

Navigator Holdings 2019 and Analyst Day Update. 2020: Help on The Way

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Executive Summary

- Navigator Holdings shares are down about 15% since our recommendation to buy shares at \$12.0 on September 19, 2018. The unexpected sanctions on Venezuela in early 2019 led to 6 handysize vessels entering an already oversupplied market pressuring industry wide utilization and day rates. We now expect Navigator's EBITDA to decline year over year in 2019 to around \$110mn.
- Our thesis on Navigator is unchanged. While in 2019 we expected some improvement in day rates and utilization, 2020 continues to be the pivotal year for Navigator. With three months to go, we are increasingly confident that the startup of key projects in late 2019 into 2020 will increase the supply of LPG and ethylene to be shipped supporting demand for handysize LPG and ethylene capable vessels. This long-awaited re-balancing of industry supply and demand should lead to an increase in both day rates and utilization at Navigator.
- The first project to come online in Q4 2019 (mid-December estimated start up) is Navigator's ethylene terminal JV with Enterprise. Five additional projects are scheduled to come on-line in 2020 (listed below), and the outlook for an increase in demand for handysize vessels remains strong:
 - Mariner East: ME2 work around and the startup of ME2X could add a total of 5 vessels
 - Enterprise JV: 8-12 ethylene capable handysize vessels in 2020-2021 at full capacity
 - Pembina Terminal: 4-5 handysize semi-ref only vessels off the West Coast of Canada
 - Gibbstown (**NEW**): 4-6 handysize semi-ref only vessels off the coast of New Jersey
 - Potential relief from sanctions in Venezuela: 5-6 handysize vessels
- The supply side of the handysize industry remains constrained with just five vessels (4% of current fleet) set for delivery and on order in 2H 2019 and 2020. Shipyards globally are at capacity installing scrubbers and equipment to meet the IMO 2020 fuel standards which take effect January 1, 2020. A two year + wait for new builds and limited ship building capacity creates supply side constraints to support an elongated upcycle should demand for vessels outpace supply over the next few years.
- In late September, we attended Navigator's analyst day and visited the ethylene terminal and the Navigator Umbrio in Houston. While we were impressed by the vessel and facility, there was little in the way of incremental data points or announcements at the event. We were disappointed by the lack of updates on:
 - Additional terminal contracts and color around when they would be signed
 - Possible capital raising and under what conditions the fleet will be expanded

Navigator did highlight that they are rumored to be in the running for a long-term contract to move ethane for Enos. We view this simply as a reflection of where Navigator's business is going and believe any such contract would be struck at a rate that is attractive to Navigator today.

- This report provides an update on the power of Navigator's existing contracts, a possible capital raise to support expansion and what we think shares could be worth in 1-2 years' time. We believe the market is assigning zero value to the ethylene terminal JV and once up and running, it could add \$2-\$3/share to Navigator's NAV. **In a mild recovery, we think Navigator shares are worth \$22/share, good for a 28% IRR over three years. In a full recovery and market normalization, we think shares could be worth closer to \$28/share, good for a 39% IRR. Both prices targets exclude the ethylene terminal.**

Key Statistics and Estimates

| Key Statistics | | PSR Estimates | | 2018 | 2019 | 2020 | 2021 | | | | |
|------------------|------|---------------------|---------------------|---------|--------|---------|--------|---------|------|------|------|
| Ticker | NVGS | TCE | \$ | 247 | \$ | 241 | \$ | 298 | \$ | 390 | |
| Price | \$ | 10.3 | Y/Y Growth | | 0% | 24% | 31% | | | | |
| Shares | | 55.8 | Vessel EBITDA | \$ | 118 | \$ | 111 | \$ | 168 | \$ | 259 |
| Market Cap | \$ | 577 | Terminal EBITDA | | | \$ | 23 | \$ | 23 | | |
| Debt ex Terminal | \$ | 790 | Total EBITDA | \$ | 118 | \$ | 111 | \$ | 191 | \$ | 282 |
| Cash | \$ | 47 | EPS | \$ | (0.10) | \$ | (0.22) | \$ | 0.82 | \$ | 2.51 |
| Enterprise Value | \$ | 1,319 | Consensus Estimates | 2018 | 2019 | 2020 | 2021 | | | | |
| | | Revenue (TCE) | \$ | 264 | \$ | 244 | \$ | 296 | \$ | 343 | |
| | | EPS + | \$ | (0.00) | \$ | (0.30) | \$ | 0.86 | \$ | 1.10 | |
| | | EBIT | \$ | 44 | \$ | 36 | \$ | 89 | \$ | 137 | |
| | | EBITDA | \$ | 121 | \$ | 111 | \$ | 169 | \$ | 198 | |
| | | Valuation | 2018 | 2019 | 2020 | 2021 | | | | | |
| | | EV/EBITDA | | | | | | | | | |
| | | PSR | | 11.9 | 7.9 | 5.1 | | | | | |
| | | Consensus | | 11.9 | 7.8 | 6.7 | | | | | |
| | | P/E | | | | | | | | | |
| | | PSR | | NM | 12.6 | 4.1 | | | | | |
| | | Consensus | | NM | 12.0 | 9.4 | | | | | |
| | | Assumptions | 2018 | 2019 | 2020 | 2021 | | | | | |
| | | Semi-Ref Rate/Month | \$ | 515,000 | \$ | 600,000 | \$ | 750,000 | | | |
| | | Per Day | \$ | 17,167 | \$ | 20,000 | \$ | 25,000 | | | |
| | | Overall TCE/Day | \$ | 20,430 | \$ | 23,860 | \$ | 29,895 | | | |
| | | Utilization | | 85% | 90% | 94% | | | | | |

Sources: Porter Street estimates, Capital IQ, Navigator Holdings
Note: All data is as of 10/1/2019 unless otherwise noted.

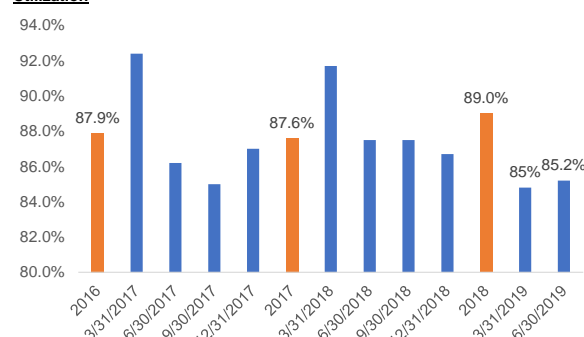
Oversupplied Conditions Pressuring Utilization to All Time Lows

2019 is setting up to be a disappointing year for Navigator. EBITDA is expected to decline from 2018 levels driven by weak day rates and utilization, which is approaching all-time lows.

Time Charter Equivalent Day Rates



Utilization



Source: Navigator Holdings

Investors, including us, were expecting some relief and progress in day rates as anticipated projects came on-line and excess capacity in the spot LPG handysize market was absorbed. Unfortunately, any hopes of improvement faded by Q1 when sanctions on Venezuela led to 6 additional handysize vessels being released into an already oversupplied market. Further delays and a required work around on Mariner 2 East combined and the fact the Navigator/Enterprise ethylene terminal won't begin operating until mid-December means there are few signs of relief in the handysize market for the rest of 2019. The decline in utilization is what is hurting Navigator the most. Day rates had improved sequentially through Q1 2019 but the increase in Venezuela related vessels and subsequent loss of earning days

combined with the roll-off of contracts in the second half of 2019 will weigh on Navigator's results. As of 6/30/2019, Navigator had 32% of its fleet exposed to the spot market. By year end 2019, heading into 2020, assuming no new charters and contracts (which is unlikely), an additional 23% of Navigator's fleet will be looking for new work by the end of the year.

| Fleet Statistics | | Contract Type | As of 6/30/2019 | | As of Jan 1, 2020 | |
|---------------------------------------|---------|---------------|-----------------|-----|-------------------|-----|
| Current Year | 2019 | Charter | 23 | 61% | 14 | 37% |
| Average Age (Years) | 8.4 | COA | 3 | 8% | 3 | 8% |
| Average Vessel Size (CBM) | 23,580 | Spot | 12 | 32% | 21 | 55% |
| Total Carrying Value (6/30/2019) \$mn | \$1,640 | Total | 38 | | 38 | |
| Avg Remaining Contract (Yrs) | 1.6 | | | | | |

Source: Navigator Holdings

Help on the Way

A key part of our thesis for investing in Navigator is that conditions exist where new sources of LPG and petrochemical gases would come online that leading to an increase in demand for handysize vessels in a supply constrained market. That has not changed with a year of time passing. In fact, a new project popped up out the blue that could lead to demand for an additional 5+ semi-refrigerated handysize vessels. The Gibbstown project, on the east coast of New Jersey across from the Philadelphia airport is now included in our estimates. This was an under the radar project by Fortress New Energy, a company led by former Fortress CEO Wes Edens. The project flew under the radar to everyone, including Navigator. Fortress will rail LPG to the east coast of New Jersey, just up the river from Mariner East 2. The project should begin in Q2 2020 and can produce an estimated 50,000 bls/day for export. The one highlight of the Navigator annual meeting worth mentioning was a discussion about the industry supply and demand picture from Navigator's perspective. As far as we know, this was the first time Navigator provided a direct outline of how they view the supply and demand outlook in the handysize vessel industry and how they see it evolving. Below we share our estimates of industry supply and demand compared to the industry orderbook over the next few years.

Handysize Supply/Demand Dynamics

| New Supply | 2018 | 1H 2019 | 2H 2019 | 1H 2020 | 2H 2020 | 2020 | 2021 |
|---------------------------------------|------|---------|---------|---------|---------|-------|--------|
| Total LPG Handy | 84 | 85 | 85 | 86 | 87 | 87 | 87 |
| New Vessels | | 1 | | 1 | 1 | 2 | |
| Total Ethylene Handy | 28 | 32 | 35 | 35 | 35 | 35 | 35 |
| New Vessels | | 4 | 3 | | | | |
| End Fleet | 112 | 117 | 120 | 121 | 122 | 122 | 122 |
| New Demand | 2018 | 1H 2019 | 2H 2019 | 1H 2020 | 2H 2020 | 2020 | 2021 |
| Mariner East 2 (Handy LPG) | | | | | 2 | 2 | |
| Mariner East 3 (Handy LPG) | | | | 3 | | 3 | |
| EPD JV (Ethylene Handy) | | | | 8 | 2 | 10 | 2 |
| Pembina/Canada (Semi Ref LPG) | | | | | 5 | 5 | |
| Gibbs Town (Semi Ref LPG) | | | | 6 | | 6 | |
| Assume Venezuela Resolved (Handy LPG) | | | | | | | 4 |
| Cumulative New Demand | 0 | 0 | 0 | 17 | 26 | 26 | 32 |
| Supply/Demand Summary | 2018 | 1H 2019 | 2H 2019 | 1H 2020 | 2H 2020 | 2020 | 2021 |
| Current Oversupply | 9 | 9 | 14 | 17 | 1 | 17 | -7 |
| Net Adds | | 5 | 3 | -16 | -8 | -24 | -6 |
| New Oversupply/Undersupply | 9 | 14 | 17 | 1 | -7 | -7 | -13 |
| Over/Undersupply | 2018 | 1H 2019 | 2H 2019 | 1H 2020 | 2H 2020 | 2020 | 2021 |
| as a % of Total Fleet | 8.0% | 12.0% | 14.2% | 0.8% | -5.7% | -5.7% | -10.7% |

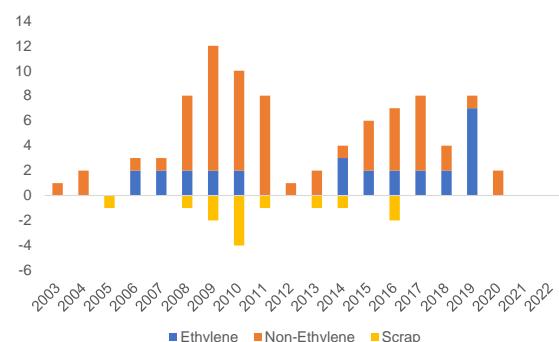
Sources: Navigator Holdings, Porter Street estimates

Note: Demand is an average and could vary depending on where vessels final destinations are.

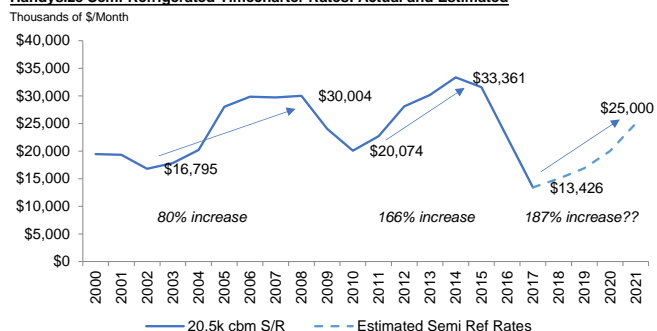
As the table makes clear, assuming all the LPG and ethylene projects come online in 2020, the market could be in deficit by the end of year. On the supply side, out of the approximately 120 handysize vessels,

there are about 40 in the spot market, with the remainder on COAs or long-term contracts. As a result of new build deliveries and the weakness related to Venezuela, the market is oversupplied by an estimated 14 vessels as of 6/30/2019 which increases to 17 vessels with three new builds in 2H 2019. On the demand side, starting in very late Q4 2019, and into 1H 2020, the market should begin to tighten. Assuming Gibbstown and ME2X start up as planned in Q1/Q2, 2020, the handysize market could be nearly in balance by 6/30/2020 and headed towards deficit by the end of the year. To simplify the exercise, by the end of 2021, up to 32 new vessels worth of demand could be needed against just 6 new builds. From a starting point of 17 vessels of oversupply the possibility of demand being greater than supply to meet it at some point in the next 1-2years remains supportive of future day rates. Importantly, there are just 2 vessels to be delivered beyond 2020, which is less than 2% of the current fleet. Historically, the last time the forward orderbook has approached these levels, day rates have drifted upwards. We see no reason why this cycle will be any different.

Handysize Fleet Demographics and Order-Book



Handysize Semi-Refrigerated Timecharter Rates: Actual and Estimated



Sources: Navigator Holdings, Clarkson's.

With the supply and demand picture as bullish as we have laid out, it is unclear why the orderbook remains so low. In fact, while we don't yet formally include it in our estimates, there was a recent report in Tradewinds, a shipping publication, that Petradec, a trader, has ordered two handysize ethylene capable vessels for delivery in late 2021 with an option for two more. In addition to Petradec, Navigator's main competitors in the important ethylene capable market are Evergas, with a fleet of 8 medium size vessels, and Solvang, with 8 handysize vessels. All three are private companies and information on them is limited. However, it is our understanding that all of Evergas' midsize vessels are on long term, 10 year plus, contracts with Enos to move ethane and petrochemicals to Enos' cracker in Scotland. The family who owns Evergas is currently undergoing financial problems with other large investments in their portfolio. As all their fleet is currently contracted and they aren't in a strong financial position, we don't view them as a major threat to order new vessels or take market share in the petrochemical shipping market in the coming years. Petradec is a trader. What is good for their business can sometimes conflict with their clients. While they could order new vessels in the future as discussed, it is unclear if they would be able to secure long term contracts from customers. Long-term contracts may be required to lock in vessel economics and to secure financing for new vessel orders. Finally, Solvang, a recently private company, is owned by a collection of Germany and European families. They have set up the ownership of the business and vessels to be tax efficient. Our sense is they are happy with their position and don't see a need to expand despite how attractive market conditions may become.

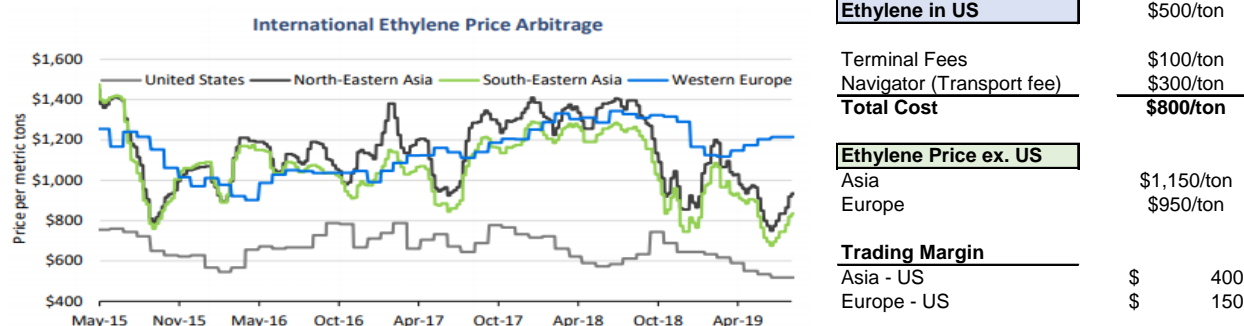
Finally, even if new competitors were to place orders, shipyards globally are in a scramble to install scrubbers and other workarounds ahead of the upcoming IMO 2020 fuel standards. With most yards catering to this work, we estimate there are only three shipyards globally capable of building semi refrigerated mid and handysize vessels and one, Sinopacific is emerging from bankruptcy. It is unclear how soon they will be taking orders. That leaves two yards that are currently financially sound and operational: Hyundai Mipo in Korea and Jiangnan in China. Butters and Navigator have very strong relations with Jiangnan and are likely in front of the line should they begin placing orders.

Navigator's Ethylene Terminal is Not Priced In and Ethylene Export Economics are Attractive

At \$10 per share, we don't believe Navigator's shares are reflecting any value for its ethylene terminal JV with Enterprise. To date, Navigator has contributed \$114mn of the \$155mn required to fund its portion of the terminal cap-ex. The terminal isn't operational, the economics remain unclear and the capacity isn't yet fully contracted. Those facts combined with a general lack of interest from the investment community in Navigator means it is unlikely to be priced in until the terminal is 1. Operational 2. The key data points around utilization, contracts and economics are obvious for investors to evaluate. We are happy to be ahead of the market as we view the terminal as a high-quality asset with the potential for meaningful upside if and when it is ever expanded.

The economics of moving ethylene are attractive. While spreads to Europe have narrowed, moving ethylene to Asia remains profitable. Further, the cost Navigator charges shown below is for moving ethylene on a handysize vessel. Moving ethylene on a 35,000 cbm mid-size vessel can result in shipping rates that are 10-20% lower.

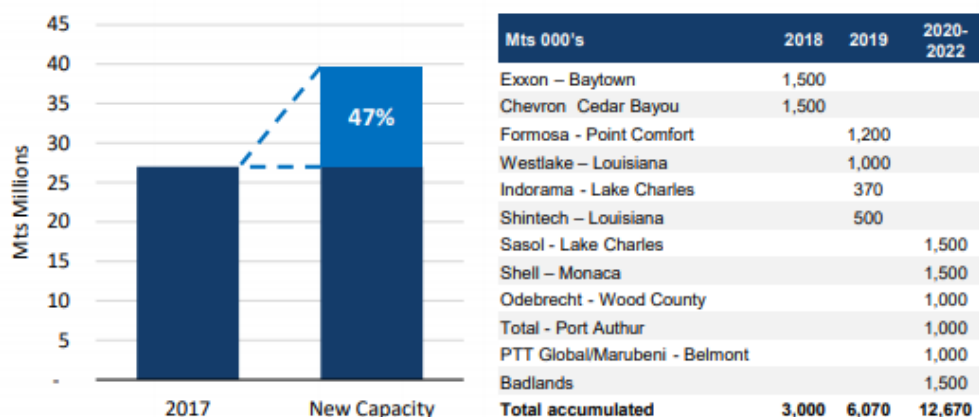
Ethylene Prices FOB in Europe, Asia and the United States



Source: Navigator Holdings

According to Enterprise Product Partners, the well documented build out to support ethylene production in North America based on cheap ethane is the fastest growing expansion of any commodity product they have seen. Between 2017 and 2022 an estimated 47% increase in ethylene capacity is expected with the largest ramp occurring in 2020-2022. Navigator and Enterprises' ethylene terminal is coming at just the right time. As for competing projects, the current ethylene export facility at Targa, in Galena Park, Texas takes up to two weeks to load a single handysize vessel. This compares to about 1 day at the new NVGS/EPD terminal. As we understand it, Targa has no intentions on expanding or upgrading the facility.

US Ethylene Expansions 2017 – 2022



Source: Navigator Holdings

Once the terminal begins operations and financial results begin to flow through Navigator's financials, we estimate the terminal could add anywhere from \$1-\$3 per share to Navigator's NAV. On an \$10 stock, that is meaningful. Further, should the terminal be able to sell out the existing 1mn MT of capacity and double capacity to 2mn MT/year, with only an estimated \$50mn of incremental cost, we see the potential for the terminal to generate close to \$45mn/year in EBITDA and \$15-\$30mn in asset light free cash flow to Navigator.

| Ethylene Terminal Economics | |
|------------------------------|--------------|
| Debt | \$142 |
| Equity | \$25 |
| Invested Capital (mn) | \$167 |
| Capacity (Mt/Year) | 1,000,000 |
| EBITDA (\$mn) | \$23 |
| Cash on Cash Return | 14% |

| Profit and Free Cash Flow Reconciliation | |
|--|---------------|
| Depreciation | \$6.7 |
| Interest Expense | \$5.0 |
| EBIT | \$11.3 |
| Pre-Tax FCF | \$18.0 |
| Tax | -\$1.7 |
| Maint. Cap-ex | -\$2.0 |
| Free Cash Flow | \$14.3 |
| Earnings After Tax | \$9.6 |

| Potential Value to NVGS | | |
|-------------------------|---------------|---------------|
| EBITDA Multiple | Value to NVGS | Per Share |
| 12 | \$153 | \$2.75 |
| 11 | \$130 | \$2.33 |
| 10 | \$107 | \$1.92 |

Source: Navigator Holdings, Fearnleys, Vanshup Capital and Porter Street estimates

Growth at Navigator: From Where, Funded How?

The future at Navigator is bright. David Butters' long-term vision to shift Navigator's business towards long term, high margin, contracts focused on developing petrochemical gas trades appears to be in sight. As industry demand recovers, led by supply of both LPG and petrochemical gases in North America, we believe Navigator has ample opportunities for growth. As mentioned, Navigator's ethylene terminal can double capacity to 2mn MT/year at a low capital cost relative to the cash flow it can produce. However, the industry, and Navigator don't have the vessels to service it. We know that supply of vessels in the industry will have to expand. Butters has stated he intends to expand Navigator's fleet, the question is when and against what kind of contracts. While the economics of signing long term contracts can be excellent, as highlighted by Navigator's existing contract book (highlighted later in this report), Navigator will need to fund these new builds. Navigator is currently bumping up against its interest coverage covenant and at close to 7.0X Debt/EBITDA, there is little room for additional debt capacity. In our view, as industry conditions tighten and Navigator's financial performance and stock price improve over the next year or so, Navigator will need to raise capital to fund any fleet expansion, including raising equity. We believe this is a point that few other investors are currently contemplating and discuss our views of what a possible fleet expansion and capital raise could look like. Book value per share of Navigator is around \$17 and shares would need to rise 65% to trade at 1X book. While there is a real possibility shares could rise above book value in the next year, we would prefer Navigator wait to do any capital raise or fleet expansion until shares are at or above book value.

On the following page we estimate what a potential capital raise could look like, and how the earnings profile of Navigator would change. We estimate that Navigator could expand its fleet by 10 vessels: 6 handysize and 4 medium size ethylene capable gas carriers. In this kind of scenario, Navigator's ethylene terminal capacity is doubled, and all vessels are on long term contracts or COAs. Assuming a mix of 80/20, debt/equity funding, we think Navigator would need to raise an additional \$130mn or so in equity over the next few years to fund the initial deposits. Assuming *today's* contract rates, which are conservative, we see the new vessels as capable of generating an 11%+ cash on cash return and adding an additional \$69mn in EBITDA to Navigator in the coming years. This analysis will be wrong, but we wanted to highlight it as we do believe Navigator will expand its fleet and it will have to raise capital,

including additional equity. However, a capital raise and fleet expansion, if backed by long term contracts at high day rates could result in a higher and more sustainable multiple or EBITDA and earnings.

| Navigator Capital Raise Scenario | | | | | | | | | | |
|----------------------------------|---------|--------|------------|--------|------------------|----|--------|------------------------|----|-----|
| | Ordered | | Delievered | | | | | | | |
| Vessels | 2020 | 2021 | 2022 | 2023 | Equity Needed | \$ | 128 | Secured Debt | \$ | 514 |
| Handy Ethylene | 4 | 2 | 4 | 2 | BV/Share | \$ | 17 | L+ 250 | | |
| Medium Size Ethylene | 2 | 2 | 2 | 2 | New Shares | | 7.4 | Interest/Year | \$ | 26 |
| Total | 6 | 4 | 6 | 4 | Current Shares | | 55.8 | | | |
| Cumulative Fleet | 38 | 38 | 44 | 48 | NEW Shares Total | | 63.2 | | | |
| Cost to Build | | | | | EBITDA/Vessel | | | Total EBITDA Potential | | |
| Handy Ethylene | \$55 | | | | Handy Ethylene | \$ | 16,667 | 6 Ethylene Handys | \$ | 35 |
| Medium Size | \$78 | | | | Medium Size | \$ | 25,000 | 4 Ethylene MGC | \$ | 35 |
| Funding | | | | | | | | Total EBITDA | \$ | 69 |
| Debt | 80% | | | | | | | Total Invested Capital | \$ | 642 |
| Equity | 20% | | | | | | | Cash on Cash Return | | 11% |
| Deposit | 20% | | | | | | | | | |
| Cash Out | | | | | | | | | | |
| Deposits | \$ 75 | \$ 53 | | | | | | | | |
| New Debt | | | \$ 301 | \$ 213 | | | | | | |
| Total Financing | \$ 75 | \$ 53 | \$ 301 | \$ 213 | | | | | | |
| Cumulative Capital Need | \$ 75 | \$ 128 | \$ 429 | \$ 642 | | | | | | |

Sources: Porter Street estimates, Navigator Holdings

Upside in Recovery Remains Attractive

Navigator's current fleet is under-earning its potential. The last time the industry wide forward orderbook was this low as a percent of the current fleet in 2011, it took about four years for day rates to make new highs. The current industry order book starting in 2020 as a percentage of the existing fleet is even lower, at sub 2% with demand set to increase significantly more than in the 2012-2013 time period. Further, the additional vessels Navigator has added to its fleet are all ethylene capable and we believe Navigator is getting very little credit for the \$300+mn in capital spent on four ethylene capable vessels which earn premium day rates. As day rates and utilization recover, if Navigator were to trade at the average EV/EBITDA multiple it did in 2015, shares would be worth \$31/share – almost 3X from today's price over the coming years.

Navigator Fleet and Earnings Potential 2015 vs. 2022

| Vessels | 2015 (Actual) | 2022 (Estimated) |
|---|----------------------|-------------------------|
| Ethylene Handy | 10 | 10 |
| Handysize LPG | 20 | 24 |
| Mid-Size Ethylene | | 4 |
| Total | 30 | 38 |
| Upcycle Start | 2011 | 2020 |
| Total Handsize Fleet | 82 | 120 |
| Order Book 2YR Fwd % of Existing Fleet | 4% | 2% |
| | 2015 (Actual) | 2022 (Estimated) |
| TCE | \$ 30,300 | \$ 29,895 |
| Utilization | 93% | 92% |
| EBITDA | \$ 181 | \$ 259 |
| EBITDA/Vessel | \$ 6.0 | \$ 6.8 |
| Debt | \$ 505 | \$ 524 |
| Debt/EBITDA | 2.8 | 2.0 |
| EPS | \$ 1.8 | \$ 2.6 |
| Valuation Potential | | |
| PE (Avg) | 8.8 | 3.9 |
| EV/EBITDA (Avg) | 11 | 5.4 |
| NVGS Stock Value at 2015 Multiples | | |
| EV/EBITDA | | \$ 31 |
| PE | | \$ 29 |

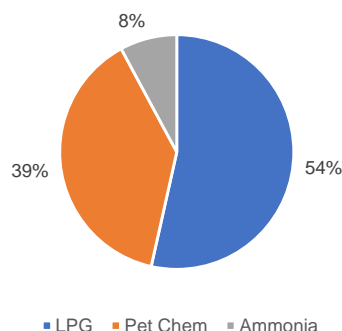
Sources: Navigator Holdings, Porter Street estimates, Stifel Nicholas

There are two key differences we would point out between 2015 and now. First, the composition of what Navigator ships and under what terms. In 2016, 80% of Navigator's cargos were related to LPG.

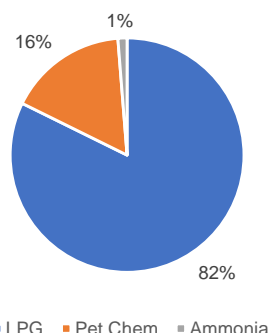
However, the addition of a chiller at Marcus Hook as well as a glut of VLGC's led to a drop in VLGC rates which pulled away work from handysize cargos and depressed handysize rates. Navigator's current mix of earning days and cargos is shown below:

Navigator's Earning Days and Cargo Volumes as of 6/30/2019

NVGS Earning Days



NVGS Cargo Volumes



Source: Navigator Holdings

Making full use of their fleets capabilities and positioning their order book towards future industry growth, Navigator's fleet is now geared towards petrochemical gases. As of 6/30/2019, petrochemical gases represented 18% of Navigator's volumes but 39% of its earning days. We expect both the mix in volumes and earning days to continue to shift towards more profitable petrochemical cargoes in the coming years. Finally, we would make the point that Navigator has tailored its business more towards end consumers of LPG and petrochemicals and shifted away from traders. Today traders account for just 30% of Navigator's business, down from 60% a few years ago.

Power of Contracts: Shift in Earning Days to Contracts Equals More Predictable and Stable Cash Flows

Navigator has historically included charts like the below that laid out how much expected revenue, EBITDA and earning days their long-term contracts contribute. However, following the loss of the Venezuela contracts, Navigator stopped providing this information for some reason, including the possibility they don't want competitors to see what kind of rates they are earning.

Contract Coverage Chart from Former NVGS Presentation

| | Remaining 6M of 2018 | 2019 | 2020 | 2021 | Total |
|---|----------------------|---------------|--------------|--------------|---------------------------|
| Available days | 6,946 | 13,656 | 13,644 | 13,870 | 48,116 |
| Committed charter days¹ | 3,347 | 4,204 | 2,946 | 2,190 | 12,687 |
| Uncommitted days | 3,599 | 9,452 | 10,698 | 11,680 | 35,429 |
| Charter coverage | 48.19% | 30.79% | 21.59% | 15.79% | 26.37% |
| Committed revenue (US\$'M) | 75.53 | 105.60 | 78.21 | 60.97 | 320.31³ |
| Average committed TC equivalent rate (US\$ / d) | 22,566 | 25,120 | 26,547 | 27,842 | 25,247 |
| Committed EBITDA² (US\$'M) | 47.6 | 70.5 | 53.6 | 42.7 | 214.3 |

1) The committed revenue as at 30/06/2018, excluding the continuation of the charters in Indonesia and Venezuela.

2) Committed EBITDA calculated as contracted revenue less estimated vessel operating expenses based on average for FY 2017, excluding estimated broker commissions and other charter-related fees and expenses, any non-charter related costs such as general and administrative costs, drydocking expenses and other costs.

3) The total committed revenue beyond 2022 of \$141.6 is excluded, represented by 6 vessels on committed time charters which expire up to December 2026.

Source: Navigator Holdings

We found this chart incredibly useful as it helped assess how powerful, and profitable some of Navigator's long-term contracts are. Below we attempt to back into some of the numbers and provide estimates of

how valuable key Navigator contracts are and can be. Our estimates include the new, five-year COA to move ethylene that was announced in Q2 2019 with Mitsubishi at \$750,000/month in revenue. The table of key contracts should be viewed as Navigator's contract base entering 2020.

PSR's Estimate of Navigator's Key Contracts as of January 1, 2020

| Contract/Vessel | Rev/Month | Op-Ex/Month | TCE/Day | EBITDA Per Day | Contract End | Estimated Utilization | EBITDA (\$mn) | Operating Days |
|-------------------------------|--------------|-------------|-----------|-------------------|-----------------|--------------------------|---------------|----------------|
| COA Ethylene Handy <i>NEW</i> | \$ 750,000 | \$ 250,000 | \$ 25,000 | \$ 16,667 | 12/31/2025 | 95% | \$ 5.8 | 347 |
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| COA Ethylene Handy <i>NEW</i> | \$ 750,000 | \$ 250,000 | \$ 25,000 | \$ 16,667 | 12/31/2025 | 95% | \$ 5.8 | 347 |
| COA Ethylene Handy <i>NEW</i> | \$ 750,000 | \$ 250,000 | \$ 25,000 | \$ 16,667 | 12/31/2025 | 95% | \$ 5.8 | 347 |
| Aurora | \$ 960,000 | \$ 250,000 | \$ 32,000 | \$ 25,000 | 12/31/2026 | 90% | \$ 8.2 | 329 |
| Jorf | \$ 1,000,000 | \$ 250,000 | \$ 33,333 | \$ 25,000 | 8/31/2027 | 90% | \$ 8.2 | 329 |
| Leo (Ice Class) | \$ 960,000 | \$ 250,000 | \$ 32,000 | \$ 23,667 | 12/31/2023 | 90% | \$ 7.8 | 329 |
| Libra (Ice Class) | \$ 960,000 | \$ 250,000 | \$ 32,000 | \$ 23,667 | 12/31/2023 | 90% | \$ 7.8 | 329 |
| Luga (Ice Class) | \$ 960,000 | \$ 250,000 | \$ 32,000 | \$ 23,667 | 2/28/2022 | 90% | \$ 7.8 | 329 |
| Yauza (Ice Class) | \$ 960,000 | \$ 250,000 | \$ 32,000 | \$ 23,667 | 4/30/2022 | 90% | \$ 7.8 | 329 |
| | | | | | | | \$ 71 | 3,358 |
| Total Operating Days | | | | | | | | 13,832 |
| Contracted % Of Total | | | | | | | | 24% |
| Vessels % of Total Fleet | | | | | | | | 26% |

Source: Navigator Holdings

Note: The above are estimates and could prove to be materially different than actual contract values

Based on our assessment of Navigator's *current* contract book, ten of Navigator's 38 vessels could contribute over \$70mn of EBITDA at an average TCE/Day of almost \$26,000/day over the next few years. With an additional 20 vessels available to take advantage of potentially favorable spot market and additional long-term contracts at even more favorable rates. Considering Navigator is estimated to deliver only \$100-\$110mn of EBITDA and a TCE of around \$20,000/day in 2019, this \$70mn provides a nice base of highly profitable contracts to build off and support operations in any further downturn. Also, considering Navigator's capital structure, we estimate that EBITDA would need to fall below \$85mn to breach already reduced covenants. As weak as EBITDA will be in 2019, we find it unlikely with such a base of high value contracts that Navigator would breach this covenant in the next 6-18 months. Outside of these contracts being cancelled and an unprecedented decline in spot demand for vessels, we find it difficult to see a scenario where Navigator breaches its debt covenants based on EBITDA. These contracts are a key reason why.

Conclusion: Navigator is Cheap. Supply of LPG and Ethylene Are Coming and Demand Will Follow

An investment in Navigator since our recommendation has proved volatile, with little to show for it. With the passing of time, we think the opportunity in Navigator's shares today is better than it was a year ago. We fully acknowledge we are near the end of the current economic cycle, and ten years into a bull market with a potential trade war developing. The risks outside of Navigator's control are high. However, of those they can control we think that in a base case scenario, where things stay as they are, there are powerful forces set to kick in over the next 3-12 months that will lead to a recovery in Navigator's earnings and EBITDA for years to come. Our scenario cases over the next few years remain unchanged. In a mild recovery, we see shares worth at least \$22/share over the next 2-3 years and in a full industry normalization, with day rates back to prior peaks, we think shares can be worth near \$30/share. Both of our scenarios don't give credit for the ethylene terminal which as we stated before, we think will begin to be valued by the middle of next year as Navigator increases disclosure around its financial performance. Our downside scenario is essentially more the same. If there is a recession, Navigator will likely muddle through and work with banks and bondholders to re-finance its credit facilities and bonds. This will pressure the stock but won't delay the eventual rebalancing in the handysize sector that needs to take place, it will simply delay the inevitable.

| | Scenario | | |
|--------------------------------|------------------|----------------|--------------------|
| | Current | Mild Recovery | Full Normalization |
| Blended TCE | \$ 20,284 | \$ 25,588 | \$ 28,765 |
| Utilization Rate | 87% | 92% | 94% |
| TCE (Net Revenue) | \$ 247 | \$ 326 | \$ 370 |
| Brokerage Commission | \$ 5 | \$ 7 | \$ 7 |
| Opex | \$ 107 | \$ 97 | \$ 97 |
| G&A | \$ 16 | \$ 17 | \$ 17 |
| EBITDA (cash) | \$ 118 | \$ 205 | \$ 249 |
| Depreciation | \$ 78 | \$ 78 | \$ 78 |
| Interest Expense (cash) | \$ 45 | \$ 40 | \$ 40 |
| Net Income | \$ (0) | \$ 87 | \$ 131 |
| Basic Shares Outstanding | 55.8 | 55.8 | 55.8 |
| Basic EPS | \$ (0.10) | \$ 1.56 | \$ 2.36 |
| Multiple of Potential Earnings | N/M | 7 | 4 |
| | | | |
| | Fair Value Range | | |
| | Current | Mild Recovery | Full Normalization |
| EBITDA Multiple | | | |
| 6 | \$ 5.1 | \$ 14.4 | \$ 19.1 |
| 8 | \$ 9.3 | \$ 21.7 | \$ 28.0 |
| 10 | \$ 13.5 | \$ 29.0 | \$ 36.9 |
| | | | |
| | Three Year IRR | | |
| | Current | Mild Recovery | Full Normalization |
| EBITDA Multiple | | | |
| 6 | -21% | 12% | 23% |
| 8 | -4% | 28% | 39% |
| 10 | 9% | 41% | 53% |

Source: Navigator Holdings, Porter Street Research, Vanshap Capital

Risks

Despite our positive stance, below we highlight key risks to our thesis in Navigator.

1. Further Delays in Key Projects

- Mariner East, both ME2 and MEX have been delayed multiple times. It remains to be seen whether each will be operating when they say
- Gibbstown, Pembina and Navigator's ethylene terminal are all new, and subject to start up risk which has plagued the industry thus far

2. Sustained Increase in Natural Gas Prices

- Key aspect of ethylene pricing arbitrage is a bet on low US natural gas and ethane prices
- As many US listed natural gas shale producers who account for a larger percentage of natural gas production in the US are facing financial stress, should they pull back production growth against increasing demand, prices would have to rise which may pressure ethane to ethylene margins. How long they rise and to what level is key.

3. Trade War and Recession Risk

- Any tariffs on moving cargos or restrictions on exports as well as an actual or perceived slowdown in global economic growth could hurt demand for LPG and petrochemical gases
- Manufacturing sector weakness in the US, Germany and China indicate a slowdown in economic cycle is underway

4. Capital Markets Freeze

- Navigator must repay or re-financing its 2021 bond. Should capital markets dry up and Navigator not have the cash to pay off the bond in full, there is a risk of a dilutive equity or capital raise at unfavorable terms to shareholders

Appendix: Current Fleet and Contract Structure

| Ethylene/Ethane Capable Vessels | Year Built | Age | Size (CBM) | CurrentStatus | Expiration | Remaining Years | Carrying Value (6/30/2019) |
|---------------------------------|------------|-----|----------------|---------------|------------|-----------------|----------------------------|
| Aurora | 2014 | 5 | 37,300 | Charter | Dec-26 | 7.2 | \$75.3 |
| Nova | 2017 | 2 | 37,300 | Charter | Jan-20 | 0.3 | \$76.8 |
| Orion | 2000 | 19 | 22,085 | Charter | Oct-20 | 1.0 | \$29.5 |
| Venus | 2000 | 19 | 22,085 | Charter | Nov-20 | 1.2 | \$29.8 |
| Eclipse | 2016 | 3 | 37,300 | Charter | Aug-19 | -0.1 | \$75.7 |
| Pluto | 2000 | 19 | 22,085 | Charter | Jan-20 | 0.3 | \$30.1 |
| Promminence | 2017 | 2 | 37,300 | Charter | Oct-19 | 0.1 | \$80.9 |
| Triton | 2015 | 4 | 21,000 | COA | Apr-20 | 0.6 | \$45.5 |
| Umbrio | 2015 | 4 | 21,000 | COA | Apr-20 | 0.6 | \$46.0 |
| Saturn | 2000 | 19 | 22,085 | COA | Apr-20 | 0.6 | \$29.9 |
| Atlas | 2014 | 5 | 21,000 | Spot | | | \$45.8 |
| Oberon | 2014 | 5 | 21,000 | Spot | | | \$44.7 |
| Europa | 2014 | 5 | 21,000 | Spot | | | \$44.3 |
| Neptune | 2000 | 19 | 22,085 | Spot | | | \$30.0 |
| Total | | | 364,625 | | | | \$684.3 |
| Semi Refrigerated | | | | | | | |
| Aries | 2008 | 11 | 20,750 | Charter | May-20 | 0.6 | \$41.1 |
| Leo | 2011 | 8 | 20,600 | Charter | Dec-23 | 4.2 | \$42.2 |
| Libra | 2012 | 7 | 20,600 | Charter | Dec-23 | 4.2 | \$42.4 |
| Luga | 2017 | 2 | 22,000 | Charter | Feb-22 | 2.3 | \$50.6 |
| Yauza | 2017 | 2 | 22,000 | Charter | Apr-22 | 2.5 | \$50.8 |
| Magellan | 1998 | 21 | 20,700 | Charter | Aug-19 | | \$19.3 |
| Taurus | 2009 | 10 | 20,750 | Charter | Sep-19 | 0.0 | \$44.2 |
| Virgo | 2009 | 10 | 20,750 | Charter | Aug-19 | | \$38.3 |
| Capricorn | 2008 | 11 | 20,750 | Charter | Sep-19 | 0.0 | \$36.7 |
| Phoenix | 2009 | 10 | 22,000 | Charter | | | \$38.0 |
| Scorpio | 2009 | 10 | 20,750 | Spot | | | \$39.1 |
| Gemini | 2009 | 10 | 20,750 | Spot | | | \$43.2 |
| Pegasus | 2009 | 10 | 22,000 | Spot | | | \$37.9 |
| Ceres | 2015 | 4 | 21,000 | Spot | | | \$41.6 |
| Ceto | 2016 | 3 | 21,000 | Spot | | | \$41.6 |
| Copernico | 2016 | 3 | 21,000 | Spot | | | \$42.0 |
| Centauri | 2015 | 4 | 21,000 | Spot | | | \$41.5 |
| Total | | | 358,400 | | | | \$690.5 |
| Fully Refrigerated | | | | | | | |
| Galaxy | 2011 | 8 | 22,500 | Charter | Apr-20 | 0.5 | \$36.4 |
| Global | 2011 | 8 | 22,500 | Charter | Nov-20 | 1.1 | \$36.4 |
| Gusto | 2011 | 8 | 22,500 | Charter | Oct-19 | 0.0 | \$37.0 |
| Jorf | 2017 | 2 | 38,000 | Charter | Aug-27 | 7.8 | \$49.9 |
| Glory | 2010 | 9 | 22,500 | Charter | Jun-21 | 1.8 | \$34.8 |
| Genesis | 2011 | 8 | 22,500 | Charter | Jun-20 | 0.8 | \$36.4 |
| Grace | 2010 | 9 | 22,500 | Spot | | | \$34.2 |
| Total | | | 173,000 | | | | \$265.1 |

Source: Navigator Holdings

Note: Shaded vessels will roll off charters by year end 2019