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To : The President of the Stock Exchange of Thailand

Subject : Submitting the Annual Review 2018 of Precious Shipping Public Company Limited

ANNUAL REVIEW

While 2016 will be remembered as the bottom of the long dry bulk shipping recession that started with Lehman Brothers going bankrupt in September 2008, 2017 will be remembered as the beginning of the long-awaited recovery. **2018, a year in which multilateral organizations and globalization took a massive beating with the US leading the charge in protectionism with trade sanctions and tariffs, still managed to pull through, despite all this negativity, to confirm a sustainable dry bulk recovery.** It would, therefore, appear that we have actually turned the corner and have started a secular recovery that should last for the next few years provided ship owners don't shoot the nascent recovery in the foot by ordering additional ships from the ship yards that are desperate for new business.

There are two issues that drive the Baltic Dry Index (BDI). One is **(over) supply of ships** with which we have been struggling for quite a while but this excess has narrowed significantly, and in all probability, disappeared altogether as seen by the profitability of ship-owners during 2018 despite the massive uncertainty created by the US and other world powers adopting a protectionist stance. **The other matter is, of course, of demand growth.** The macroeconomic situation looks reasonably good but the whispers of an impending economic recession at the start of 2018 have turned ever louder, as the year progressed. The Federal Reserve has continued to raise interest rates, despite President Trump haranguing the Fed to stop doing so. This raising of interest rates trend will, however, take a much lower profile in 2019, as the economic picture emerging, not least because of the expansionary policies that President Trump had earlier enacted, have run their course, whilst the demons of uncertainty unleashed by US sanctions, trade tariffs, protectionism and withdrawal from multilateral agreements, are starting to come home to roost. The US, the largest economy in the world, is therefore precariously balanced, making the Fed a bit nervous to push interest rates much higher than where we have ended 2018 at. With

oil prices heading lower, and the prospects that this low-oil-price environment will continue, at least for some time, consumers should find they have more spare change in their pockets to spend. Trump's stated Trillion Dollar infrastructure refurbishment plan should add fuel to the economy. This will, hopefully, drive the US economy and mute the voices that are proclaiming a recession, and should help to suck in a lot of cement, steel and other manufactured goods from the rest of Asia and the world. This will help drive trade flows in a more positive direction.

The **BDI** started the year at 1,230 points and then treaded water before moving gently downwards till it hit its low of the year of 948 points on the 6th of April 2018. The BDI then moved upwards, all the way to 1,774 points on the 24th of July before gently drifting down to 1,003 on the 20th of November and then moving back up till it closed out the year at 1,271 points. Traditionally, the summer months of June, July and August are the weakest BDI months of the year, but similar to 2016 and 2017 the 'weak season' did not show up even in 2018. **China has been the stellar performer and this has helped to drive time charter rates higher as the year has progressed.** Having said that, the Chinese government, after their 'blue skies' success story in 2017, took the bull by the horns on pollution prevention and mandated production cuts in 14 provinces, versus just 4 in 2017, for steel making (50%), cement manufacturing (50%) and Aluminum production (30%) from mid November to mid March every year. With the start of 2018, supply of iron ore from Brazil started to slow down due to their 'wet' season which traditionally makes the Q1 iron ore exports from Brazil the smallest quarterly exports in any year. This reduction in iron ore from Brazil in Q1 2018 when combined with the uncertainty generated by geopolitics, sanctions, trade tariffs, Brexit, EU budgetary issues, and the onset of Chinese New Year weakening demand, exacerbated by the Chinese government's anti-pollution measures during the winter months, the BDI followed the 'new' seasonality script. It would appear that **the BDI, in all future years, will reach a peak in mid October followed by a decline till end February before the V shaped recovery manifests itself in almost a straight line all the way to mid October. Welcome to the 'new' seasonality of the BDI** via decree courtesy the Chinese government and their restrictive manufacturing directives in 14 provinces from mid November of each year to mid March of the following year.

Demand has certainly been stronger, though not as strong, as everyone had anticipated at the start of 2018. If geopolitical problems, sanctions, Brexit, EU budgetary issues and trade tensions had not raised their ugly heads during 2018 then it would have assisted the demand side by removing the overhang of uncertainty that has crippled decision-making this year. Despite these head winds on the macro economic front, and the larger than anticipated net growth in world tonnage during this year, ship-owners have had a relatively benign and profitable year, though not quite hitting the potential that was promised at the start of the year. We are currently more confident about the prospects in 2019 than we were a few weeks ago thanks to the **process of trade tensions being resolved permanently after the**

Donald Trump/Xi Jinping 1st December 2018 meeting at Buenos Aries on the side lines of the G-20 meeting. The next 90 days will give us more clarity on that.

Historically, prior to the turn of this century, **demand in dry bulk was estimated at about 120 basis points over world GDP growth numbers**. Then along came China, during the first decade of this century, taking the crown as the manufacturing capital of the world and the measurement of dry bulk demand became 2 to 3 times world GDP growth numbers. Post Lehman Brothers collapse this measure dropped to about 1.1 times world GDP growth numbers with suggestions, during 2016, that dry bulk demand might actually become less than 1.1 with world GDP growth numbers. However, the breakdown of this traditional relationship, of dry bulk demand being about 120 basis points higher than world GDP growth numbers, was greatly exaggerated. In 2017 the measure reverted back to the traditional rule of thumb of about 110-120 basis points above world GDP growth numbers. We have since then run **regression analysis on ton-mile growth rates (Clarksons) versus world GDP growth rates (IMF) from the turn of this century, and found that you have a good statistical fit of ton-mile growth of 115 basis points over world GDP growth rates. So our traditional heuristic, or rule of thumb, has been ably supported by hard statistical analysis!**

The latest pronouncements from the IMF indicate that **world GDP growth rates for 2019 would be 3.5% and for 2020 would be 3.6% hence tonne mile growth rates would be about 4.5%+** in each of these two years if we were to apply the rule of thumb heuristic that we have obtained from our analysis. DNB Markets state in their report on 4th January that tonne mile growth rate would be 3.9% for 2019.

Our read of the growth in supply based on Clarksons data we have a **net fleet growth rate of 3.06% for 2019 and 3.26% for 2020**. Please note that **we have NOT assumed any real pressure** on recycling due to the BWTS and IMO 2020 in our supply side calculations.

So if our conservative reading of both the demand growth rates and the supply side turns out as per our predictions, then 2019 and 2020 should be reasonably good years.

None of the above factors in any settlement of the current trade war between the USA and China. The **latest news on the settlement of the trade war from Bloomberg indicates that China has offered to increase purchases from USA by USD 1 trillion over 6 years till the end of 2024, whilst the Americans are demanding that this be done in 4 years time**. If an agreement is reached, whether it is USD 1 trillion of extra purchases spread over 4 or 6 years it means that China would be buying an additional USD 160 billion to USD 250 billion of American goods each year over the next 4 to 6 years. The three raw materials that China could easily buy from America would be grain, coal and oil/gas. In 2018 China imported 120 MMT of coal from Indonesia which is about 6 days away from

China. **If this 120 MMT was substituted by American coal then it would take 42 days or be 7 times more tonne mile intensive than the same volume of coal from Indonesia.**

Trade sanctions/tariffs, in and of themselves, cannot destroy demand so long as the sanctioned commodity is either available from some other supplier/country or is substitutable by a similar priced commodity with similar/identical attributes. All sanctions/tariffs do is to make shipping of such commodities more inefficient. If this change in supplier/country results in congestion; slower loading of ships (compared to the original supplier/country); and an increase in ton-mile, then that is best for the dry bulk markets.

The **meeting between President Trump of USA and President Xi Jinping of China** on the sidelines of the G-20 meeting in Buenos Aires on 1st December 2018 **resulted in a firestorm of media coverage with statements ranging from *everything* has been sorted out to *nothing* has been sorted out** and every conceivable variation in between these two extremes. Then there was **the arrest, and possible extradition, of the CFO of Huawei in Vancouver** whilst changing aircraft with another barrage of news media attention. In this case, **Ms Meng Wanzhou, the daughter of the owner of Huawei, was finally granted bail** whilst her extradition hearing proceeds in court. **In the meantime, a few Canadian business men and an ex diplomat have been detained/arrested in China.**

If indeed there is a settlement of trade sanctions/tariffs within 90 days in which **China agrees**, as they have often indicated, **that they would reduce the trade deficit by USD 200/250 billion, then it would be great news for Shipping.** Grain, Coal and Oil/Gas are the three raw materials that the US can export in large quantities and which China can easily import in equally large quantities. Currently **China imports a lot of Coal from Indonesia which is barely 6 days away as against the US which is about 42 days away and that could result in a huge ton-mile increase in demand for Dry Bulk shipping.**

New orders for ships are hovering near all time lows with the forward order book to existing fleet ratio as of end 2018 being 10.52%, the second lowest since the turn of this century (lowest was in 2002 at 8.38%.) If we were to look at only the geared ships, the sector that PSL is aligned with, then the order book to existing fleet ratio at the end of 2018 was at 5.75%, much lower than that for the world fleet, and the lowest since the turn of the century. The average order book to existing fleet ratio for the last 18 years, including the very low figure of 10.52% for end 2018, has been 28.91%. Seen from that perspective, **the present order book to fleet ratio does look very disarming especially when compared to the percentage of 20 years or older ships (6.95%) in the existing world fleet, and those that would turn 20 years or older by the end of the order book period (13%).** Please bear in mind that existing orders are being delayed and pushed back due to financial pressure either on the buyers or at the ship yard level. All of this has helped reduce the pressure from the Supply side of the equation.

The freight market is the prime mover that **drives ships to the recycling yards. The lower the freight market the greater the number of ships ending up at the recycling yards.** 2016 is a perfect example of this relationship. Q1 was a disaster in terms of the market with the BDI touching a new historic low every day before finally bottoming out at 290 points on the 10th of February. The Q1 total for recycled ships, as a consequence, was 14.22m DWT. But as rates started to improve, recycling took a back seat with 'just' 15.16 MDWT reaching the recyclers yards in 2017. With the BDI continually improving, this was followed by an even worse showing of just 5.25 MDWT ships being recycled in 2018. Though new ship deliveries from the yards slowed down and totaled 28.18 MDWT, net supply of ships in the dry bulk space, however, grew from 813.53 MDWT at the start of the year by 2.8% to 836.46 MDWT by the end of 2018 due to the extreme slowdown in recycling. But despite this growth in the supply side in 2016, 2017 and 2018 (above 6.1% net growth for the three years combined), the time charter rates have risen to reasonable levels by the end of 2018. **This suggests that the past oversupply situation has been, slowly but surely, overtaken by growth in demand and balance has been finally achieved or is extremely close by.**

On the **supply side**, things look distinctly better with expected net supply increasing at about 3.06% during 2019 and again 3.26% during 2020 whilst demand should be growing at around 3.0% to 4.0%, very similar to the demand growth seen in 2018, when supply grew by 2.8%. **This favourable gap between expected demand growth and expected supply growth in 2019 and 2020 should make for an increasingly robust secular recovery.** As supply and demand balance has either been reached or is very close, this recovery could be **characterized by extreme volatility** as any small change in demand or supply would have a disproportionate impact on the BDI.

Regulatory impacts should see many more ships heading for the recycling yard in 2019, and 2020. The Ballast Water Treatment System (BWTS) convention came into force on the 8th of September 2017. All new vessels with keel laid after this date are required to be fitted with IMO approved ballast treatment plants. All existing vessels are required to retrofit such plants in a phased manner along with surveys associated with first renewal of IOPP (International Oil Pollution Prevention) certificate after 8 September 2019. Any ship that is **older than 20 years of age would then become a potential recycling candidate when the next five year renewal of the IOPP certificate becomes due after the effective date.** As of the end of 2018, **the world dry bulk fleet had 38.5 MDWT of ships that would have their 20th, 25th or 30th birthday during the next 8 quarters starting in Q1 2019 and ending in Q4 of 2020.** These ships would not only have to complete an expensive special survey cycle requiring extensive downtime but would also have to retrofit a costly, compared to the capital value of these very old ships, BWTS and then face the prospects of having to manage these older ships designed to burn 3.5% sulphur fuel oil (HSFO) being challenged to burn 0.5% sulphur fuel oil (LSFO) from the 1st of

January 2020. Added to the uncertainty of their older engines being able to handle this sea-change in type of fuel oil, they would also face the prospects of intermittent employment where clients would be scared to put their valuable cargoes onboard such ships that could easily breakdown, due to this change in fuel oil, and create endless problems for them. The cost benefit to retrofit an expensive BWTS would be too great a risk to run, especially when 20 years or older ships are valued around recycling levels. It **will make the 'recycling' decision easier.**

IMO 2020 will result in 'cleaner low sulphur' oil being burnt by ships from 1st January 2020, except those owners who fit/retrofit scrubbers on their ships, and thereby reduce the level of pollutants reaching the air that we breathe as well as the 'acid' rain that results from such emissions. **The impact of IMO 2020** would essentially be as follows:

- **Older ships would struggle** to either retrofit scrubbers, due to their high capital cost as well their high running costs, or struggle to burn 'cleaner low sulphur' oil in their engines. Those older ships that would have their 20th, 25th or 30th birthday in the next 8 quarters, starting from Q1 2019 and ending in Q4 2020, would have to struggle with the **extremely expensive costs** associated with special surveys of such older ships together with the **costs of retro fitting a Ballast Water Treatment System (BWTS)** as well as the impending IMO 2020 deadline. The world Dry Bulk fleet had about 38.5 MDWT of ships in this 'older' ship category of which about 14.6 MDWT were in the 'geared' ships sector where PSL operates. **Some or all of these ships will certainly end up in recycling yards.** Others will experiment with burning 'compliant low Sulphur blends of fuel oil and diesel oils in these old engines designed to burn high Sulphur residue oils. Such experiments could **result in a lot of breakdowns/delays to such ships** and clients would be hesitant, to put it mildly, to place any of their cargoes on such ships.
- **Ships that are burning compliant low sulphur fuel oils' would operate at more economical slower speeds** if, indeed, the price differential between HSFO and LSFO is as high as the scrubber pushers have been proclaiming. This would result, combined with the impacts associated with the effect of IMO 2020 described in the preceding paragraph, **in a supply side dividend with supply shrinking enough to cause some sort of a freight rate spike.** How high would the freight rate spike be or how long it would last is any ones guess.
- The number of ships that are fitting/retrofitting scrubbers **in the Dry Bulk fleet** by numbers are 577 (471 retrofits and 106 new buildings as per Clarksons data base end of 2018) out of a total of 12,234 dry bulk ships in the world fleet, including all the new buildings in the order book, or **4.71% of ships with scrubbers** that would be pumping soluble Sulphur/Nitrogen/particulate matter, and only God knows what else, into the waters of the oceans and **transferring the pollution from the sky into the seas.**

- **The total number of ships fitting/retrofitting scrubbers** in the world fleet, not just dry bulk ships, including those from the order book would be a measly **2,067 ships** out of a total world fleet that would be 99,184 ships **or just 2.08% of the world fleet**. The question is, **will the oil majors/refineries produce HSFO to cater to this small minority of ship owners?** If they do, then it means that they would have to dedicate certain refineries/storage tanks/pipe lines/delivery vehicles (barges/small tankers) to service those 2.08% of owners who have opted to burn HSFO. The cost benefits of doing this would be something that the refineries would have to consider and, just maybe, HSFO would not be sold at any appreciable discount to LSFO but possibly at a small premium?
- The ships that are planning to or actually **fitting scrubbers would face their own set of challenges** that would include, **bans from using open loop scrubbers in ports**, extraordinary **scrutiny of their exhaust gasses** to ensure that their scrubbers, for which we understand there are no standards, are actually emitting minimal Sulphur oxides into the atmosphere, **corrosion of the piping system** within the scrubbers as well as at their **outlet pipes** (Hydrex.com, the underwater welding specialists, state that there has been a rash of such underwater welding requirements from scrubber fitted ships), **installation of heavy duty pumps** to handle the constant high pressure flow of water in the scrubber piping system **requiring the use of two generators at sea** instead of just one, **spares/repairs/maintenance of scrubber systems, manpower needed** to operate and handle scrubbers, etcetera.
- During 2019 and 2020 a lot of these 'scrubber' ships will be in dry docks fitting these 'refineries' to enable them be compliant with IMO 2020 emission rules. That will certainly take away some supply from the market. **Various reports have suggested that this would reduce overall supply in the dry bulk world fleet by as much as 1.5 to 2%**. This reduction in supply will not necessarily be a challenge in that it would assist the freight market and not act as a detriment to it.
- For those ship owners taking the **sensible route of not installing scrubbers and instead burning LSFO** they will face the future **worrying about availability of LSFO** (more or less every major oil producer, and nationalized oil company in almost every country, has confirmed that they will have as much LSFO as is needed available in their countries/ports that they regularly service), **compatibility of various different blends of LSFO** (currently almost all ship owners do NOT mix any fresh HSFO with existing HSFO onboard their ships but take fresh supplies in 'empty' tanks and only start using such fresh supplies after their contracted laboratories have confirmed that the fresh HSFO that they have bunkered is suitable to be burnt in their ships), **getting their ships tanks 'cleaned'** by bunkering small quantities of MGO in 'empty' tanks to

'clean' them of any residues of HSFO, **Bunkering LSFO starting sometime in SH 2019** (Q3 or Q4) in all available 'empty' tanks, **having clear guidelines for ship staff** on how to store receive and use LSFO, etcetera.

- [Deserts in the Ocean](#), an article written in 2008 gives you a look at how mankind has been **destroying the ocean beds and creating deserts in the seas** by the pollution that humans happily dump there.
- '[The Sixth Extinction – An Unnatural History](#)' a 2014 non-fiction book written by Elizabeth Kolbert argues that man's activity has **caused the oceans to become acidified resulting in a grave threat to the coral reefs of the world**. The reefs are the apex species of the ocean's ecosystem. If the reefs fail, so does the entire marine ecosystem.
- At some point in time, **dumping toxic/sulphuric waste water from 'open loop scrubbers' into the oceans will come back to haunt us with such ships being banned from pumping their toxic waste water into our oceans/seas**. MPA Singapore, and now China, has banned the use of 'open loop scrubbers' in their territorial waters as have a host of other countries from Europe to the Americas and from Asia to Middle East. How long will it be before the **world realizes that it would be best to ban the dumping of waste water generated by 'open loop scrubbers' anywhere in the oceans/seas?** It's like saying that a small portion of an aircraft (territorial waters of any country/port) is declared as a 'non smoking' zone whilst the rest of the aircraft (oceans/seas) are designated as an unrestricted smoking zone, and we know how **that ended!**

Shipping banks have more or less completed their "repair" work by restructuring/recapitalizing themselves which they were forced to do by their respective regulators. Thereafter, while some of them have "closed shop" for shipping loans, many of the shipping banks do remain "open" but with a markedly different strategy of going after quality rather than quantity. In other words, they would now lend only to their strongest clients. So long as the recent wounds remain fresh and unhealed, we can say goodbye to the old traditional bank and hello to the new improved selective bank. Moreover, the message to us from these banks is that not only will they be selective in deciding who will borrow from them, they will also be "sensible" (a polite way of saying "tough and stringent") in terms of the level of leverage they offer and the price thereof. So to conclude, the small ship-owner without a strong balance sheet and limited means in terms of cash equity will now have to look elsewhere for financing as his traditional Shipping Bank is probably not even going to give him the proverbial time of the day.

The situation at the **ship building yards** has become untenable and quite a few of them have simply closed shop, including state-owned shipyards in China, something that was simply inconceivable in the past. Those shipyards that have managed to survive have reduced their existing capacity via

consolidation; some have gone back to ship repairing; others have converted to 'green' recyclers; and many have simply changed over to some other business.

Oil Prices and its impact on slow steaming: Lower bunker prices in theory should result in a reduction of slow steaming but only if the daily time charter rates are strong enough. Once the 0.5% sulphur ruling hits the market on 1st January 2020, depending on the actual cost of LSFO for ship owners who do not opt to fix an expensive and untried 'scrubber' system to 'clean' the exhaust gasses from the excessive particulate matter and high Sulphur content resulting from burning HSFO. That should make slow steaming the norm even if time charter rates were to improve significantly. There are analysts who calculate that this could result in the supply side of ships in the world fleet shrinking by ~10%. That would certainly tilt the supply demand equation firmly in the ship owner's favour.

Recycling in 2012 had a stellar all time record of 35.97 MDWT dry bulk ships being recycled. However, 2013 and 2014 recycling came in at a disappointing 21.39 and 16.72 MDWT respectively. 2015 was a far better year with a total of 32.09 MDWT being recycled but was obviously not good enough as the BDI plunged to a fresh all time low of 290 points on the 10th February 2016. In 2016 we saw 29.74 MDWT of ships being recycled reaffirming the inverse relationship with the BDI. In 2017 recycling again reached a disappointingly low figure of just 15.16 MDWT and further collapsed to just 5.25 MDWT in 2018. **Recycling rates are dependent on two main variables: the freight market (primary mover) and the price of recycling (secondary mover) and have little or no connection with other variables like oil prices.**

In the next four years time i.e. **by the end of 2022, approximately 13.01% (108.87 MDWT) of the existing world fleet would be over 20 years of age and some part of this lot of older ships should head to the recyclers yards** due to the upcoming expensive regulatory environment, the direction of the BDI and recycling prices.

Slippage is the difference between the DWT of new ships on order at shipyards at the beginning of the year and the actual deliveries of DWT of new ships at the end of the same year. Slippage came in at 18.15% in 2018 which is well below the annual average of about 36.15% for the preceding 5 years. As a result the net increase in supply for 2018 was 22.93 MDWT with a yearend number of 836.46 MDWT. This amounted to a 2.82% net increase in the World Dry Bulk fleet.

With respect to the approximately 87.83 DWT of new ships (10.5%) scheduled to be delivered to the end of 2022, the lack of funding coupled with delays in deliveries at ship yards would subject them to a degree of slippage (it was 18.15% in 2018) which would react inversely to the strength of the BDI i.e. the stronger the BDI the lower the slippage and vice versa.

Future Supply: A total of 295 dry bulk ships or 28.18 MDWT entered the supply side during 2018. At the same time, recycling this year has come to 5.25 MDWT with 16 (2.76 MDWT) Capes, 13 (0.95 MDWT) Panamaxs, 18 (0.87 MDWT) Ultras/Supras, and 27 (0.67 MDWT) Handysizes being recycled. This has resulted in **the global dry bulk fleet strength, at the start of 2019, reaching 836.46 MDWT**. 2019 and 2020 have 41.96/36.73 MDWT of brand new ships scheduled for delivery. If we assume annual recycling of 8 MDWT (it was 5.25 MDWT for 2018) and apply a 20% slippage (it was 18.15% in 2018) in expected annual deliveries, **2019 ends with a world fleet of 862.03 MDWT for a growth rate of 3.06% over the year. Under the same assumptions, 2020 ends with 890.13 MDWT for a growth rate of 3.26% over the end-year total of 2019.**

The question is **how will owners react to the market conditions during 2019 and 2020?** If the markets remain reasonably strong as anticipated, then recycling will slow down, however due to the very low forward order book net increase in supply in 2019 and 2020 would be approximately 3.21% per annum whilst demand is scheduled to grow at around 3.0% to 4.0% per annum. If that happens and **'forced' recycling takes off due to the regulatory pressures in 2019 and 2020, we could have a few very interesting years ahead!**

We were quietly optimistic this time last year about the prospects for 2018. We are similarly more **sanguine about the prospects for the rest of 2019 and beyond**. This is due to the gap between expected supply growth and expected demand growth over the next few years combined with regulatory pressure on the supply side that should send many more ships to the recycling yards or slow steaming 'removing' a significant amount of tonnage than what we have used in forecasting the net growth in supply numbers.

It is now almost 10 years since the dry bulk markets have been in a crisis. **Even the scriptures forecast a maximum of 7 years of 'famine' so hopefully we have seen the last of the 'lean' years.**

China, the primary driver of dry bulk trade, **reported GDP growth of 6.6% for 2018**, despite the growth rate in the fourth quarter being 6.4%, the lowest level of growth since 2009. In spite of the fourth quarter, China continued to import record volumes of drybulk commodities and maintain efforts to improve air quality. According to Platts, 40 MMT of additional pig iron capacity is being reduced during the 2018/2019 winter season, equating to 30-50% production cuts depending on the province. Furthermore, other sectors such as aluminum and cement have followed suit with similar production cuts. During the first 11 months of 2018, **China fined violators a total of USD 2 billion, demonstrating the lengths taken to improve environmental conditions**. In spite of slower reported GDP growth and production cuts, **China imported 1,064 MMT of iron ore during 2018**, a drop of 1.0% **and 281.5 MMT of coal during 2018**, an increase of 3.4% Y-o-Y despite a virtual ban on coal imports during the last two months of the year.

The USA ended 2018 on firm economic ground, with **GDP growth forecasted at 3.0%** despite turbulent weather, increases in interest rates, and the self-inflicted wounds resulting from trade tariffs, sanctions, protectionism and abrogation/withdrawal from multilateral agreements of the past and the longest government shut-down in their history. The projected unemployment rate, 3.9%, has fallen to the lowest level in 10 years. The impacts of President Donald Trump's expansionary policies such as tax reform have run their course in the world's largest economy. **With the yield curve inverting forecasting a recession, the Federal Reserve will most likely shy away from the previously trodden path of raising interest rates every quarter in 2019.** The end of tariffs and sanctions would create the ideal conditions for strong export volumes of coal, oil/gas, cotton, wheat, corn, and soybeans, combined with potential imports of other raw materials for infrastructure development that would potentially benefit dry bulk.

The EU is the second largest economy in the world after the USA and one of the largest exporting blocs in the world. After reporting robust growth in 2017, **economic data has softened slightly in 2018** with forecasted economic growth of 2.1% in 2018, just shy of the decade high of 2.7% reported in 2017. With the economy recovering, **the ECB is beginning the process of reducing its bond purchases, signaling an end to easy monetary policy.** As economic growth continues in 2019, demand for commodities to produce finished goods across the Eurozone will increase, thereby increasing the demand for shipping.

Japan, the second largest dry bulk player in the world, is forecasted to continue its economic winning streak by reporting **economic growth of 1% for 2018** due to record-high corporate profits and labor shortages. Growth is set to decline marginally in Q1 2019 as the impending consumption tax increase takes effect, but should be offset by government spending for the 2020 Olympic Games. Prime Minister Abe's use of a mix of aggressive monetary policy, government spending, and structural reforms has contributed significantly to Japan's positive economic performance. Furthermore, **strong global demand for Japanese goods will spur demand for raw materials, boosting demand for shipping.**

India has continued to **report strong GDP growth** numbers in 2018 despite the government's demonetization and GST initiatives. Should growth trends continue, **India is forecast to become the 5th largest economy by the end of 2019.** The market orientated Modi government coming off a fresh round of state election losses will seek to boost spending on infrastructure to appease voters before the next election cycle. Additionally, **India has consistently reported strong coal import volumes.** Draft restricted and inefficient ports combined with a boost in coal imports and infrastructure spending, demand for shipping, in particular, smaller size segments, should increase.

The one industrial sign that could point to a higher level of demand is the 'One Belt One Road' silk route or **the Belt and Road Initiative (BRI)**, is a flagship project of Chinese Premier Xi Jinping's visionary foreign and economic policy initiative, that could potentially lead to higher levels of demand for dry bulk shipping while promoting logistic links between Asia, Middle East, Africa and Europe. Under development is a planned network of overland road and rail routes, oil and natural gas pipelines, ports and other **infrastructure projects that will stretch from Xi'an in central China, through Central Asia, and reach as far as Moscow, Rotterdam, London, Venice and Piraeus**. By end of 2018, approximately USD 685b of BRI projects have been either committed/started/completed. The program is arguably one of the **largest infrastructure development plans in modern history** and would require significantly larger movements of iron ore, coal, limestone, coke, wood and other minerals like nickel ore, alumina etcetera than what are being shipped presently and that would benefit the dry bulk markets tremendously.

Summary of BRI facts:

- The monetary size of OBOR is anywhere between USD 1.2 and 20.0 trillion!
- It covers over 70 countries accounting for about 65% of the world's population and around one-third of the world's Gross Domestic Product (GDP).
- It is 12 times larger than the Marshall Plan, in today's inflation adjusted Dollars.
- Funding will come from (1) the Asia Infrastructure Investment Bank. (2) Silk Road Fund. (3) New Development Bank or the BRICS Bank. (4) China Development Bank.

China boosted trade with and investments in the countries covered by the BRI in 2018 amidst a trade war with the US. The **total value of its trades with BRI countries increased to CNY 8.37trn (\$1.24trn) in 2018, up 13.3% from the 2017 level**. A review of progress of 2018 would suggest that whilst development has slowed, the BRI is still making strategic growth. Despite public and vocal anti-BRI rhetoric, there has been a flurry of activity around infrastructure financing that suggests that nations are taking BRI progress seriously.

To keep things in perspective with regards to PSL, we would like to highlight the annual net profit/loss over the past few years.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Av. BDI	6,390	2,617	2,758	1,549	920	1,206	1,105	719	673	1,145	1,353
Net Profit (loss) \$m	148.1	88.1	35.5	23.6	4.5	17.5	(2.5)	(69.41)	(75.61)	(3.76)	14.1
Av. No. of Ships	44.12	32.79	21.39	21.91	30.44	38.93	41.66	45.46	40.29	36.02	36
Net Profit (loss)/Ship \$m	3.36	2.69	1.66	1.08	0.15	0.45	(0.06)	(1.53)	(1.88)	(0.10)	0.39

During 2015 to 2017 we managed to keep costs under tight control; raised about USD 65 million from our shareholders via a rights offering in early 2015; raised about USD 100 million from a bullet repayment, 5 year maturity, unsecured bond in January 2016; raised additional USD 55 million from a bullet repayment, 3.5 year maturity, unsecured bond in December 2016; pre-paid a lot of our secured loans coming due in 2018 and 2019; and sold our older and inefficient ships to raise further cash (15 ships recycled in 2015 - 2016 and 2 older ships sold in 2016 - 2017 for further trading). **During 2018 we pre-paid all outstandings of one loan facility and 3 vessels were thereby released from mortgage.**

AWARDS AND ACCOLADES:

We are pleased to inform that Precious Shipping has been nominated by the Thai Institute of Directors & the Stock Exchange of Thailand as one of the Top 10 companies for the Board of the Year Award 2018, in the category for companies with a market capitalization below Baht 30,000 million, by the Thai Institute of Directors & the Stock Exchange of Thailand. The Award will be announced in June/July 2019.

At the 11th Seatrade Maritime Awards Asia 2018, Precious Shipping was adjudged finalist for the 'Ship Owner/Operator' Award, and Great Circle Shipping Agency ("GCSA"), our wholly owned ship-management subsidiary, was adjudged finalist for the 'Ship Manager' award. At the 2018 Lloyd's List Asia Pacific Awards, we were adjudged finalist for the 'Class NK Dry Bulk Operator of the Year' award, and GCSA was adjudged finalist for the 'Ship Manager of the Year' award. At the International Bulk Journal's IBJ Awards 2018, we were adjudged finalist for the 'Bulk Ship Operator of the Year' award, and our cement carrier, APINYA NAREE, was adjudged finalist for the 'Bulk Ship of the Year' award.

FINANCIAL HIGHLIGHTS (THAI BAHT TERMS) AND REVIEW OF THE YEAR:

In terms of operations, during the year under review, the Total Revenues of the Company were Baht 4,970.12 million (2017: Baht 4,394.63 million) and the Company incurred a Net Profit of Baht 456.20 million

(2017: Net Loss of Baht 129.48 million, including gains on sales of vessel and equipment and interest on unsecured corporate loans and other expenses per Settlement Agreements with Sanfu shipyard totaling Baht 80.36 million). The Shareholders' Equity of the Company is Baht 12,695.46 million (2017: Baht 12,335.49 million) and the Total Assets of the Company have decreased during the year to Baht 27,836.91 million (2017: Baht 28,833.24 million). The decrease in Total Assets is mainly on account of the depreciation on Vessels.

During the year, the Company earned Baht 463.70 million (2017: Net Loss of Baht 116.98 million) as Net Profit before Exchange Loss of Baht 5.36 million (2017: Baht 12.31 million) and Income Tax of Baht 2.14 million (2017: Baht 0.19 million). In terms of the Earnings, as a consequence of the continued strength of the dry bulk freight markets, the Company's vessels achieved an average time-charter equivalent earnings of USD 11,063 per day per vessel in 2018 as compared to USD 9,486 per day per vessel in 2017. The Net Vessel Operating Income was earned from an average of 36 vessels during 2018 and 2017. The Net Vessel Operating Income (net of voyage disbursements and bunker consumption) in absolute terms was 12% higher than that of the previous year. Absolute vessel running expenses (Opex), decreased by about 3%, due to the appreciation of the Thai Baht against the U.S. Dollar (Functional Currency). However, the average vessel running cost per day per vessel (Average Opex per Day) increased from USD 4,355 in the previous year to USD 4,621 in 2018. The technical downtime was decreased to an average of 6.54 days per vessel (with the average age of 7.3 years in 2018), as only 10 vessels were due for dry-docking and special survey during the year.

We conducted an "in-house" exercise again this year to determine Total Return to Shareholders, which was calculated for the 25 years that we have been operating as a listed entity. Based on the closing share price as on Friday the 16 September 2018 of Baht 12.30 per share (we started trading on the SET on the 16 September 1993) and assuming you had subscribed at the IPO, then, at the end of 25 years, you would have 13.86 times your initial investment. This return does not assume any re-investment of the dividends into shares or any interest on the dividends received.

OUR FLEET:

At the end of 2018, our fleet consisted of 36 ships in the water (8 Ultras, 9 Supras and 19 Handy sizes) with an aggregate capacity of 1,585,805 DWT. This worked out to an average 44,050 DWT per ship, and an average age of about 7.3 years.

In a highly capital intensive business with very high leverage characterized by unpredictable and wildly swinging cycles, the timing of the purchase of ships is possibly the single most important decision that has to be made.

The Time Charter Equivalent (TCE) earnings of our Fleet during 2018 averaged USD 11,063 per day per ship. In terms of daily average Operating Expenses (Opex), we were higher than our target of USD 4,500 per day per ship reaching a figure of USD 4,621 per day per ship.

Market Segmentation/Benchmarking: During 2018, the Baltic Handy Size Index averaged 597 points derived from the average Time Charter (TC) rate of USD 8,700. Compared to that, **our Handies earned USD 10,355 outperforming the BHSI TC rate by 19.02%**. Further, the Baltic Supramax Index (BSI) averaged 1,031 points derived from the average TC rate of USD 11,198. Compared to that, **our Supramaxes earned USD 11,038, underperforming the BSI TC rate by 1.43%. Our Ultramaxs earned USD 12,772 and outperformed the BSI TC rate by 14.06%** (as there is no special index for the Ultras we have compared them with the BSI). Our target has been to outperform both the indexes.

THE INDUSTRY OUTLOOK:

A more 'normal' supply of new ships is expected for the next few years.

The Cape sector (90,000+ DWT: 2,031 ships of 363.62 MDWT at the start of 2019): 220 ships of 50.63 MDWT or 13.9% of the existing DWT are scheduled for delivery up to end of 2022. In this sector, 165 ships of 31.87 MDWT or 8.8% will be over 20 years of age by end of 2022 and some or all of them are likely to be recycled during 2019 to 2022.

The Panamax sector (70 – 90,000 DWT: 2,191 ships of 173.16 MDWT at the start of 2019): 243 ships of 19.97 MDWT or 11.5% of the existing DWT are scheduled for delivery up to end of 2022. In this sector, 392 ships of 29.23 MDWT or 16.9% will be over 20 years of age by end of 2022 and some or all of them are likely to be recycled during 2019 to 2022.

The Supra/Ultramax sector (40 – 70,000 DWT: 3559 ships of 198.11 MDWT at the start of 2019): 213 ships of 13 MDWT or 6.56 % of the existing DWT are scheduled for delivery up to end of 2022. In this sector, 578 ships of 28.67 MDWT or 14.47 % will be over 20 years of age by end of 2022 and some or all of them are likely to be recycled during 2019 to 2022.

The Handysize sector (10 – 40,000 DWT: 3650 ships of 101.57 MDWT at the start of 2019): 127 ships of 4.23 MDWT or 4.16% of the existing DWT are scheduled for delivery up to end of 2022. In this sector, 778 ships of 19.1 MDWT or 18.8 % will be over 20 years of age by end of 2022 and some or all of them are likely to be recycled during 2019 to 2022.

When reading the above numbers please keep in mind that Slippage was 18.15% in 2018. Slippage averaged around 36.15% over the last 5 years and fluctuates inversely with the BDI and availability of finance.

Our **Competitive Position** based on our existing 36 ships-in-the-water makes us one of the larger players in the market. With the ownership structure being extremely fragmented, we are recognized

as an established brand name with clients wanting to do business with us first before they take their custom to any of the other smaller, and potentially weaker, players.

Additionally, our rejuvenated fleet consisting of younger, larger, better geared and more economical vessels purchased at historically low price levels will enhance our competitive position for years to come.

THE ISSUES FACING OUR INDUSTRY:

Operating Costs of our Company increased in 2018 on account of the larger number of dry dockings and in-water surveys, as compared to 2017. Some of these were routine dockings whilst in others the dry docking were carried out for work related to fuel tanks' conversions (sub dividing larger fuel tanks to smaller ones) in preparation for the low Sulphur regulations post Jan 2020. Similarly, there have been increases in expenses related to replacing fuel components of these vessels during overhauls related to preparing the Main and Auxiliary engines to operate with low Sulphur grades of fuel oil post January 2020. Such expenses are expected to continue through 2019. However, the savings obtained in expenses in 2017 notably in, crew wages and manning levels were maintained and not revised upwards. Further, greater emphasis is continually being placed on the standards of training for the senior personnel required to operate our technologically advanced modern fleet. Insurance costs were under control, because of favorable claims record of the Company's fleet and also because the insurers are financially strong. In particular, the Protection & Indemnity ("P&I") insurers ('P&I Clubs') belonging to the International Group of P&I Clubs experienced another benign claims year and better investment returns This has enabled the Clubs to be supportive of their shipowner members in these times of depressed freight-market.

International Maritime Organization (IMO) conventions are constantly updated to match demands for enhanced steps to protect the environment.

Among several other requirements, engine exhaust emission standards are also controlled by the MARPOL regulations. Apart from the existing Emission control areas that require ships to burn fuels which contain no more than 0.1% sulphur, another new regulation is expected to enter into force from Jan 2020 when there will be a global cap of 0.5% on the sulphur content of marine fuel. This is even more challenging due to the uncertainty of availability and costs of compliant fuel. The other option, being fitment of scrubber units on vessels, besides being both technically and financially challenging, is further in doubt as a suitable solution, as these are designed to remove sulphur pollution from the atmosphere and transfer the same as a pollutant to the seas. More countries are insisting on stringent ballast water management practices on board ships. New regulations will require ships to treat the ballast water taken into its tanks with the help of an approved Ballast Water Treatment System (BWTS) which needs to be

installed on board. The Ballast Water Management Convention entered into force on 8 September 2017, 12 months after ratification by 30 States, representing 35% of world merchant shipping tonnage. All vessels are required to carry a Ballast Water Management certificate. All new vessels' keel laid from this date are required to be fitted with IMO approved ballast treatment plants. All existing vessels are required to retrofit such plants in a phased manner along with surveys associated with first renewal of IOPP (International Oil Pollution Prevention) certificate after 8 September 2019. All IMO approved treatment plants presently in the market have not yet met the stringent USCG approval requirements. There is a separate US Coast Guard schedule for BWTS installation, defined mainly by the number of USCG approved BWTS that were available in the market. By end December 2018 about thirteen BWTS have been granted approval by the coast guard. . USCG approved BWTS have already been fitted on 19 vessels in our fleet. The remaining vessels will also be fitted with USCG approved BWTS before the IMO/USCG compliance dates. As a result of initiatives from the International Labor Organization (ILO), working and living conditions of crewmembers on board are receiving increased importance. In order to formalize this and ensure uniform compliance, ILO has adopted the Maritime Labour Convention 2006 (MLC 2006). A Maritime Labour Certificate (MLC) and a Declaration of Maritime Labour Compliance (DMLC) will be required on board to ensure compliance with the Convention for all ships above 500 tons in international trade. These certificates are to be obtained from the Flag state and their recognized organizations after thorough verification and surveys on board each vessel. The MLC 2006 has attained the required number of member state ratifications in August 2012. All ships were required to meet the compliance requirement and have valid certificate for compliance with MLC convention before 20 August 2013. Thailand ratified the MLC convention on 7 June 2016 and as a result MLC 2006 entered into force for Thai flagged vessels from 7 June 2017. The Statement of Compliance (SOC) with MLC 2006 which was being issued till date on our Thai flagged vessels is now being replaced with a Marine Labour Certificate. This is a welcome development and facilitates smooth trading of Thai flagged vessels worldwide, as it eliminates the risk of the SOC not being acceptable in some countries.

Singapore has ratified the MLC convention. Hence the Company's vessels flying the Singapore flag vessels are fully compliant with the MLC requirements.

In April 2014, the International Labour Organization (ILO) agreed several amendments to the MLC to implement the principles agreed back in 2009 by the joint IMO/ILO financial security working group. These amendments have entered into force on 18 January 2017. Ships that are subject to the MLC are now required to display certificates issued by an insurer or other financial security provider confirming that insurance or other financial security is in place for the cost and expense of crew repatriation, as well as up to four months contractually entitled arrears of wages and entitlements following abandonment (Regulation 2.5). A further certificate will be required for liabilities for contractual claims arising from

seafarer personal injury, disability or death (Regulation 4.2). P+I Clubs of the respective vessels have provided such certificates for all ships in our fleet.

Focus on the environment is becoming even more important. It is no longer just fashionable to say we are “Going Green”; organizations world-over are being pushed by their stakeholders to become more environment-conscious, guided by compliance with the newer regulations. It is expected that the IMO along with the ICS will take a pro-active role to put in place regulations which will apply to shipping on a global scale. One of these is the mandatory reporting of CO₂ emissions (measured in grammes/tonne-mile) on voyages, similar to the European Union MRV rules (Monitoring, Reporting, Verification of CO₂ emissions) – which has been implemented from Jan 2018 for all vessels operating in the EU region. In similar lines IMO require all vessels to implement the fuel consumption data collection system (DSC) from Jan 2019. This requires vessels to report annual fuel oil consumption worldwide to IMO through the flag administration. The regulation also requires the existing Shipboard Energy Efficiency Management plans (SEEMP) to be updated and certified by the flag authority or a recognized organization. Global shipping is committed to reducing the CO₂ emission by about 20% by 2020 as compared to the values in 2005. These regulations will in turn phase out several older, less efficient vessels. We have taken the initiative to prepare in advance for these regulations by monitoring and data collection of CO₂ emissions on all vessels in the fleet. The company has also made arrangements for all vessels to report such fuel consumption data collection to a Recognised Organisation (RO) approved by the flag, from 1st January 2019 onwards. The vessels are also operated always with clean hulls (by using efficient anti fouling paints and also by hull cleaning when necessary) as this increases efficiency (thereby reducing carbon emission). More importantly, the new acquisitions for the fleet have been selected primarily on their ‘Eco’ operation characteristics. ‘Eco’ operation will be possible with larger cargo hauls on vessels with very fuel efficient engines, and optimised use of waste heat from the engines. We have aimed to achieve this with new vessels having fuel efficient engines and reduced waste heat (even the exhaust gases from the auxiliary engines is diverted through the boiler to use the available heat). The new vessels with larger cargo carrying capacity are expected to operate with low CO₂ emissions especially (as world trade improves) with more regular fully laden voyages. Besides, there are specific IMO Conventions and regulations mandated by individual countries, to control the emission of Sulphur dioxide, Nitrogen oxides, Halons and CFCs from our ships which contribute to Green House Gases (CHG). These regulations are expected to become more stringent in the coming years. In addition, certain states in the USA are likely to require ships calling their ports to use shore power which is greener than the power generated on board ships. ‘Bonnet’ technology is another concept, presently available only in certain ports, which can receive the exhaust gas from ships for treatment before discharging into the atmosphere. Further, the so-called “Tony de Brum” declaration, signed on December 12, 2017, by 35 states, including UK, France, Denmark,

Germany, Canada, the Marshall Islands, Chile and New Zealand, requires that shipping should adopt a cap on CO₂, with the ambition of reaching zero emissions towards the mid-century. The declaration also welcomed IMO's efforts to formalize a strategy in April 2018, for GHGs reduction in shipping. This is due to be revised again in 2023. These measures are still evolving and there will likely be operational problems; besides, these will most likely result in additional expenses for the ship owners/operators.

To formalize the Company's commitment towards preserving and conserving environment and to reduce carbon footprint, the Company has obtained ISO 14001: 2015 certification from Class NK of Japan. The ISO 14001:2015 provides a framework for a holistic and strategic approach to the Company's environmental policy, plans and actions, and will demonstrate that the Company is an environmentally responsible organization. PSL vessels have implemented "Ship Energy Efficiency Management Plan" (SEEMP) required by MARPOL Annex VI regulations from January 2013. Vessels have also fully implemented the more stringent garbage disposal regulations required by MARPOL Annex V which came into force from January 2013. With effect from 31 December 2020, EU Regulation on Ship Recycling will be applicable to foreign ships in EU waters. Ships are to comply with Inventory of Hazardous Material (IHM). Implementation of this requirement is expected to be time consuming and expensive. The company has now commenced preparations in this regard by sending senior technical superintendents for Hazardous Material Training courses organized by Classification societies thereby giving them the necessary competencies to complete the procedures to obtain IHM compliance for all vessels.

The Safety of Life at Sea (SOLAS) convention may also have several amendments in the future. This is being driven by one of the worst maritime disasters in US history - the loss of the US-flagged ro-ro vessel El Faro and its 33 crew, which sank in the Bahamas in October 2015 while trying to navigate through Hurricane Joaquin. The detailed USCG investigation report, published in September 2017, highlighted several errors, mainly by the Master, and includes 36 recommendations on safety and seeks several amendments in the SOLAS convention, as mentioned above.

With the melting of the polar ice cap due to global warming, and the consequent increase in navigability through the northern route, on 1 January 2017, the IMO has adopted the Polar Code and related amendments in 2014 - 2015 to make it mandatory under both the International Convention for the Safety of Life at Sea (SOLAS) and the International Convention for the Prevention of Pollution from Ships (MARPOL). The code's focus is on the safety of ships, seafarers and passengers who are on board the vessels in the harsh polar environment and also on the regulations to prevent discharge of Oil, Noxious liquid substances in bulk, Sewage and Garbage. It is expected that regulations which require the use of low sulphur Fuel oil are also likely to follow.

Maritime Training Center: As previously reported, the Company set up a full-fledged Maritime Training Center at its Head Office in Bangkok in March 2008. The PSL Training Center includes a state-

of-the-art Bridge Navigation Simulator for training of maritime personnel. Vessel-type specific Bridge Navigation Simulator recreates the actual maneuvering characteristics of the ship and its bridge controls as it enters a specific major port and provides ideal conditions in which to train Officers in hands-on practices for effective bridge teamwork and competence in ship-handling and navigation. This is a significant step taken by the Company to train and equip its Officers and Crew to take better care of themselves and their ships, all with a view to ensuring safety of the crew, cargo and the ship by preventing accidents, thus also helping to preserve the environment. In the current scenario of a worldwide shortage of trained personnel, and the rapid promotions that is a natural result of such a shortage, this is a major step to provide specialized training that would otherwise have been acquired 'on the job'.

The International Convention on Standards of Training, Certification and Watch-keeping for Seafarers 1978, which establishes the basic requirements for seafarers was revised in 1995 and again in June 2010 in a conference in Manila, major amendments, known as the Manila amendments, brought about more stringent requirements keeping in mind the need for global standards of competency for seafarers. The Manila amendments have entered into force on 1 January 2017. The PSL training and fleet department had been making preparations in advance so that by the date of enforcement all vessels had seafarers with the required training and certificates on board our ships.

Maritime Resource Management (MRM): MRM is a training program for ship's officers, engineers, pilots and shore-based personnel. The aim is to increase knowledge about human capabilities and limitations and to reinforce positive attitudes towards safety and teamwork. MRM is generally accepted to be one of the most efficient means of improving crew cooperation and minimizing the risk of accidents caused by human errors as well as failures in effective teamwork and resource management. The MRM course is authorized and licensed by The Swedish Club, a member of the International Group of P&I Clubs, and one of the few insurers providing Hull as well as P&I insurance covers. Apart from the MRM courses, the PSL Training Center has classrooms, Video-Based Training (VBT) and Computer based training (CBT) for the ship staff. Courses include MRM, Bridge Team Management (BTM), Bridge Team Competency (BTC), Officer Of the Watch (OOW), Chief Mate Course (CMC), Command Course (Command), Shipboard Safety Course (SSC), Maritime Professional Briefing (MPB), Maritime English training (divided into 5 course levels) programs for safety and efficient ship operations of deck and engine departments. The Training Center also conducts lectures on VTS (Vessel Traffic Separation) & SMCP (Standard Marine Communication Phrases) within the BTM and MRM courses, with the aim of developing our officers' communication skills in communicating with a VTS officer using standard maritime phrases in various simulations. The courses are upgraded regularly and provide a solid foundation to the Company's

training activities and enable our Officers and Engineers to keep abreast of the latest developments in ship operations.

To meet the needs of trained engineers to serve on the new vessels fitted with new generation Main Engines from MAN Diesel & Turbo and Wartsila, the PSL Training Center liaises very closely with the Technical Department and the engine manufacturers to continuously upgrade the training courses which were first introduced even before the vessels were actually delivered. Other training courses which the engineers go through before joining the ships are “Engine Room Management and Competency Enhancement” - “EMC” for Senior Engineers, “Engineer on Watch” - “EOW” for Junior Engineers, courses on “stern tube sealing systems” and “ships’ cargo gears with special focus on hydraulic”, and “Shipboard Safety. The PSL Training Center also augments class room theoretical courses with practical training, wherever possible. Considering the fact that the new vessels acquired (are fitted with more fuel efficient modern engines using advanced electronic controls and technology, the Company’s senior engineers, Electrical Officers and shore-based Technical Superintendents are put through the engine-maker’s specific training courses designed to better understand the operation and for effective trouble-shooting. Junior engineers are in turn trained at the Company’s Training Center and by trickle-down method on board ships. New courses are also being introduced to prepare the ships’ staff for the new challenges expected in the coming years on account of the low Sulphur cap, carbon dioxide emissions and ballast water treatment regulations.

The use of “Electronic Chart Display and Information System” (ECDIS) has become mandatory for new ships built from July 2013. All the vessels in the fleet are equipped with ECDIS with the on board software updated to the latest version. ECDIS requires special generic training as well as specific training for each manufacturer’s equipment.

PSL is committed to ensure that navigating officers working on board vessels fitted with ECDIS are fully conversant with the equipment prior joining the vessel. Officers are given generic ECDIS training at approved institutes. They are also required to undergo maker specific familiarization training by the ECDIS manufacturer. Realizing the fact that certification alone does not make an officer fully familiar and confident to use ECDIS, PSL Training Centre has equipped itself and developed ECDIS training course. After attending approved ECDIS training course, officers are required to undergo further ECDIS familiarization course at our in-house facility.

The training department also keeps abreast of imparting awareness to Officers on the risks due to increased incidents of the liquefaction of cargoes, such as iron ore fines, coal, manganese ore fines, and nickel ore. More than a hundred seafarers have lost their lives over the past eight years on vessels which have capsized and sank due to the liquefaction of such cargoes. The latest cargo entry in the list of solid bulk cargoes susceptible to liquefaction that can cause catastrophic results is “bauxite”. When subjected

to sufficient dynamic loading, very wet fine-grained bauxites go through a process of slumping and dynamic separation, with the upward expulsion of water/slurry. This may result in free surface effect of liquid sloshing about which could significantly affect the vessel's stability, leading to the risk of the ship capsizing. In response, the International Maritime Organization's (IMO's) Sub-Committee on Carriage of Cargoes and Containers issued new guidance on the carriage of bauxite, requesting adequate safety precautions to be taken when carrying this cargo.

There are already conceptual designs on small crafts that try to eliminate or minimize the human effort onboard ships. Some experts in automation visualize that in the next twenty years or so, ships may be totally un-manned with automated equipment using sensors, smart digital systems and other technologies, which can be monitored and controlled from shore based stations, completely removing the element of "Human Error" on board. Although the concept of such Autonomous vessels appeared unrealistic initially, bold steps were made in this direction in 2017, both in the industry and regulators. In May 2017, Yara and Kongsberg, introduced the concept of the autonomous Yara Birkeland container vessel due to be launched this year and commence operations by 2020. In October Rolls-Royce partnered with Google and introduced Augmented Reality software as part of their remote operation solutions for autonomous vessels. At the same time, in line with these developments in autonomous shipping, IMO's Maritime Safety Committee has also agreed to start to map out a new international legal framework for the safe operation of autonomous ships, as not having any human in charge of a vessel brings into many legal issues to work on. However, it has been said that "Most accidents are down to human error, but what we never measure is how many accidents are avoided because of human intervention. Take humans off ships and you are entering an unknown realm. Stakeholders in shipping need to keep abreast of these developments to ensure the most beneficial application of the technology."

The Scourge of Piracy, continues to be a concern notwithstanding the fact that the number of reported incidents have reduced considerably. The International Maritime Bureau reports that in 2018 the number of reported incidents increased to 201 (from 180 incidents in 2107). However in 2018 in the earlier risky area around Somalia, no ships were hijacked though there were 3 incidents of pirates attacking ships. All our ships sail at least 250 NM away from the Somali coast and are strictly advised to follow BMP4 guidelines, and also have armed guards while transiting the Gulf of Aden, all these measures helped prevent any attacks against our vessels.

The presence of international Navies and their patrolling the high risk areas, and the use of armed security guards on board, have also succeeded in making piracy for the Somalis less lucrative.

However, in 2018, incidents of piracy have increased in the Gulf of Guinea, mainly off Nigeria and in the coastal waters extending from the Ivory Coast to the Democratic Republic of Congo, where 6 hijackings and 13 attacks have been reported, with 78 seafarers being kidnapped for ransom. The

primary difference between this region and Somalia is that Nigeria has an elected Government with clear policies to deter piracy in its waters and that helps localize the menace and also control/handle it. However, all our vessels trading in the region observe all the BMP guidelines to deter piracy along with armed escort vessels arranged by the company as necessary.

Attacks in the South East Asia region have increased slightly in the waters off Eastern Malaysia, though increased patrolling by local navies have brought down the incidents around the Philippines and Indonesia. PSL has taken an active role in reporting to the IFC (Information Fusion Centre) a centre for monitoring the movement of all vessels in South East Asian waters. The IFC is based in the Singapore Naval Base and relays information to all regional Marine Coastguard units and has been effective in tackling piracy in the region.

Cyber Risks and Cyber Attacks:

In June 2017, the shipping industry was made starkly aware of its vulnerability to hacking and the associated implications for safety when the container line shipping giants Maersk line fell victim to a coordinated international cyberattack caused by a so-called NotPetya ransomware. It was stated that this ransomware was hidden in a document used to file tax returns in Ukraine. This caused the shutdown of Maersk's IT systems across its business and cost them up to USD300 million as per estimate provided later. The surprising part was this happened to a company like Maersk that used an IBM block chain technology platform to digitalise trade, and also took steps to place their marine insurance on a block chain platform, which is one of the latest emerging technologies in the industry.

Few months later in October, we saw 2 more issues related to cyber security - BW Group, one of the largest shipping companies in the world, revealed that it too had been targeted by computer hackers, and Critical cyber-security vulnerabilities affecting shipboard communication platform AmosConnect, by Stratos Global, were also revealed by the cyber-security research firm IOActive.

Based on above cases, a point needs to be stressed is that, as modern and technologically advanced newer ships become increasingly connected and software-dependent on their day to day systems, cyber security will emerge as a key area requiring attention to control operational and safety risks on board these ships, while also emerging as a major issue to be tackled by shipping companies during their board meetings worldwide.

Cyber risk is seen as an area where the threads in the global risk environment come together and the scale and sophistication of risks is expected to grow. This is further fuelled in part by geopolitical trends - more state sponsored attacks could add to those cyber-attacks that are financially motivated. Cyber exposure is growing in companies due to the rapid increase of interconnected devices, which is ever increasing due to increase in emerging technologies use on-board ships and the use of artificial Intelligence.

Even though the cyber risk has become more visible today, it is still under resourced in the amount of effort being put into mitigation the risks associated with it, even though attacks can be very costly, if occurred. It's said to be above the scale of natural catastrophes and yet the infrastructure the industry has in place against it is smaller in scale.

Cyber breaches recorded by businesses have almost doubled in five years and according to the 2018 risk outlook, the financial costs of cyber-attacks are on the rise.

The prime focus of our industry will now be in our ability to respond to these ever increasing Cyber-attacks.

In 2017, the IMO adopted resolution MSC.428(98) on Maritime Cyber Risk Management in Safety Management System (SMS). The Resolution states that an approved SMS should take into account cyber risk management in accordance with the objectives and functional requirements of the ISM Code. It encourages administrations to ensure that proper risk assessments and measures to protect ships from cyber incidents are included in the SMS. It also requires that these measures are implemented no later than the first annual verification of the company's Document of Compliance after 1st January 2021.

Though we have not had any cyber crime incidents till date, at PSL we constantly review and maintain our findings that:

- Our present systems incorporated in Office environment and on board ships are "robust" enough with the understanding that both IT and OT systems may be involved in cyber security incidents
- We have a system of Firewall checks in Office and have permitted limited white-listed websites access on-board ships through Inmarsat Satellite internet system. That minimises, if not completely eliminates, the risk due to Cyber-attacks onboard ships.
- With regard to the most discussed topic on ship cyber-attack related references to AIS, ECDIS and Vessel Data Recorders (VDR) which are integrated as part of the Integrated Bridge System (IBS), our system setup on-board ensures that no data from these equipment is available or transmitted directly online as we do not allow a 24 hour online option for our fleet.
- Nevertheless, in order to reduce vulnerability to both cyber accidents and cyber-attacks, and to ensure safe and efficient operations of our fleet, as part of constant reviewing and addressing cyber security:
- at all levels of the company – from senior management ashore to the crew on-board, as an inherent part of the safety and security culture onboard each vessel;
- in company policies – by considering how to align cyber risks with the existing security and safety risk management requirements contained in the ISPS and ISM Codes; and

- in relevant onboard procedures – by including new related requirements in in-house training programs, day to day operations of the vessel and maintenance of critical cyber systems, if any, that may exist onboard.

Digitalization and Cybersecurity:

The big change in our era is digitalization, which is upon us with increasing velocity and speed. The main drivers of the continuous and exponential change is the increasingly reliable connectivity to very large bits of data at affordable prices, ability to rapidly analyze such voluminous amounts of data in real time, intelligent automation and communication between machines, also known as the Internet of Things. The world is being digitally disrupted & transformed.

This rapid progress of information and communication technology is driving unprecedented change in every industry and all aspects of life. However, in comparison to the large advances made in other industries such as automotive, airline, banking etc, **ocean transportation has been slow to adopt and reap the advantages of digitalization**, with the container sector taking the lead. But now, even in the traditionally conservative bulk shipping sector in which we operate, there is an ongoing substantial disruption.

Within the next decade, we will see great progress in autonomous shipping, automated trading platforms, block chain integration, performance analytics, 3D printing etc transforming our industry. At PSL, we believe that these changes should be adapted and turned into new opportunities for our business. For example, such digital capabilities can significantly enhance the traditional owner-broker-customer interface experience, reduce counter party risks on the commercial side, bring benefits such as improved fuel quality and efficiency, increased operational safety, reduced breakdowns, slimmer inventories, etc on the technical side.

With a view to this, **we are continually going through the process of identifying various ways in which we can transform existing digital set up at PSL**. Some of them are already under progress, such as installing the latest enhanced version of our ERP and ensuring that all commercial, technical & accounting transactions are integrated and made seamless to the extent possible to reduce human error. With PSL's core assets tramping around the world, we are working on achieving digital connectivity with all the assets at all times by installing on our ships, a small telecommunication earth station that can receive and transmit real-time data via satellite. In the future, by upstream integration with onboard machinery and navigational equipment, the data stream from the satellites can then be transmitted directly to our ERP where downstream integration with data analytics can produce real time alerts without any human interference in the chain.



We recognize that with digitalization, **Cybersecurity has become a critical need** and are aware that the industry will soon be under the obligation to incorporate measures to deal with cyber risks in the ship's safety management system. We are continuously assessing this threat with a view to uplift our overall security infrastructure and to nurture a secure environment within which the organisation can work and minimize the risk of any security breach. PSL is also in the process of migrating its entire digital environment from software solutions to the cloud, which offers broader functionalities along with a much increased security environment. This will also allow us to set a new digital framework of how information can or should be exchanged between different counterparties in the future.

We understand that both IT and OT systems are involved in any Cyber security infrastructure and so, identification of vulnerable systems onboard such as the Positioning systems, ECDIS, Engine Control and Monitoring Systems, GMDSS etc and enhancing firewalls, training crew on best practice protocols and intrusion detection/prevention systems to protect against cyber-attacks is a continuous ongoing process in PSL.

At PSL continuous training is the key to keep staff and seafarers up to speed with new technology which we take very seriously by investing in the latest technology and software for our in-house training center. This year, we are in the process of replacing our existing ship simulator software with the latest available along with the hardware so that the crew can be given the best hands-on training making them ready to confidently and safely operate our ships at sea. Similarly, office staff is also regularly kept abreast of the latest trends and developments by way of arranging seminars, workshops, circulating reports and by discussions at various management meetings.

What to expect in 2019 from the technological advances in the years 2017-2018:

While the years 2017 and 2018 saw various acceleration in the digital transformation of the maritime industry with an ever increasing focus on digitalisation and new technologies, different

technologies like Blockchain, Augmented Reality, Autonomous Vessels, Drones, Deep Learning, Artificial Intelligence, Internet of Things, Virtual Reality, Robotics and Wearable Technologies (“Cyborg Crew”) will have a major impact on the maritime industry in 2019 as well as have prolonged ramifications for its future. The majority of these technologies is already in use in other industries and just need a trigger for them to be adopted in maritime industry.

Blockchain – the new revolution in shipping?

Traditionally regarded as conservative and resistant to change, the shipping industry has usually been among the slowest to implement new standards and technological improvements. However, in a positive deviation, more shipping players are seeking to harness blockchain technology, although it appears to remain in the trialing stage at present.

What is blockchain technology about?

The blockchain is typically described as an open, distributed, digital ledger, which can be programmed to record financial transactions or other valuable information. Information held on a blockchain exists as a shared database that is continuously reconciled across a network of computers. As changes are made, a public log is kept of what was changed, when and how. Compared to data stored in a single location, records kept on a blockchain are thus public and easily verifiable, since there is no centralized database that can be corrupted, and its data is easily accessible through the internet.

How can blockchain technology benefit the shipping industry?

In 2014, Maersk found that just a simple shipment of refrigerated goods from East Africa to Europe goes through nearly 30 people and organisations, including more than 200 different communications among them. IBM estimated the related document processing and administrative costs to be up to one-fifth of the actual physical transportation costs. Furthermore, the paperwork could also be susceptible to delays, misplacement, and fraudulent alterations, which could cause further problems and mounting costs.

Blockchain technology could counteract these issues by allowing for faster processing times and updates; greater accuracy through automation; increased transparency due to its public log and ease of access; increased security; and lower costs by reducing or even eliminating paper documentation and administration.

However, in order for its benefits to be harnessed, the blockchain technology will likely have to overcome some hurdles, including adapting it to the contractual terms unique to shipping, dealing with the

issue of flexibility required when contractual terms are still being negotiated, as well as collaboration and adoption by all parties in the supply chain.

Examples of current applications in shipping

In June 2017, IBM and Maersk announced their partnership to use blockchain technology to help transform the global supply chain. The solution will help to manage and track the paper trail of their shipping containers moving across the world, protecting the supply chain from human error, unwanted and wasteful delays, as well as cyber threats. The importance of cyber security has been increasing, especially after Maersk made the headlines last year as one of the victims of a global ransomware attack, which caused outages at its computer systems across the world and cost the company \$300 million in lost profits in 3Q 2017.

In September 2017, Ernst & Young announced plans to launch the first blockchain platform for marine insurance, alongside Microsoft, A.P Moller-Maersk and others. The distributed ledger will be used to capture information about shipments, risk and liability, help firms comply with insurance regulations, and ensure transparency across an interconnected network of clients, brokers, insurers and other third parties.

In December 2017, Mitsui OSK Lines (MOL) teamed up with IBM Japan and other firms for a demonstration test to see how effectively blockchain technology can be implemented in cross-border trade operations. Apart from MOL, a total of five firms are participating in this test, namely Sumitomo Mitsui Financial Group, Sumitomo Mitsui Banking Corporation, The Japan Research Institute Limited, Mitsui & Co, Mitsui Sumitomo Insurance Company and IBM Japan.

Government bodies, especially those in Europe, are also showing interest in blockchain technology, with the Danish maritime Authority implementing a new blockchain-powered pilot scheme for vessel registrations. Other port authorities such as the Port of Rotterdam and Port of Antwerp have also begun work on their own blockchain-powered management platforms. **(Banchero Costa)**

Our company is now working with a firm to try and introduce Block chain technology is the bunker supply chain of which our vessels are the end users. Though we are very keen to support this technology, real success can come about only when all the other upstream businesses/entities like refineries, storage terminals, brokers and bunker barge suppliers are all on board and join in the same. As mentioned above, it is expected that in the years to come, the bunker industry, along with other areas of shipping business, will adopt these new changes.

JOINT VENTURES:

- **International Seaports (Haldia) Pvt Ltd:** This is now our only investment in Ports in the Haldia Dock Complex (about 22.4% of the total capital) under our port projects investments. This JV continues to operate very well and we have to-date received total dividends of USD 3.99 million, which works out to about 196% of our original Investment made in years 2002-2003.

IN CONCLUSION:

Demand: The environment for 2019 and 2020 is going to be characterized by volatility. **Downside risks** for 2019 and 2020 will include, amongst others, Geopolitical tensions; China importing lower quantities of Coal and Iron Ore; Protectionism increasing; Vessel supply not being absorbed fast enough; and excess Shipyard capacity holding the promise of more ships to come. But it is not all gloom and doom. The **upside potential** for 2019 and 2020 consists of, amongst others, the 'One-Belt-One-Road' that China proposes to build linking some 65 countries from Asia/China to Europe at an expected cost between USD 1.2 to 20 trillion; China importing more Iron Ore as they combat pollution and shift to higher grades of Steel production requiring better quality imported Iron Ore; China importing more Coal to reduce pollution, to reduce the terrifyingly high annual death toll at Coal mines invariably accompanied by protests from the relatives of those that have perished; Slower ordering at shipyards due to challenging markets and lack of traditional finance sources; Higher slippage rates due to challenging markets; Higher recycling rates due to challenging markets and regulatory pressure; The US economy continuing to outperform expectations; Low oil prices leading to greater World economic growth rates; and weaker currencies in the Euro zone and Japan helping them to export their economies out of trouble. Most importantly, if geopolitical tensions, sanctions, Brexit, EU budgetary issues and trade tariffs are resolved during 2019 then it would assist the demand side by removing the overhang of uncertainty that has crippled decision-making. We are currently more confident about the prospects in 2019 than we were a few weeks ago thanks to the **trade tensions being in the process of getting resolved permanently after the Donald Trump/Xi Jinping 1st December 2018 meeting at Buenos Aries on the side lines of the G-20 meeting. The 90 day 'truce' will give us more clarity on that.**

Supply: Under the current conditions, approximately **13.01% (108.87 MDWT) of the existing world fleet would be over 20 years of age** during 2019 through to end of 2022. These ships would **come under tremendous financial pressure** due to the upcoming expensive regulatory requirements. Depending on how challenging the freight markets turn out to be in the period 2019 to 2022 many of these ships would be forced to take the decision to **head to the recycling yards** in Asia.

With respect to the approximately **10.5% by DWT of new ships (87.83 MDWT)** scheduled to be delivered to the end of 2022, the lack of funding coupled with delays in deliveries at ship yards would

subject them to a **degree of slippage** (it was 18.15% in 2018), that would **help slow down their arrivals** into the freight market.

Financing: We had concluded in this part of last year's Report that while there was some room for optimism for the year ahead (for 2018) in the freight market, we remained pessimistic in terms of availability of financing for our sector in 2018. This is exactly what happened! While the freight market indeed showed some improvement, availability of capital for shipping, continues to be scarce, particularly in the drybulk sector, with the more traditional sources of ship financing continuing to languish at their lower levels of the recent past. The maritime industry as a whole had raised marginally over USD 20 billion in the previous year (2017) from the capital markets against which, only USD 16.64 billion was raised from the capital markets this year (2018). Out of this USD 16 odd billion, USD 12.12 billion came from Bonds, USD 4.24 billion from Public Equity and a paltry USD 0.27 billion from Private Equity, which is a far cry from the heady days of private equity seen a few years ago with year 2013 being a peak when almost USD 7.5 billion was raised by the maritime industry through the private equity route. Moreover, the lion's share of the total capital raised by the maritime industry (about USD 9 billion) went to the Offshore sector with the Shipping Industry being the recipient of the balance USD 7.4 billion of capital raised in 2018, out of which, slightly over USD 4 billion came in from Bonds and over 3 billion from Public Equity. The Capital Market's low level of confidence in the Drybulk sector is perhaps perfectly exemplified by the fact that out of the USD 7.4 billion raised from the Capital Markets by the Shipping Industry in 2018, a mere USD 346 million constituting less than 5% came to the Drybulk sector. Given the continued unavailability of traditional ship finance debt on decent terms and conditions, the Chinese Leasing firms remained the saviors for the Shipping Industry for those shipowners who did not wish to go to the Capital Markets for one reason or another. Of course the silver lining to this dark cloud of Capital scarcity for the Drybulk sector is that despite the slowdown in ship recycling, the supply side has not ballooned (particularly in the geared ships) as much as what it could have, if cheap Capital was readily available. (Source of all figures in this para: Marine Money)

As such, while one can see green shoots of "some" recovery in traditional ship finance with some of the traditional Shipping Banks returning to the fray for the Drybulk sector, we still expect 2019 to be the year of further consolidation in the ship finance side of our business with a full blown sustainable recovery in easy and reasonably priced ship finance availability for the Drybulk sector, at least sometime away.

Concluding Remark: Considering all the above, we are taking advantage of the opportunities that are present in the market. We hope to deliver to all our stakeholders the promise of this potential. This will in no small measure be due to the very dedicated and hardworking professionals that make up the office, as well as, the floating staff at PSL.

Please be informed accordingly.

Yours sincerely,
Precious Shipping Public Company Limited

Khalid Moinuddin Hashim
Managing Director

Khushroo Kali Wadia
Director