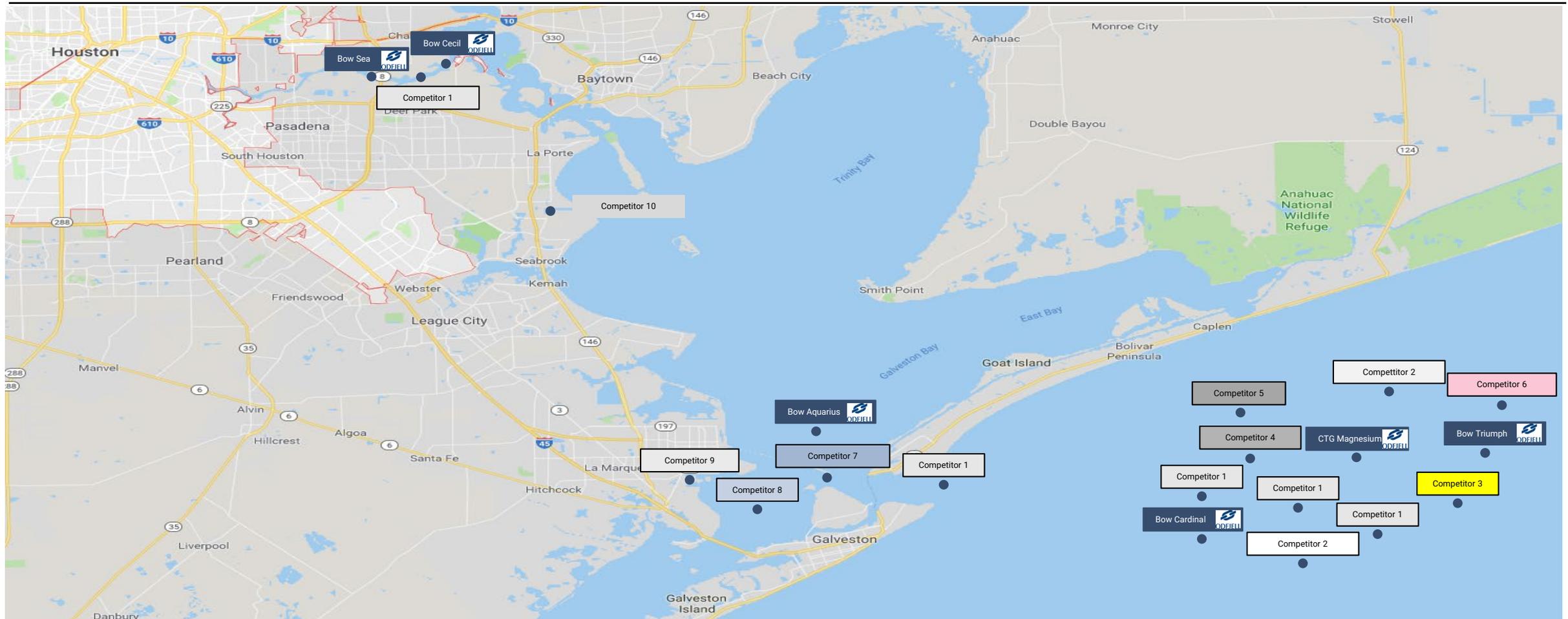


- The efficiency index measures how cost effective our fleet is relative to peers. This ensures that Odfjell is a natural counterpart for chemical majors competing in a commoditized market, where Odfjell ensures that they can remain competitive
- There has been major changes in fuel consumption of basic chemical tankers the last 20 years. This creates higher barriers for older tonnage to compete with modern tonnage. Odfjell is therefore constantly focused on improving the efficiency and performance of our fleet

*There are larger variations of fuel consumption within vessel classes

A large and global platform ensures that we can meet our customers various demands by being flexible and able to solve their logistical needs

Port of Houston May 2019



- Only two players with more than two vessels in the area, a third player with two vessels and remainder of competition has one vessel

Our positioning for IMO 2020 from an operational perspective

Odfjell's position

- We are preparing our fleet to consume new 0.5% compliant fuel from January 2020

Fuel consumption and exposure

- 50-60 per cent of our consumption is passed on to customers through bunker adjustment charges in contracts
- 15 per cent of our consumption is MGO and this is expected to be stable into 2020
- This leaves Odfjell exposed to uncertain pricing of new compliant fuel for 25 to 35 per cent of our consumption from January 2020

Preparations

- Preparations has been ongoing since 2016
- Testing of new compliant fuel has been conducted on several vessels from various suppliers
- A number of suppliers in need of emptying storage tanks for HFO in 4Q and we are prepared to consume compliant fuel earlier if needed

Risk Management

- Risk Management team is established, and we will keep track on every bunker tank and reduce possibility of "pocket fuel" onboard
- Continue bunker detective surveys as usual to ensure correct ROB is reported

Bunker Adjustment charges

- Odfjell are committed to our customers and promote transparency into how we calculate the bunker adjustment charges (BAC)
- We expect increased bunker costs to reflect the new compliant fuel and increased bunker costs will be passed on to customers

Fuel availability

- IMO 2020 regulation set result in a clamp down of HFO bunkering infrastructure due to a dramatic drop in demand for HFO at ports
- We bunker 80% of our volumes in 10 ports where new compliant fuel is available. In smaller ports, MGO will be available and there are expectations that new fuel alternatively will be shipped if there's an available margin

Competitors

- Limited number of scrubbers installed onboard chemical tankers and our scrubber study concludes that its not an option for us today
- Odfjell is therefore focused on other measurements to achieve a competitive advantage as bunker dynamics are changing

Digitalization is high on the agenda in Odfjell to make our operations and customer interaction less time-consuming

Live demonstration made at CMD venue

Summary

Platform

- Our commercial and operational platform is second to none in the industry

Fleet growth

- The fleet growth within super-segregators is important to improve our scale and flexibility to meet customer demands

Competitiveness

- We are confident that we are now controlling one of the world's most efficient stainless-steel vessels that makes us highly competitive

IMO 2020

- We are well prepared for IMO 2020 operationally and we consider the regulations as an opportunity to improve our competitiveness further

Swing tonnage

- Our fleet can carry "everything" and we are prepared to take advantage of improved CPP markets



Capital Markets Day 2019

Research, Bjørn Kristian Røed

Market outlook



ODFJELL

2018 and was another year of strong demand within our segment

	Product	Seaborne trade (MT mill.)			Average nautical miles			Tonne-miles (Billions)			Tonne-mile growth (%)			Trend 2019-21	 GDP (+)  GDP  GDP (-)
		2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018		
Organic	Methanol	27.8	27.7	29.0	3,984	4,119	3,966	110.8	113.0	113.0	15%	3%	1%	↑	
	Para-xylene/Xylenes	19.4	20.8	22.6	1,858	1,788	1,907	36.0	34.3	34.3	13%	3%	16%	→	
	Ethylene Glycol	12.2	14.2	14.8	4,414	4,408	4,486	53.9	57.6	57.6	-4%	16%	6%	↑	
	Styrene	8.1	8.0	7.2	3,304	3,050	3,250	26.8	23.0	23.0	7%	-9%	-4%	↓	
	Benzene	6.9	7.8	8.2	3,055	2,577	2,963	21.1	17.4	17.4	-23%	-5%	21%	↗	
	MTBE	6.3	6.5	6.0	4,211	4,415	4,533	26.5	25.6	25.6	14%	8%	-5%	↓	
	Ethylene Dichloride	2.9	3.2	3.1	6,100	5,469	4,806	17.7	17.2	17.2	5%	-1%	-15%	↗	
Inorganic	Toluene	2.9	2.9	2.9	1,926	1,690	1,655	5.6	4.8	4.8	6%	-12%	-2%	↓	
	Sulphuric Acid	12.6	14.1	15.0	2,575	2,709	3,127	32.4	34.4	34.4	-9%	18%	23%	↗	
	Caustic Soda	10.4	11.6	11.2	4,455	4,655	4,464	46.3	53.5	53.5	13%	16%	-7%	↑	
Vegoil	Phosphoric Acid	5.1	5.4	5.4	4,926	4,815	4,778	25.1	23.4	23.4	20%	4%	-1%	→	
	Palm oil	40.4	48.5	51.8	3,608	3,433	3,618	145.8	151.7	151.7	-11%	1%	13%	↑	
	Soybean Oil	10.7	10.4	11.2	6,431	6,010	5,477	68.8	69.6	69.6	-4%	-11%	-2%	→	
Other	Sunflower Oil	8.4	9.8	9.0	3,670	3,694	3,644	30.8	38.9	38.9	19%	17%	-9%	→	
	Ethanol	6.8	7.6	8.8	5,373	4,671	5,068	36.5	36.4	36.4	23%	-3%	26%	↑	
	Molasses	5.2	5.0	5.0	3,069	2,960	2,880	16.0	17.8	17.8	-1%	-7%	-3%	→	
	Others	47.2	47.2	49.9	3,359	3,483	3,454	158.6	164.3	172.2	-2%	4%	5%	↗	
	Total	239.1	247.8	259.4	3,857	3,795	3,776	922.3	940.5	979.7	2%	2%	4%	↑	

The chemical mega-trends highlighted keeps affecting our markets and will continue to do so going forward

Crude vs Natural gas

+

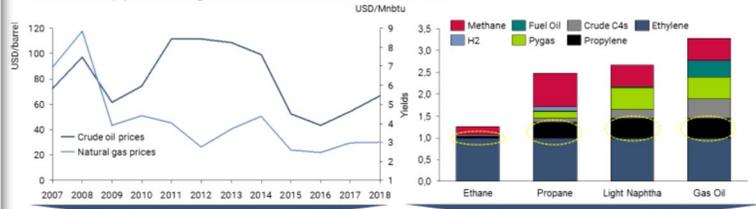
US Shale

+

Vertical integration

+

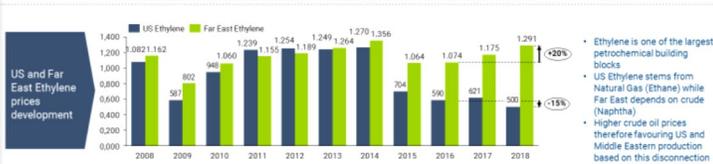
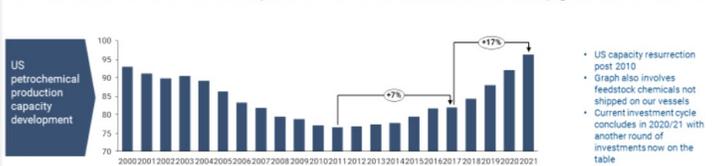
Changes in the energy markets impacts production, consumption and technology developments in various markets



- US shale gas revolution has disconnected US gas and global crude oil prices
- This has led to a surge in chemical investments sourced from natural gas in recent years
- The oil price drop in 2015 reduced the competitiveness of natural gas based chemicals versus crude/naphtha based chemicals...
- ...Just like the increase in oil prices in 2018 improves competitiveness for gas based chemicals again...
- Gas based chemicals are mainly produced in the US and Middle East with Asian chemicals are mainly crude based. These regional differences makes energy markets important to monitor future long-haul trades of chemicals

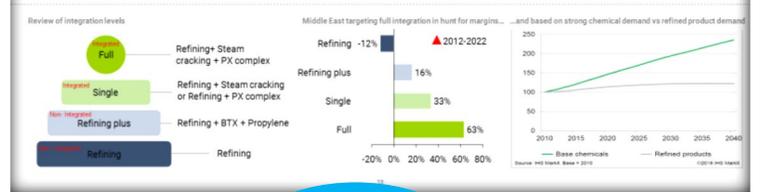
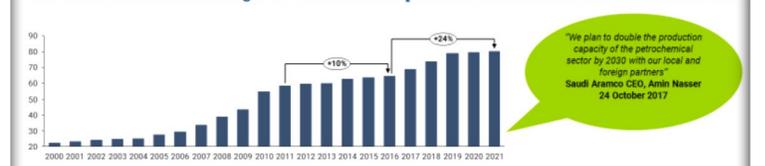
- The shale revolution has led to a surge in ethane based crackers.
- This is driven by abundant supply and competitive prices
- This change of trend has had meaningful knock-on effect on other type of production of chemicals because
 - Ethane yields no propylene (another important chemical building block)
 - This has led to a shortage of Propylene which has led to on purpose production technologies like MTBE and POH and to chemicals among others
- This was all driven by changes in crude and natural gas price dynamics

US shale revolution moved the US chemical industry from "dinosaur" state to a boom mode with availability of the world's most attractively priced feedstock



- US capacity resurrection post 2010
- Graph also involves feedstock chemicals not shipped on our vessels
- Current investment cycle concludes in 2020/21 with another round of investments now on the table
- Ethylene is one of the largest petrochemical building blocks
- US Ethylene stems from Natural Gas (Ethane) while Far East depends on crude (Naphtha)
- Higher crude oil prices therefore favouring US and Middle Eastern production based on this disconnection

Strong outlook for petrochemical demand and a wish to maximise the value of its barrels has led to large investments in production facilities in the Middle East



"We plan to double the production capacity of the petrochemical sector by 2030 with our local and foreign partners"
Saudí Aramco CEO, Amin Nasser
24 October 2017

China domestic capacity

-

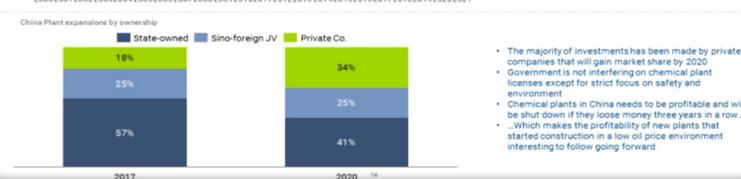
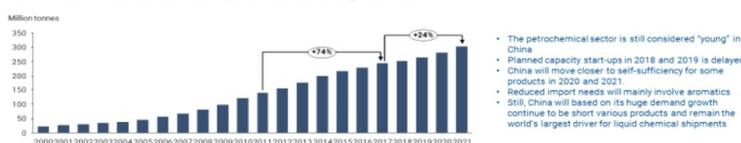
"War on pollution"

+

EV & Mobility

?

China wants exposure to a longer part of the value chain and is pushing towards self-sufficiency of selected products...



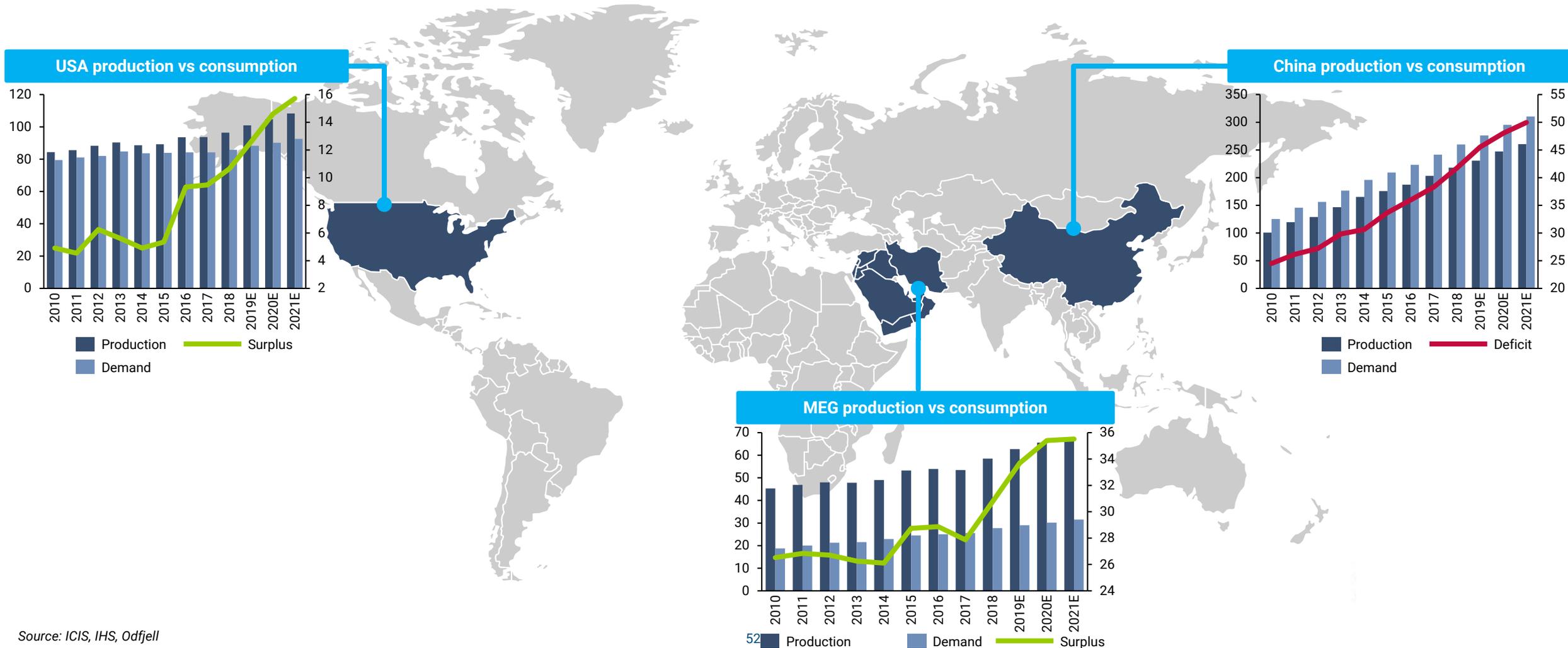
- The petrochemical sector is still considered "young" in China
- Planned capacity start-ups in 2018 and 2019 is delayed
- China will move closer to self-sufficiency for some products in 2020 and 2021.
- Reduced import needs will mainly involve aromatics
- Still, China will based on its huge demand growth continue to be short various products and remain the world's largest driver for liquid chemical shipments
- The majority of investments has been made by private companies that will gain market share by 2020
- Government is not interfering on chemical plant licenses except for strict focus on safety and environment
- Chemical plants in China needs to be profitable and will be shut down if they lose money three years in a row...
- ...Which makes the profitability of new plants that started construction in a low oil price environment interesting to follow going forward

...However, China's war on pollution is countering the expansions, hiking prices and hiking import demand for key liquid chemicals

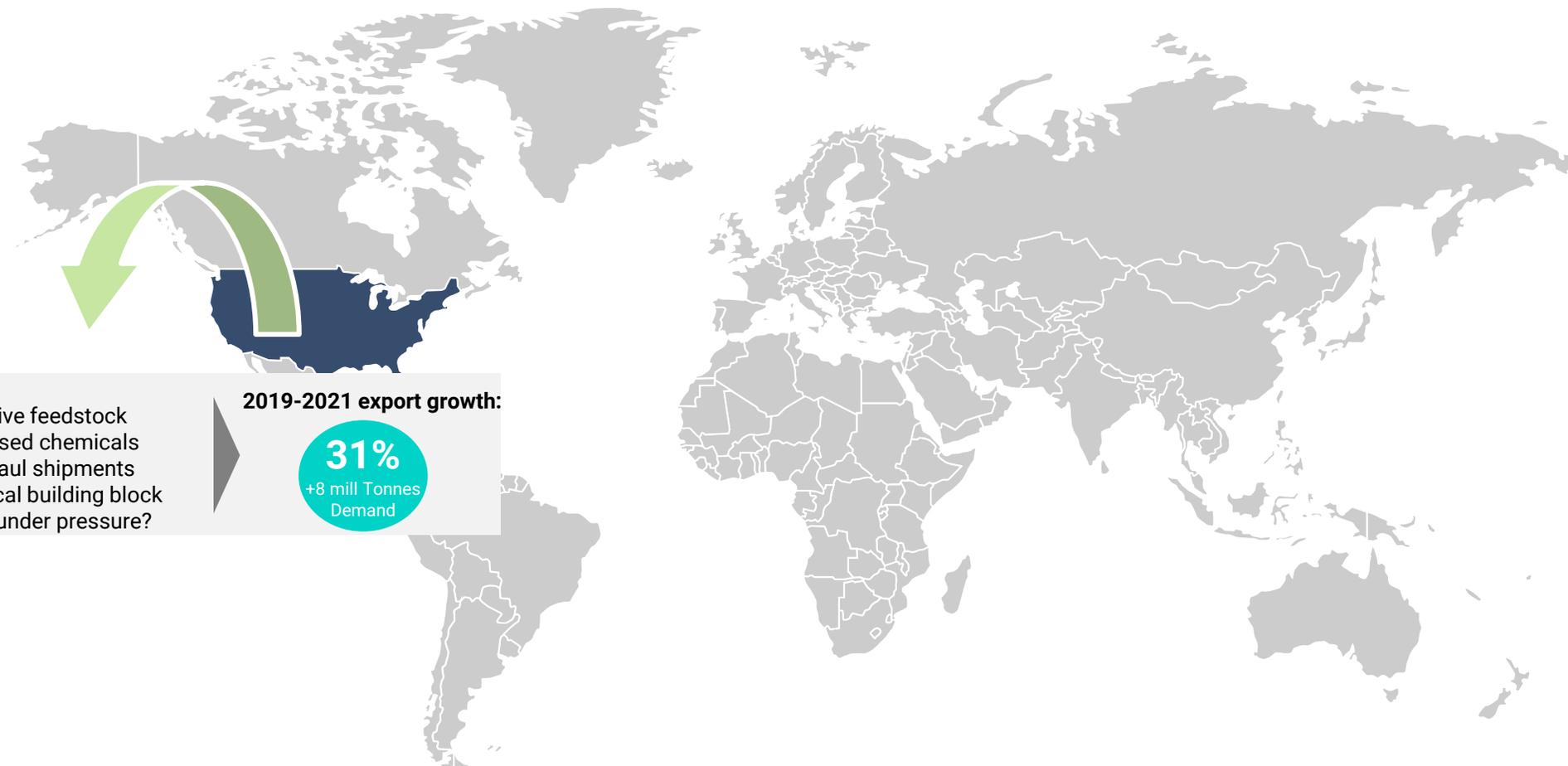
The rise of electrical vehicle and car sharing could be the next disrupting factor for our markets - There will be both winners and losers

Three areas evolving as main hubs for production of liquid chemicals and therefore also main hubs for seaborne trade of chemicals

Production vs consumption and surplus/deficit development in key chemical production hubs, MT millions



Three main areas evolving as key chemical hubs for seaborne trade - US



USA

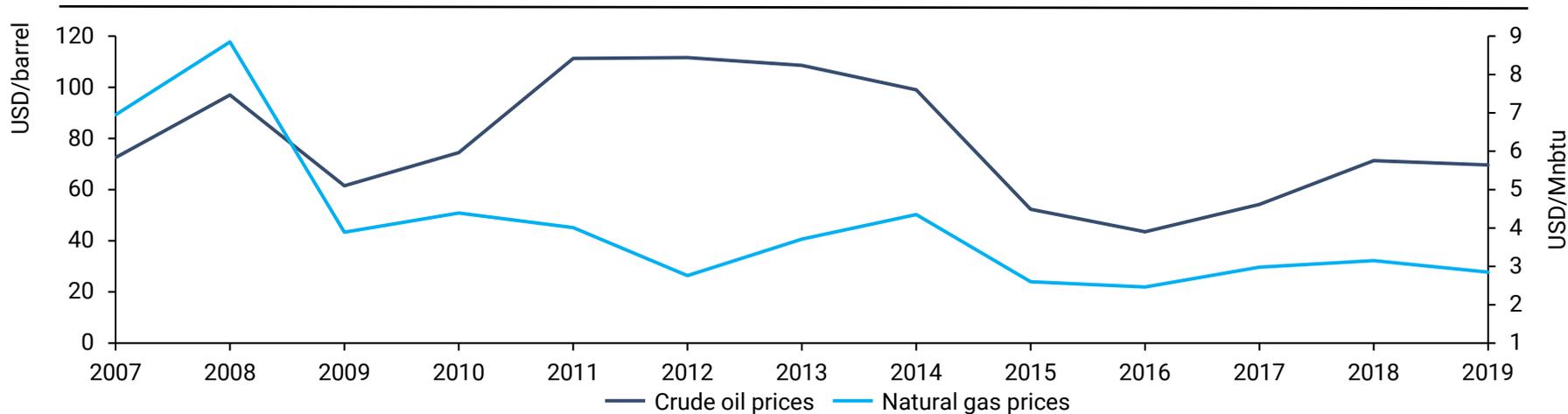
Drivers:

- Attractive feedstock
- Gas based chemicals
- Long-haul shipments
- Chemical building block prices under pressure?

2019-2021 export growth:**31%**+8 mill Tonnes
Demand

US gas based chemical producers benefitting from higher oil price – Potential oversupply in Ethylene and PE could push feedstock prices even lower

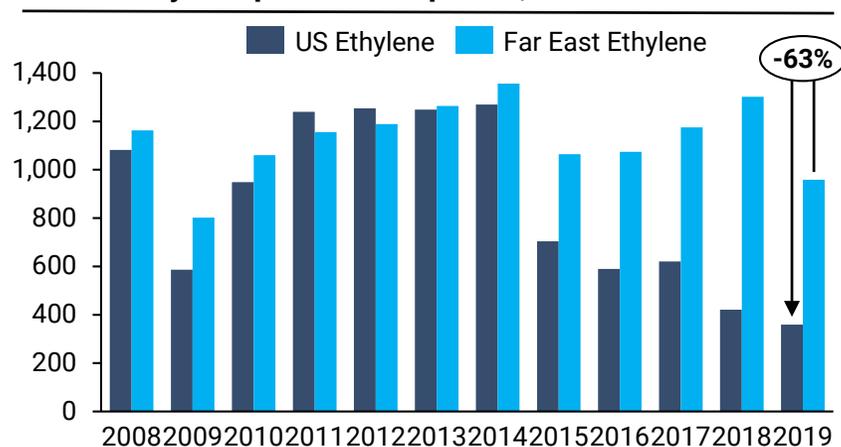
Crude oil and natural gas prices



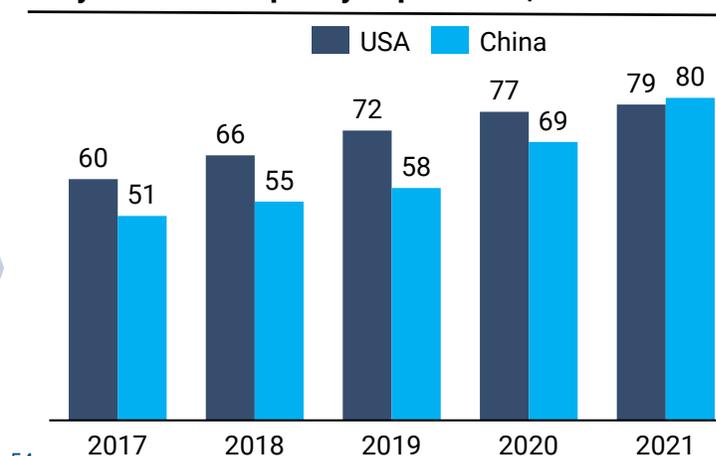
Comment

- Higher oil price has improved competitiveness for US gas based chemical producers
- Numerous talks of a 2nd “investment wave” with higher oil prices...
- ...But macro uncertainty has limited new investments...
- ...But a new wave of investments not a question of if but when

Global ethylene price development, USD/tonne



Ethylene & PE capacity expansions, Mt millions

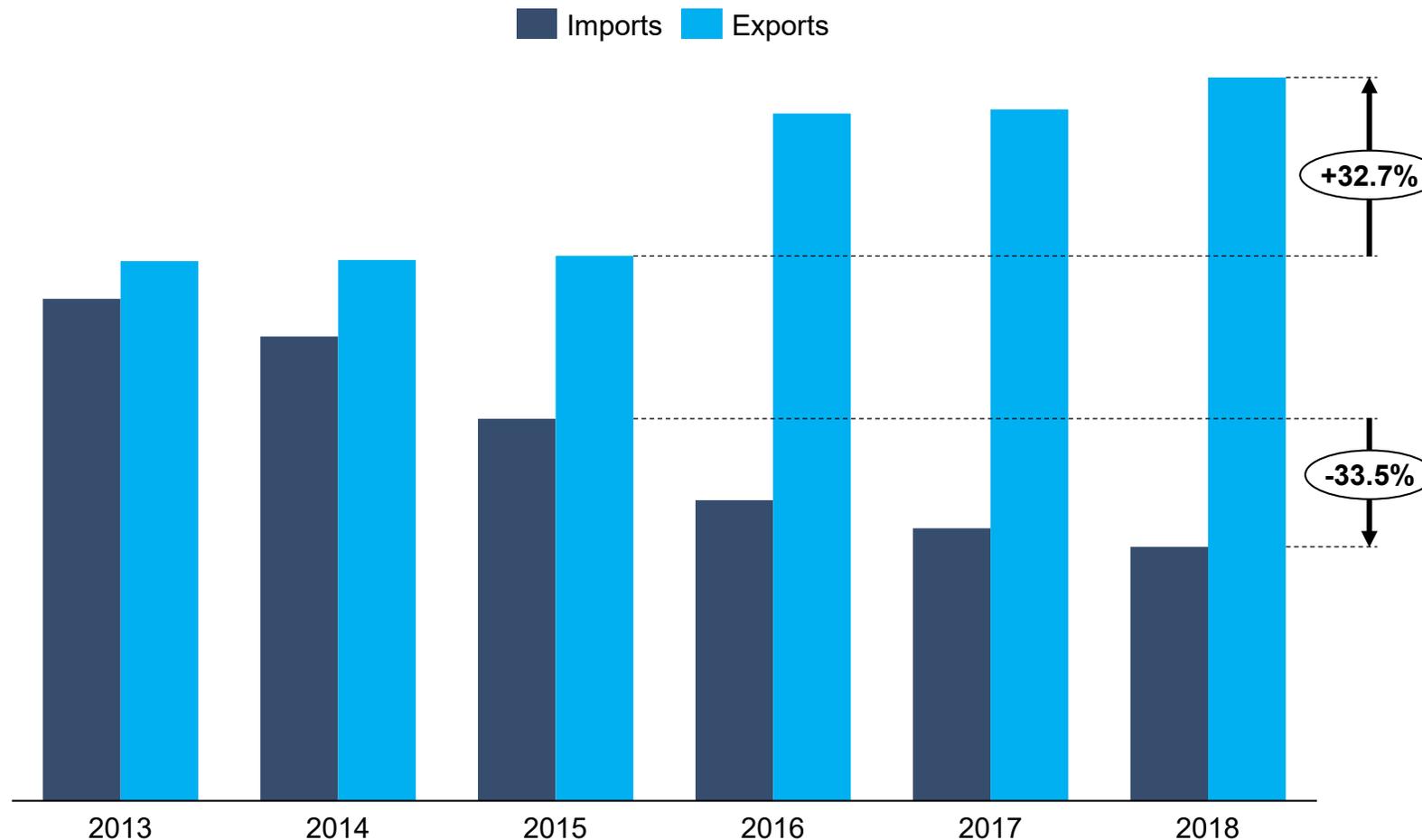


Comment

- US based producers reaping the benefit from low cost natural gas feedstock relative to Asia...
- ...But there are risks of oversupply of Ethylene and the largest derivative, Polyethylene (PE)...
- ...And PE which comes in solid form is also impacted by Chinese tariffs...
- ...This could put further pressure on Ethylene prices in the US

Increased US exports has not had a meaningful impact on chemical tankers due to replacement of imports yet...

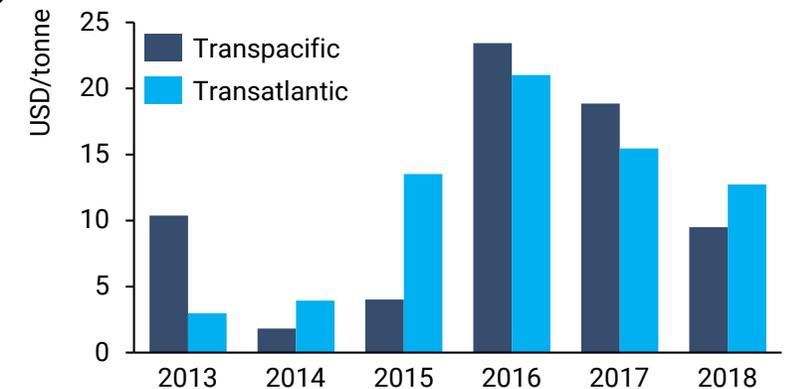
US import/export development for relevant liquid chemicals



Comment:

- Larger investments in liquid chemical facilities has mainly replaced imports since 2015...
- Despite increased exports, the net effect has therefore been minimal...
- ...And more a negative as this has created intense supply pressure on the back-haul routes to the US...

Front haul rates less back haul rates



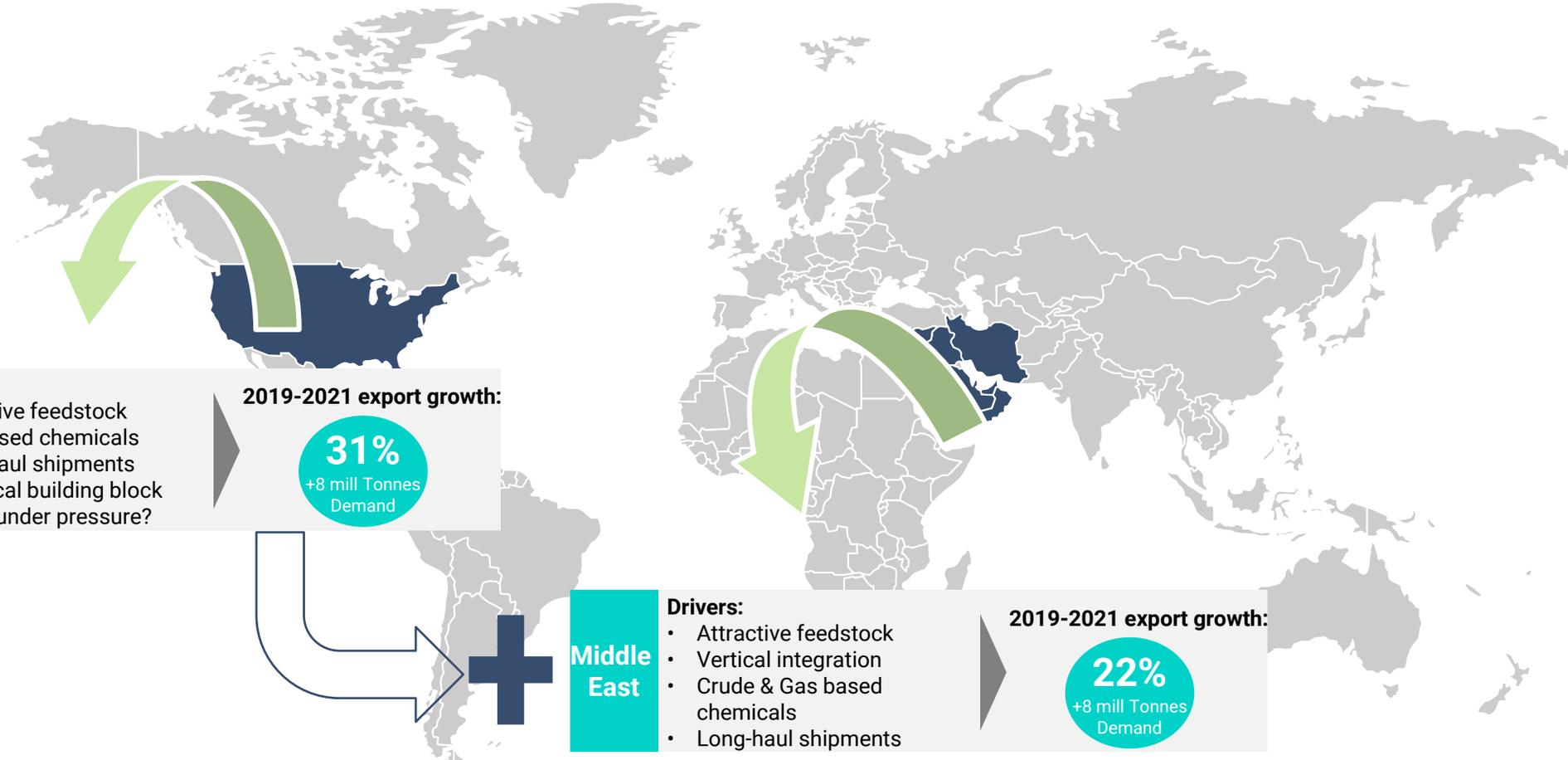
...But we are now standing at the cusp of the first wave of new export oriented liquid chemical plants to commence operations in the Atlantic

Region	Country	Company	Product	Start-up	Capacity (ktonnes)
Americas	USA	Natgasoline	Methanol	Aug-18	1750
Americas	USA	Shintech	EDC	Mar-19	250
Americas	Chile	Methanex	Methanol	Jun-19	600
Americas	USA	Sasol	Ethylene Glycol	Sep-19	250
Americas	USA	Lotte	Ethylene Glycol	Sep-19	700
Americas	USA	ME Global	Ethylene Glycol	Sep-19	700
Americas	Trinidad	MHTL	Methanol	Sep-19	900
Americas	USA	BASF	Aniline	Nov-19	250
Americas	USA	Formosa	Ethylene Glycol	Dec-19	750
Americas	USA	BASF	MDI	Dec-19	300
Americas	USA	Yuhuang	Methanol	May-20	1800
Americas	USA	Formosa	EDC	Jun-20	250
Total					8,300

- USA became a net exporter late 2018 and the NatGasoline first restarted in February after a longer maintenance period
- Utilisation of plants started in in 1H19 expected to accelerate utilisation in 2H 19. Sasol's Ethylene Glycol plant started in February, but not expected to reach normal utilisation before September
- With the exception of 50% of Methanex volumes in Chile expected to be shipped to Brazil (replacing Trinidad volumes), the majority of volumes are expected to be shipped long-haul, with a mix between the Far East and Europe

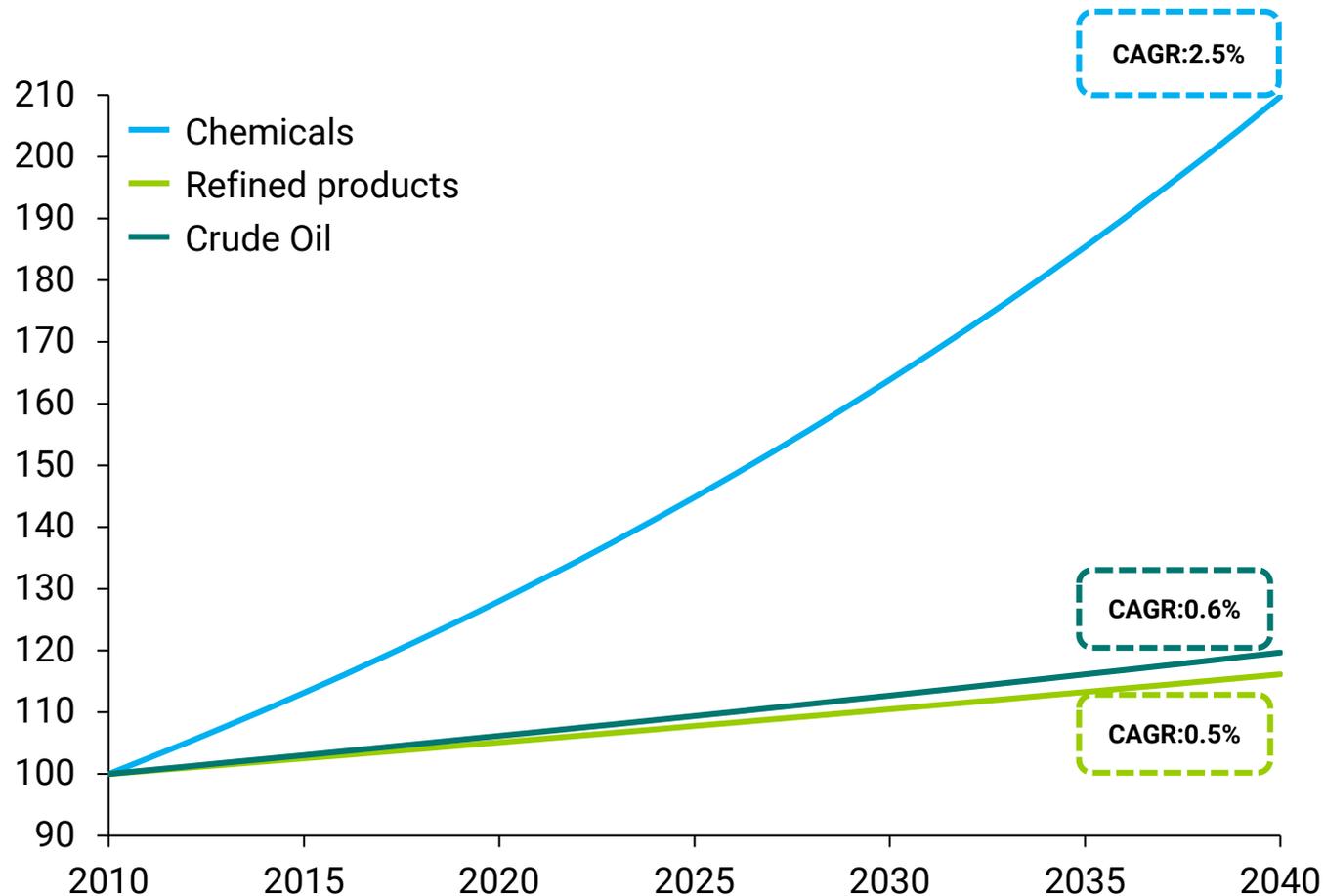
Three main areas evolving as key chemical hubs for seaborne trade – US followed by the Middle East

Three main regions developing as key hubs for chemical production, MT millions cumulative



Investments in the Middle East - Its all about the demand growth to maximise and extend the lifetime of its barrels

Long-term demand forecast:



A refiners dilemma as integration is more complex:

Gasoline:

Slow growing

and

Lower margin

but

High volume

Chemicals:

Fast growing

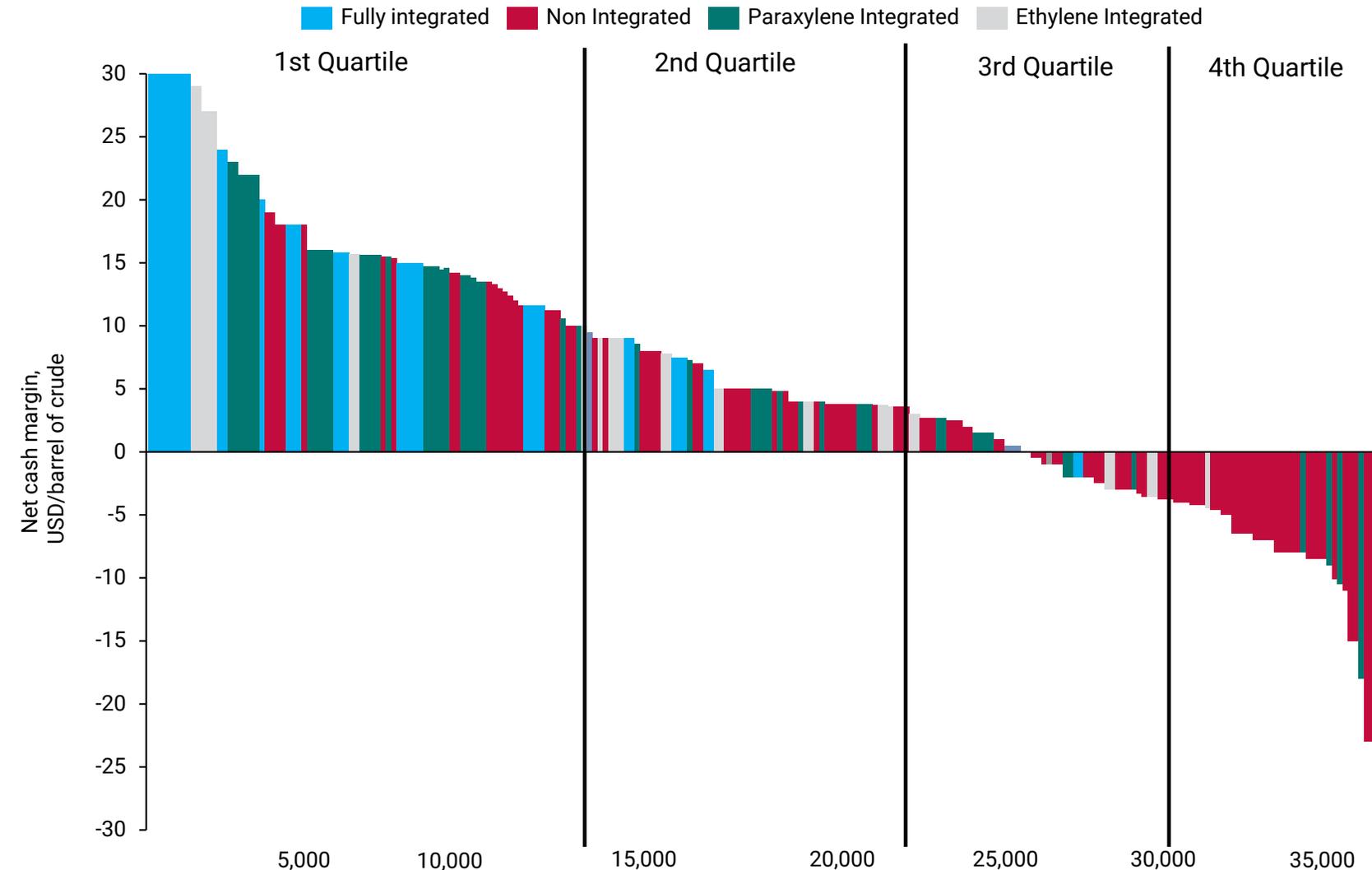
and

Higher margin

but

Lower volume for now

Vertically integrated chemical facility enhance competitiveness on top of the region having the world's lowest feedstock cost

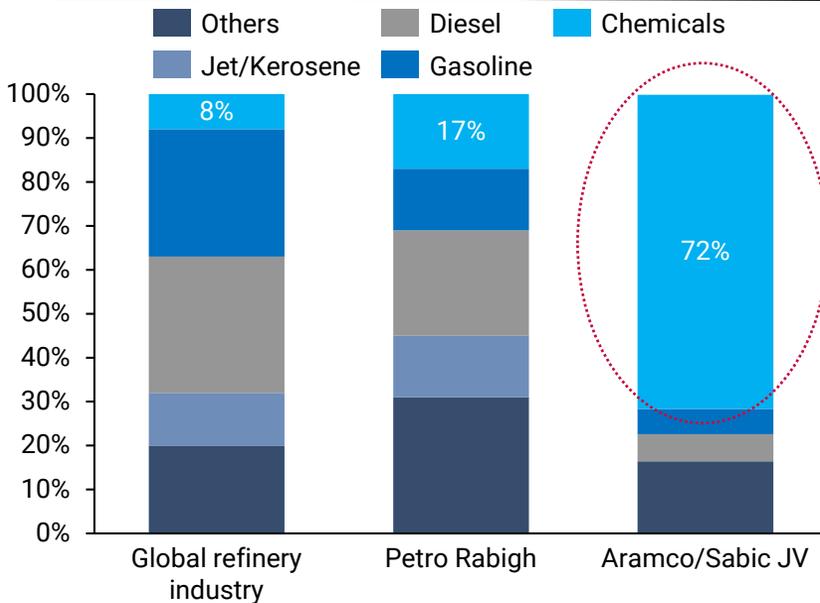


Comment

- The majority of refineries east of Suez are non integrated (where demand is)
- The Middle East constructs mainly vertically integrated refineries...
- ...These are in the 1st quartile when it comes to net cash margins ...
- ...While non integrated refineries are mainly in the 4th quartile

Crude-to-Chemical plants are a game-changer in the chemical industry with materially higher chemical production capacity than older plants

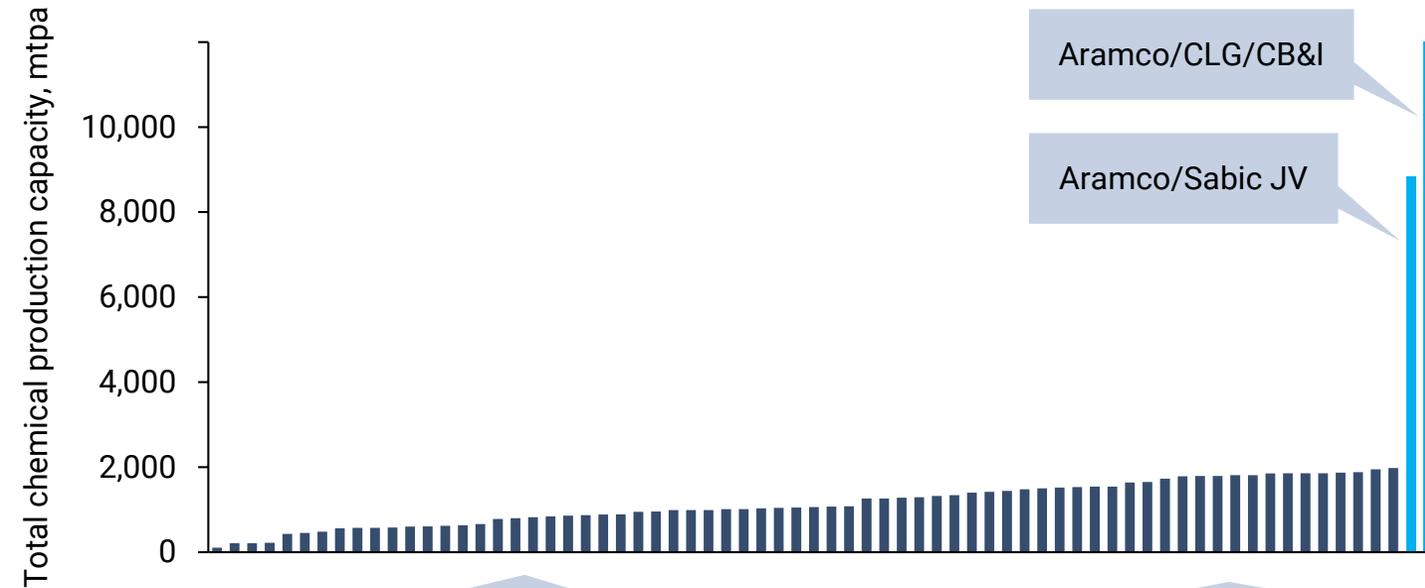
Global Naphtha steam cracker capacity



- Saudi Arabia has through technology development initiated the process to construct the world's largest chemical plant
- This is crude-to-chemical plants (COTC) that yields as much as 72% chemicals as the technology bypass the refinery process...
- This compares to a 8% chemical yield on average in the global refinery industry

Source: IHS, Odfjell

Global Naphtha steam cracker capacity



"Saudi Aramco is going beyond the quick wins and is instead prioritizing investments in groundbreaking R&D technology. The Joint Development agreement with CB&I and CLG is a technology first which position Saudi Aramco to maximize the value of each barrel of crude oil it produces in the near future"

Saudi Aramco president Amin H.Nasser Jan-2018

"By 2030, the COTC complex is expected to be a significant contributor to Saudi Arabia's GDP and play a key role in helping the continued economic transformation away from Crude exports to higher-value industrial products, further stimulating the Kingdom's economic diversification, as enunciated in Vision 2030"

SABIC CEO Yousef Al-Banyan, April 2018

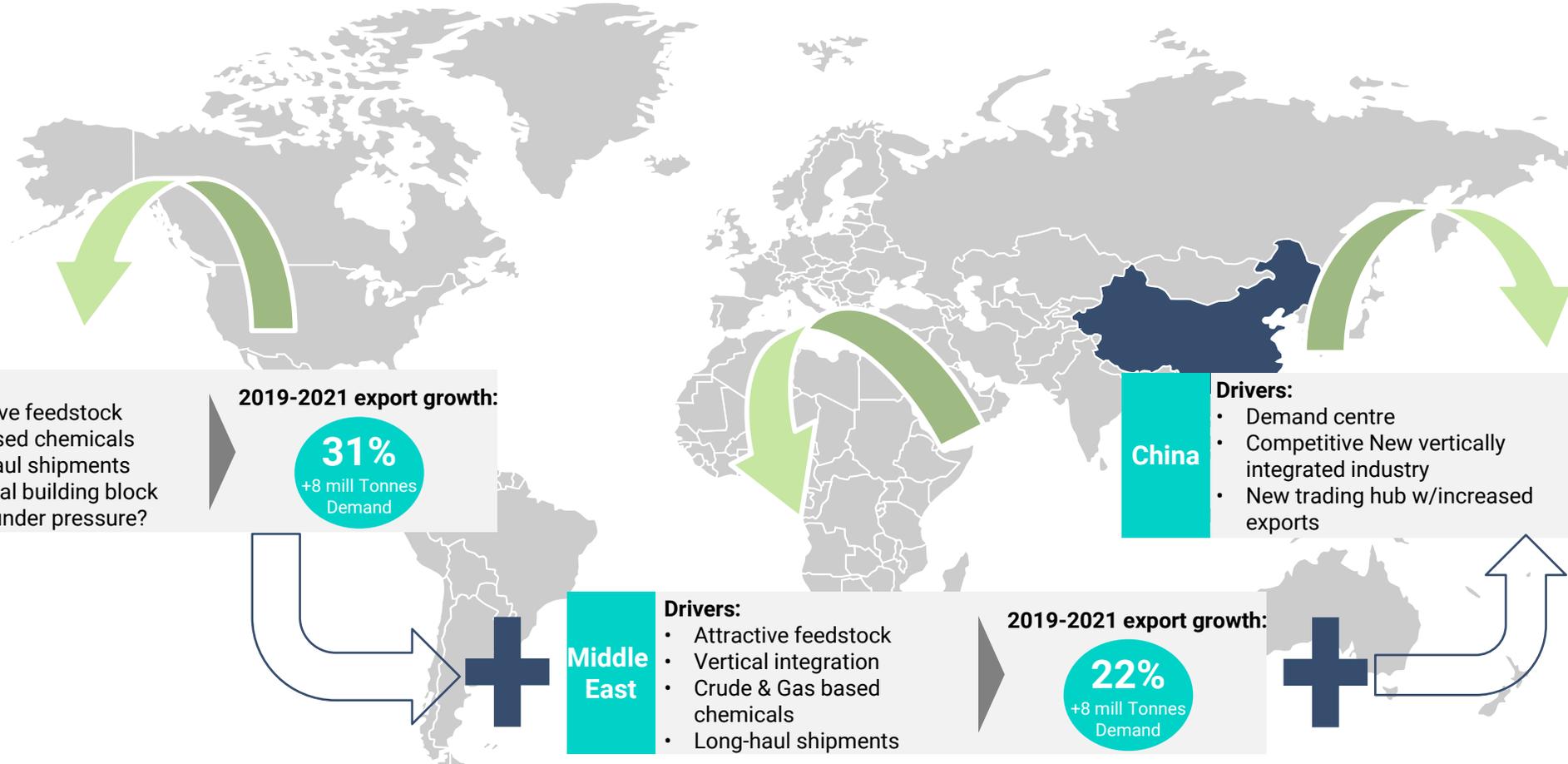
We are amid a major ramp-up in Middle Eastern supply that will accelerate in the second half and into 2020 on higher utilisations

Region	Country	Company	Product	Start-up	Capacity
Middle East	Iran	Kaveh	Methanol	Feb-19	2300
Middle East	Iran	Kimiya Bandar	Caustic Soda	Feb-19	119
Middle East	Saudi Arabia	Aramco	Benzene	May-19	266
Middle East	Saudi Arabia	Aramco	Para-xylene	May-19	1320
Middle East	India	Bharat Petroleum	2-EH	Jun-19	47
Middle East	Iran	Marjan	Methanol	Jun-19	2300
Middle East	Saudi Arabia	Jubail United	Methanol	Jun-19	650
Middle East	United Arab Emirates	Emirates Chemical Factory	Caustic Soda	Jun-19	56
Middle East	Saudi Arabia	Aramco	Mixed xylenes	Jul-19	865
Middle East	Saudi Arabia	Aramco	Para-xylene	Jul-19	700
Middle East	Saudi Arabia	Aramco	Toluene	Jul-19	500
Middle East	Saudi Arabia	Basic Chem Ind	Caustic Soda	Jul-19	78
Middle East	India - Maharashtra	Reliance	Ethylene Glycol	Oct-19	55
Middle East	Oman	ORPIC	Benzene	Nov-19	46
Middle East	Iran	Bushehr	Methanol	Apr-20	1650
Middle East	India	Indian Oil Corp	Ethylene Glycol	May-20	270
Middle East	Oman	ORPIC	MTBE	May-20	90
Middle East	Saudi Arabia	Gulf Farabi PC	AlkylBenzene	Jun-20	120
Middle East	Saudi Arabia	Jubail United	Ethylene Glycol	Jan-21	700
Total					12,132

- More delays and lower utilisation is expected from new plants in the Middle East compared to the US
- Volumes from Iran has less significant impact on the market due to the political situation, but volumes are still absorbing tonnage

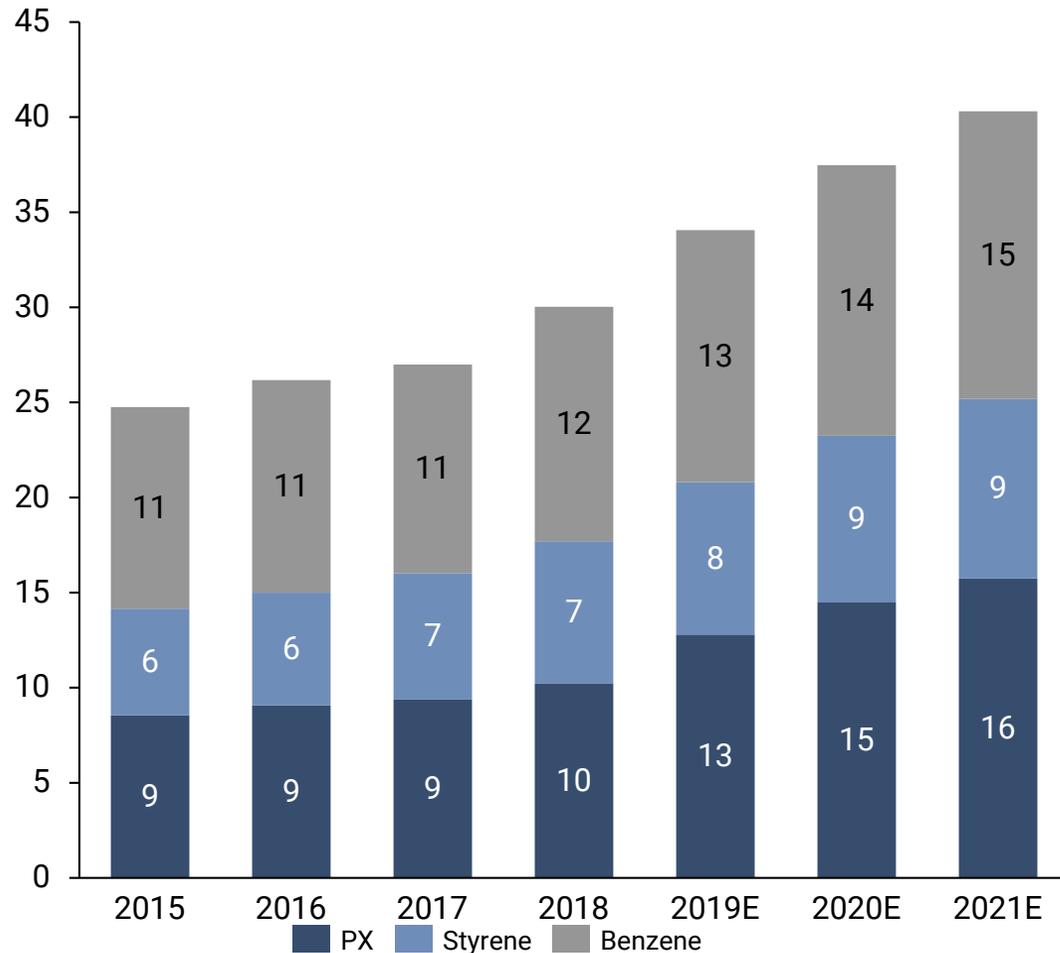
Three main areas evolving as key chemical hubs for seaborne trade – US followed by the Middle East and China

Three main regions developing as key hubs for chemical production, MT millions cumulative

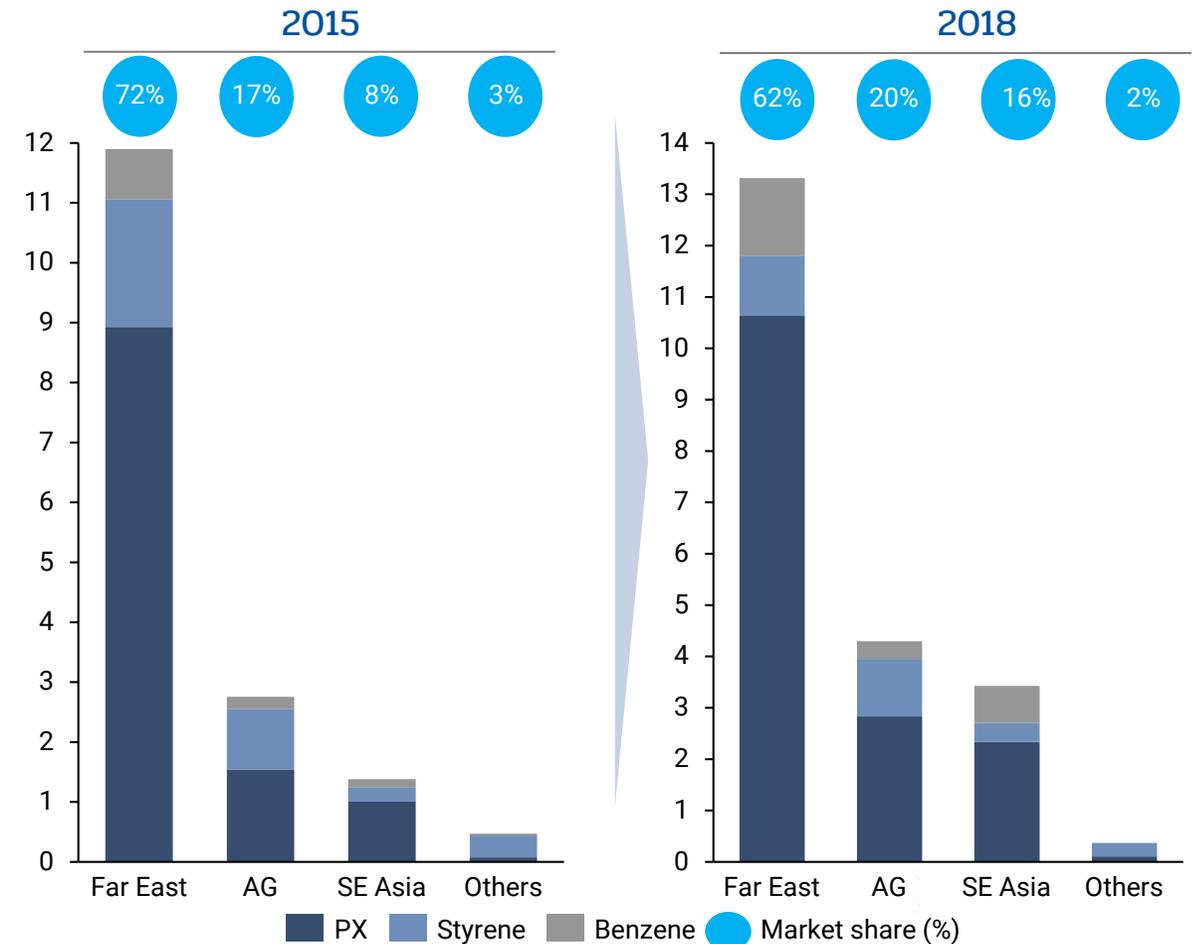


China will increase its self-sufficiency rate of mainly three products where they are more competitive relative to its main suppliers...

China domestic production of Styrene, Benzene and PX, Mt. million

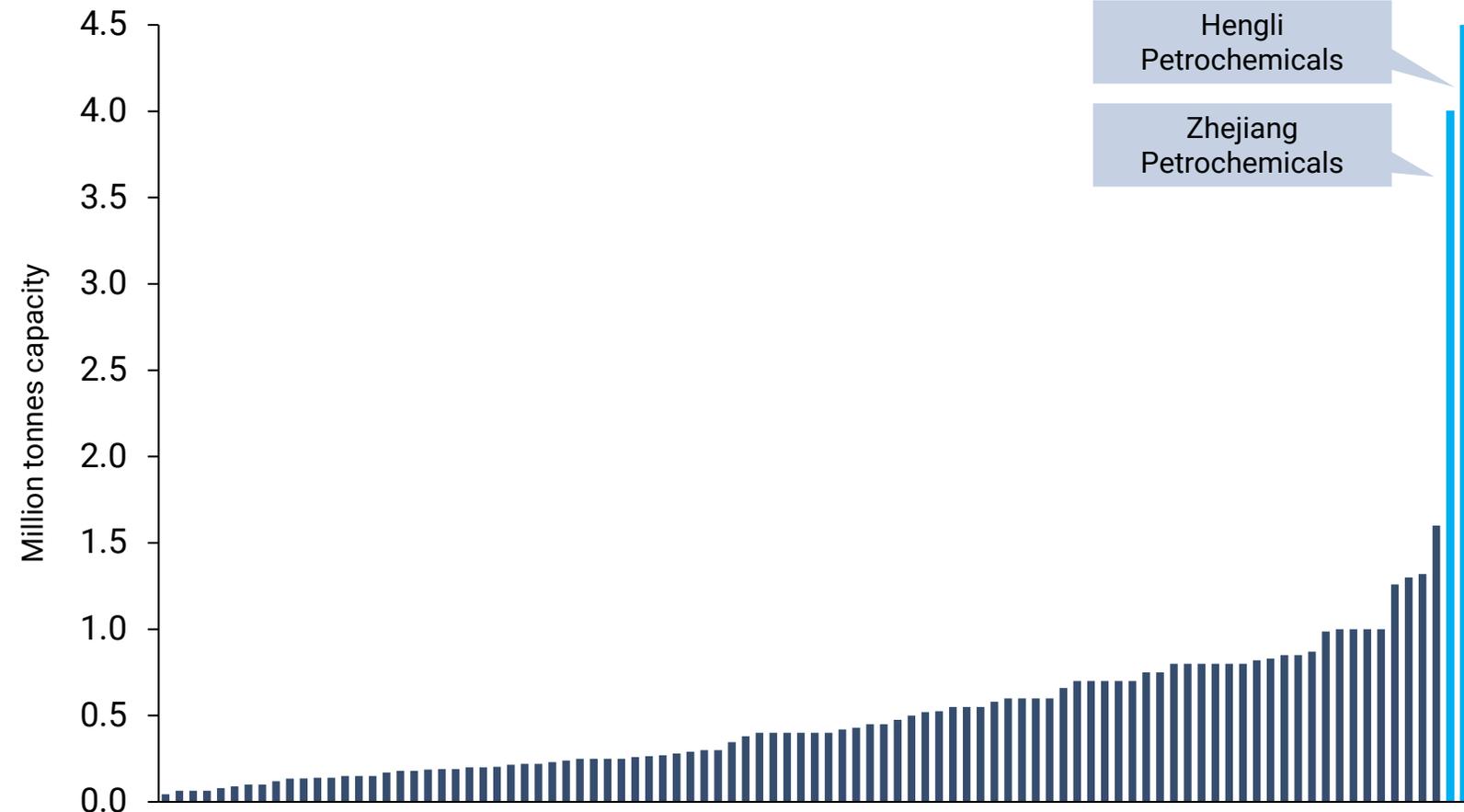


China imports of Styrene, Benzene and PX by source, Mt. million



China's new capacity is modern, large and mainly vertically integrated with newly constructed large refineries that secures their competitiveness...

Global Para-xylene (PX) capacity by size, Mt million



Comment

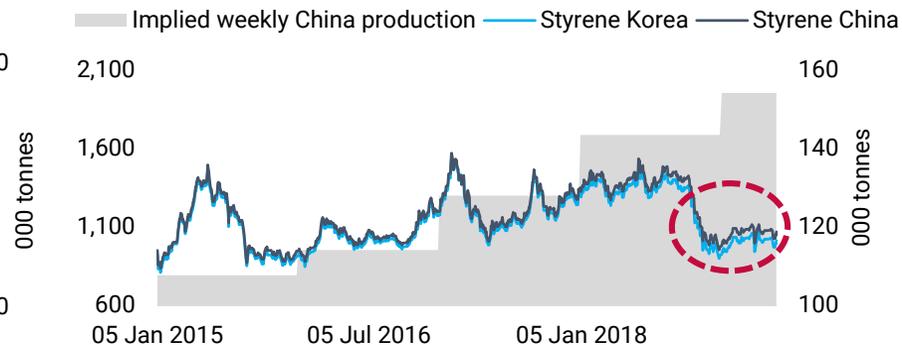
- China is more competitive than Korea/Japan/Taiwan for PX due to:
 - New plants
 - Vertically integrated plants
 - Modern refineries recently completed
 - Lower construction costs
 - Lower labor costs
- Makes equally sense for China to produce PX domestically as they rely on the same feedstock as Korea/Japan/Taiwan...
- ...Therefore no need for the feedstock to be shipped to PX suppliers before cracked and shipped to China
- Two new PX plants in China is the similar size as North America, South America, Europe and Japan PX capacity combined

This has led to price pressure for Benzene, Styrene and PX in North East Asia and disruption of trade flows

Global Benzene prices vs China production, Mt million



Global Styrene prices vs China production, Mt million

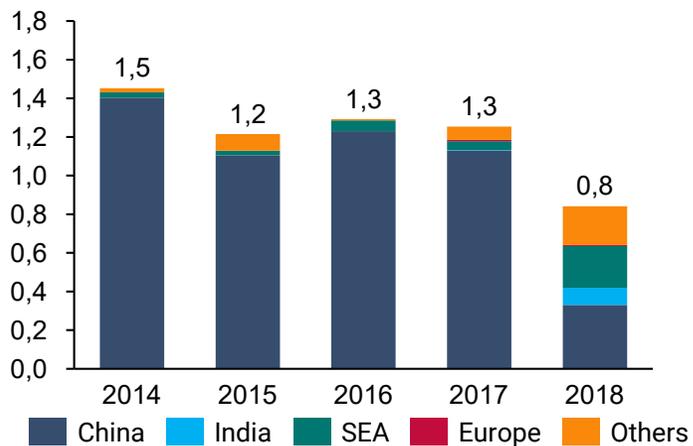


Korea PX prices vs China production, Mt million

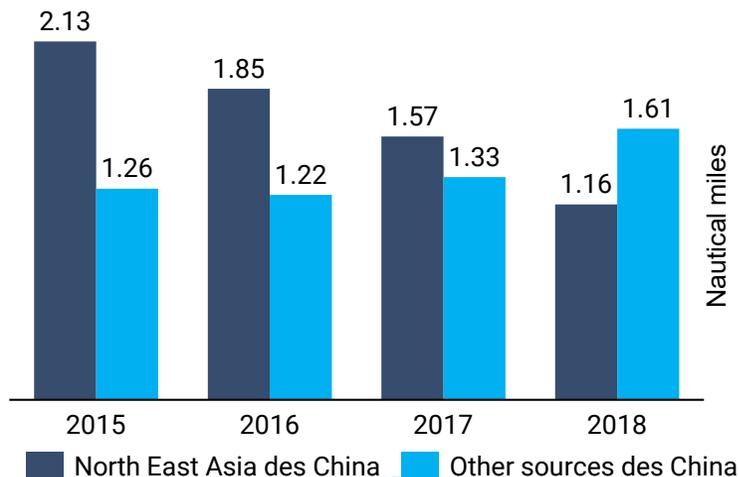


The price pressure leads to a shift in trade flow as producers look for new markets – As exemplified by Styrene, new destinations ensures miles counter lower volumes

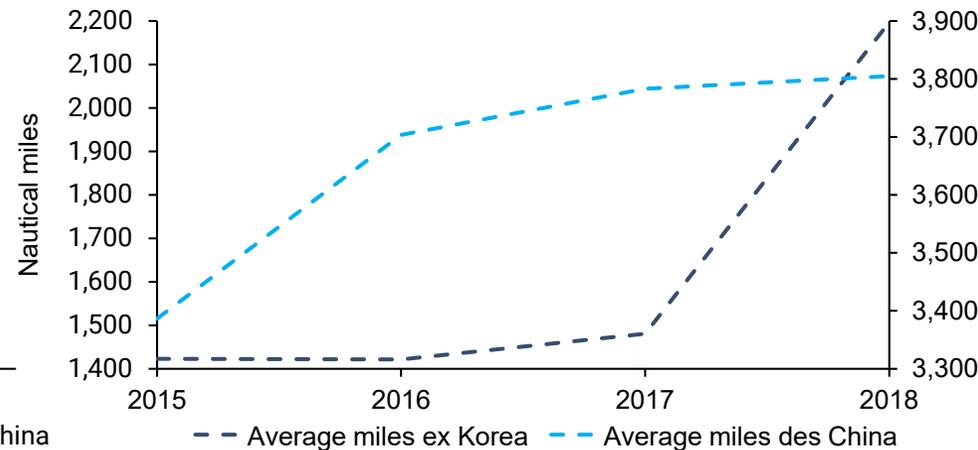
Korea ships more Styrene to SEA & India, Mt million



Other sources replaces Korean exports, Mt million

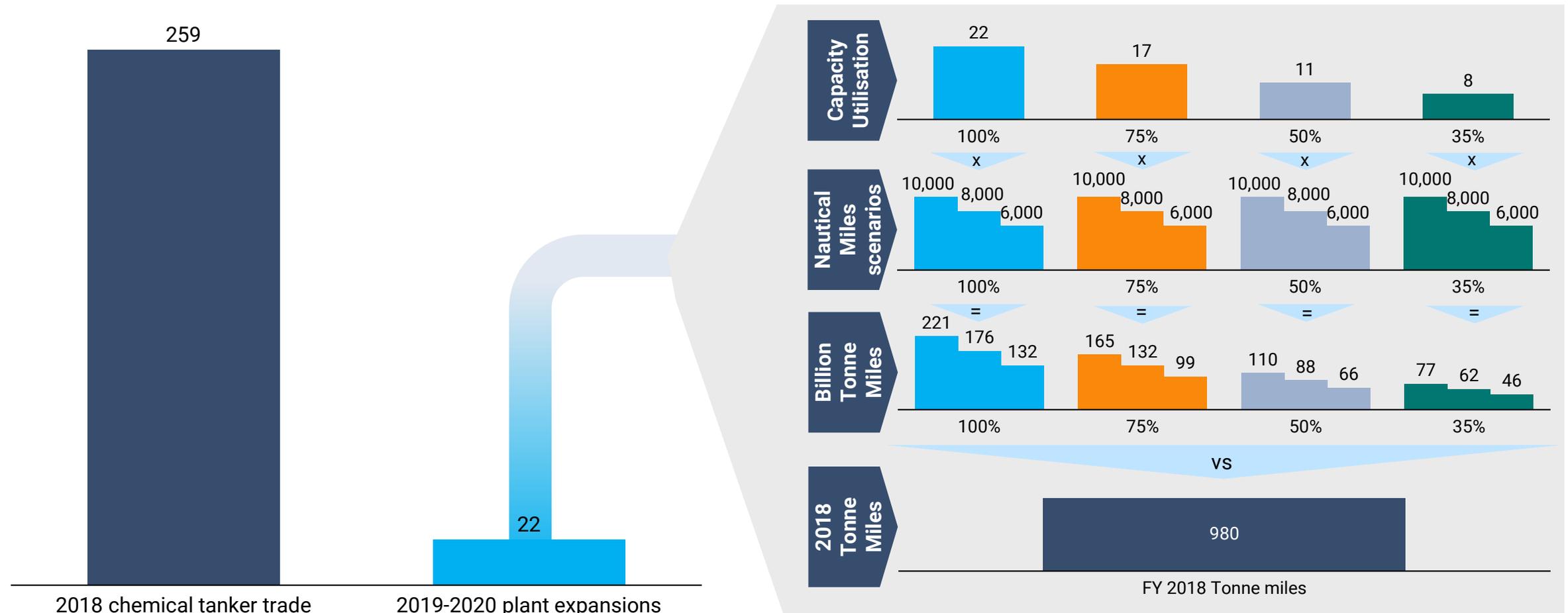


...and combined increasing average miles

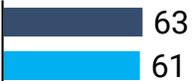
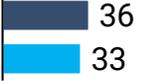
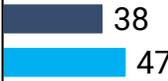


The new organic production capacity is expected to support strong tonne-mile demand for chemical tankers in 2019 and 2020

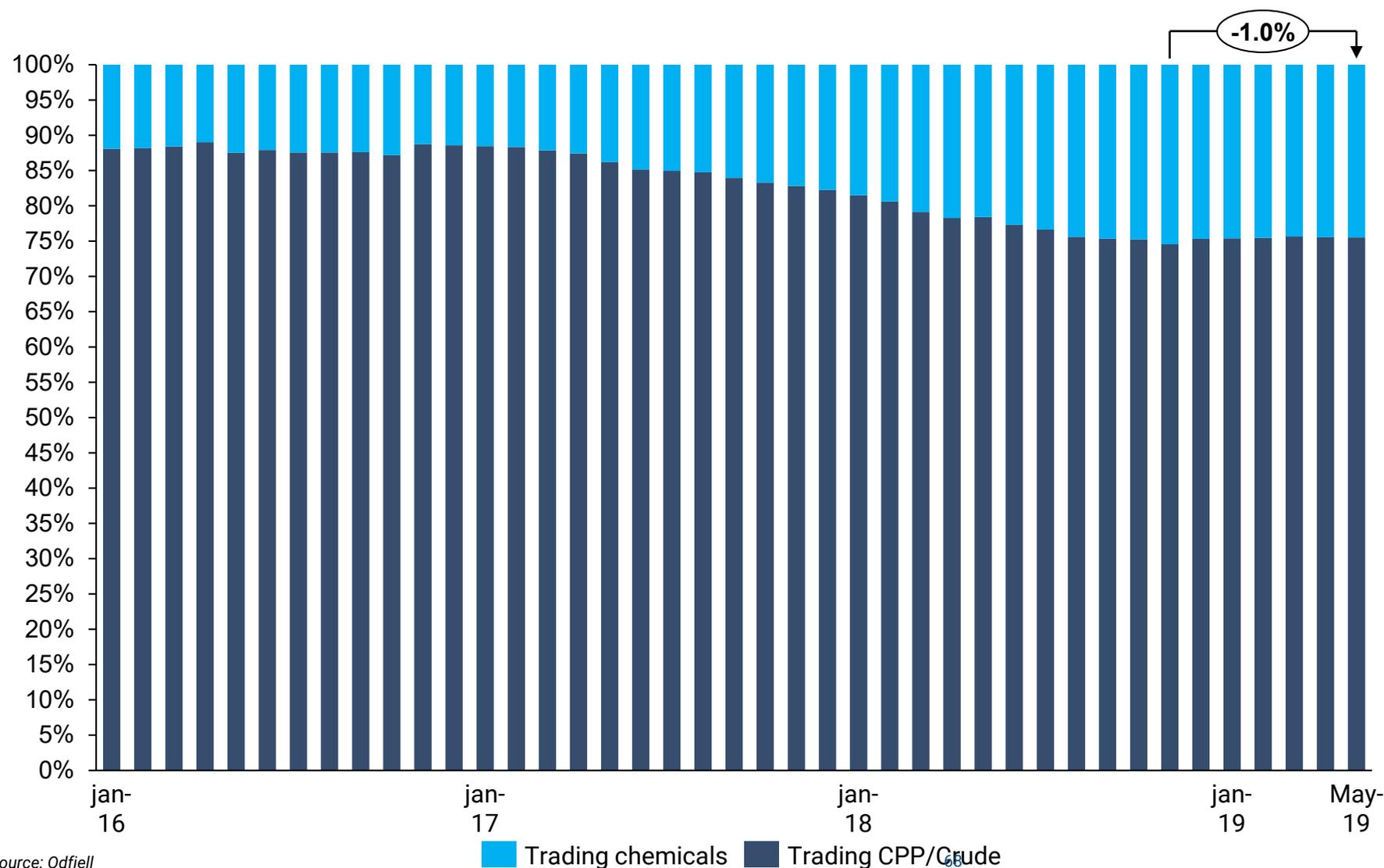
Total chemical tanker trade vs new organic chemical plant capacity



Vegoil, inorganics and ethanol outlook

Product	Drivers	Development	Seaborne trade, MT mill	Seaborne trade, Bn. Tonne-miles	2019-2021 direction
Palm Oil 	<ul style="list-style-type: none"> Global GDP, emerging markets US/China trade war Substitution for soy and sunflower 	<ul style="list-style-type: none"> Strong production growth Reduced import/export taxes Weak domestic production in China 			
Soybean Oil 	<ul style="list-style-type: none"> Global GDP, emerging markets US/China trade war Substitution for palm and sunflower 	<ul style="list-style-type: none"> Weak harvesting in South America Replacing US soybean exports Lower palm oil prices 			
Sunflower Oil 	<ul style="list-style-type: none"> Global GDP, emerging markets Non- GMO demand Substitution for soy and palm 	<ul style="list-style-type: none"> Reduced market share to Palm Global shortage, too high prices 			
Sulphuric acid 	<ul style="list-style-type: none"> GDP, Phosphate fertilizers and metals Stable demand growth from Agri Volatile demand from metal industry 	<ul style="list-style-type: none"> Global supply shortage New capacity due to IMO2020? Strong demand from Chile 			
Caustic soda 	<ul style="list-style-type: none"> GDP, pulp and paper and alumina Paper demand rebounding? Global shortage of capacity 	<ul style="list-style-type: none"> Global supply shortage Reduced Brazil & Australia demand Substitute for plastic waste? 			
Phosphoric acid 	<ul style="list-style-type: none"> GDP growth Fertilizer industry consume 90% Food additive demand is stable 	<ul style="list-style-type: none"> Stable GDP driven demand 			
Ethanol 	<ul style="list-style-type: none"> Global Bio fuel demand Politically driven Chemical feedstock 	<ul style="list-style-type: none"> MTBE substitute in China EU imposed ban as bio fuel (2021) Import taxes 			

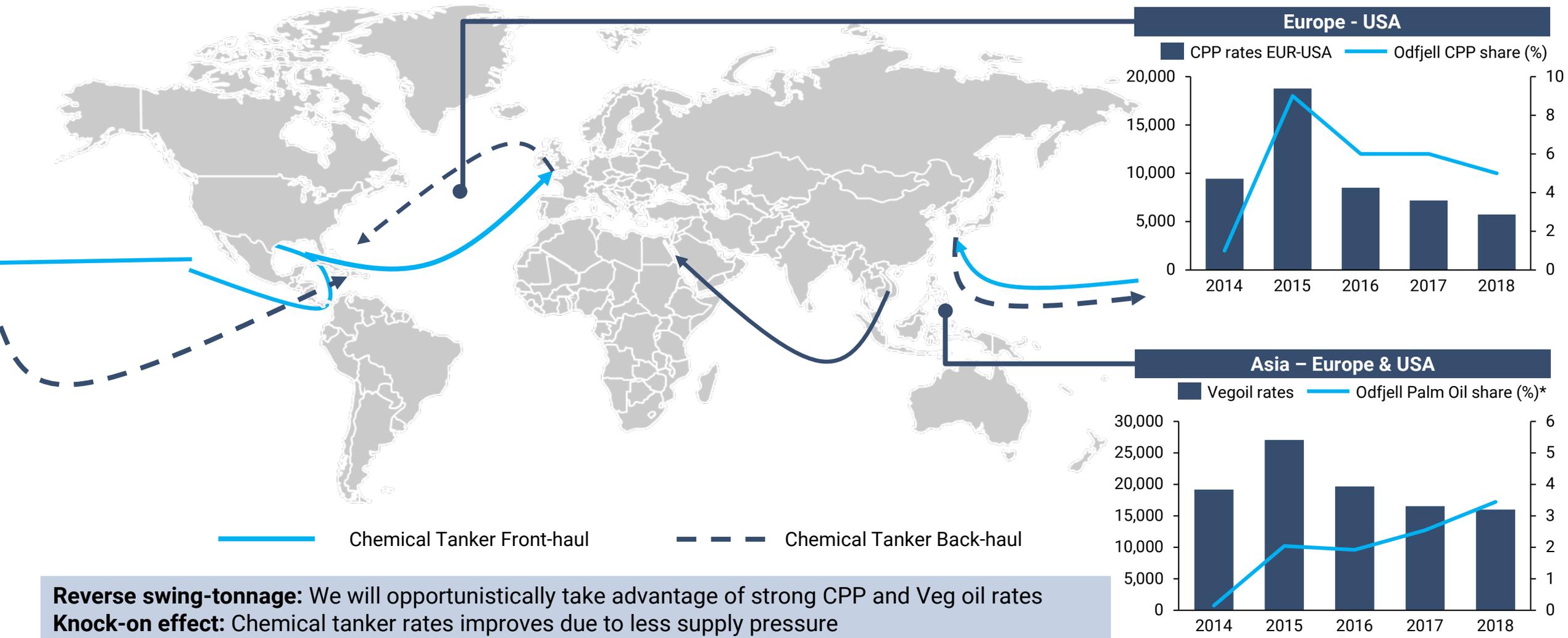
Chemical tankers had a supply problem in recent years and further supply pressure has been felt by high share of swing tonnage



Comment

- 25% of coated MR's were trading chemicals/Vegoils during the summer of 2018
- Appears like incremental supply from Swing tonnage has bottomed out and reversing
- Declining rate of MR newbuilds will lower competition for vegoil cargoes normally used for MRs maiden voyage
- MR's would prefer to trade CPP and should CPP markets improve....
- ...A sustainable reversal of swing tonnage is expected to materialise

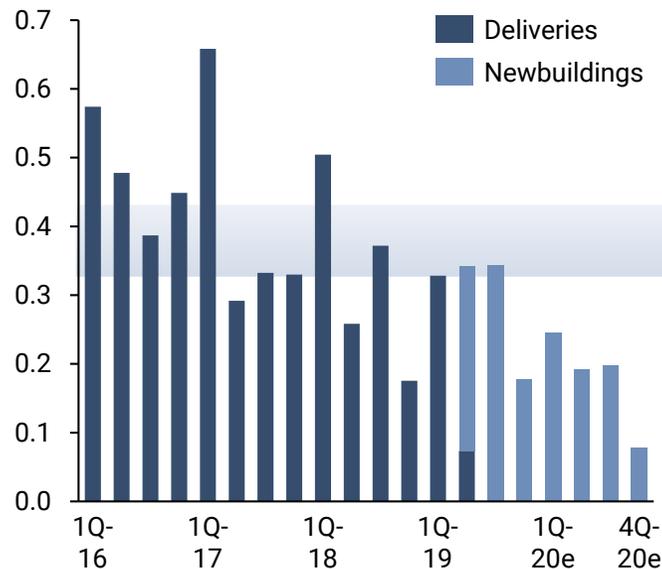
Key CPP and Vegoil tradelanes typically corresponds with chemical back-haul routes – Stronger CPP and Vegoil rates therefore improves our flexibility



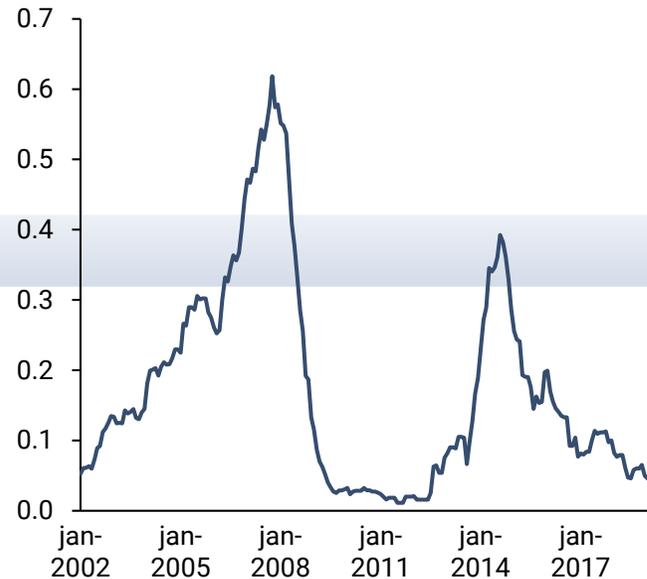
* 2018 growth is trade specific and not due to opportunistic trade into Palm Oil

IMO 2020 is a disruptive event that could lead to reduced swing tonnage, accelerated scrapping and slowsteaming while orderbook is at multi-year low

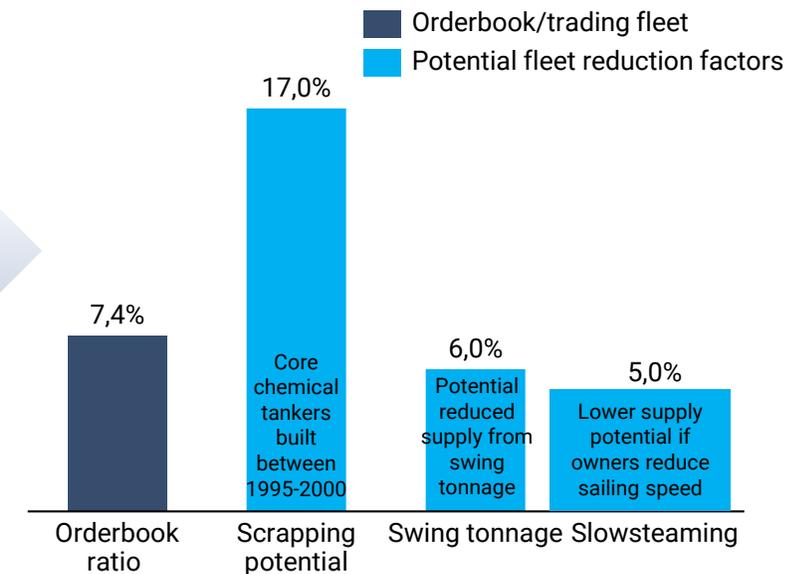
Core chemical tanker newbuilding delivery schedule, Mill dwt



12-month rolling core chemical tanker newbuilding orders, Mill dwt



Chemical tanker orderbook of 7% before adjusting for several variable factors



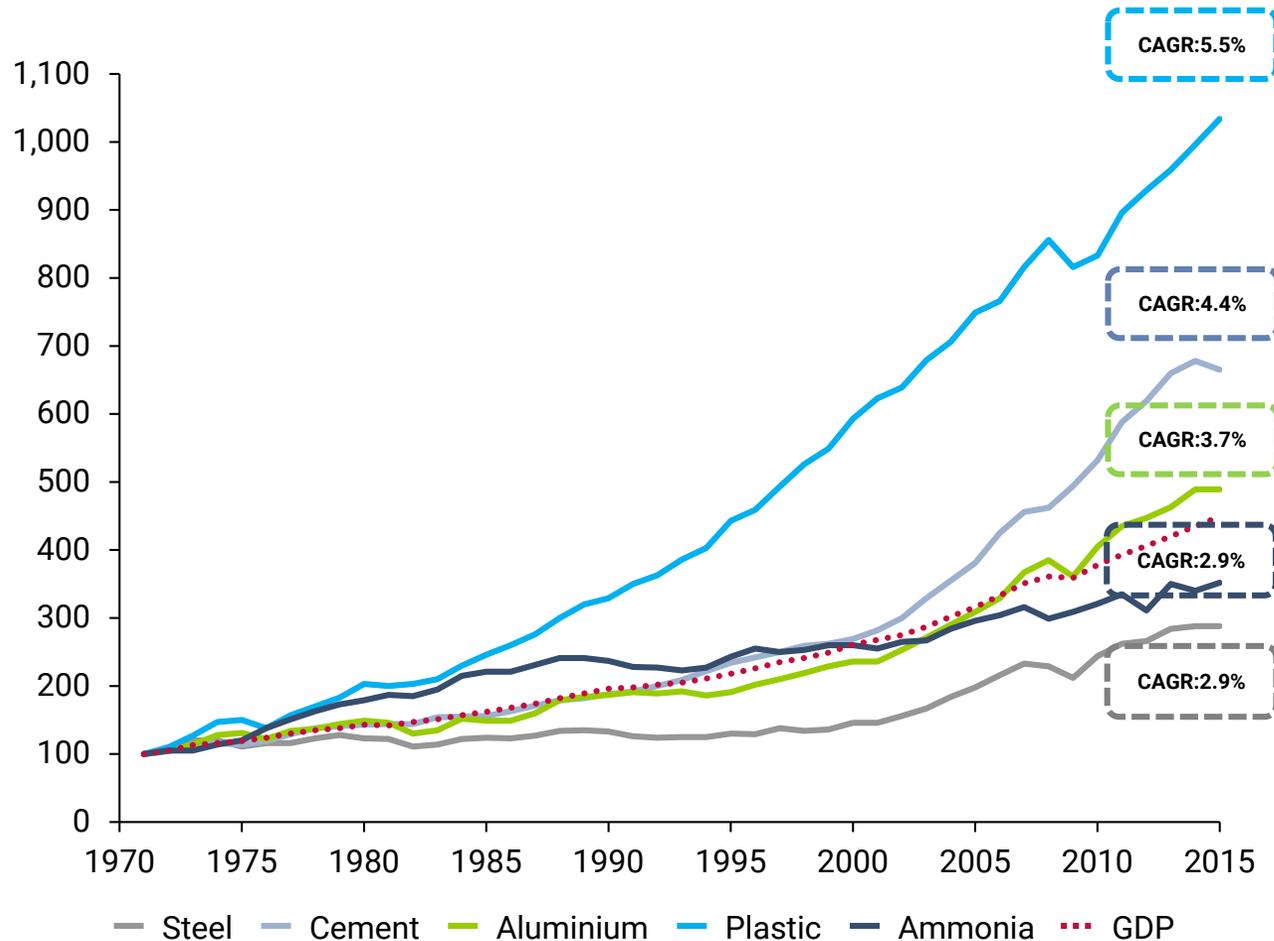
- Fleet growth is declining for both core and swing/other segment after several years of high fleet growth following orders placed in 2014-2015
- Limited new orders the last 18 months and appears like appetite for new orders are low
- Orderbook ratio at 7%, which implies average supply growth of 2.4% p.a by 2021 before adjusting for
 - Scrapping
 - Removal of swing tonnage (IMO 2020)
 - Slowsteaming in the event of elevated bunker prices (IMO 2020)
 - New orders

Most humans on the planet are in contact with products that were once transported on our vessels

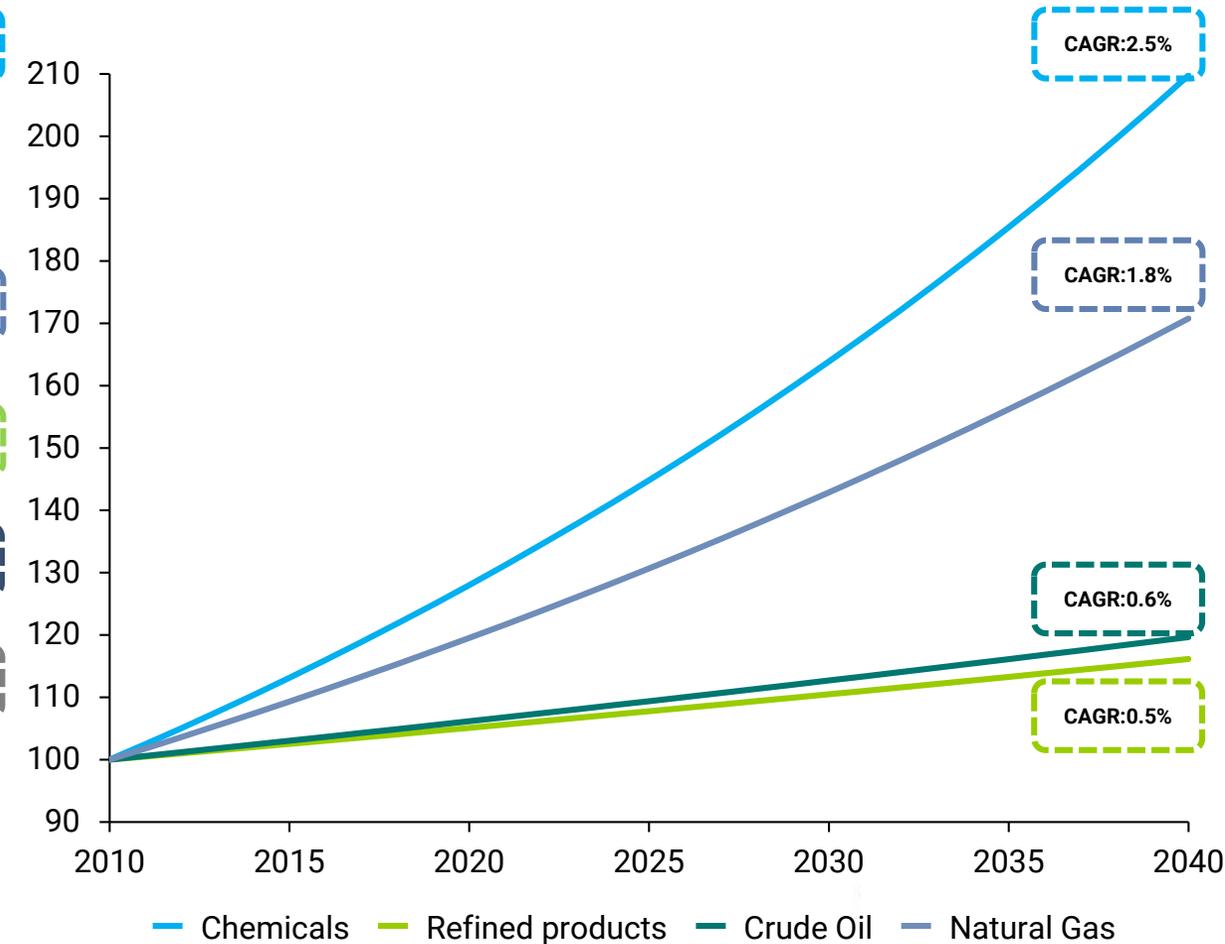


Plastic is the fastest growing bulk material – The “world is dependent on chemicals” and this supports sustainable demand growth...

Plastic has been the world's fastest growing bulk material since 1970...

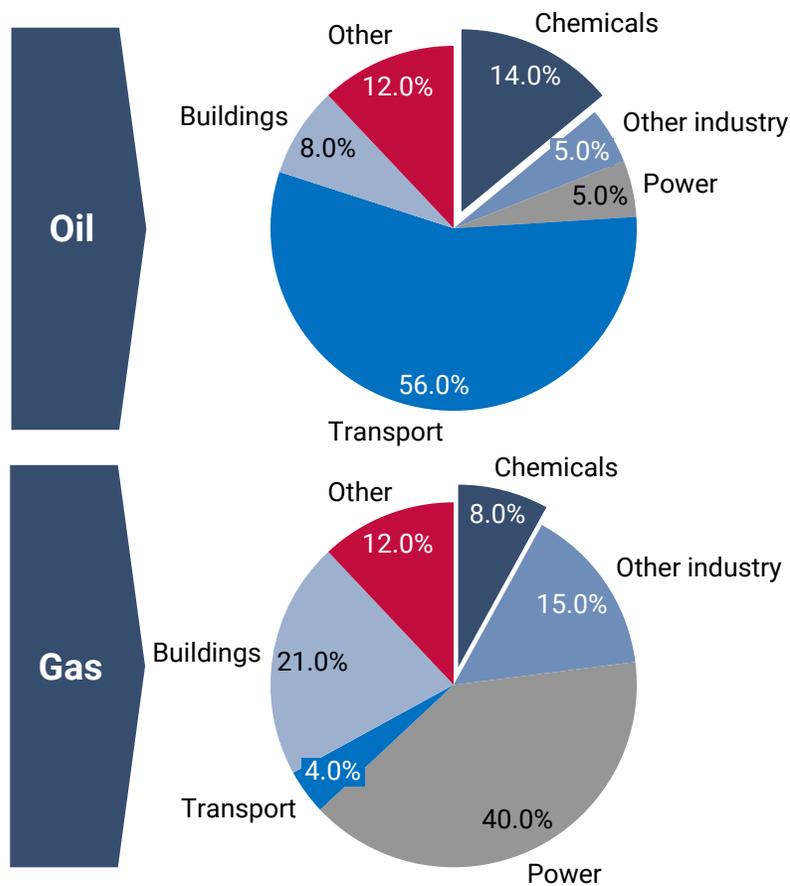


...And is forecasted to grow faster than fossil fuels used as feedstock...

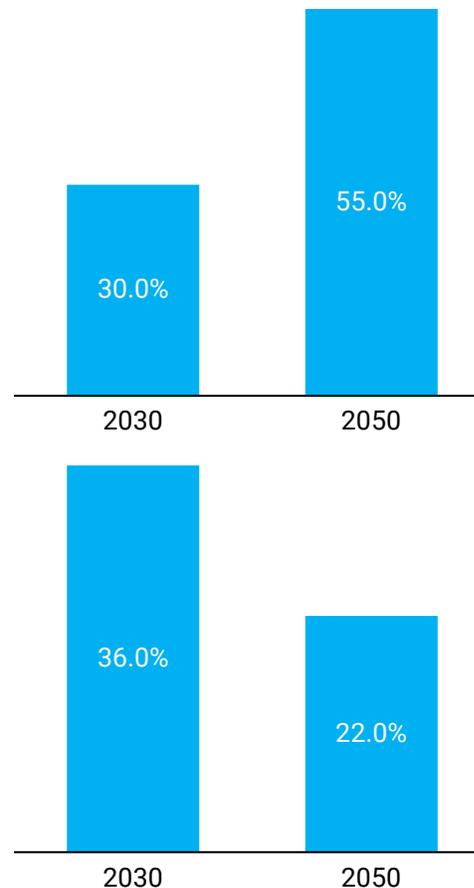


...as a consequence, chemicals share of oil and gas demand growth to grow in the future & mirror investments now impacting the chemical tanker market

Oil and Natural gas demand by sector (2017)



Chemical share of demand growth in Oil and Gas



Chemicals therefore a natural area of growth for global downstream companies

Downstream

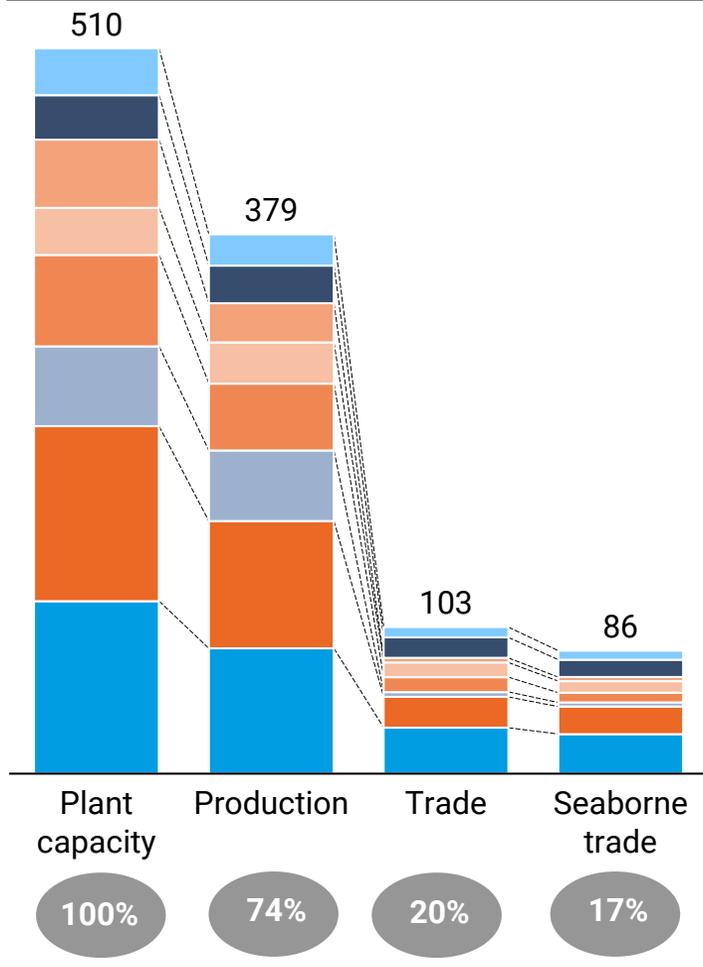
- Further strengthen our financial performance
- Upgrading our portfolio
- Chemicals growth priority



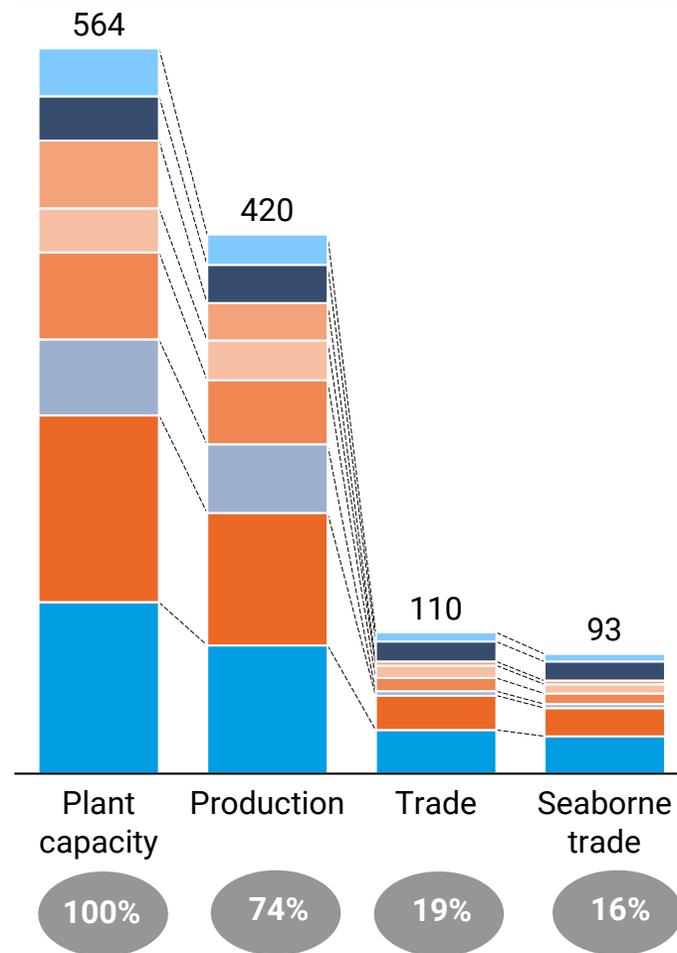
Cash engine		Growth priority
Marketing	Refining & Trading	Chemicals
Capital employed: \$17 billion	Capital employed: \$24 billion	Capital employed: \$15 billion
Sales volumes: 6.6 mboe/d	Refinery processing: 2.6 mboe/d	Sales volumes: ~18 mtpa
Capital investment: \$4-5 billion		Capital Investment: \$3-4 billion

We rarely see investments in new plants without export opportunities – This could indicate higher share of future production being seaborne traded

Seaborne trade of top 8 organic chemicals (2016)



Seaborne trade of top 8 organic chemicals (2018)



Seaborne trade as share of plant capacity

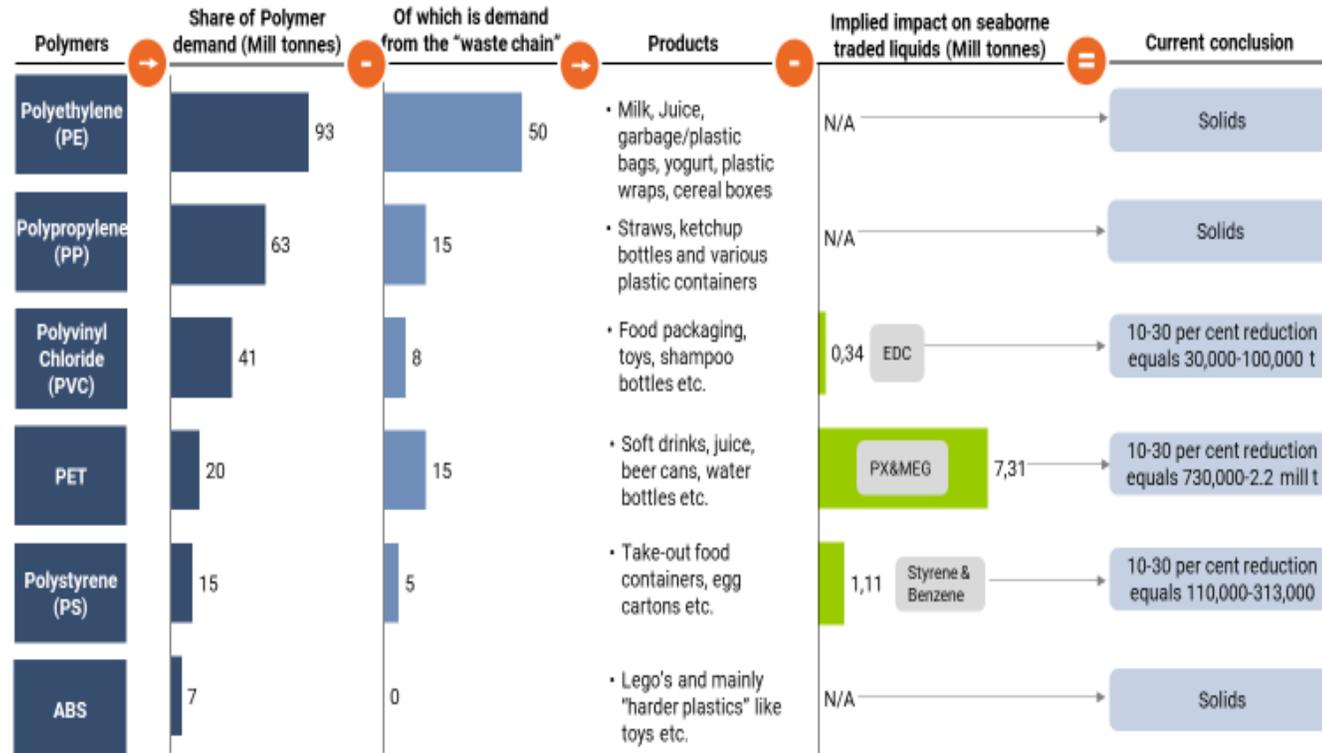
	2016	2018
MTBE	19%	16%
Ethylene Glycol	39%	43%
Toluene	6%	6%
Styrene	25%	21%
Benzene	11%	12%
Ethylene Dichloride	5%	5%
Xylenes/incl Paraxylene	16%	15%
Methanol	20%	22%



2020->?

Mega trend: Part of the world's plastic production relates to "waste products" now under public scrutiny – Could bring opportunities for chemical tankers

Increased focus on plastic waste is a mega trend approaching – However, this is not expected to significantly affect liquid shipments



Calculations are generic and final outcome is uncertain. Most plastic bans and targets for recycling involves products in the PE chain. We do not expect a meaningful impact on tankers

Source: Odfjell, IHS

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- Large chains like McDonalds, Starbucks and others replacing paper straws
- Several countries and jurisdictions banning plastic bags
- Single-use plastics banned by EU parliament by 2021

This will mainly impact chemicals in solid form as PE and PP. Limited usage of liquid chemicals in the "waste chain". However, the potential substitutions could impact chemical tanker demand.

Proposed solutions:

- Plastic products replaced by paper products...
- ...Caustic Soda is an important input factor to the paper and packaging industry
- Also, recycling technologies are invented where waste is brought back to its molecular form as liquids:



Summary

Tonne-mile demand

- Standing at the cusp of the first wave of new liquid chemical plants ramping up exports from second half of 2019 and into first half of 2020

Vessel supply

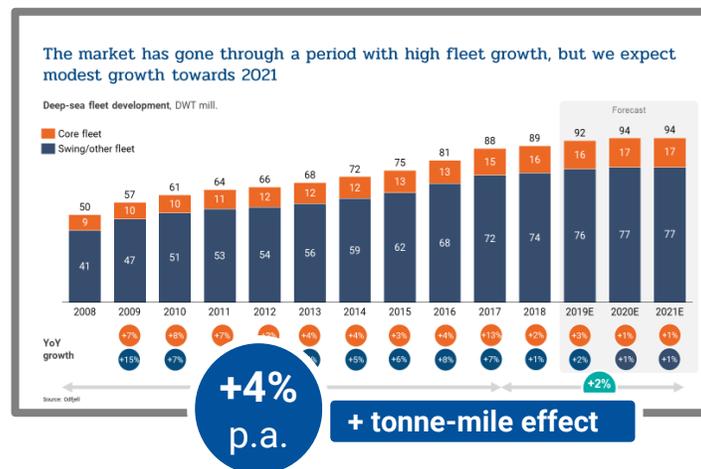
- Orderbook at multi-year low and IMO 2020 might disrupt supply through reversed swing tonnage, increased scrapping and slowsteaming

Long-term outlook

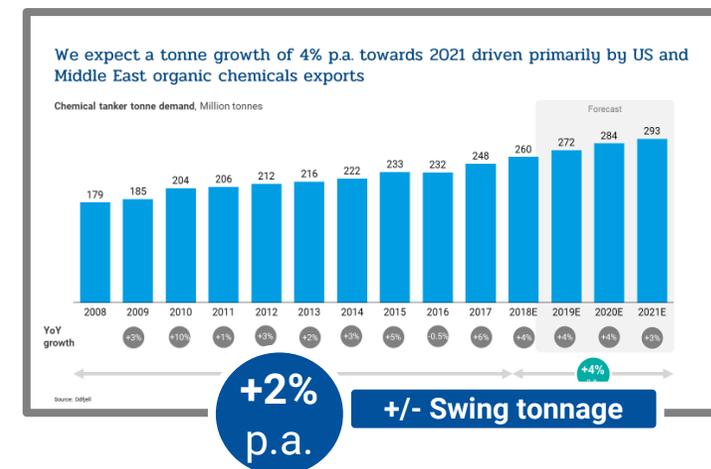
- Tonne-mile demand growth expected to surpass net fleet growth in 2019 and 2020 improving the chemical tanker market balance

Market balance

- Sustainable and strong demand outlook for seaborne trade of chemicals



vs.



Capital Markets Day 2019

CEO, Kristian Mørch

Final remarks



ODFJELL

Final remarks

Fleet renewal

- Fleet renewal concluded at attractive time of the cycle and we are attractively positioned for the future

Capital Structure

- The optimal capital structure to ensure financial flexibility and return to stakeholders throughout chemical tanker cycles

Competitiveness

- One of most efficient and flexible stainless-steel tanker fleets in the world

IMO 2020

- We are well prepared operationally and we consider this as a potential opportunity from a market perspective

Market balance

- Sustainable and strong demand outlook for seaborne trade of chemicals in the short and long term