

Shipping

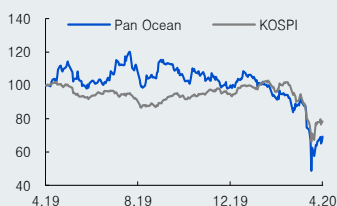
Initiation Report
April 3, 2020

(Initiate)	Buy
Target Price (12M, W)	3,800
Share Price (04/03/20, W)	2,960
Expected Return	28%

OP (20F, Wbn)	167
Consensus OP (20F, Wbn)	220
EPS Growth (20F, %)	-20.8
Market EPS Growth (20F, %)	48.0
P/E (20F, x)	13.2
Market P/E (20F, x)	10.1
KOSPI	1,725.44

Market Cap (Wbn)	1,582
Shares Outstanding (mn)	535
Free Float (%)	45.1
Foreign Ownership (%)	11.2
Beta (12M)	1.02
52-Week Low	2,085
52-Week High	5,140

(%)	1M	6M	12M
Absolute	-21.4	-32.6	-30.8
Relative	-8.2	-20.6	-11.7



Mirae Asset Daewoo Co., Ltd.

[Transport/Energy]

Jay JH Ryu
+822-3774-1738
jay.ryu@miraeasset.com

Pan Ocean

(028670 KS)

Well-positioned to ride out the storm

Initiate coverage with Buy and TP of W3,800

We initiate coverage on Pan Ocean with a Buy rating and target price of W3,800. Our target price is based on an EV/EBITDA of 8.2x, the stock's average low following the company's exit from court receivership. Our valuation implies a P/B of 0.68x (equivalent to the stock's historical average low), which we believe is highly justifiable. We highlight three investment points. 1) We believe Pan Ocean's earnings are highly resilient to market conditions due to its stable operating structure. 2) The company is enhancing its competitiveness in the long-term charter contract market, backed by sound financials. 3) Following the recent COVID-19 outbreak, valuation has fallen to attractive levels from a long-term perspective.

Top global dry bulk carrier: Competitiveness to strengthen on the back of stable operating structure

During the 2008-09 global financial crisis, Pan Ocean struggled with increasing cost pressures caused by expensive charter vessels and worsening shipping industry conditions amid an economic downturn. As a result, the company entered into court receivership in 2013. Following a two-year restructuring process, the company emerged from court receivership in July 2015. Since then, the company's operating structure has become more stable.

As of end-2019, Pan Ocean operates 64 dry bulk carriers (14.3mn DWT), 17 tankers (580,000 DWT), and eight containerships. Dry bulk accounts for 94.7% of the company's fleet and 92% of operating profit.

1) Stable operating structure: Long-term contracts represent more than half of the company's dry bulk fleet and guarantee costs and a certain level of margins, ensuring a stable profit structure. In particular, the company generates steady profits thanks to its 85 owned vessels, which support strong cost competitiveness.

The recent sharp deterioration in market conditions will indeed lead to profit contraction for some owned/long-term charter vessels exposed to market rates. However, we note that the company's earnings have become more resilient to extreme turns in market conditions than before.

2) Increased competitiveness: We believe Pan Ocean's financial stability (debt ratio of 54%) and the young average age of its dry bulk fleet (7.4 years vs. more than 10 years for the market) form the company's core strengths in the long-term contract market. In 2020, the company is set to expand its fleet by 15%, due to options/contract extensions with existing clients like Vale (VALE US/CP: US\$8.11) and Suzano. We believe the company's track record in performing contracts for global clients will help expand its market position.

Earnings outlook: Weak 1H20 followed by strong 2H20

We forecast Pan Ocean to post sluggish operating profit of W31.8bn for 1Q20 and W33bn for 2Q20, hurt by weak trading volume and the market downturn caused by COVID-19. However, the company's fleet reduction last year in anticipation of lower freight rates should minimize the extent of the profit decline. We expect earnings to begin turning around in 2H20, supported by a seasonal pickup, more favorable supply/demand conditions, and long-term contracts.

FY (Dec.)	12/17	12/18	12/19	12/20F	12/21F	12/22F
Revenue (Wbn)	2,336	2,668	2,468	2,273	2,532	2,793
OP (Wbn)	195	204	210	167	228	248
OP Margin (%)	8.3	7.6	8.5	7.3	9.0	8.9
NP (Wbn)	143	152	152	120	189	215
EPS (W)	268	285	284	225	354	402
ROE (%)	5.8	6.1	5.5	4.1	6.1	6.5
P/E (x)	19.7	15.6	16.0	13.2	8.4	7.4
P/B (x)	1.2	0.9	0.8	0.5	0.5	0.5
Dividend Yield (%)	0.0	0.0	0.0	0.0	0.0	0.0

Note: All figures are based on consolidated K-IFRS; NP refers to net profit attributable to controlling interests
Source: Company data, Mirae Asset Daewoo Research estimates

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C O N T E N T S

I. Valuation and company analysis	3
Initiate coverage with Buy and TP of W3,800	3
Acquired by the Harim Group after two receivership programs	4
Top global dry bulk carrier: 173 vessels in operation	5
Lower average vessel age and solid financials	6
Earnings outlook: Turnaround expected from 2H20	7
II. Dry bulk market	9
Global economy to rebound once the COVID-19 pandemic subsides	9
III. IMO 2020 and maritime shipping	19
IMO regulations: From SOx to BWMS and CO ₂ emissions	19
IV. Issues	28
Demolition volume likely to increase	28
COVID-19 impact	31
Possible changes in global value chain	33

I. Valuation and company analysis

Initiate coverage with Buy and TP of W3,800

We initiate coverage on Pan Ocean with a Buy rating and target price of W3,800. Our target price is based on an EV/EBITDA of 8.2x, the stock's average low following the firm's exit from court receivership (2015). Since 2015, the stock has been trading at 7.7x-12.5x EV/EBITDA. From a P/B perspective, we believe the 0.68x multiple implied by our target price fully reflects recent market concerns over a sharp economic slowdown. All in all, the stock's valuation appears compelling, in light of the firm's steady earnings power and stable profitability backed by long-term charter contracts.

Table 1. Valuation

	Value	Notes
EBITDA (Wbn)	358	2020F
EV (Wbn)	2,936	EV/EBITDA of 8.2x (average low following firm's exit from court receivership)
Net debt (Wbn)	891	End-2020
Shareholder value (Wbn)	1,830	
No. of shares (mn)	535	
Per-share value (W)	3,800	
Current price (W)	2,960	
Upside (%)	28	
Implied P/E (x)	16.9	
Implied P/B (x)	0.68	

Source: Mirae Asset Daewoo Research

At present, Pan Ocean's stock is trading at an EV/EBITDA of 6.2x, reflecting the ongoing—and worst-ever—shipping market slump. However, going forward, we expect a valuation recovery to take shape on the back of rising freight rates once the COVID-19 pandemic subsides and seasonal demand picks up. Shares are now trading at a nearly 30% discount to major global bulk shippers in EV/EBITDA terms. We believe the firm's strength in the long-term contract market alone is sufficient to justify a valuation re-rating to the global peer average level.

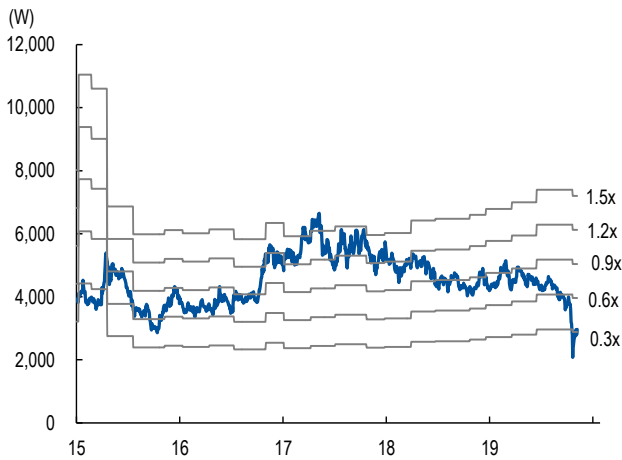
Table 2. Global peer valuation table

(Wbn, %, x)

	Company	Market cap	Revenue		OP		NP		ROE		P/E		P/B		EV/EBITDA	
			20F	21F	20F	21F	20F	21F	20F	21F	20F	21F	20F	21F	20F	21F
Korea	Pan Ocean	1,727	2,718	2,960	229	265	172	207	5.7	6.3	9.9	8.3	0.6	0.5	6.5	6.0
	Korea Line	305	1,368	-	186	-	115	-	10.3	-	2.7	-	0.3	-	6.8	-
Japan	Kawasaki Kisen Kaisha	907	8,373	8,461	69	146	102	93	6.6	5.5	8.7	9.6	0.7	0.7	12.0	10.6
	Mitsui OSK Lines	2,272	12,442	13,234	287	428	436	469	7.5	7.5	5.0	4.8	0.4	0.3	11.0	10.0
	NYK Line	2,296	19,073	19,234	398	463	277	355	5.1	5.7	8.2	6.4	0.4	0.4	10.2	9.7
Hong Kong	Pacific Basin	774	2,069	2,029	148	130	97	98	7.3	6.0	7.0	7.8	0.5	0.4	5.4	5.3
Taiwan	U-Ming Marine Transport.	918	449	-	28	-	24	-	3.1	-	31.2	-	0.8	-	14.9	-
India	Great Eastern Shipping	571	669	698	262	280	78	93	6.6	7.4	7.5	6.4	-	-	3.4	3.2
Asia avg.		1,221	5,895	7,769	201	286	163	219	6.5	6.4	10.0	7.2	0.5	0.5	8.8	7.5
US	Scorpio Bulkers	225	335	331	102	-	54	70	6.3	3.4	4.0	3.1	0.2	0.2	6.0	5.7
Norway	SFL	1,438	556	-	-	-	127	-	-	-	11.3	-	1.2	-	11.1	-
	Golden Ocean Group	565	662	648	251	241	136	160	8.6	6.7	4.2	3.5	0.3	0.3	6.5	6.1
Denmark	D/S Norden	573	3,491	3,458	164	105	113	82	10.2	7.4	4.6	6.5	0.4	0.5	3.2	3.6
Greece	Star Bulk Carriers	773	902	987	384	321	240	349	11.2	10.1	3.0	2.2	0.4	0.3	4.7	4.2
	Diana Shipping	200	271	315	69	59	38	106	7.3	9.8	5.2	2.4	0.2	0.2	5.0	3.8
Global avg.		1,025	4,080	5,202	206	244	150	201	7.5	7.2	8.3	5.8	0.5	0.4	7.7	6.2

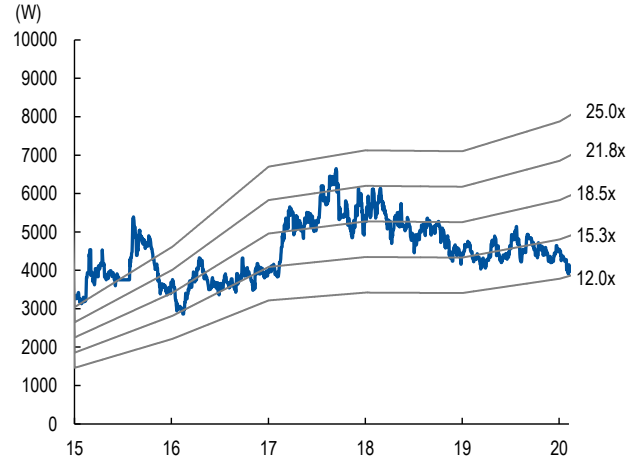
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 1. Pan Ocean: P/B band



Source: Bloomberg, Mirae Asset Daewoo Research

Figure 2. Pan Ocean: P/E band



Source: Bloomberg, Mirae Asset Daewoo Research

Acquired by the Harim Group after two receivership programs

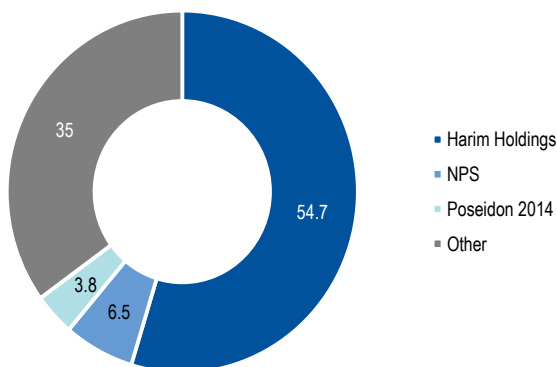
Since its establishment as Pan Ocean Bulk Carriers in 1966, Pan Ocean has been a shipping industry leader, launching Korea’s first large oil tanker shipping business in 1967. However, between 1994 and 2002, Pan Ocean found itself under court receivership due to sluggish earnings.

As of 2019, dry bulk (iron ore, coal, grains, etc.) accounts for the lion’s share (67%) of revenue, followed by the containership (10.1%) and tanker (gasoline, diesel, etc.; 6.7%) businesses. In terms of operating profit, the dry bulk unit generates 92%, while the grain trading unit, which was launched as a new growth driver in 2016, makes a minimal contribution.

In 2013, the company entered receivership once again amid worsening shipping industry conditions. In 2015, receivership came to an end, and Pan Ocean was acquired by the Harim Group.

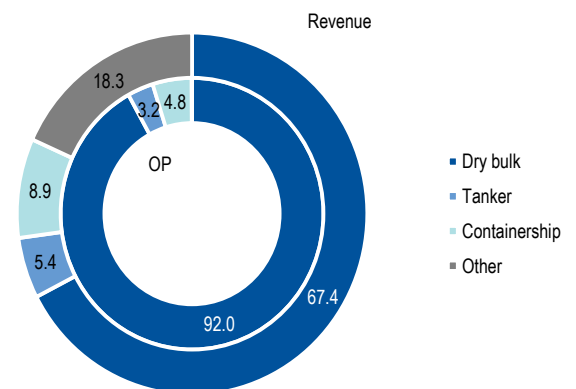
Currently, Harim Holdings owns the largest stake (54.7%) in Pan Ocean, followed by the National Pension Service (NPS; 6.5%) and Poseidon 2014 (3.8%).

Figure 3. Pan Ocean: Ownership breakdown (end-2019)



Source: Company data, Mirae Asset Daewoo Research

Figure 4. Pan Ocean: Revenue breakdown (2019)



Source: Company data, Mirae Asset Daewoo Research

Top global dry bulk carrier: 173 vessels in operation

As of end-2019, Pan Ocean operates 64 dry bulk carriers (14.3mn DWT), 17 tankers (580,000 DWT), and eight containerships. In DWT terms, dry bulk vessels account for 94.7% of the firm's fleet, with capesize vessels representing 53.8%.

At present, 31 Pan Ocean vessels (including 19 of 28 capesize vessels) are signed to long-term consecutive voyage charter (CVC) contracts involving top-tier customers, including Vale, Suzano (Fibria), KEPCO (015760 KS/Buy/TP: W26,000/CP: W19,150), POSCO (005490 KS/Buy/TP: W330,000/CP: W161,000), and Hyundai Steel (004020 KS/Buy/TP: W37,000/CP: W17,800). These CVC contracts, which guarantee a certain level of margins, should allow the firm to generate relatively steady profits regardless of market conditions.

The remainder of the shipper's fleet, including small-sized bulk carriers, tankers, and containerships, could show an increase in earnings volatility depending on market conditions. While earnings from these vessels are tied to the Baltic Dry Index (BDI), they have become more resilient to BDI downturns.

Table 3. Pan Ocean: Vessels in operation

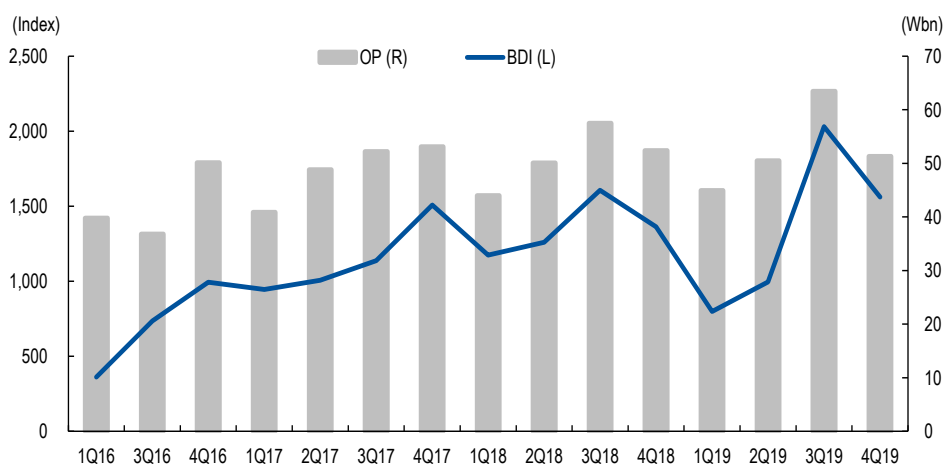
(No. of vessels)

December 2019		Owned (CVC)	Chartered (1 year+)	Total
Dry bulk	Handysize	9	27 (1)	36
	Handymax	15 (9)	33 (2)	48
	Panamax	12 (3)	14	26
	Capesize	28 (19)	7	35
Dry bulk total		64 (31)	81 (3)	145
Non-bulk	Medium-range tanker	10	0	10
	Chemical tanker	6	1	7
	Containership	3	5 (1)	8
	Heavy-lift vessel	2	0	2
	LNG carrier	0	1(1)	1
Non-bulk total		21	7 (2)	28
Total		85 (31)	105 (6)	173

Note: 85 owned vessels as of Nov. 12, 2019 (14 vessels currently under construction)

Source: Mirae Asset Daewoo Research

Figure 5. Pan Ocean: OP vs. BDI



Source: Thomson Reuters, company data, Mirae Asset Daewoo Research

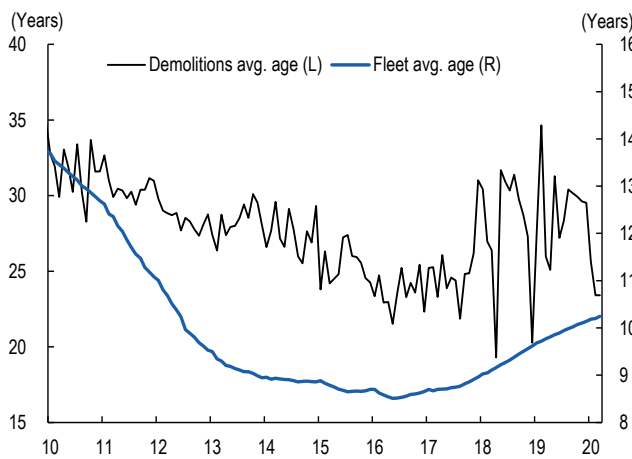
Lower average vessel age and solid financials

After having emerged from two receivership rounds, Pan Ocean is now believed to have a more stable and competitive fleet portfolio. The average age of its fleet has declined to 8.7 years; the average age for dry bulk vessels is even lower, at 7.4 years (vs. the industry average of over 10 years).

We believe robust fleet competitiveness is crucial for shipping firms to meet tightening environmental regulations (e.g., IMO 2020). In addition, a competitive fleet mix (focused on newer vessels) could facilitate market share gains once the industry turns around. Notably, aged ships—which incur high costs (e.g., maintenance, fuel)—tend to come under greater demolition pressure during shipping market down cycles.

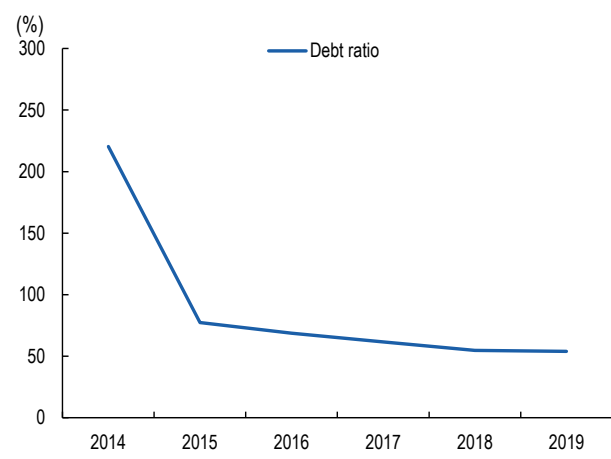
On another positive note, Pan Ocean’s debt ratio has been trending downward. After topping 1,900% in 2013 (when the company’s second receivership began), the ratio declined to 220% in 2014, 77% in 2015 (when the program ended), and 54% in 2019. This marked improvement in financial stability has allowed the firm to sign a long-term contract with Vale, the world’s largest iron ore producer.

Figure 6. Pan Ocean: Avg. age of dry bulk fleet



Source: Clarksons, Mirae Asset Daewoo Research

Figure 7. Pan Ocean: Debt ratio



Source: Company data, Mirae Asset Daewoo Research

Table 4. Pan Ocean: Overview of CVC contracts

Cargo owner	Vessels in operation	Remaining term	Measures to meet IMO SOx regulations	Details
Vale	9	17.7 years	Scrubber installation	Eight 400,000 DWT vessels and one 325,000 DWT vessel
Suzano	9	16.5 years	VLSFO	Five 57,000 DWT vessels and four 62,000 DWT vessels
KEPCO subsidiaries	7	8.6 years	Scrubber installation (2); VLSFO (5)	Three vessels for Korea Southern Power; two for Korea South-East Power; one for Korea Midland Power; one for Korea East-West Power
POSCO	4	9 years	Scrubber installation (2); VLSFO (2)	
Hyundai Steel	2	12.2 years	VLSFO	
Total	31	13.8 years		

Source: Company data, Mirae Asset Daewoo Research

Earnings outlook: Turnaround expected from 2H20

We project Pan Ocean's 2020 revenue at W2.27tr (-7.9% YoY) and operating profit at W166.8bn (-20.6% YoY). We believe earnings will dip YoY in 2020, due mainly to a decline in fleet utilization arising from reduced iron ore/coal/grain volumes amid the COVID-19 pandemic, coupled with lower freight rates resulting from worsened supply/demand conditions. However, we expect earnings to gradually recover from 3Q20 on a pickup in freight rates.

For 2020, the firm plans to add 13 dry bulk vessels (2.4mn DWT; 15% of its total fleet) to handle CVC contracts with Vale and Suzano. In light of the agreements with Vale, we expect deliveries of five new VL0Cs (March 2020-March 2021) and two Newcastlemax carriers (September-October 2020), which should drive rapid earnings improvement going forward.

Table 5. Pan Ocean: New vessel delivery schedule

Vessels	No.	Delivery schedule	Notes
62,000 DWT open-hatch	1	3/20	15-year CVC contract with Suzano (option + 10 years)
325,000 DWT VL0C	5	3/20-3/21	27-year contract with Vale
37,500 DWT logger	2	6/20, 12/20	
63,500 DWT ultramax	3	9/20, 10/20, 12/20	
208,000 DWT Newcastlemax	2	9/20, 10/20	Five-year contract with Vale
Tanker 50,000 DWT medium-range	4	6/21, 9/21	
Total	17		2,569 DWT

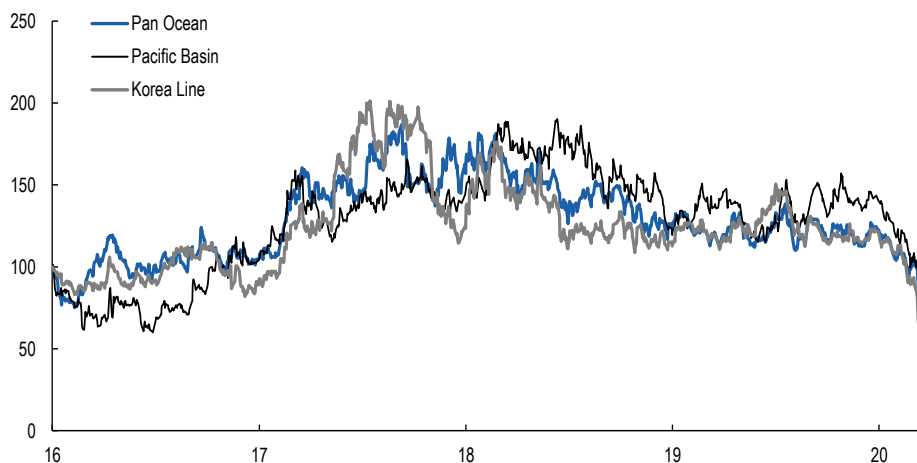
Source: Company data, Mirae Asset Daewoo Research

Table 6. Pan Ocean: Quarterly and annual earnings

(Wbn)	1Q19	2Q19	3Q19	4Q19	1Q20F	2Q20F	3Q20F	4Q20F	2019	2020F	2021F
Revenue	535	632	682	619	463	538	607	664	2,468	2,273	2,532
Bulk carrier	376	380	469	439	333	336	397	507	1,663	1,573	1,818
Tanker	30	31	36	37	30	32	37	27	135	125	131
Containership	59	61	44	56	35	44	36	40	219	156	157
Other	70	160	133	88	65	126	137	91	451	419	427
Operating profit	45	50	63	51	32	33	46	56	210	167	228
Bulk carrier	41	46	58	48	28	30	44	53	193	155	216
Tanker	1	0	3	3	2	1	1	1	7	4	5
Containership	3	4	2	1	2	2	2	2	10	7	8
Other	0	0	0	-1	0	0	0	0	0	0	-1
Pretax profit	28	37	55	28	19	20	33	44	148	116	183
Net profit (controlling)	31	37	55	29	20	21	34	46	152	120	189
OP margin (%)	8	8	9	8	7	6	8	8	9	7	9
Net margin (%)	5	6	8	5	4	4	5	7	6	5	7
Net margin (controlling, %)	5	6	8	5	4	4	5	7	6	5	7
BDI (p)	798	995	2,030	1,562	638	796	1,218	1,093	1,346	936	1,100

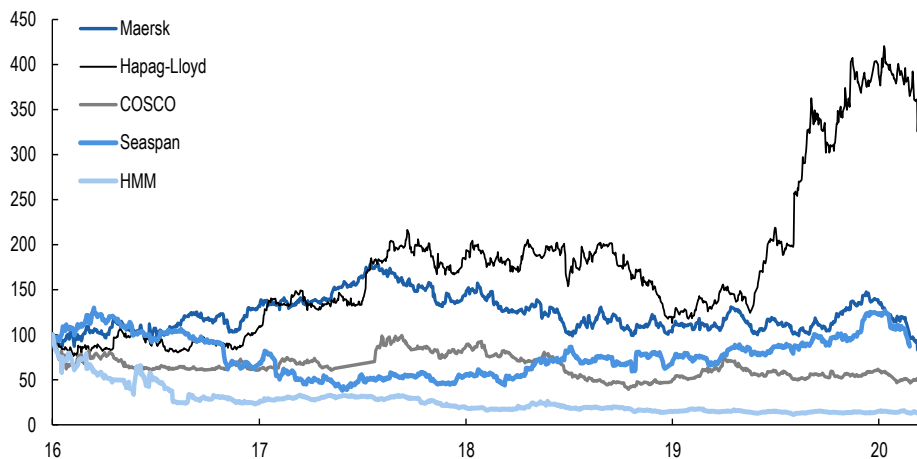
Source: Company data, Mirae Asset Daewoo Research

Figure 8. Relative share performances of major dry bulk shippers



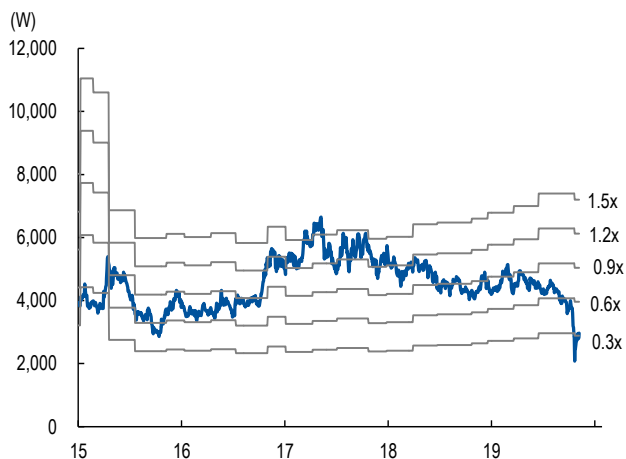
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 9. Relative share performances of major container shippers



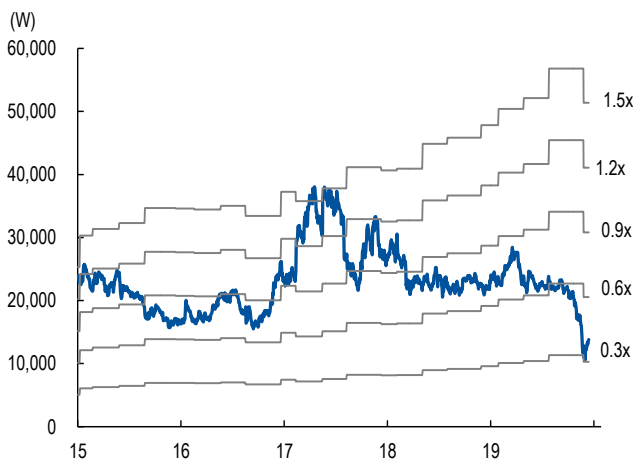
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 10. Pan Ocean: P/B band



Source: Quantwise, Mirae Asset Daewoo Research

Figure 11. Korea Line: P/B band



Source: Quantwise, Mirae Asset Daewoo Research

II. Dry bulk market

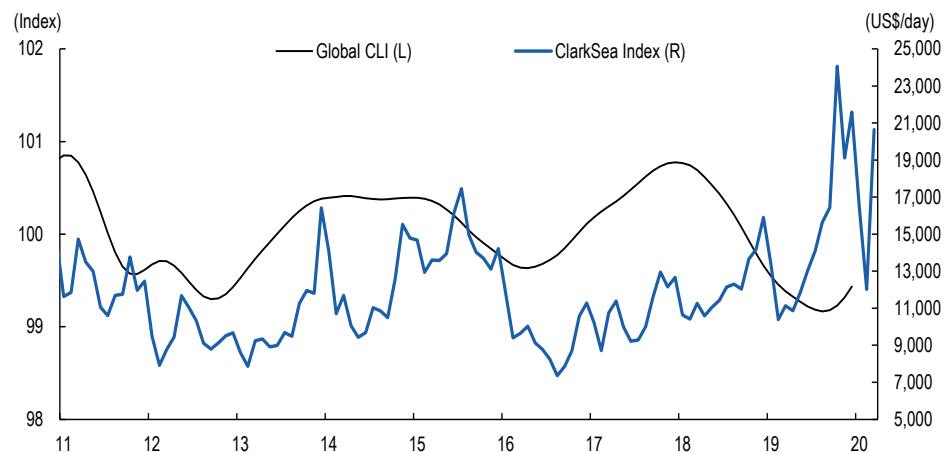
Global economy to rebound once the COVID-19 pandemic subsides

The shipping industry is responsible for the carriage of over 80% of global trade and thus shows a strong correlation with global demand. We note that the composite leading indicator (CLI) for the global economy had been staging a rebound since early 2018—until the COVID-19 outbreak dragged down sentiment.

In the US, both the wholesale/retail inventory cycle index and CLI began to bounce back in late 2019 (in line with the global CLI), heightening expectations for a mini-cycle recovery. However, the global spread of COVID-19 has been leading to sharp downward revisions to global GDP forecasts.

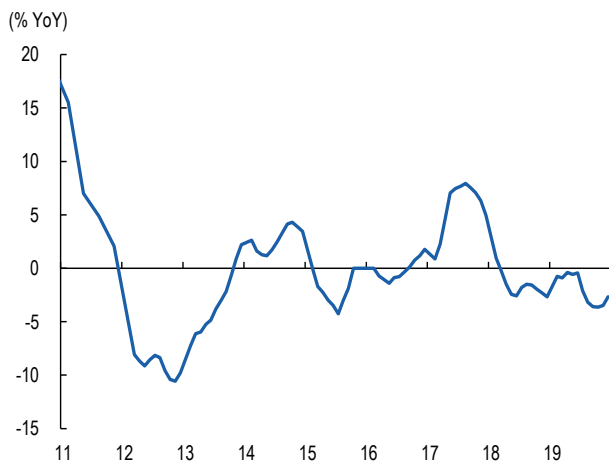
Still, we note that aggressive policy announcements have given rise to some hope for a global economic recovery. Indeed, the US Fed has revived 2008 crisis-era programs to boost liquidity and announced unlimited QE. Meanwhile, the ECB announced that it would launch a EUR750bn Pandemic Emergency Purchase Program (PEPP).

Figure 12. CLI for global economy vs. ClarkSea Index



Source: Bloomberg, OECD, Clarksons, Mirae Asset Daewoo Research

Figure 13. Chinese inventory cycle index change (12-month forward)



Source: CEIC, Mirae Asset Daewoo Research

Figure 14. US inventory cycle index

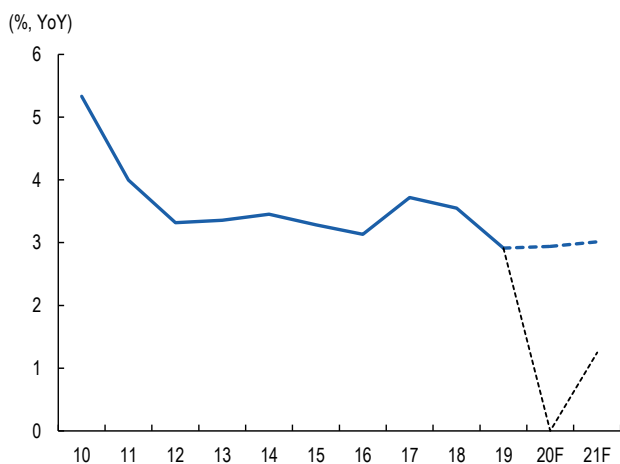


Source: Bloomberg, US Census Bureau, Mirae Asset Daewoo Research

All in all, the global financial market remains in turmoil. In January-February, China's industrial output shrank 13.5% YoY. A recent study suggests that the COVID-19 pandemic could slice US GDP growth in half in 2Q20 amid expansive lockdown measures. We believe market jitters will persist until the spread of COVID-19 comes under control. Based on the Korea case, we see a possibility of an April slowdown in COVID-19; however, we concede that overall visibility remains low.

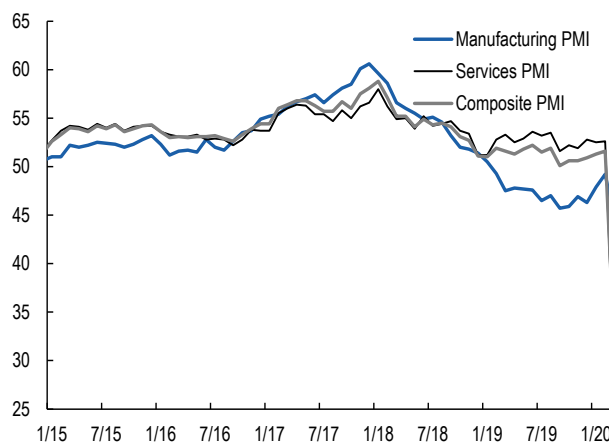
After 2Q20, however, we expect the economy to pick up full swing, assuming that the COVID-19 outbreak peaks and industrial activities resume. Furthermore, we believe pent-up demand could be released, as seen in 2010 following the sharp demand contraction in 2009.

Figure 15. Global GDP growth forecast and trend



Note: Black dotted line is based on the lower end of the Bloomberg consensus
 Source: Bloomberg, OECD, Mirae Asset Daewoo Research

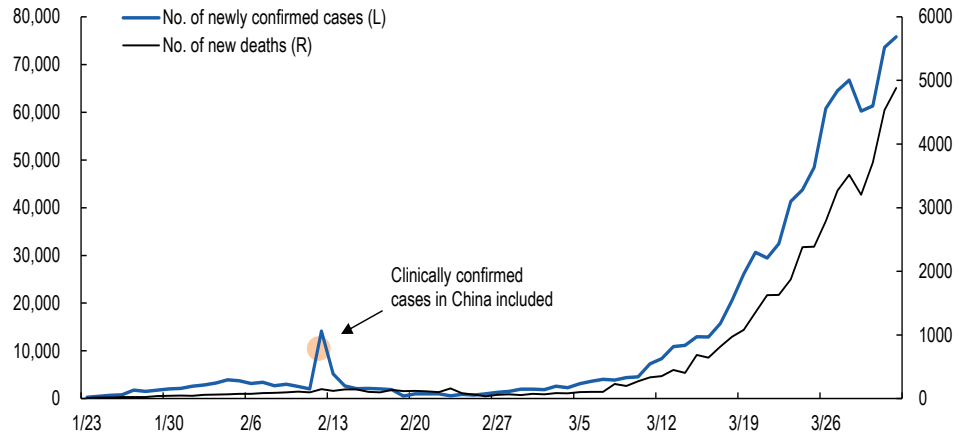
Figure 16. Eurozone PMI



Source: Bloomberg, CEIC, Mirae Asset Daewoo Research

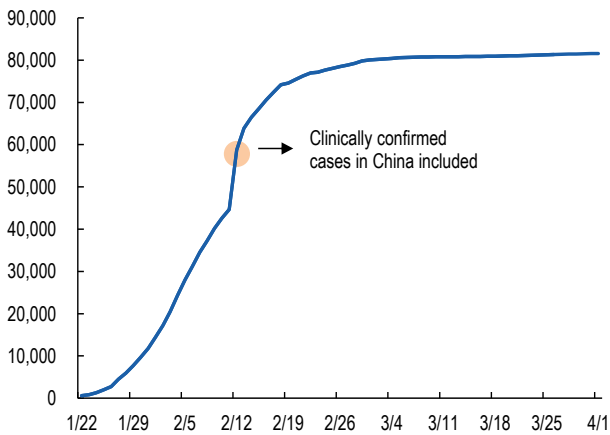
We believe that a clear slowdown in the growth of newly confirmed COVID-19 infections would point to a potential shipping market reversal. Based on the trends seen in China and Korea, where the pandemic is showing signs of subsiding, we believe new cases will peak in mid-April. Once we start to see a downtrend in infections, the shipping market should start to pick up. And if pent-up demand is unleashed during the 2H20 high-demand season, the market could rebound markedly.

Figure 17. Global: Newly confirmed COVID-19 cases and deaths (daily)



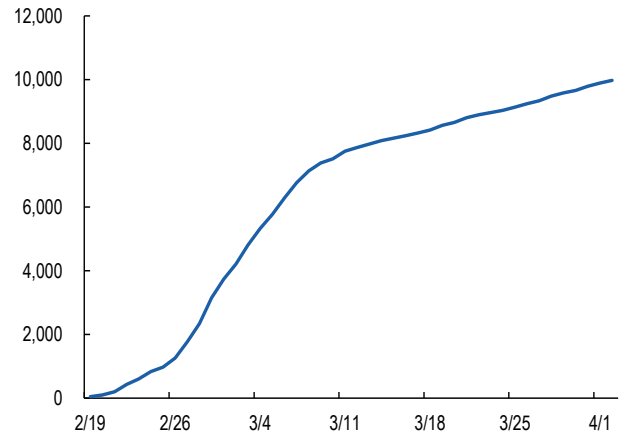
Source: WHO, Mirae Asset Daewoo Research

Figure 18. China: Cumulative no. of confirmed cases



Source: WHO, Mirae Asset Daewoo Research

Figure 19. Korea: Cumulative no. of confirmed cases



Source: KCDC, Mirae Asset Daewoo Research

In 2019, global maritime trade volume growth hit the lowest level (+0.7% YoY; +1.1% YoY in tonne-mile demand) since 2009. Shipping demand for crude oil/oil products and iron ore shrank 1.8% and 1.4% YoY, respectively, due to the US-China trade dispute and the collapse of a Vale dam. And container shipping volume growth was halved to 2.1%.

Although demand growth was initially expected to reach 2-3% in 2020 thanks to signs of a global economic recovery and a US-China thaw, we believe the consensus will be lowered to 1.7% (+2.3% YoY based on tonne-miles) due to the impact of COVID-19 (assuming that the outbreak will lose steam before the end of 1H20). On a positive note, we do not expect a worst-case scenario to materialize, given that we see room for downward revisions to supply forecasts. If demand rapidly picks up after the COVID-19 epidemic is controlled, the shipping market could see a dramatic improvement in supply/demand dynamics.

Table 7. Global maritime trade volume

(mn tonnes)

	2016	2017	2018	2019E	2020F	2021F
Oil						
Crude	1,938	2,004	2,014	1,999	2,043	2,075
YoY	3.5%	3.4%	0.5%	-0.7%	2.2%	1.6%
Oil products	1,048	1,061	1,074	1,032	1,072	1,083
Oil total	2,986	3,065	3,088	3,031	3,115	3,158
YoY	3.7%	2.6%	0.7%	-1.8%	2.8%	1.4%
Gas						
LPG	88	91	99	104	107	113
LNG	268	292	318	355	381	402
YoY	7.2%	9.0%	8.9%	11.6%	7.3%	5.5%
Gas total	356	383	417	459	488	515
YoY	7.9%	7.6%	8.9%	10.1%	6.3%	5.6%
Chemicals total	283	305	323	331	335	345
YoY	1.4%	7.8%	5.9%	2.5%	1.2%	3.0%
Major dry bulk						
Iron ore	1,418	1,473	1,477	1,457	1,489	1,507
Coking coal	246	256	267	271	277	283
Steam coal	895	946	996	1,019	1,026	1,035
Grain	450	476	475	478	489	504
Major dry bulk total	3,009	3,151	3,215	3,225	3,281	3,329
YoY	2.7%	4.7%	2.0%	0.3%	1.7%	1.5%
Minor dry bulk						
Agribulk/soft	385	410	405	407	405	426
Metals/minerals	727	771	840	880	903	936
Manufacturing	767	758	770	759	765	782
Minor dry bulk total	1,879	1,939	2,015	2,046	2,073	2,144
YoY	-0.3%	3.2%	3.9%	1.5%	1.3%	3.4%
Dry bulk total	4,888	5,090	5,230	5,271	5,354	5,473
YoY change	1.6%	4.1%	2.8%	0.8%	1.6%	2.2%
Total containers	1,669	1,768	1,844	1,882	1,893	1,970
YoY	0.5%	5.9%	4.3%	2.1%	0.6%	4.1%
Other dry cargo	855	888	914	928	915	935
Cars	28	30	31	30	28	31
Reefer cargo	236	247	252	257	263	272
Dry cargo total	7,413	7,746	7,988	8,081	8,162	8,378
YoY	1.5%	4.5%	3.1%	1.2%	1.0%	2.6%
Global maritime trade (mn tonnes)	11,039	11,499	11,816	11,903	12,100	12,396
YoY	2.3%	4.2%	2.8%	0.7%	1.7%	2.4%
Global maritime trade (mn tonne-miles)	54,604	57,287	59,053	59,703	60,956	63,261
YoY	3.6%	4.9%	3.1%	1.1%	2.3%	3.0%

Source: Clarksons, Mirae Asset Daewoo Research

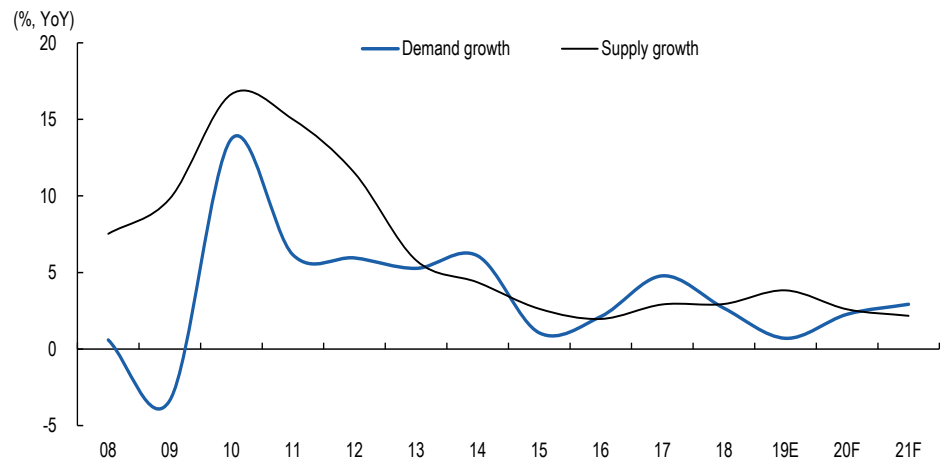
Dry bulk: Likely to pick up after a demand shock

The BDI displayed an out-of-character rise during the 3Q19 low-demand season, raising expectations for the implementation of SOx emission regulations (effective January 1, 2020). In 4Q19, however, the BDI fell sharply despite the arrival of a high-demand season. We believe the pickup in 3Q19 was attributable to one-off factors, including Vale’s output recovery.

Thus far in 2020, the dry bulk market has widely missed market expectations, hurt by: 1) the COVID-19 outbreak; 2) Vale’s downward revision to its production forecasts; and 3) the impact of the Australian storm season. However, with the spread of COVID-19 slowing down in China, we believe that the market is likely to stabilize in 2Q20.

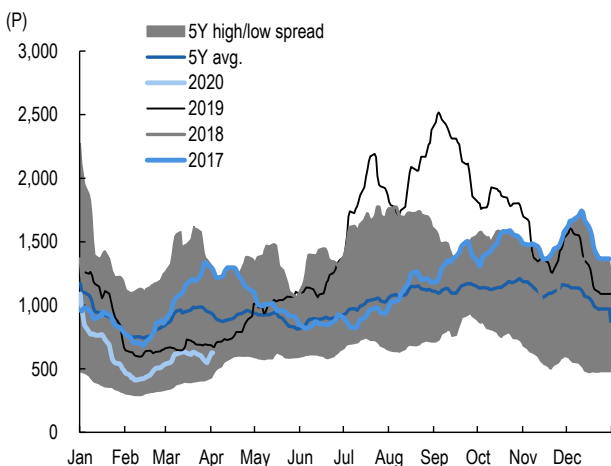
Historically, cyclical weakness has been driven by the capesize segment, and the current down cycle is no exception. The Baltic Capesize Index (BCI) has hit a historic low, falling below the 500p mark. Furthermore, the capesize/Panamax freight rate ratio has dropped to around 0.3x. However, if past experience is any guide, we do not believe the BDI will fall further. Rather, if the effects of COVID-19 do not escalate further, we expect to see a seasonal pickup between March and April. Moreover, if pent-up demand is released, the rate of recovery will likely be more rapid than expected.

Figure 20. Dry bulk supply/demand



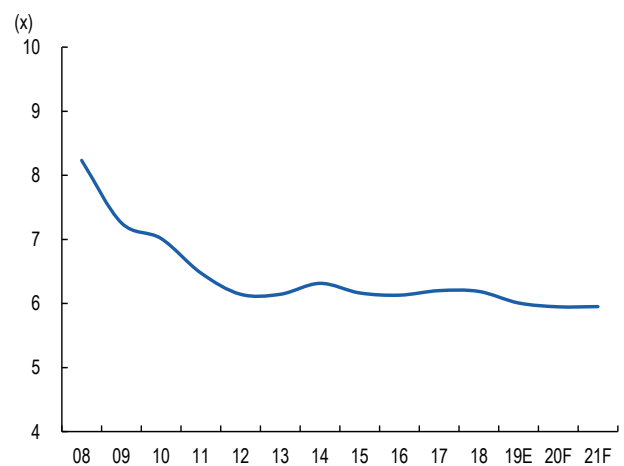
Source: Clarksons, Mirae Asset Daewoo Research

Figure 21. 2017-20 monthly BDI trends



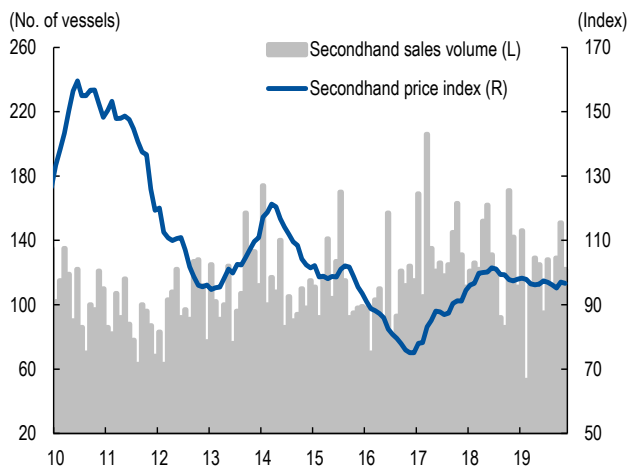
Source: Datastream, Mirae Asset Daewoo Research

Figure 22. Supply turnover



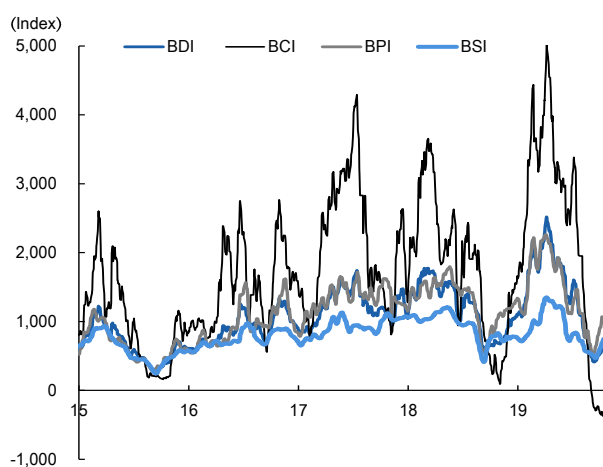
Source: Clarksons, Mirae Asset Daewoo Research

Figure 23. Secondhand vessels: Sales volume and prices



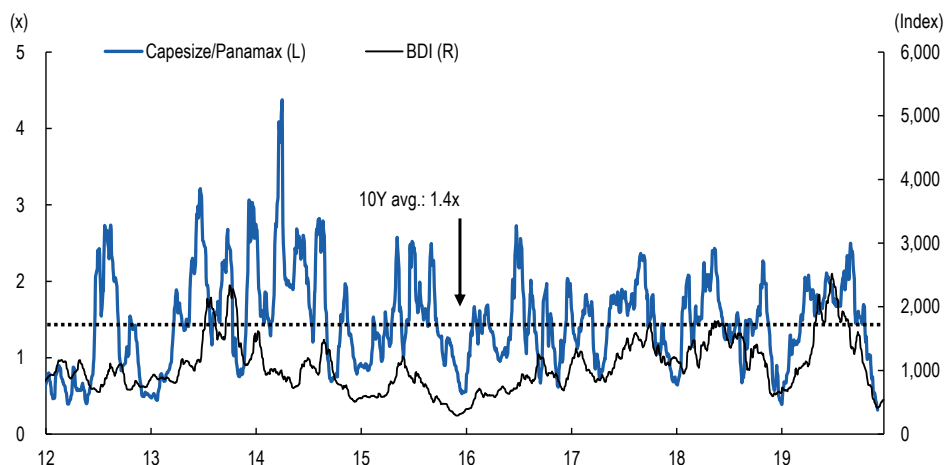
Source: Clarksons, Mirae Asset Daewoo Research

Figure 24. Bulker freight rate indices



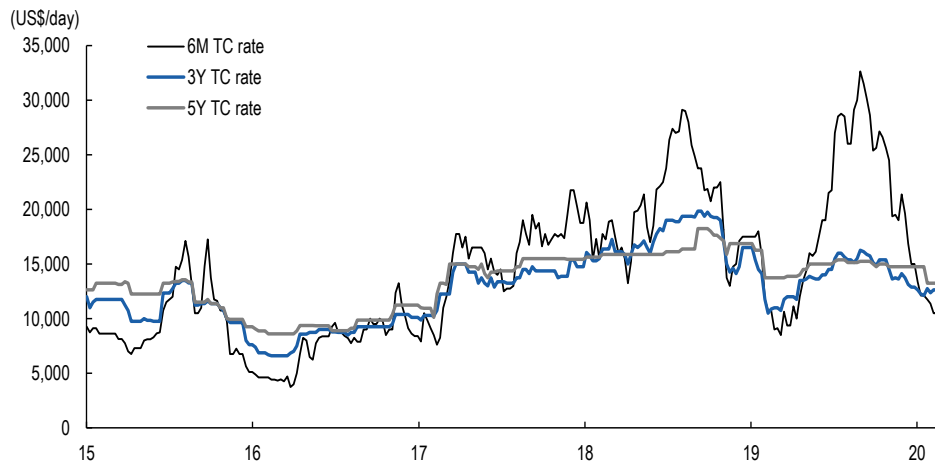
Source: Datastream, Mirae Asset Daewoo Research

Figure 25. Capesize/Panamax freight rate ratio: Currently at a historic low



Source: Clarksons, Mirae Asset Daewoo Research

Figure 26. Short/long-term charter rates for capesize vessels: Short-term down cycle has started



Source: Clarksons, Mirae Asset Daewoo Research

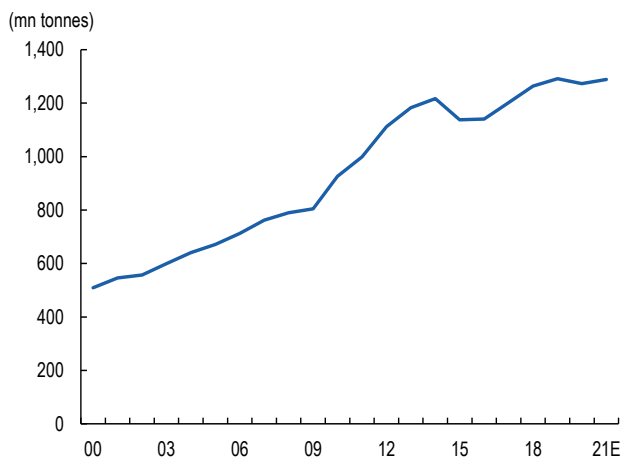
Demand: Likely to recover in 2020, but only at a modest pace

In 2019, dry bulk tonne-mile demand grew by a mere 0.7% YoY (+2.7% YoY in 2018), as China's coal and iron ore output has steadily declined amid the implementation of environmental regulations and industry restructuring policies. In 2020, we expect tonne-mile demand to pick up 2.3% (+1.6% YoY based on tonnes). However, we see limited potential for additional demand growth in light of the COVID-19 pandemic.

On a positive note, coal prices have been stabilizing after falling to around US\$60/tonne amid steady demand weakness. In addition, iron ore prices, which dropped to around US\$70/tonne amid the COVID-19 outbreak, have been picking up modestly.

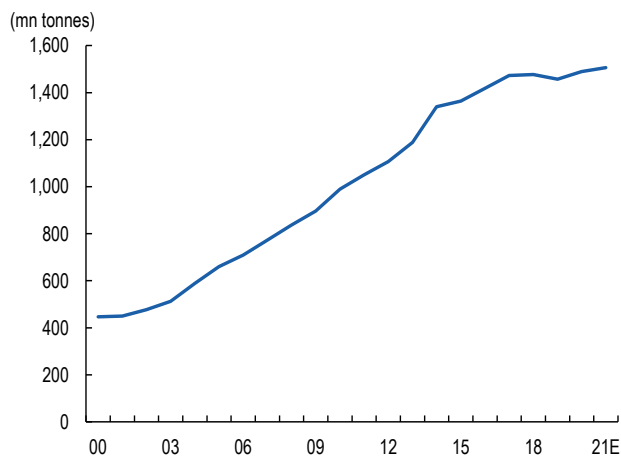
We also note that pent-up demand could potentially be released, as China is expected to shake off the pandemic before the end of 1H20. Under such a scenario, we could see robust demand in 3Q20 despite unfavorable seasonality.

Figure 27. Coal shipping demand



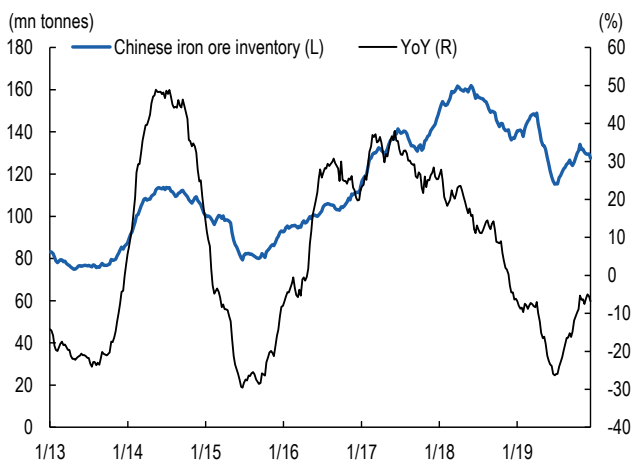
Source: CEIC, Mirae Asset Daewoo Research

Figure 28. Iron ore shipping demand



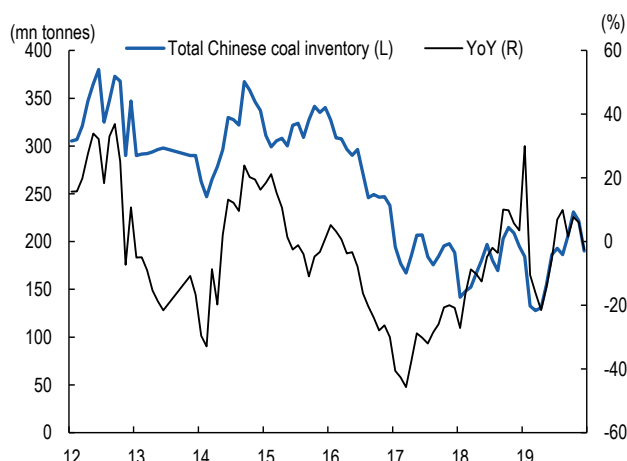
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 29. China: Iron ore inventory



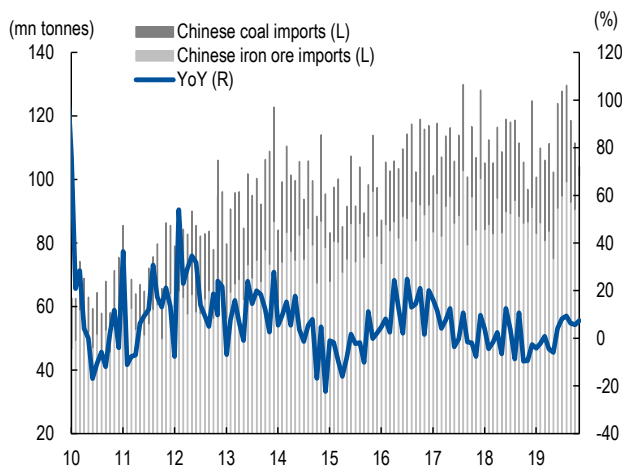
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 30. China: Coal inventory



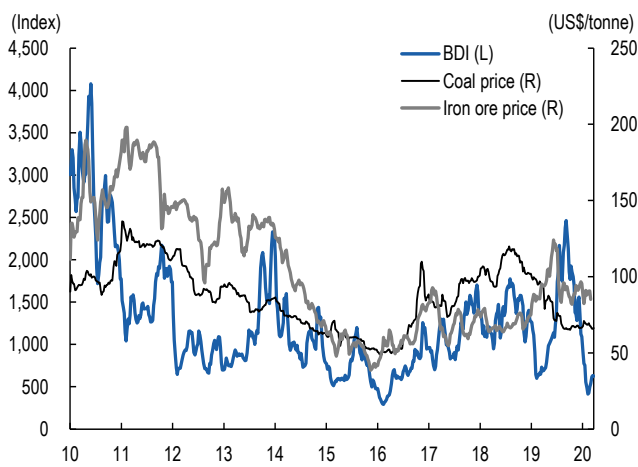
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 31. China: Iron ore and coal imports



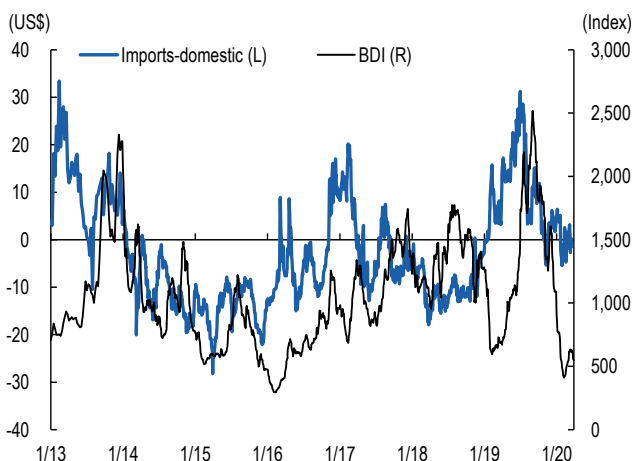
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 32. BDI, coal, and iron ore prices



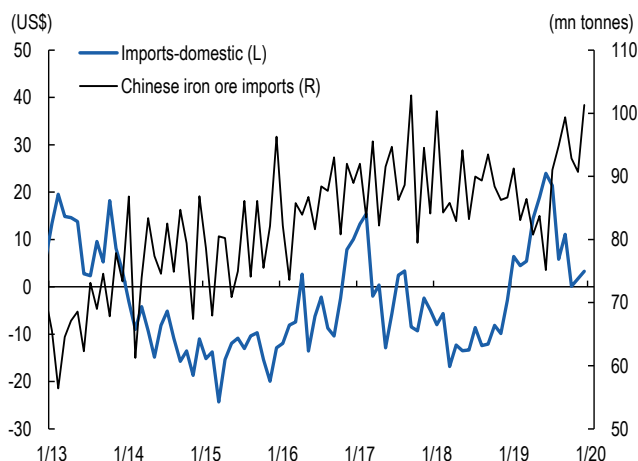
Source: Bloomberg, Mirae Asset Daewoo Research

Figure 33. China: Spread between local and imported iron ore prices vs. BDI



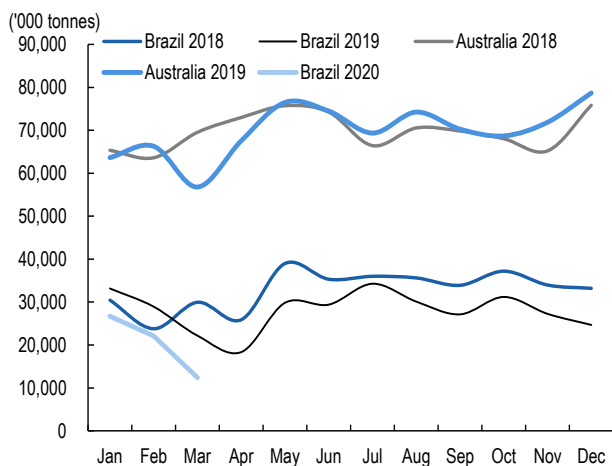
Source: CEIC, Mirae Asset Daewoo Research

Figure 34. China: Spread between local and imported iron ore prices vs. iron ore imports



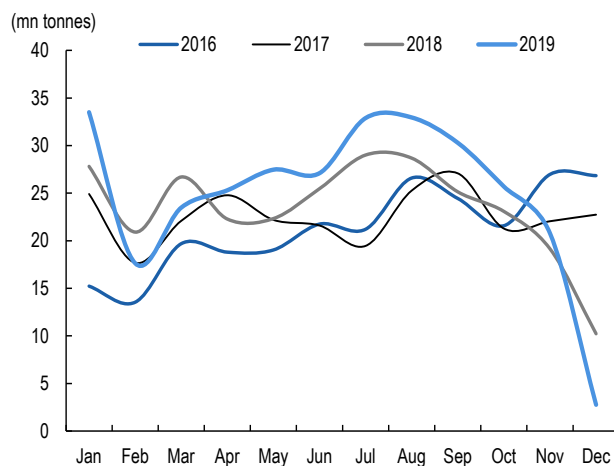
Source: Bloomberg, CEIC, Mirae Asset Daewoo Research

Figure 35. Brazil and Australia: Monthly iron ore exports



Source: Bloomberg, Mirae Asset Daewoo Research

Figure 36. China: Monthly coal imports



Source: Bloomberg, Mirae Asset Daewoo Research

Supply: Increasing demolitions and potential for delayed deliveries

In 2020, we expect supply to grow 2.9% YoY (vs. +4.1% YoY in 2019). New vessel deliveries, which increased on temporary newbuilding order growth in 2017, will likely slow somewhat. Given demand weakness stemming from the COVID-19 pandemic, we expect to see moderate oversupply.

However, we also note positive developments. Vessel demolitions have recently been surging, while new vessel deliveries have been delayed amid the COVID-19 outbreak, pointing to ample room for downward supply forecast revisions. In addition, we are encouraged by shipping companies' ongoing efforts to meet IMO 2020 regulations by fitting their vessels with scrubber systems (which should reduce supply).

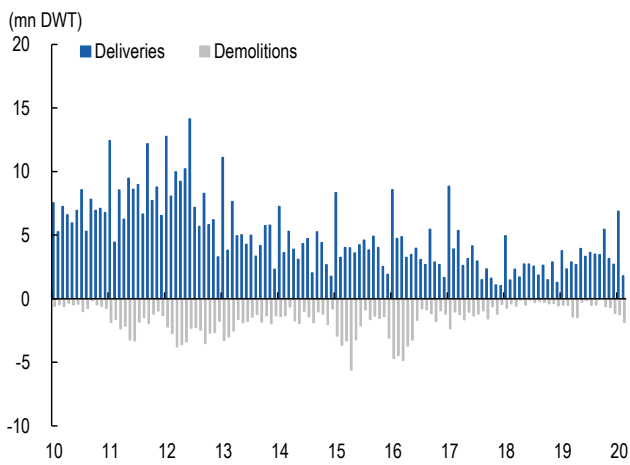
Of note, the orderbook-to-fleet ratio is hovering around historic lows, suggesting that the burden of fleet growth will steadily decline. We project that oversupply, which started in 2019, should gradually ease around end-2020-2021.

Table 8. Bulk carrier fleet forecasts

	2014	2015	2016	2017	2018	2019E	2020F	2021F
Vessels	1,637	1,630	1,652	1,693	1,727	1,775	1,829	1,890
Capesize mn DWT	307.7	309.2	315.2	323.9	334.98	347.5	358	370
Growth (%)	4.9	0.5	1.9	2.8	3.4	3.7	3.0	3.4
Vessels	2,428	2,450	2,446	2,506	2,565	2,693	2,766	2,834
Panamax mn DWT	192.4	195.2	196.1	201.5	206.7	217.1	223	228.5
Growth (%)	4.4	1.5	0.5	2.8	2.6	5.1	2.7	2.5
Vessels	3,128	3,321	3,442	3,552	3,626	3,733	3,828	3,860
Supramax mn DWT	166.8	179.5	188.4	196	200.9	208	213.3	215.1
Growth (%)	5.2	7.6	4.9	4	2.5	3.5	2.5	0.8
Vessels	3,581	3,591	3,599	3,628	3,682	3,741	3,778	3,785
Handysize mn DWT	96	97.3	98.6	100.3	102.5	104.8	105.8	106
Growth (%)	1.2	1.3	1.3	1.8	2.2	2.2	1.0	0.2
Vessels	10,774	10,992	11,139	11,379	11,600	11,942	12,252	12,517
Total mn DWT	763	781.2	798.2	821.7	845	877	900	920
Growth (%)	4.3	2.4	2.2	2.9	2.8	3.8	2.6	2.2

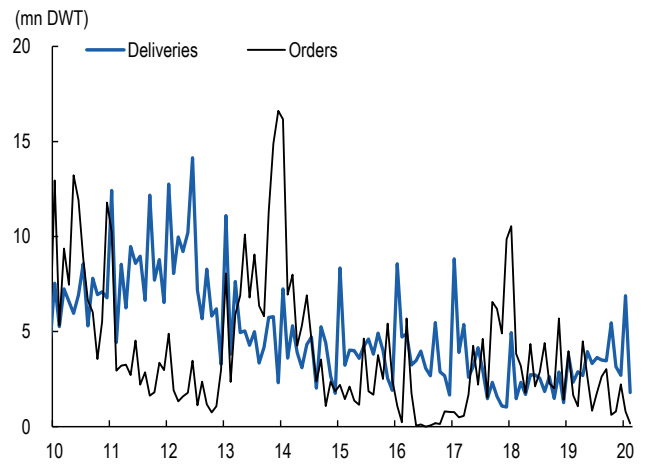
Source: Clarksons, KOBIC, Mirae Asset Daewoo Research

Figure 37. Bulk carrier deliveries vs. demolitions



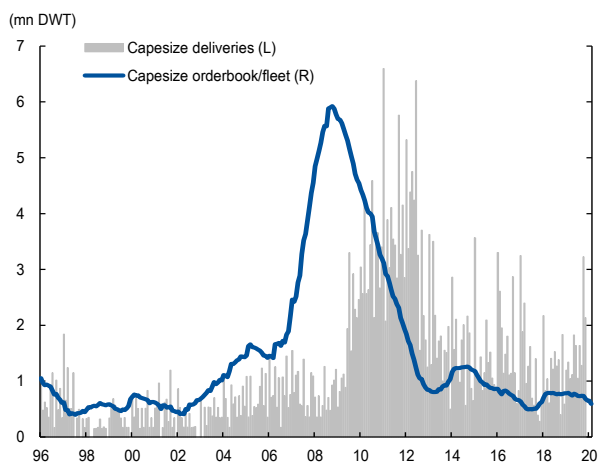
Source: Clarksons, Mirae Asset Daewoo Research

Figure 38. Bulk carrier orders vs. deliveries



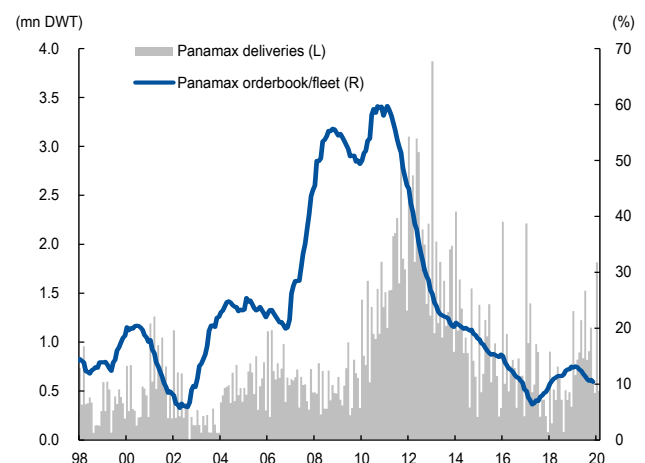
Source: Clarksons, Mirae Asset Daewoo Research

Figure 39. Capesize orderbook-to-fleet ratio



Source: Clarksons, Mirae Asset Daewoo Research

Figure 40. Panamax orderbook-to-fleet ratio



Source: Clarksons, Mirae Asset Daewoo Research

III. IMO 2020 and maritime shipping

IMO regulations: From SOx to BWMS and CO₂ emissions

1) The age of eco-friendly vessels

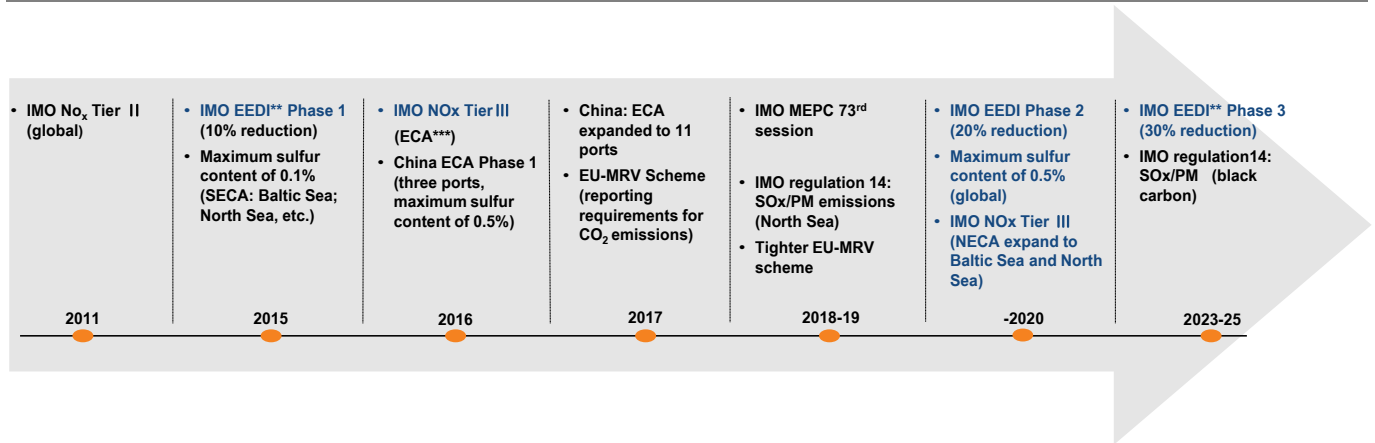
Since the 2016 Paris Agreement, there have been growing calls for clean energy use globally. The maritime shipping industry has been no exception; environmental regulations, including ballast water management system (BWMS) requirements and NOx/CO₂ emissions control, have gotten progressively tighter. In particular, IMO regulations capping sulfur content in marine fuel oil at 0.5% went into effect on January 1, 2020, in accordance with a resolution adopted at the October 2016 meeting of the IMO’s Marine Environment Protection Committee (MEPC).

Table 9. IMO regulations

Scope	Details
BWMS	Phasing in of BWMS requirement
SOx emissions	0.50% global sulfur cap for marine fuels, effective January 1, 2020
GHG emissions	Reduction of GHG emissions by 50% until 2050

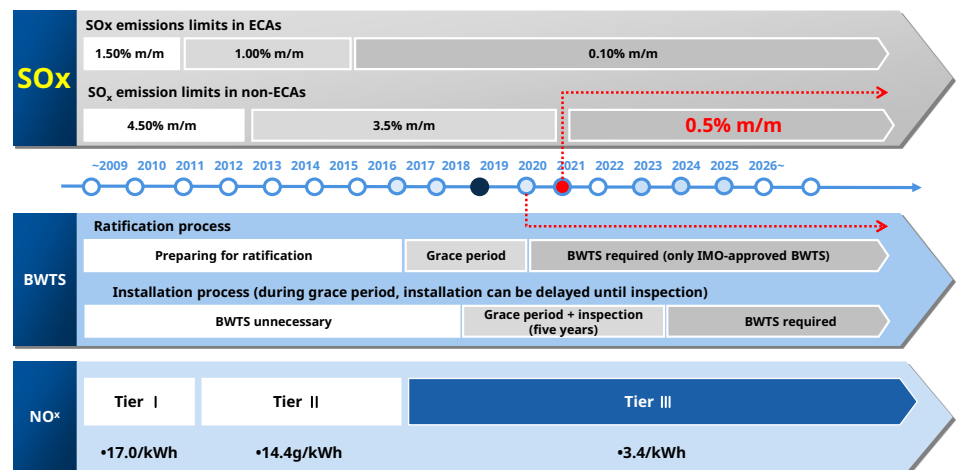
Source: Press reports, Mirae Asset Daewoo Research

Figure 41. IMO timeline



Source: Mirae Asset Daewoo Research

Figure 42. IMO regulations



Source: IMO, USCG, Mirae Asset Daewoo Research

Source: IMO, Mirae Asset Daewoo Research

Table 10. Summary of MEPC 74th session (EEDI)

	Details	Notes
Phase 3 requirements	<ul style="list-style-type: none"> - Containerships: Starting year pulled forward from 2025 to 2022, and reduction factors to be made stricter (based on size) - General cargo ships, LNG carriers, and cruise ships: Starting year pulled forward from 2025 to 2022; 30% reduction maintained - 15,000+ DWT gas carriers: Starting year pulled forward from 2025 to 2022; 30% reduction maintained - Other: 2025 starting year and 30% reduction maintained 	Amendments to be adopted at MEPC 75 th session
Reference line for large-sized bulk carriers	- Approved amendments to MARPOL Annex VI to relax the reference line for large bulk carriers (279,000+ DWT)	Amendments to be adopted at MEPC 75 th session
Requirements for ice-class ships	- Amended guidelines on EEDI calculation to add a correction factor for ice-class ships (IA Super and IA)	
Phase 4 requirements	- Agreed to extend correspondence group (CG) activities related to the possible introduction of EEDI phase 4.	Interim report to be released at MEPC 75 th session; final report to be submitted to MEPC 76 th session
Minimum propulsion power requirements	- Moved forward with revision to guidelines determining minimum propulsion power	

Source: ClassNK, IMO, Mirae Asset Daewoo Research

Table 11. Summary of IMO MEPC 74th session (excluding EEDI)

	Details	Notes
IMO GHG reduction strategy	<ul style="list-style-type: none"> - Discussed potential short-term measures to reduce GHG emissions from existing ships - Energy Efficiency Existing Ship Index (EEXI) - Annual efficiency ratio (AER) - Maximum operational speed - Strengthening of the Ship Energy Efficiency Management Plan (SEEMP) and improvement of operational energy efficiency 	Intersessional meetings in Nov. 2019 and Mar. 2020; agreement to be reached in 2023.
Air pollution	- Approved amendment requiring onboard sampling of fuel oil (for verification of sulfur content)	Amendments to be adopted at MEPC 75 th session
	- Agreed to set global sulfur limit of 0.5% from January 1, 2020	
	- Approved new program to investigate the environmental impact of wash water discharged from EGCS.	Launched during Feb. 2020 sub-committee meeting
BWMS	- Agreed to conduct testing of BWMS during installation, and also sample and analyze treated ballast water to confirm performance	Amendments to be adopted at MEPC 75 th session

Source: ClassNK, IMO, Mirae Asset Daewoo Research

2) SOx emissions regulations

■ MGO: Most realistic option for now

Currently, carriers have three options for complying with the new regulations to reduce SOx emissions: 1) low-sulfur marine gas oil (MGO); 2) scrubber installation; or 3) LNG.

Using MGO does not require major vessel upgrades. However, switching from heavy fuel oil (HFO), such as Bunker C oil, to MGO or LSFO is costly. Indeed, low-sulfur fuel is around 50% more expensive than HFO, and may become even more expensive following the enforcement of the regulations. Moreover, lubricity is reduced with lower sulfur content, causing damage to the engine due to increased friction. As a result, engines may need to be repaired, replaced, or shut down, leading to shipping schedule disruptions.

■ Scrubber installation: Benefits and limits

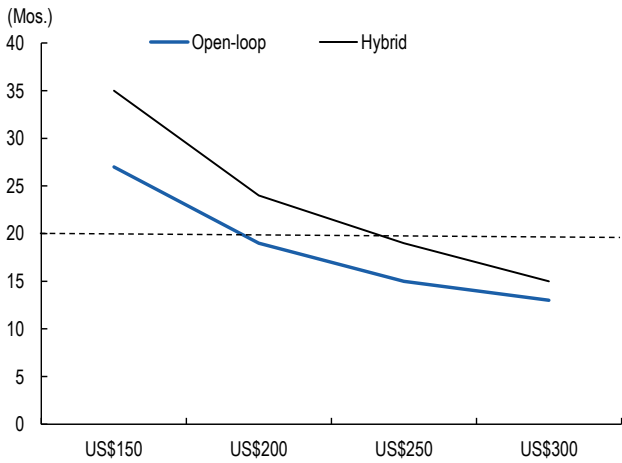
For diesel-powered vessels, installing scrubbers (exhaust cleaning devices) is the easiest way to comply with SOx regulations. Indeed, scrubber installation has increased sharply to 15.4% of bulk carriers and more than 17% of VLCCs and containerships (based on tonnage).

However, shipowners bear the cost of installation, which is, on average, US\$4-6mn per vessel—roughly 30% of the price of a 15-year-old ship. In addition, for environmental reasons, sludge (sulfur residue) collected during scrubber operations cannot be disposed of at sea and must be carried onboard.

In light of these problems, we believe that scrubber installation, while clearly the most popular option in the near term, is not a viable solution in the long term. In some recent cases, sulfur content has been found to exceed the 0.5% limit even with scrubbers installed. And certain scrubbers (open-loop type) are banned in some countries.

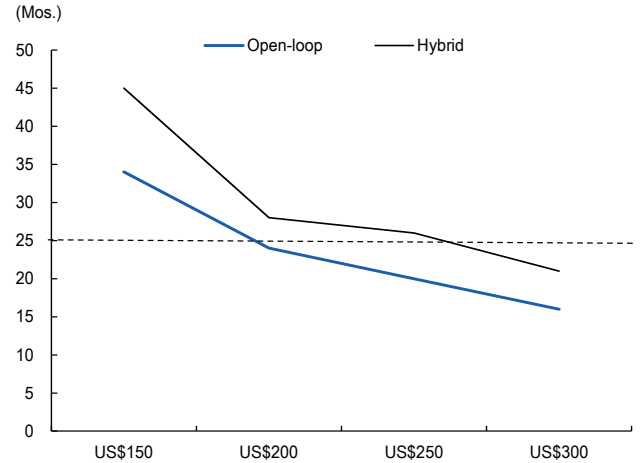
Rising opportunity costs are also problematic. There are now long waiting lists for installation due to a lack of shipyards and scrubber engineers. The payback period is also increasing, following a sharp fall in the HFO-LSFO spread. Given this, demand for scrubber-installed vessels is likely to weaken going forward.

Figure 43. Scrubber payback period for medium/large-sized ships (140,000 DWT)



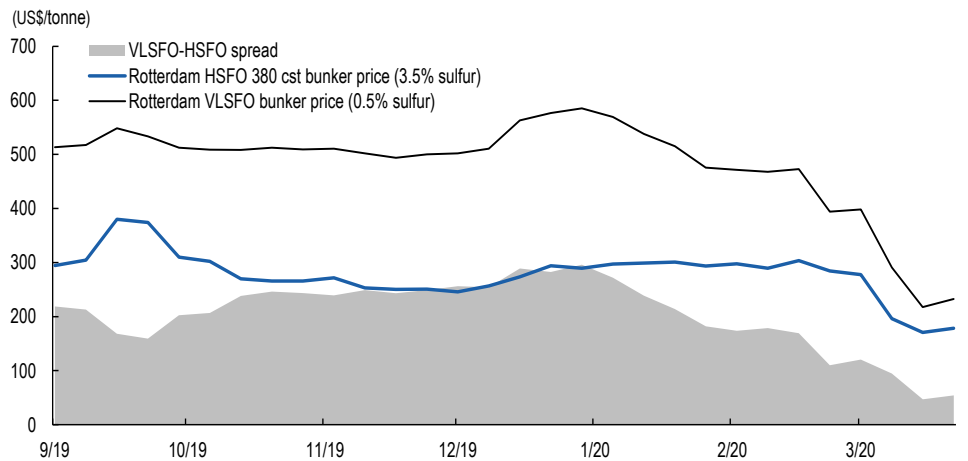
Source: Clarksons, Mirae Asset Daewoo Research

Figure 44. Scrubber payback period for small-sized ships (50,000 DWT)



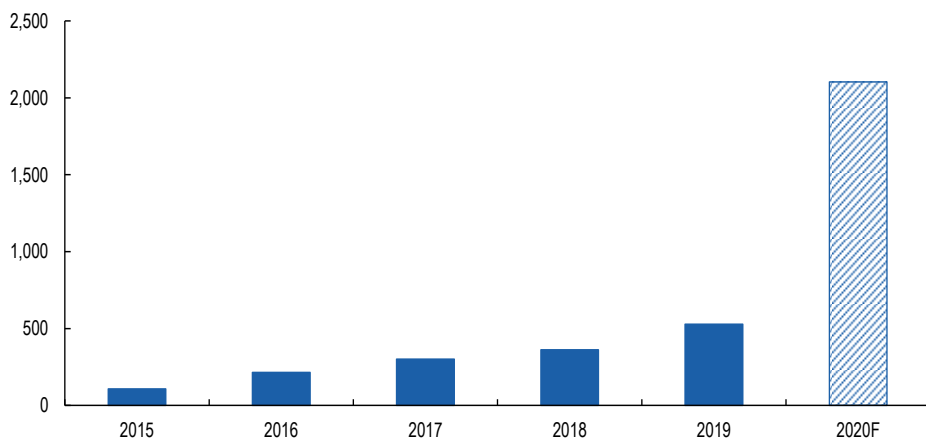
Source: Clarksons, Mirae Asset Daewoo Research

Figure 45. LSFO-HSFO spread



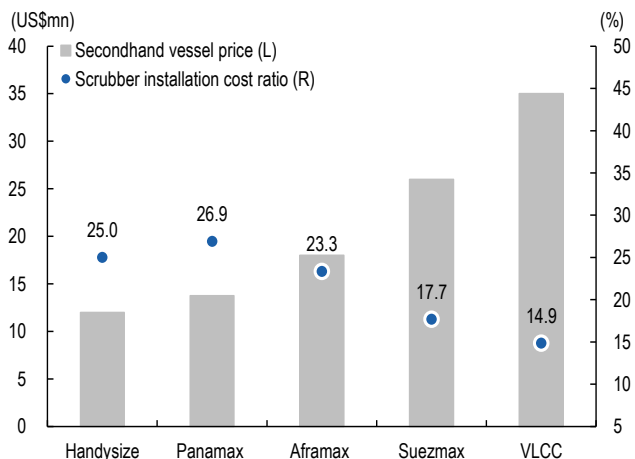
Source: Clarksons, Mirae Asset Daewoo Research

Figure 46. No. of ships fitted with scrubbers



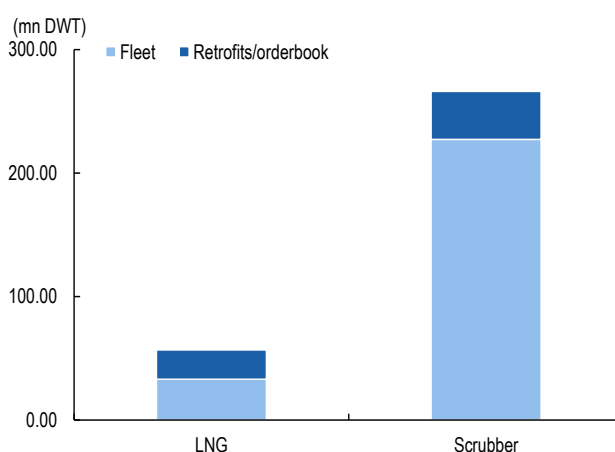
Source: Clarksons, Mirae Asset Daewoo Research

Figure 47. Avg. secondhand ship price and scrubber installation costs as % of ship price



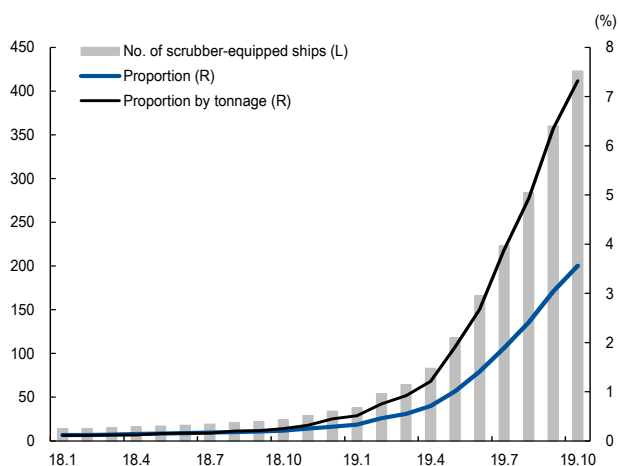
Source: Clarksons, Mirae Asset Daewoo Research

Figure 48. LNG-powered vessels and vessels with scrubbers: Newbuilds vs. retrofits



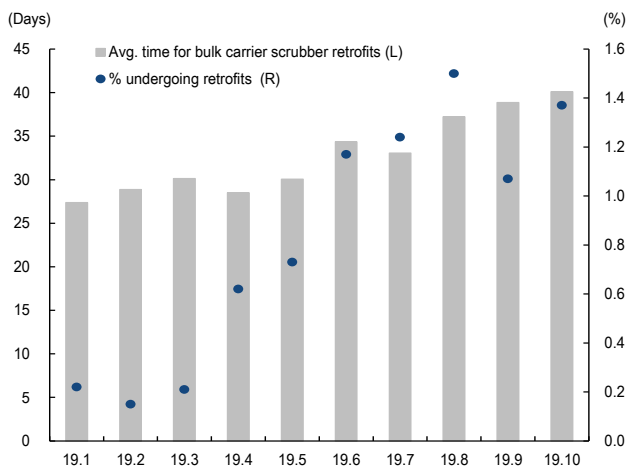
Source: Clarksons, Mirae Asset Daewoo Research

Figure 49. Bulk carrier scrubber installation trends



Source: Clarksons, Mirae Asset Daewoo Research

Figure 50. % of bulk carriers undergoing retrofits and avg. time



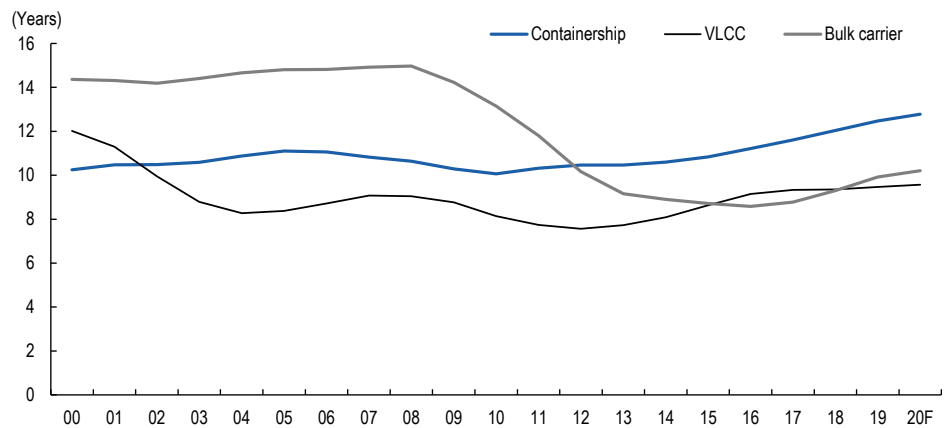
Source: Clarksons, Mirae Asset Daewoo Research

■ **LSFO**

While many ship owners have chosen to install scrubbers to ensure IMO compliance, an equally large number of ships (especially small-sized vessels) have chosen to switch to LSFO, on the belief that LSFO supply will increase as related facilities expand in size. There is a growing risk of scrubber order cancellations amid the recent oil price collapse.

The use of LSFO should add to cost pressures, leading to increased ship demolitions and freight rate hikes. However, cargo owners continue to engage in bidding without considering the cost increases resulting from the use of scrubbers or LSFO, making it difficult for shipping companies to make environmentally compliant decisions. Despite falling oil prices, demolitions may increase due to low cost competitiveness amid deteriorating market conditions.

Figure 51. Global avg. vessel age by type



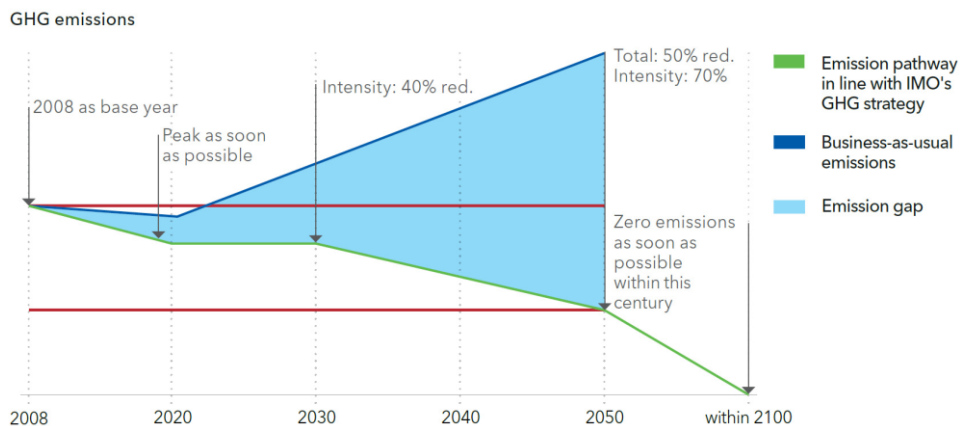
Source: Clarksons, Mirae Asset Daewoo Research

3) CO₂ regulations to be the most influential over the long run

While CO₂ regulations have yet to grab the shipping industry's attention the way sulfur rules have, we think they will end up having the biggest impact on the market over the long run. In April 2018, the IMO adopted an initial strategy of reducing greenhouse gas (GHG) emissions from ships by 50% by 2050, with a vision of phasing them out as soon as possible in this century. To meet the target, the international shipping industry plans to improve vessel energy efficiency, optimize operations, develop alternative fuel sources, etc.

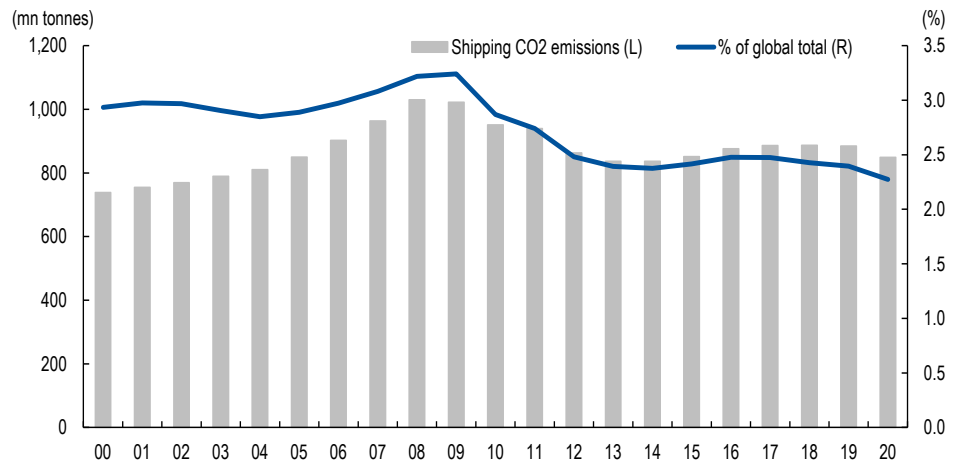
The IMO has approved the initiation of the Fourth GHG Study, which will include estimates of international shipping emissions in the period 2012-50. The study's final report will be submitted for approval during the 76th session of the MEPC in 2H20.

Figure 52. IMO strategy on reduction of GHG emissions



Source: IMO, Mirae Asset Daewoo Research

Figure 53. Shipping CO₂ emissions and % of global CO₂ emissions



Source: Clarksons, Mirae Asset Daewoo Research

Different vessel types/sizes, fuel types, and engines require different standards and methods for GHG reduction. For a more standardized approach, indices such as the Energy Efficiency Design Index (EEDI) or the Energy Efficiency Operation Index (EEOI) are applied.

The EEDI, formulated for new ships, estimates grams of CO₂ per tonne-mile. Major variables include dead weight tonnage (capacity) and ship speed. The EEOI is a performance indicator of the energy efficiency of the existing fleet of vessels, calculated using variables such as the weight of cargo carried, voyage distance, consumed fuel amount, and CO₂ production. Unlike the EEDI, which was made mandatory for new ships, the EEOI is a recommended guideline for voluntary use.

The IMO has set emissions guidelines based on the EEDI, and was planning to significantly strengthen the EEDI phase 3 requirements at the 75th session of the MEPC scheduled for April 2020. For instance, for a containership of 200,000 DWT and above, the EEDI reduction rate is set at 50% from 2022, which is significantly higher than the current target (30% from 2025).

Table 12. Reduction factor overview (vs. EEDI reference lines)

(%)

Ship type	Size	Phase 0	Phase 1	Phase 2	Phase 3
		2013-14	2015-19	2020-24	2025-
Bulk carrier	20,000+ DWT	0	10	20	30
	10,000–20,000 DWT	N/A	0-10	0-20	0-30
Gas carrier	10,000+ DWT	0	10	20	30
	2,000–10,000 DWT	N/A	0-10	0-20	0-30
Tanker	20,000+ DWT	0	10	20	30
	4,000–20,000 DWT	N/A	0-10	0-20	0-30
Containership	15,000+ DWT	0	10	20	30
	10,000–15,000 DWT	N/A	0-10	0-20	0-30
General cargo ship	15,000+ DWT	0	10	15	30
	3,000-15,000 DWT	N/A	0-10	0-15	0-30
Reefer ship	5,000+ DWT	0	10	15	30
	3,000–5,000 DWT	N/A	0-10	0-15	0-30
Combination carrier	20,000+ DWT	0	10	20	30
	4,000–20,000 DWT	N/A	0-10	0-20	0-30

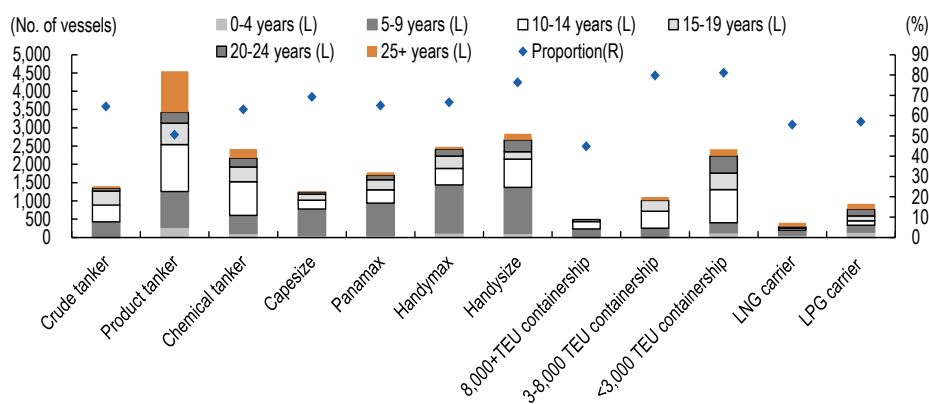
Source: IMO, Mirae Asset Daewoo Research

4) Mandatory BWMS installation: Up to 60% of vessels by 2024

The IMO's 2020 sulfur regulations are undoubtedly having a significant impact on today's shipping industry. Over the longer term, however, we think BWMS requirements will also emerge as a key regulatory tool.

As of end-2019, over 40,000 vessels (42% of all vessels; 63% based on tonnage) are required to be fitted with a BWMS. Large-sized containerships (8,000 TEU or larger) and LNG/LPG carriers tend to have a higher installation rate, and more than 70% of tankers and bulk carriers are required to have a BWMS. These requirements will likely drive up ship demolitions over the long run; of vessels subject to future BWMS installation, those older than 25 years are estimated to account for 10% of all vessels (4% based on tonnage), and those at least 20 years old make up 14% (9% based on tonnage).

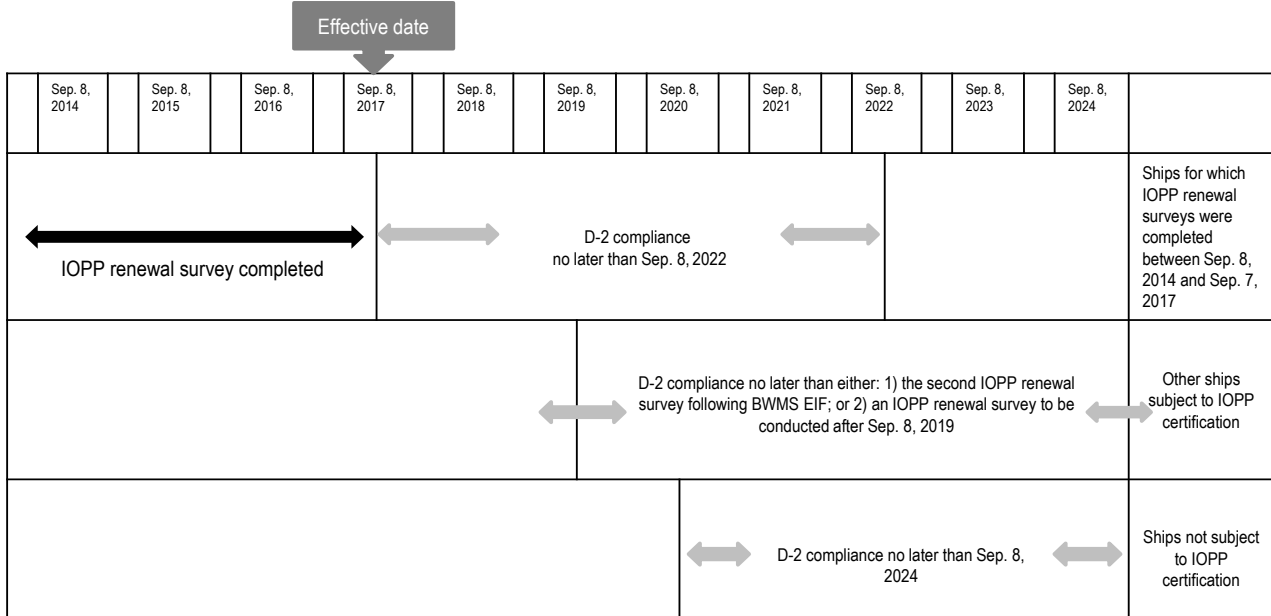
Figure 54. Fleet subject to BWMS installation



Note: Fleet figures as of December 2019
 Source: Clarksons, Mirae Asset Daewoo Research

In 2017, the IMO pushed back the mandatory installation schedule from 2022 to 2024 due to a projected shortage of dockyards. Unlike sulfur emissions regulations, BWMS regulations offer no alternative options. Accordingly, we expect the requirements to accelerate vessel demolitions over the long term.

Figure 55. BWMS installation timeline (D-2) for vessels constructed prior to September 8, 2017



Source: IMO, Ministry of Oceans and Fisheries, Mirae Asset Daewoo Research

Table 13. Ballast water exchange standards (D-1)

	Requirements
Phase 1	Exchange of ballast water in open seas, away from coastal areas (at least 200 nautical miles from land and in water at least 200 meters deep.)
Phase 2	At least 50 nautical miles offshore and in water at least 200 meters deep (in case Phase 1 requirements cannot be met)
Phase 3	If the above requirements cannot be met, authorities may designate areas where ships can conduct ballast water exchange

Source: IMO, Ministry of Oceans and Fisheries, Mirae Asset Daewoo Research

Table 14. BMTS standards (D-2)

Ballast water standards		Details
Viable organisms	Greater than or equal to 50 micrometers	Less than 10 viable organisms per m ³
	Between 10 and 50 micrometers	Less than 10 viable organisms per ml
Human health	Toxicogenic vibrio cholerae	Less than 1 CFU per 100ml Less than 1 CFU per 1 gram (wet weight)
	E. coli	Less than 250 CFU per 100ml
	Intestinal enterococci	Less than 100 CFU per 100ml

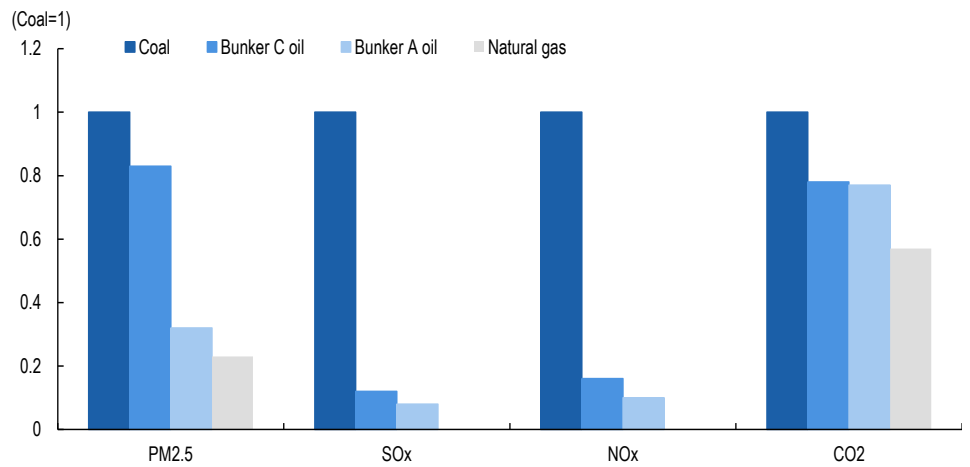
Source: IMO, Korea Shipowners' Association, Mirae Asset Daewoo Research

5) LNG-powered carriers to present a long-term solution

Given the problems associated with LSFO and scrubber installation, we think LNG-powered vessels can be a viable solution over the medium to long term. As of February 2020, there are 121 such vessels currently in operation (plus roughly 51 vessels ordered in 2019), and we expect this number to grow further amid tightening environmental standards. In addition to LNG-powered ships, we expect to see growing demand for LNG-ready options (space allotted for LNG fuel tanks).

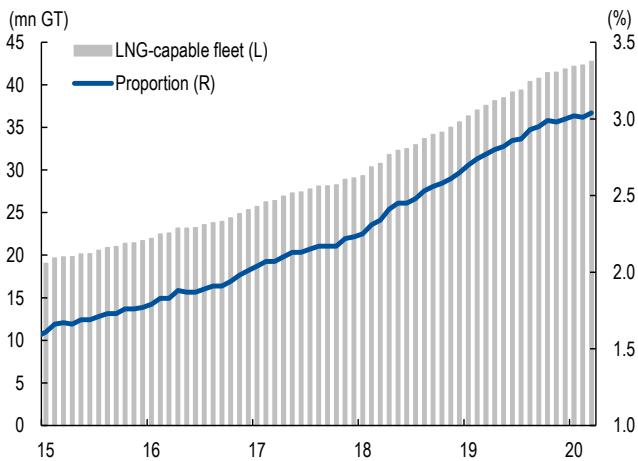
However, LNG-fueled vessels are more expensive to build (by around 20%), and LNG infrastructure (LNG bunkering systems, etc.) is required. The Korean government has already started building LNG infrastructure, having announced measures to promote industries and businesses related to LNG-powered vessels in May 2018.

Figure 56. Comparison of emissions by fuel type



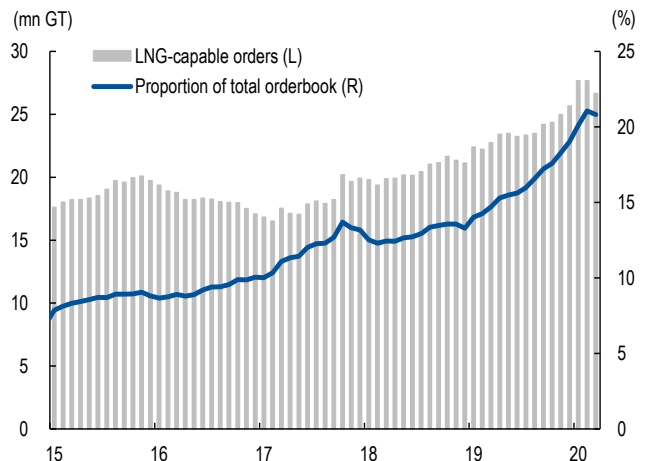
Source: IMO, Mirae Asset Daewoo Research

Figure 57. Gross tonnage and market share of LNG-powered ships



Source: Clarksons, Mirae Asset Daewoo Research

Figure 58. Orders for LNG-powered ships



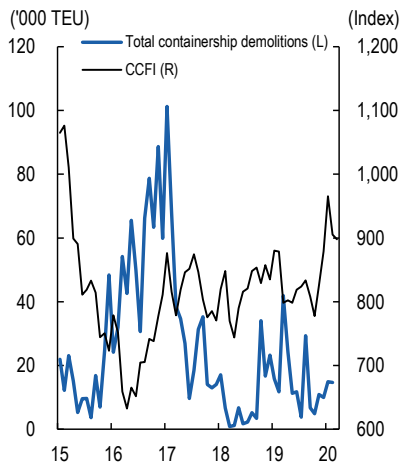
Source: Clarksons, Mirae Asset Daewoo Research

IV. Issues

Demolition volume likely to increase

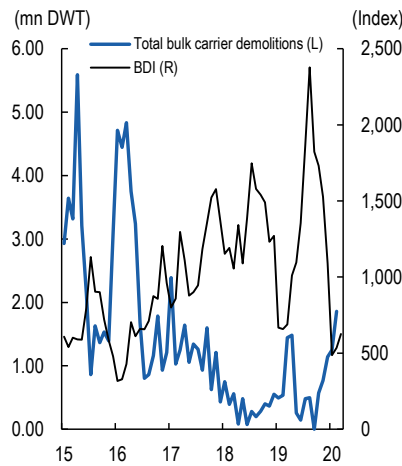
One of the biggest mysteries in the shipping market early this year was that, despite tough market conditions and an unfavorable regulatory environment, demolition volume was low. Contrary to initial expectations that demolition volume would sharply increase in 2020 with the implementation of the new IMO regulations, the demolition market remained subdued in early 2020, likely due to: 1) low demolition prices; 2) the reduced cost of operating secondhand vessels amid weak oil prices; and 3) limited scrapyards capacity. Moreover, we believe Europe’s recent tightening of green recycling regulations prompted secondhand vessel owners to weigh their options.

Figure 59. Demolition volume vs. CCFI: Containerships



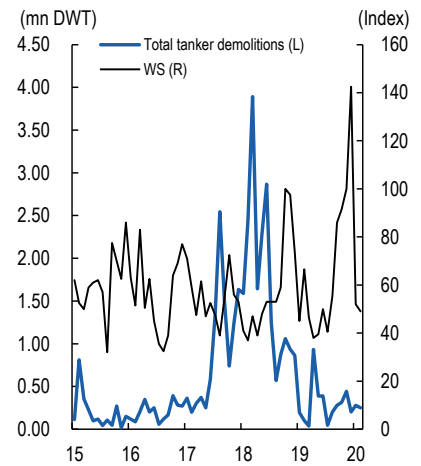
Source: Clarksons, Mirae Asset Daewoo Research

Figure 60. Demolition volume vs. BDI: Bulk carriers



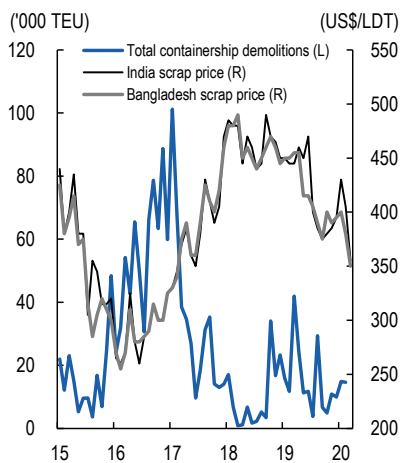
Source: Clarksons, Mirae Asset Daewoo Research

Figure 61. Demolition volume vs. WS: Tankers



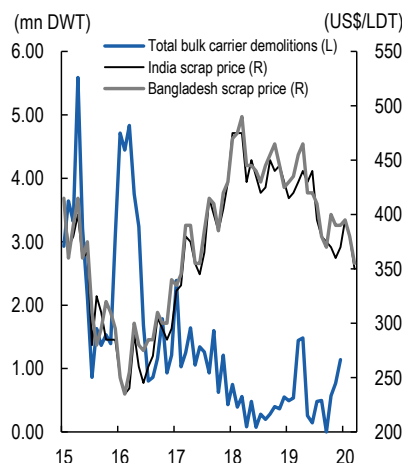
Source: Clarksons, Mirae Asset Daewoo Research

Figure 62. Demolition volume vs. prices: containerships



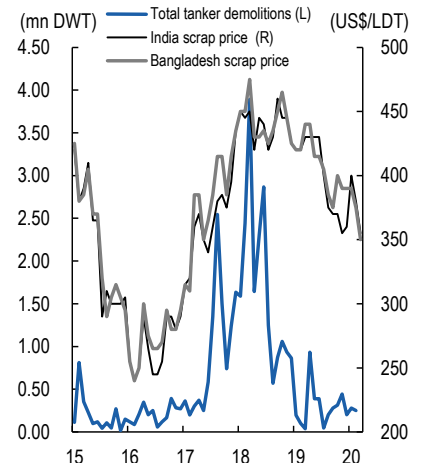
Source: Clarksons, Mirae Asset Daewoo Research

Figure 63. Demolition volume vs. prices: Bulk ships



Source: Clarksons, Mirae Asset Daewoo Research

Figure 64. Demolition volume vs. prices: Tankers



Source: Clarksons, Mirae Asset Daewoo Research

Nevertheless, recent developments in the demolition market, especially the bulk carrier segment, suggest that sluggish demolition volume will not last long. Despite low demolition prices, demolition volume has begun to pick up in the large-size bulk carrier segment (capesize and Panamax) and mid-size tanker segment (Aframax).

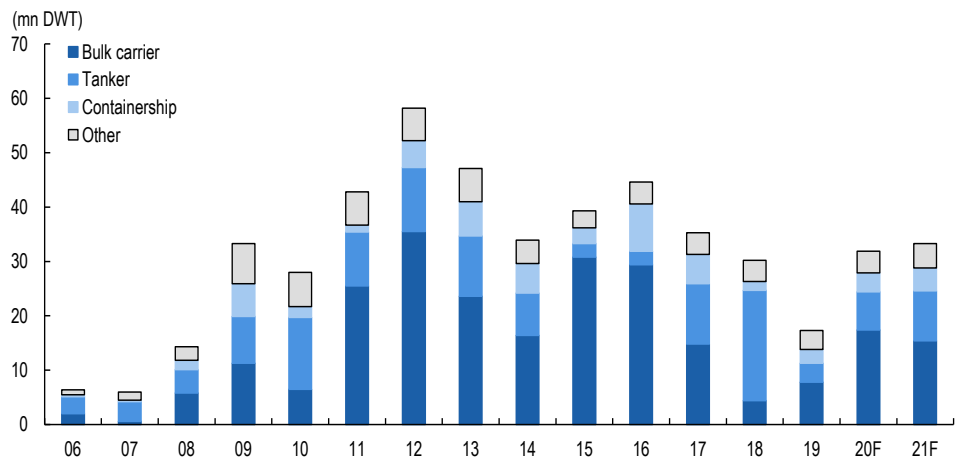
In our view, the temporary disruption to shipping demand caused by COVID-19 should accelerate moves to take vessels out of the market for demolition. After falling below 20mn DWT (-40% YoY) in 2019, we estimate global demolition volume to exceed 30mn DWT in 2020, driven by dry bulk carriers. We project demolition volume to increase rapidly in the containership and tanker segments, which have high exposure to vessels aged over 20 years.

Figure 65. Ship demolition prices



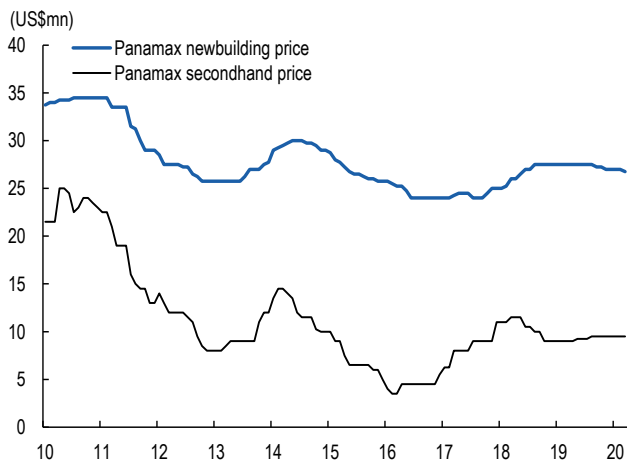
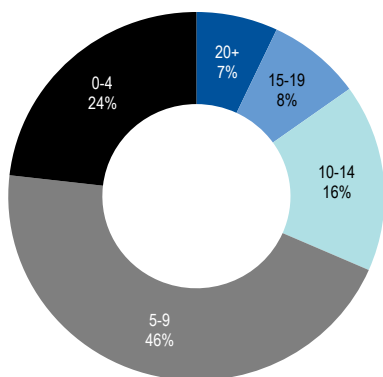
Source: Clarksons, Mirae Asset Daewoo Research

Figure 66. Annual demolition volume and outlook



Source: Clarksons, Mirae Asset Daewoo Research

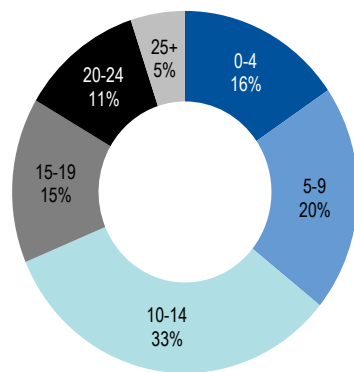
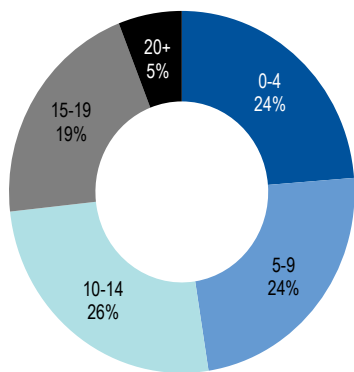
Figure 67. Age profile of global bulk carrier fleet **Figure 68. Panamax newbuilding and secondhand vessel prices**



Note: As of end-March 2020
Source: Clarksons, Mirae Asset Daewoo Research

Source: Clarksons, Mirae Asset Daewoo Research

Figure 69. Age profile of global tanker fleet **Figure 70. Age profile of global containership fleet**



Note: As of February 2020
Source: Clarksons, Mirae Asset Daewoo Research

Note: As of February 2020
Source: Clarksons, Mirae Asset Daewoo Research

COVID-19 impact: Short-term demand shock to trigger industry restructuring, especially in the containership segment

With the global spread of COVID-19 accelerating since early March, a demand shock is inevitable for the shipping industry, at least in the short term. Unlike the 9/11 attacks in 2001 or the global financial crisis of 2008-09, the current crisis is physically restraining economic activities, and demand disruptions will surely deal a heavy blow to the shipping market. China's industrial production and retail sales fell 10-20% YoY in February as a result of the COVID-19 outbreak. China's fixed asset investment (FAI) also dropped 24.5% YoY, delaying the recovery of the bulk carrier market.

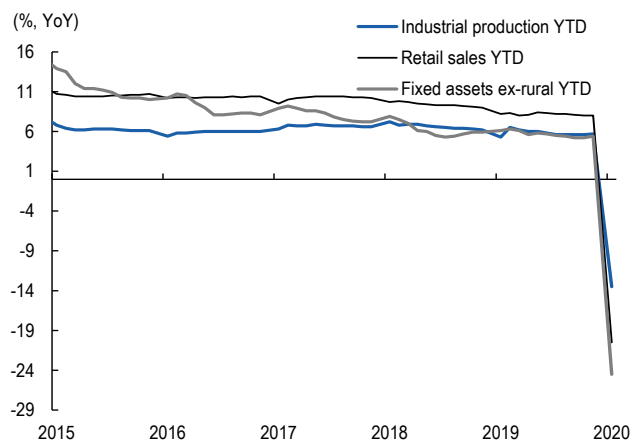
The eurozone composite PMI collapsed to 31.4 in March, and a senior Federal Reserve official projected that US GDP growth could plunge 50% QoQ in 2Q20. US retail sales, which declined MoM in February partly due to unfavorable base effects, should remain weak. In response to the sharp demand contraction, we expect retailers to rush to cut inventories, except for daily necessities and online orders.

Figure 71. ZEW Survey trends



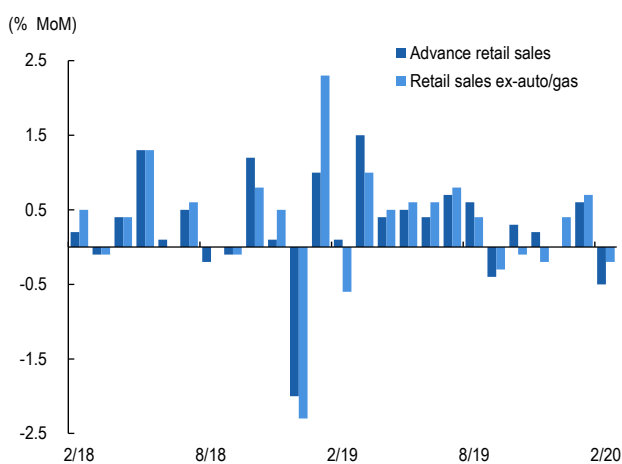
Source: Bloomberg, CEIC, Mirae Asset Daewoo Research

Figure 72. China's retail sales, industrial production, and FAI



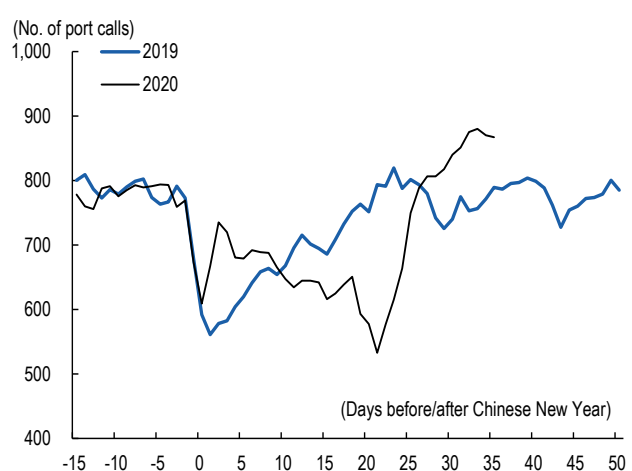
Source: Bloomberg, CEIC, Mirae Asset Daewoo Research

Figure 73. US retail sales



Source: Bloomberg, CEIC, Mirae Asset Daewoo Research

Figure 74. No. of port calls in China



Source: Clarksons, Mirae Asset Daewoo Research

While the global economy is sharply slowing down, the shipping market is faring decently. The tanker market has surged on the back of increased crude oil shipments from Saudi Arabia, and the dry bulk carrier market, after a slump in late 2019, has rebounded more than 20% from the January low. That said, we note that the Shanghai Containerized Freight Index (SCFI) has been declining steadily since early February. Although this is mostly due to seasonally weak demand, there is also a strong chance of demand-side shocks in the short term as demand for container shipping in advanced markets plunges in March and April.

We expect these demand-side shocks to spark restructuring in the shipping industry, especially in the container shipping segment. Container shipping is usually arranged under free on board (FOB) terms, whereby payment is made upon the arrival of shipments at the final destination. Given that invoices are typically payable within 30 days from the date issued, we believe freight invoices for January shipments were settled as scheduled through early March.

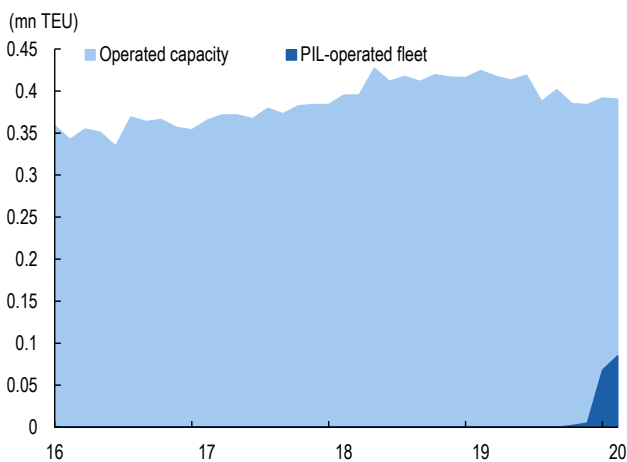
However, given 1) the sharp decline in container shipping traffic in February and 2) a possible liquidity crunch at cargo owners in March, we see an increasing likelihood of cash flow problems from end-March or early April, when February shipments are due for payment.

Indeed, Singapore-based container shipping line Pacific International Lines (PIL) has reportedly been struggling to service debts due to tight cash flows. PIL is seeking to sell 12 vessels, even at a time when the number of idle containerships is at a record high. The shipping company also announced it is withdrawing from the trans-Pacific market, one of the largest container shipping markets. In addition, PIL has suffered high opportunity costs amid the sharp fall in the LSFO-HSFO spread because it has launched an aggressive scrubber conversion project for its fleet.

THE Alliance, one of the three major alliances in the container shipping segment, has expanded its insolvency contingency fund to US\$75mn from US\$50mn. Following the collapse of Hanjin Shipping, a member of the former CKYHE Alliance, in 2016, THE Alliance established a contingency fund in March 2017. However, given the latest developments, we do not believe the contingency fund is big enough to provide more than a stop-gap remedy.

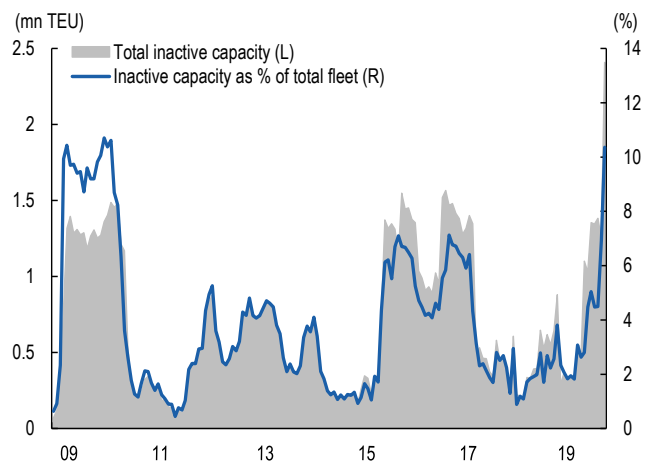
A prolonged COVID-19 outbreak will eventually force container shippers to enter another round of restructuring and trigger industry-wide consolidation, allowing European companies such as Maersk (MAERSKB DC/CP: DKK5,806) to solidify their market leading position.

Figure 75. PIL fleet changes



Source: Alphaliner, Mirae Asset Daewoo Research

Figure 76. Inactive capacity as % of global containership fleet

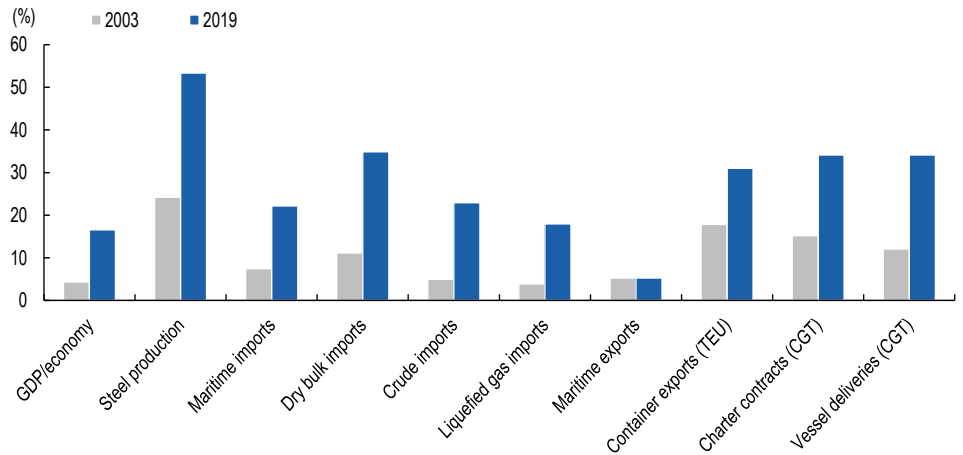


Source: Alphaliner, Mirae Asset Daewoo Research

Possible changes in global value chain: Diversification across Asia is more likely than reshoring

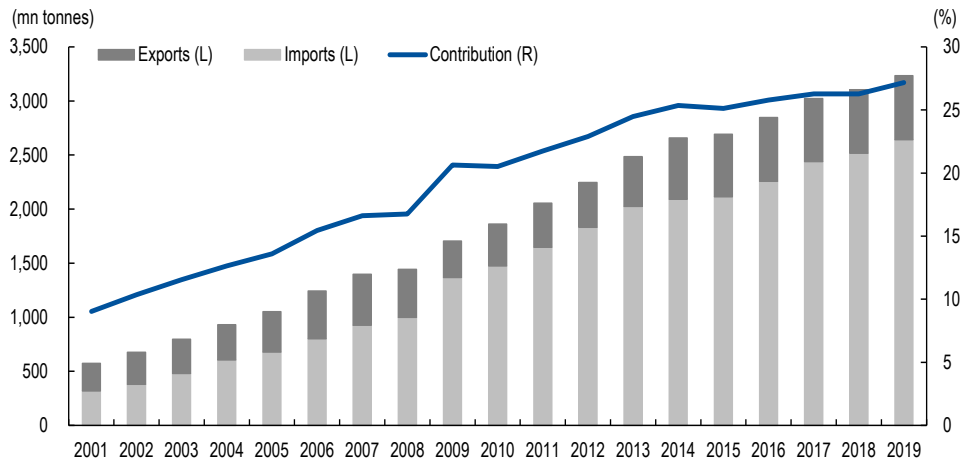
We expect the COVID-19 outbreak to highlight the need for changes in the global value chain in the long term. As the world’s largest manufacturer and parts supplier, China’s role in the global value chain has sharply grown since the early 2000s. China’s share of global shipping demand increased from below 10% in 2003 to 27% in 2019.

Figure 77. China’s share of global economy and shipping industry



Source: Clarkson, Mirae Asset Daewoo Research

Figure 78. China’s share of maritime trade



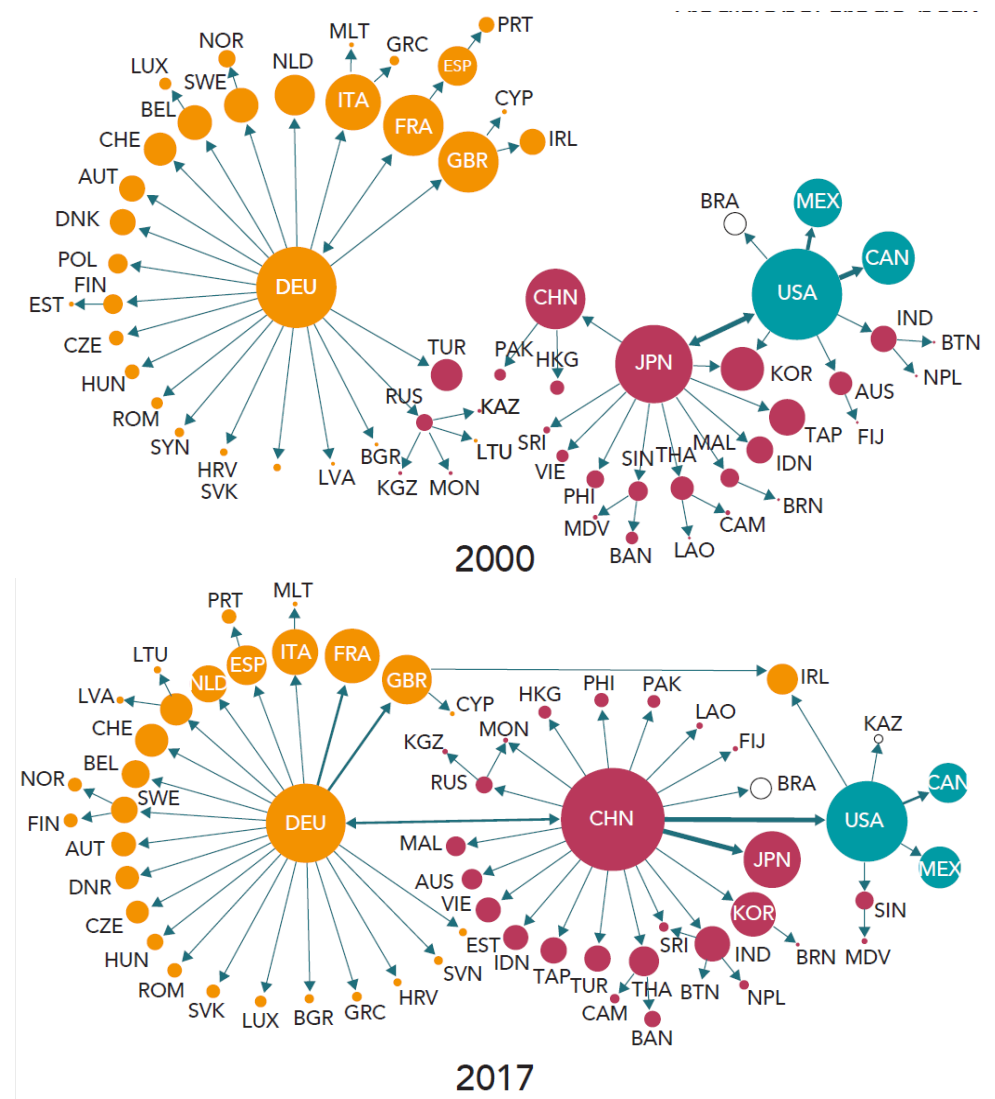
Source: Clarksons, Mirae Asset Daewoo Research

However, the abrupt and indefinite suspension of China's production in the wake of the COVID-19 outbreak became a wake-up call for global manufacturers and retailers, many of whom could seek to reduce their reliance on China by reshoring their production back to their home countries or diversifying their supply networks across Asia.

A large-scale move toward reshoring would negatively affect the container shipping market. China's export container transport accounts for 15% of global container traffic, and an even higher percentage in terms of tonne-mile demand (the distance travelled multiplied by the volume of cargo carried). Reshoring helps to reduce backhaul burdens, which could lead to an increase in overall fleet utilization. That said, we expect reshoring to be limited to high-tech/high-value-added products, which are transported by air rather than by water.

In reality, diversifying the supply base beyond China is a more likely option than reshoring. Supply chain diversification across Southeast Asia should result in diversification of port calls, making container operating efficiency and route optimization more important than ever. If global supply networks remain Asia-centric, we do not expect to see significant changes in supply/demand dynamics in the bulk carrier/tanker segments.

Figure 79. Changes in global value chain



Source: Clarksons, Mirae Asset Daewoo Research

Pan Ocean (028670 KS/Buy/TP: W3,800)

Comprehensive Income Statement (Summarized)

(Wbn)	12/19	12/20F	12/21F	12/22F
Revenue	2,468	2,273	2,532	2,793
Cost of Sales	2,180	2,032	2,224	2,456
Gross Profit	288	241	308	337
SG&A Expenses	78	74	79	89
Operating Profit (Adj)	210	167	228	248
Operating Profit	210	167	228	248
Non-Operating Profit	-62	-51	-45	-40
Net Financial Income	-50	-36	-31	-25
Net Gain from Inv in Associates	0	0	0	0
Pretax Profit	148	116	183	208
Income Tax	1	0	0	1
Profit from Continuing Operations	148	116	182	207
Profit from Discontinued Operations	0	0	0	0
Net Profit	148	116	182	207
Controlling Interests	152	120	189	215
Non-Controlling Interests	-4	-4	-7	-8
Total Comprehensive Profit	239	116	182	207
Controlling Interests	243	114	179	203
Non-Controlling Interests	-4	2	3	4
EBITDA	413	358	417	436
FCF (Free Cash Flow)	188	60	96	36
EBITDA Margin (%)	16.7	15.8	16.5	15.6
Operating Profit Margin (%)	8.5	7.3	9.0	8.9
Net Profit Margin (%)	6.2	5.3	7.5	7.7

Cash Flows (Summarized)

(Wbn)	12/19	12/20F	12/21F	12/22F
Cash Flows from Op Activities	405	280	336	356
Net Profit	148	116	182	207
Non-Cash Income and Expense	272	227	219	214
Depreciation	201	187	187	187
Amortization	1	4	2	1
Others	70	36	30	26
Chg in Working Capital	51	-7	-11	-11
Chg in AR & Other Receivables	9	-10	-15	-15
Chg in Inventories	-2	-5	-7	-8
Chg in AP & Other Payables	-15	9	14	14
Income Tax Paid	0	0	0	-1
Cash Flows from Inv Activities	-213	-201	-217	-293
Chg in PP&E	-217	-220	-240	-320
Chg in Intangible Assets	1	0	0	0
Chg in Financial Assets	3	-1	-1	-1
Others	0	20	24	28
Cash Flows from Fin Activities	-152	-29	-28	-78
Chg in Financial Liabilities	131	-29	-28	-78
Chg in Equity	0	0	0	0
Dividends Paid	0	0	0	0
Others	-283	0	0	0
Increase (Decrease) in Cash	47	50	91	-15
Beginning Balance	209	255	305	396
Ending Balance	255	305	396	381

Source: Company data, Mirae Asset Daewoo Research estimates

Statement of Financial Condition (Summarized)

(Wbn)	12/19	12/20F	12/21F	12/22F
Current Assets	680	759	894	925
Cash and Cash Equivalents	255	305	396	381
AR & Other Receivables	135	145	160	176
Inventories	65	70	78	85
Other Current Assets	225	239	260	283
Non-Current Assets	3,775	3,804	3,856	3,988
Investments in Associates	2	3	3	3
Property, Plant and Equipment	3,737	3,770	3,823	3,956
Intangible Assets	8	4	2	1
Total Assets	4,454	4,563	4,750	4,913
Current Liabilities	709	730	762	794
AP & Other Payables	136	146	162	177
Short-Term Financial Liabilities	444	446	447	449
Other Current Liabilities	129	138	153	168
Non-Current Liabilities	846	818	791	714
Long-Term Financial Liabilities	817	787	757	677
Other Non-Current Liabilities	29	31	34	37
Total Liabilities	1,555	1,547	1,553	1,508
Controlling Interests	2,887	3,006	3,196	3,411
Capital Stock	535	535	535	535
Capital Surplus	1,942	1,942	1,942	1,942
Retained Earnings	236	356	545	760
Non-Controlling Interests	13	9	2	-6
Stockholders' Equity	2,900	3,015	3,198	3,405

Forecasts/Valuations (Summarized)

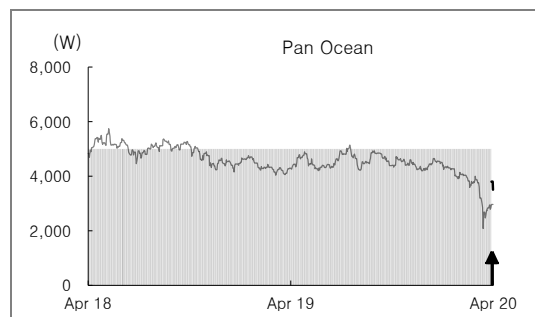
	12/19	12/20F	12/21F	12/22F
P/E (x)	16.0	13.2	8.4	7.4
P/CF (x)	5.8	4.6	3.9	3.8
P/B (x)	0.8	0.5	0.5	0.5
EV/EBITDA (x)	8.3	6.9	5.7	5.2
EPS (W)	284	225	354	402
CFPS (W)	785	641	751	787
BPS (W)	5,400	5,625	5,978	6,380
DPS (W)	0	0	0	0
Payout ratio (%)	0.0	0.0	0.0	0.0
Dividend Yield (%)	0.0	0.0	0.0	0.0
Revenue Growth (%)	-7.5	-7.9	11.4	10.3
EBITDA Growth (%)	11.0	-13.3	16.5	4.6
Operating Profit Growth (%)	2.9	-20.5	36.5	8.8
EPS Growth (%)	-0.4	-20.8	57.3	13.6
Accounts Receivable Turnover (x)	18.0	16.7	17.0	17.1
Inventory Turnover (x)	39.1	33.6	34.3	34.3
Accounts Payable Turnover (x)	17.7	16.3	16.4	16.4
ROA (%)	3.4	2.6	3.9	4.3
ROE (%)	5.5	4.1	6.1	6.5
ROIC (%)	5.6	4.3	5.7	6.1
Liability to Equity Ratio (%)	53.6	51.3	48.5	44.3
Current Ratio (%)	95.8	104.0	117.4	116.5
Net Debt to Equity Ratio (%)	34.5	29.5	24.1	20.8
Interest Coverage Ratio (x)	3.8	3.0	4.2	4.7

APPENDIX 1

Important Disclosures & Disclaimers

2-Year Rating and Target Price History

Company (Code)	Date	Rating	Target Price
Pan Ocean (028670)	04/03/2020	Buy	3,800



Stock Ratings

Buy	: Relative performance of 20% or greater
Trading Buy	: Relative performance of 10% or greater, but with volatility
Hold	: Relative performance of -10% and 10%
Sell	: Relative performance of -10%

Industry Ratings

Overweight	: Fundamentals are favorable or improving
Neutral	: Fundamentals are steady without any material changes
Underweight	: Fundamentals are unfavorable or worsening

Ratings and Target Price History (Share price (—), Target price (—), Not covered (■), Buy (▲), Trading Buy (■), Hold (●), Sell (◆))

* Our investment rating is a guide to the relative return of the stock versus the market over the next 12 months.

* Although it is not part of the official ratings at Mirae Asset Daewoo Co., Ltd., we may call a trading opportunity in case there is a technical or short-term material development.

* The target price was determined by the research analyst through valuation methods discussed in this report, in part based on the analyst's estimate of future earnings.

* The achievement of the target price may be impeded by risks related to the subject securities and companies, as well as general market and economic conditions.

Equity Ratings Distribution & Investment Banking Services

	Buy	Trading Buy	Hold	Sell
Equity Ratings Distribution	82.04%	12.57%	5.39%	0.00%
Investment Banking Services	80.77%	11.54%	7.69%	0.00%

* Based on recommendations in the last 12-months (as of March 31, 2020)

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Mirae Asset Daewoo International Network

Mirae Asset Daewoo Co., Ltd. (Seoul)

Global Equity Sales Team
Mirae Asset Center 1 Building
26 Eulji-ro 5-gil, Jung-gu, Seoul 04539
Korea

Tel: 82-2-3774-2124

Mirae Asset Securities (USA) Inc.

810 Seventh Avenue, 37th Floor
New York, NY 10019
USA

Tel: 1-212-407-1000

PT. Mirae Asset Sekuritas Indonesia

Equity Tower Building Lt. 50
Sudirman Central Business District
Jl. Jend. Sudirman, Kav. 52-53 Jakarta Selatan
12190
Indonesia
Tel: 62-21-515-3281

Mirae Asset Securities Mongolia UTsK LLC

#406, Blue Sky Tower, Peace Avenue 17
1 Khoroo, Sukhbaatar District
Ulaanbaatar 14240
Mongolia

Tel: 976-7011-0806

Shanghai Representative Office

38T31, 38F, Shanghai World Financial Center
100 Century Avenue, Pudong New Area Shanghai
200120
China

Tel: 86-21-5013-6392

Mirae Asset Securities (HK) Ltd.

Units 8501, 8507-8508, 85/F
International Commerce Centre
1 Austin Road West
Kowloon
Hong Kong
Tel: 852-2845-6332

Mirae Asset Wealth Management (USA) Inc.

555 S. Flower Street, Suite 4410,
Los Angeles, California 90071
USA

Tel: 1-213-262-3807

Mirae Asset Securities (Singapore) Pte. Ltd.

6 Battery Road, #11-01
Singapore 049909
Republic of Singapore

Tel: 65-6671-9845

Mirae Asset Investment Advisory (Beijing) Co., Ltd

2401B, 24th Floor, East Tower, Twin Towers
B12 Jianguomenwai Avenue, Chaoyang District
Beijing 100022
China

Tel: 86-10-6567-9699

Ho Chi Minh Representative Office

7F, Saigon Royal Building
91 Pasteur St.
District 1, Ben Nghe Ward, Ho Chi Minh City
Vietnam

Tel: 84-8-3910-7715

Mirae Asset Securities (UK) Ltd.

41st Floor, Tower 42
25 Old Broad Street,
London EC2N 1HQ
United Kingdom

Tel: 44-20-7982-8000

Mirae Asset Wealth Management (Brazil) CCTVM

Rua Funchal, 418, 18th Floor, E-Tower Building Vila
Olimpia
Sao Paulo - SP
04551-060
Brasil
Tel: 55-11-2789-2100

Mirae Asset Securities (Vietnam) LLC

7F, Saigon Royal Building
91 Pasteur St.
District 1, Ben Nghe Ward, Ho Chi Minh City
Vietnam

Tel: 84-8-3911-0633 (ext.110)

Beijing Representative Office

2401A, 24th Floor, East Tower, Twin Towers
B12 Jianguomenwai Avenue, Chaoyang District
Beijing 100022
China

Tel: 86-10-6567-9699 (ext. 3300)
