IMO 2020

18 months on

Freight Investor Services 2021

Executive Summary

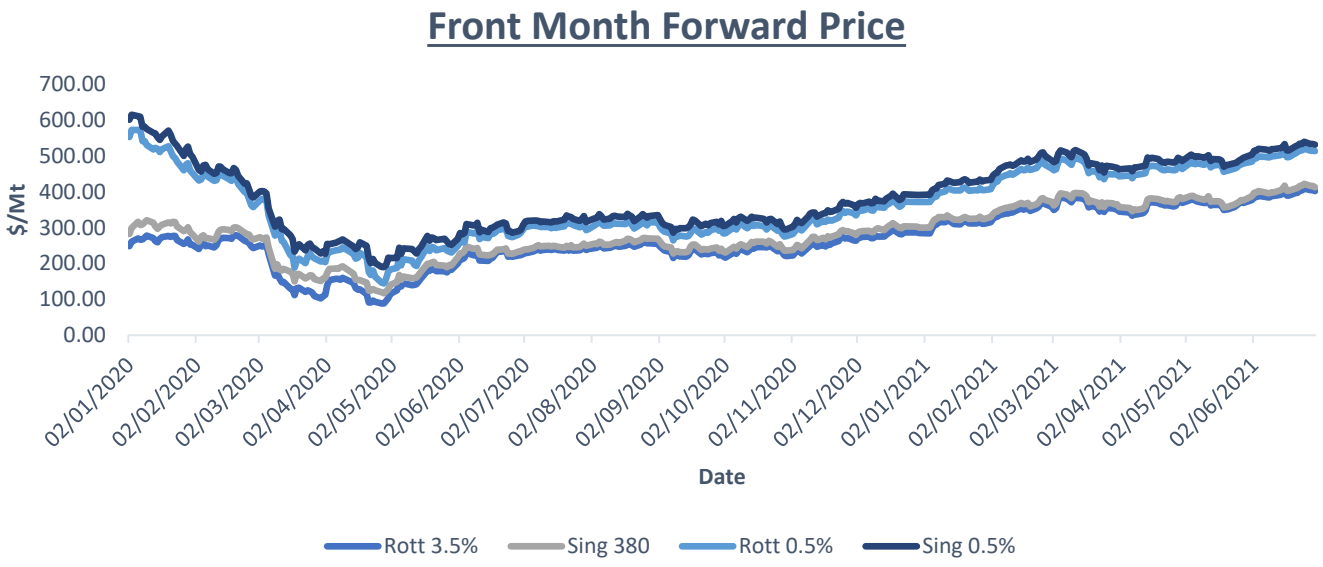
As lockdowns across the world effectively ended road and air travel, refineries contemplated how best to utilise reserves of kerosene, gasoline and diesel that was taking up valuable storage space. The response was to blend these low sulphur fuels to make IMO 2020 compliant VLSFO. At the same time, Beijing sought to take advantage of the legislative change and offered generous tax incentives to bunker producers supplying VLSFO for bonded storage (i.e. not for wet freight export). This expansion in supply, in combination with the complete collapse of crude prices in the early stages of the pandemic resulted in a significant fall in price, and an almost total eradication of VLSFO crack spreads from $21/Mt when IMO 2020 came into force, to lows of $1.11/Mt in May.

By contrast, whilst shipping demand for HSFO did implode as expected, prices remained resilient on account of falling production in anticipation of the change, high scrubber installation rates and increased demand from non-shipping related entities. This stability relative to crude resulted in significant crack strengthening, making HSFO one of the least volatile fuels in the crude complex throughout 2020, despite being effectively banned.

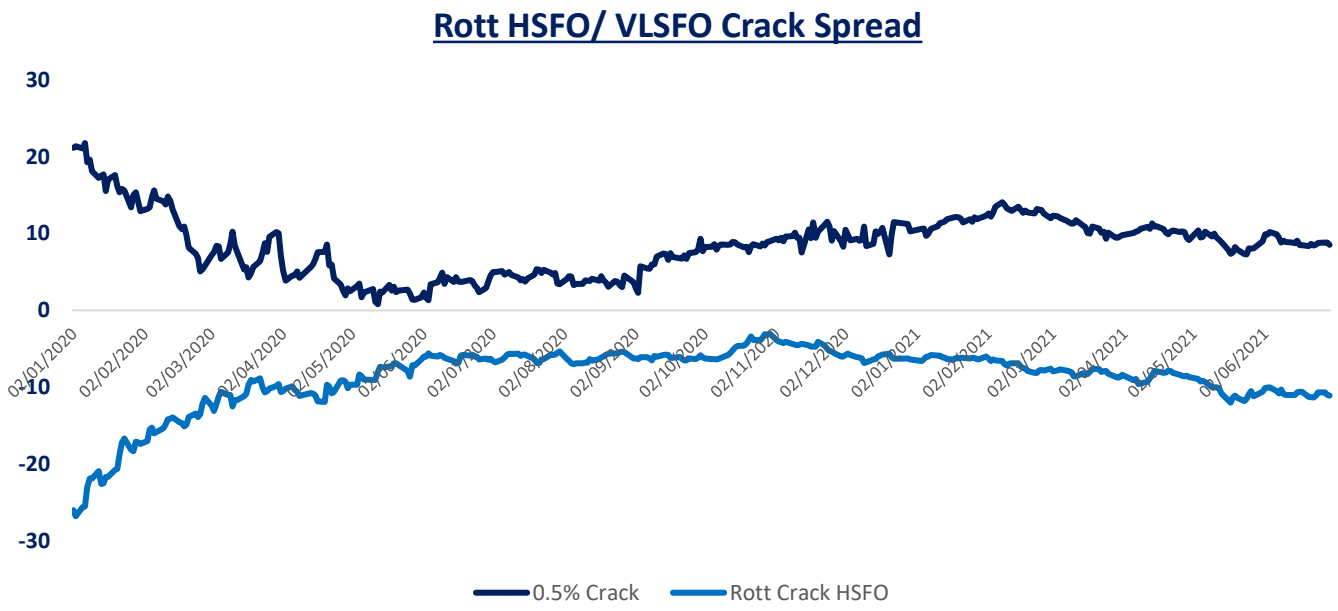
The prevailing sentiment pre IMO2020 implementation regarding VLSFO shortages and the impending decline of the HSFO market have proven untrue over the course of the last year and a half, despite a shaky start in the immediate aftermath.

Price Analysis

The run up to IMO2020 saw VLSFO trading at a significant premium to HSFO, as markets expected a price collapse in HSFO following implementation, as the fuel would only be available to a small number of vessels. Shipowners, charterers, and speculators also anticipated supply issues of VLSFO resulting in shortages in ports that would drive prices higher following January 1st. Over the course of 2019, markets were bullish on VLSFO, pushing prices as high as $700/Mt at the end of the year. Meanwhile its high sulphur equivalent fell out of favour in Q3, falling to lows of $300/Mt. This resulted in significant Hi5 spreads in Singapore and Rotterdam (that being the price differential between sweet and sour fuel oil blends in each port) rising to record highs of $300/Mt. Come implementation however, following an early $50/Mt bump in VLSFO in the first weeks of trading, Hi5 spreads near-on collapsed, falling to well under $100/Mt within three months of the legislative change, driven primarily by falling VLSFO prices. Using FIS data from the time, we can see how dramatic a fall this turned out to be.



The combination of falling VLSFO prices, and dramatic volatility in crude markets, itself derived from a combination of OPEC tensions and national lockdowns that saw WTI hit lows of -$37/brrl, led to crack spreads moving in contrasting directions. As HSFO proved more resilient than anticipated, crack rallied throughout 2020 from -$20/Mt to within touching distance of positive values at -$3/Mt in November, yielding a significant saving for producers. On the contrary, in the first half of the year, positive VLSFO crack spreads were virtually wiped out, falling from $20/Mt in January, to $1.11/Mt in May, attributed to oversupply in the market. The second half did see somewhat of a recovery, though producers still ended the year receiving essentially half as much per metric tonne of VLSFO produced as they did at the start.



HSFO

The laws of supply and demand state that prices adjust when resources become either scarcer or more abundant, relative to the level of demand. As such, the noise surrounding IMO2020 throughout the previous year ensured that the coming oversupply of an unsaleable fuel was mitigated to a large degree. Simply put, HSFO producers saw this coming and adjusted accordingly by cutting production in favour of alternative fuels to protect their margins. As such, whilst shipping demand for HSFO did indeed fall, it was matched by an equally dramatic supply-side hit, thereby eliminating abundance, and offering price support.

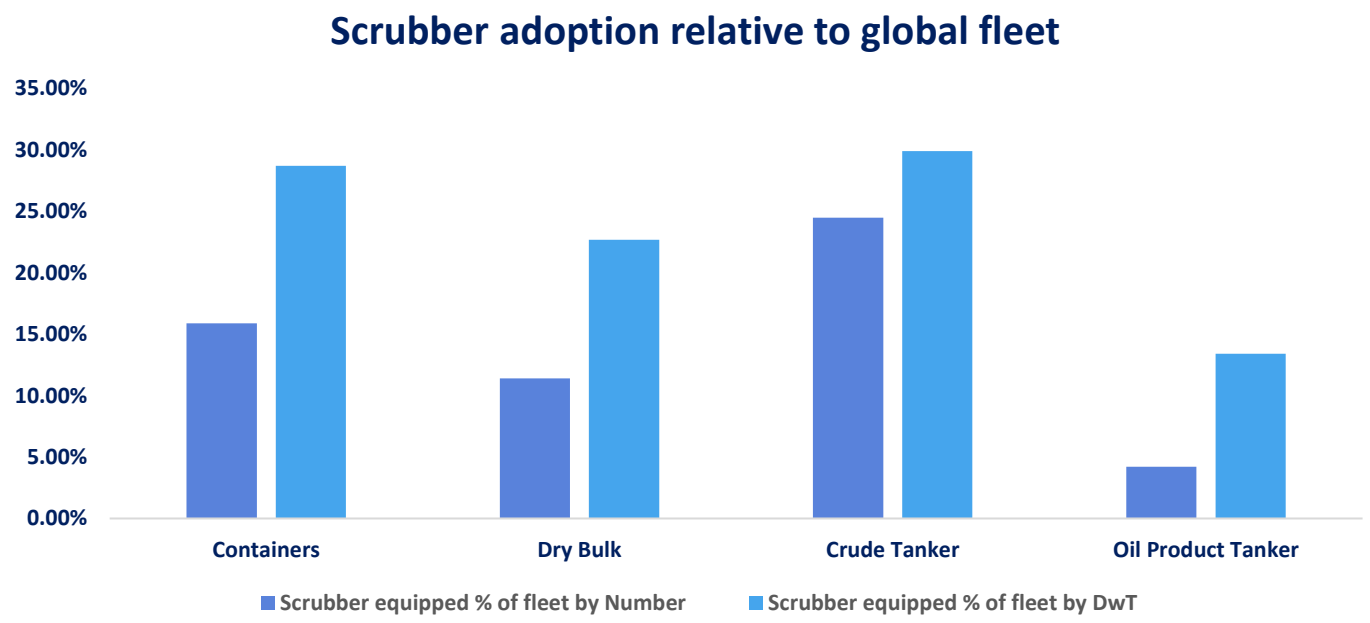
However, this noise and speculation offered further benefit to the HSFO market, as it allowed shipowners and charterers time to plan their response. Within the legislation, IMO 2020 gives allowance to shipowners and operators to continue to consume HSFO in two specific instances:

FONAR- In the run up to IMO 2020, there were serious concerns that there would be significant shortages of VLSFO in ports which would leave vessels with no possibility of compliant refuelling if they were out of range of a port with sufficient VLSFO reserves. In these circumstances, vessels would be allowed to consume HSFO following submission by crews of a form (Fuel Oil Non-Availability Report) outlining physical restrictions, and all efforts made to refuel in accordance with the legislation.

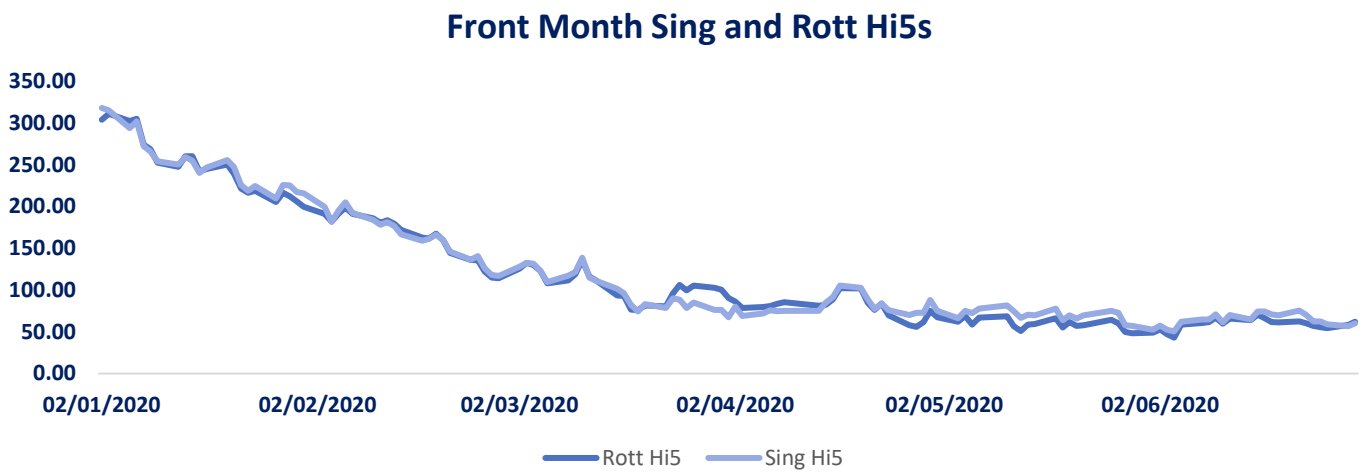
Scrubber Installation- A scrubber is an exhaust cleaning system that treats emissions either with sea water or alkaline solution to reduce acidity which is then either deposited on voyage or in port upon arrival. Scrubbers can either be open loop, closed loop or a hybrid of the two, with open loop being the most widely adopted on account of lower installation and operating costs. The IMO allows scrubber equipped vessels to consume HSFO on the basis that the toxicity of emissions is significantly reduced, a claim heavily disputed by environmental groups who allege pollution is simply moved from the air to the sea.

Scrubbers cost between $2-4 million to install and last for an approximate 8 years depending on fuel grade and seafaring conditions. As such shipowners, anticipating a collapse in the price of HSFO, scrambled to retrofit scrubbers on their vessels. This would allow them to recoup installation costs quickly on account of operating cost savings derived from cheaper fuel and would put them at a significant price advantage over competitors thereafter. This position became known as “the scrubber bet”, the success of which was dependent on the size of the Hi5 spread. Installation costs can be recouped within two years, provided Hi5 spread remained greater than $100/Mt.

The bet was well and truly taken. In 2019, the number of vessels equipped with a scrubber rose by 400% from 506 in Jan19 to 2,000 in Jan20. That figure has since doubled to over 4,000 at the time of writing, representing 9% of the current global fleet. The chart below (data taken from Splash247) shows that the percentage of the global fleet equipped with a scrubber, as measured by DWT exceeds the percentage as measured by number. This indicates that shipowners have chosen to install scrubbers on their largest vessels first, where the saving is likely to be largest, with greatest adoption in the crude tanker market.

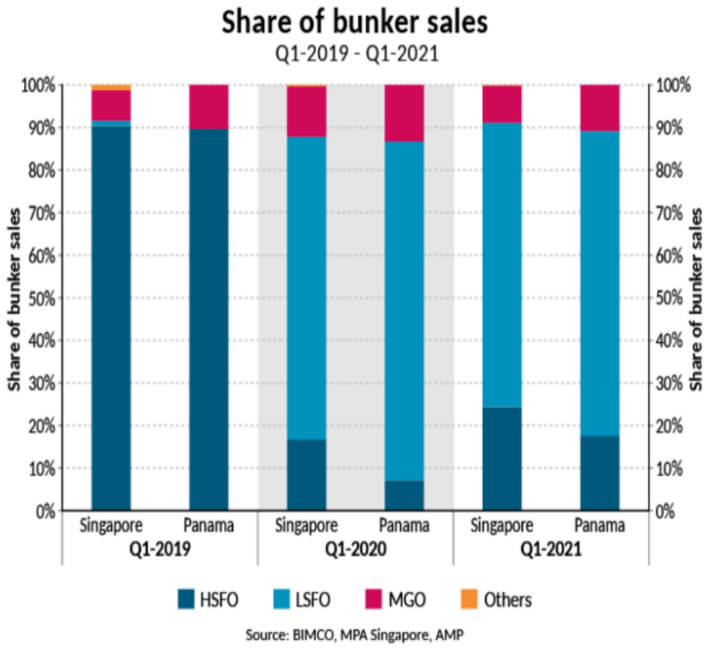


However, in the first half of the year it looked increasingly unlikely that this position would ultimately pay off. As falling VLSFO prices caused the Hi5 spread to collapse to as low as $50/Mt which, if sustained would have resulted in the scrubber repayment period extending to 4 years, as the saving on fuel had fallen by 85% YTD.



Whilst HSFO prices, buoyed by scrubber instalments, did not completely collapse following IMO 2020 implementation, it would be inaccurate to say the fall in demand from the shipping industry was anything other than seismic. In Q1 2019 HSFO accounted for 90% of Singaporean bunker sales. Over the same period a year later that figure had fallen to just 17%, with VLSFO making up almost all of the shortfall.

However, this presented an opportunity for non-shipping entities to capitalise on excess stock usually destined for bunker ports. Following OPEC production cuts and sanctions on Venezuelan and Iranian sour crude imports by the Trump administration in 2019, US refineries, coking units and fuel blenders were left scrambling for alternative feedstocks to make up the shortfall and relieve inflationary pressure. As such, falling demand for HSFO following IMO 2020 represented a significant opportunity to overcome supply restrictions and keep input costs competitive. In January 2020, the US imported 2.2million metric tonnes of HSFO primarily from Russia and the Baltic states, up 54% from a month earlier. Whilst HSFO yields less product return than crude oil, IMO 2020 allowed the US refining industry to purchase feedstock that would have otherwise gone to Rotterdam and other European ports at a $23 per bbl discount to crude, thereby maintaining demand levels and stabilising prices.



Source: BIMCO, MPA Singapore, AMP

Similarly, Saudi Arabia has long since aimed to reduce domestic consumption of crude, in order to free up export capacity whilst remaining compliant with OPEC policy. As a result, HSFO imports have risen steadily over the past few years, with demand being heavily seasonal. In contrast with Europe, demand for fuel for power production tends to surge in summer, as air conditioning becomes a near-vital resource and seawater desalination (responsible for 70% of the country's water supply) becomes critical to human health. In the summer of 2020, the Arabian Peninsula experienced an unprecedented heatwave with temperatures reaching as high as 50 degrees Celsius. This sparked mass importation of Singapore 380, reaching up to 1.5 million M/t per month between June and August, providing further support through the middle of the year.

VLSFO

Whilst demand and supply appeared to move almost in tandem in HSFO, VLSFO markets did the complete opposite almost immediately following IMO2020. National lockdowns restricting around 3.9 billion people globally, and aggressive moves by China created a paradoxical situation of a market flooded with supply, despite falling demand and virtually zero profit margin.

A significant proportion of the credit/blame for the collapse in the Hi5 spread throughout 2020 can be attributed to China. In Jan 2020, Beijing effectively waived taxes on VLSFO production by offering producers a 13% VAT rebate on all production tied to domestic bonded storage (i.e. not for export) to seize upon the incoming paradigm shift in the market. This incentive sparked a surge in production, so much so that in the first six months of 2020, despite the pandemic, Chinese refiners produced 17.5 million Mt of VLSFO, a 53% increase on the same period a year prior. This expansion in supply applied further pressure on crack spreads and prices throughout the early part of the year.

It should be noted at this point that China's productive expansion in fuel oil is key to its underlying ambitions in the shipping market. The country plans to leverage its vast manufacturing capability and proximity to Korea and Japan to launch the port of Zhoushan as a direct challenge to Singapore's supremacy in the $30bn Asia-Pacific bunker market. Zhoushan has significant external economies of scale that may prove critical to the plan's success. The port sits adjacent to Ningbo, and under 100 miles from Shanghai, both of which sit comfortably within the top three largest container ports by TEU worldwide. Furthermore, the port is located en-route to both Port Headland, and the Middle East Gulf, the largest dry and wet freight shipping routes in the world respectively. Finally, China has been exerting increasing control over Hong Kong, another regional hub and may well utilise its influence to spur its Zhoushan ambitions.

The country has been quietly putting in place the legal and financial parameters required of a functioning bunker fuel market. Having designated the port an oil and gas free trade zone in 2017, 10 bunkering licenses have since been issued, and in January 2020, the country's first (yuan denominated, physically settled) fuel oil contract was issued on the International Energy Exchange, a subsidiary of the Shanghai Futures Exchange.

Over the past 5 year's China's presence in the fuel oil market has nearly doubled, growing at an annual rate of 20% YoY, from 9.1 million M/T sold in 2016 to 16.9 million M/T in 2020. This is however still well under half that of Singapore which delivered 49.8 million M/T in 2020, and was not solely situated in Zhoushan (though the bulk of the activity was concentrated there). However, by investing in domestic productive capacity of VLSFO, China has not only been able to cut the price spread between Zhoushan and Singapore, but has at times managed to trade at a discount as high as $10/Mt (as seen below).

Source: Marine Bunker Exchange

This however was very far from the most disruptive event of 2020. Whilst scrubber installation has grown exponentially, in March 2020 when the world began the now wearily familiar process of locking down economies, the vast majority of the global fleet were (and still are) not scrubber equipped and thus dependant on VLSFO. As such, any shock to shipping demand would have an outsized impact on VLSFO over HSFO prices, particularly given HSFO's alternative credentials. Lockdown saw global trade decline by 5.3% YoY, the first decline since the 2008 Financial Crisis, as demand for pretty much everything from construction materials to consumer products evaporated. This led to in port fuel storage to rise to record highs.

The pandemic proved to be a double blow for VLSFO, with pressure also being applied on the supply side. As air and road travel was effectively banned in most parts of the world, refineries were left desperate to utilise surplus gasoline, diesel and kerosene that would, under normal circumstances, have been sold as either road or jet fuel. In April demand for road fuels fell by nearly 5 million barrels per day, whereas jet fuels fell by 15 million barrels per day over the same period a year earlier. The solution to this was to blend these fuels into VLSFO to be sold to the shipping industry which was still moving albeit at a reduced rate. This was possible because VLSFO, sometimes referred to as "Frankenstein fuel", is not necessarily a direct refinery output like traditional marine oil but can be a blend of virtually any number of hydrocarbons, provided the 0.5% sulphur content threshold is not breached. In the 18 months since implementation, an increasing number of reports relating to engine issues associated with VLSFO have arisen, as blending produces less consistent viscosity and volatility, particularly when high in Kerosene.

Conclusion

In essence, the hype surrounding the impact of IMO 2020 has turned out to be largely overblown, and the effects of the pandemic have been of far greater importance to the functioning of both markets in the short and long term.

Since the onset of the pandemic, bunker prices have returned to some degree of normality, recovering at a steady rate in tandem with global trade, as restrictions have begun to recede and crude prices have returned to some degree of normality.

Looking forward, it is clear, and will become increasingly more so over the coming months and years, that IMO2020 has and will not mark the end of high sulphur fuel oil, as some may have hoped it would. With Hi5 spreads stabilising around $100/Mt for virtually all of 2021 YTD in both Singapore and Rotterdam, "the scrubber bet" is essentially still on and is continuing to be adopted. Furthermore, HSFO's remarkably resilient performance relative to other fuel products and VLSFO in particular in the wake of both IMO 2020 and COVID19 may appear to be an attractive option for shipowners in the long run. It is also worth noting that the conditions that brought support for HSFO prices from the US and Gulf states are fairly unlikely to change in the short term. Relations between the US, Iran and Venezuela remain frosty, and Saudi Arabia is currently experiencing 50c+ heat for the second year in a row, a trend set to accelerate in the coming years. That being said, China's bullish stance on VLSFO, in combination with an existing ban on open loop scrubbers in its territorial waters should also be taken into account

However, as the effects of climate change and calls to make industries more accountable become an increasingly larger presence on the geopolitical stage, it would be a mistake to assume that these two markets have seen the end of transition and volatility. The EU's carbon cap and trade scheme has, this year, been adopted by China, and both have a mind to include shipping within the coming years.

Furthermore, the higher uptake of scrubbers is at some point likely to draw closer attention to their actual environmental credentials, and it is telling that open loop scrubbers have already been banned in multiple ports and

territorial waters worldwide. On the other hand, the next “D-Day” on the IMO’s agenda is IMO 2030. by 2030, the organisation hopes to cut greenhouse gas emissions by 40% compared to 2008 levels, and VLSFO’s credibility as a way to achieve this is already being called into question, as higher levels of “black carbon” have been detected in VLSFO run vessels by up to 85% on their HSFO counterparts. Finally, pressure and investment is building in the alternative fuel space, with increasing attention being focused on ammonia and LNG as a viable alternative.

IMO 2020 turned out to be a surprisingly small adjustment with minimal disruption- it is unlikely to happen again.