Crude as a Casualty of the Trade War

Is China Moving Deliberately to Depress Crude Prices?

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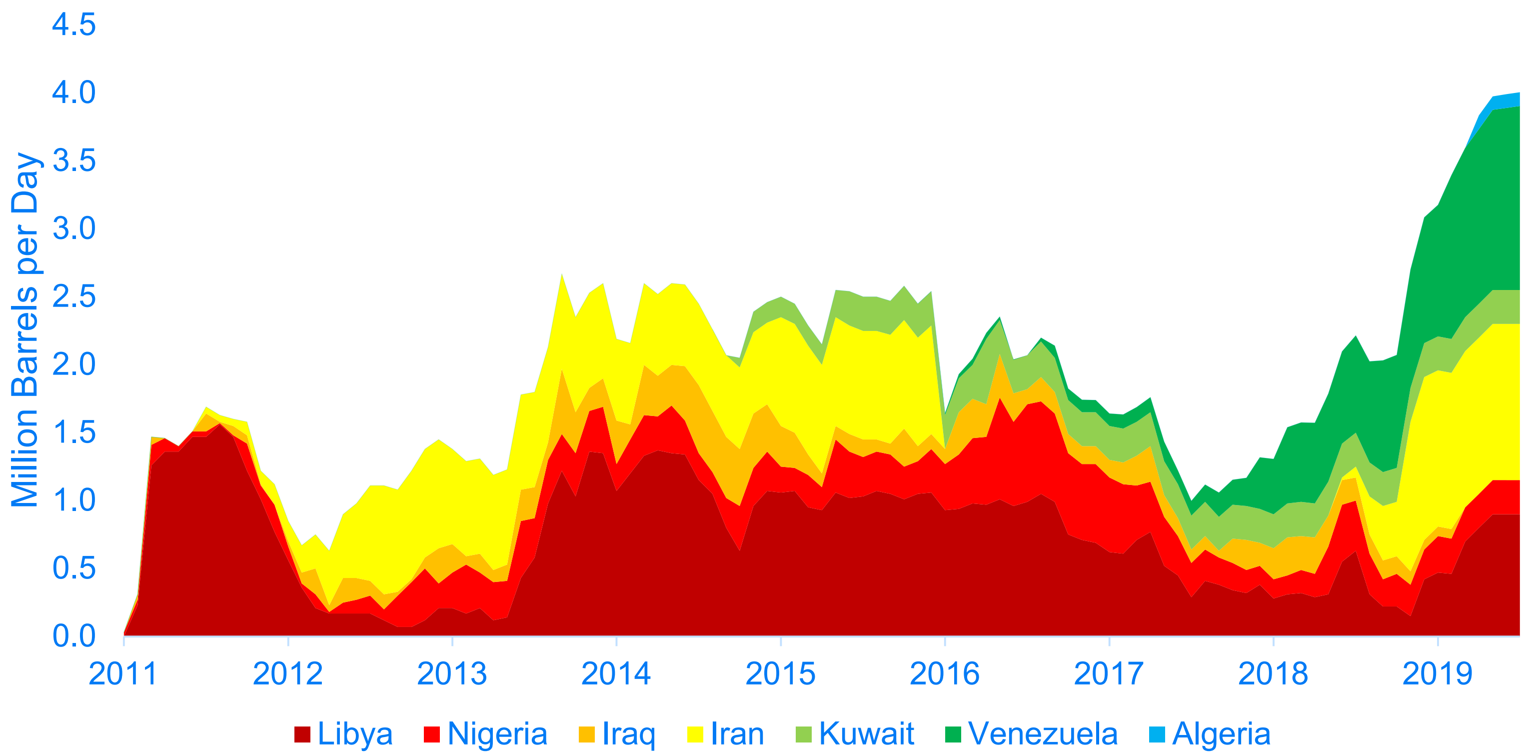
We are experiencing the severest petroleum market disruption ever. Why, then, are prices so stable?

- Production collapse in Venezuela
- Tightened sanctions on Iran
- Contamination of Russian crude pipeline
- Civil war in Libya

Unplanned OPEC Crude Oil Production Outages, January 2011 to July 2019



Source: PKVerleger LLC.

Disruptions have always led to higher oil prices – Effects and durations of 19 market disruptions

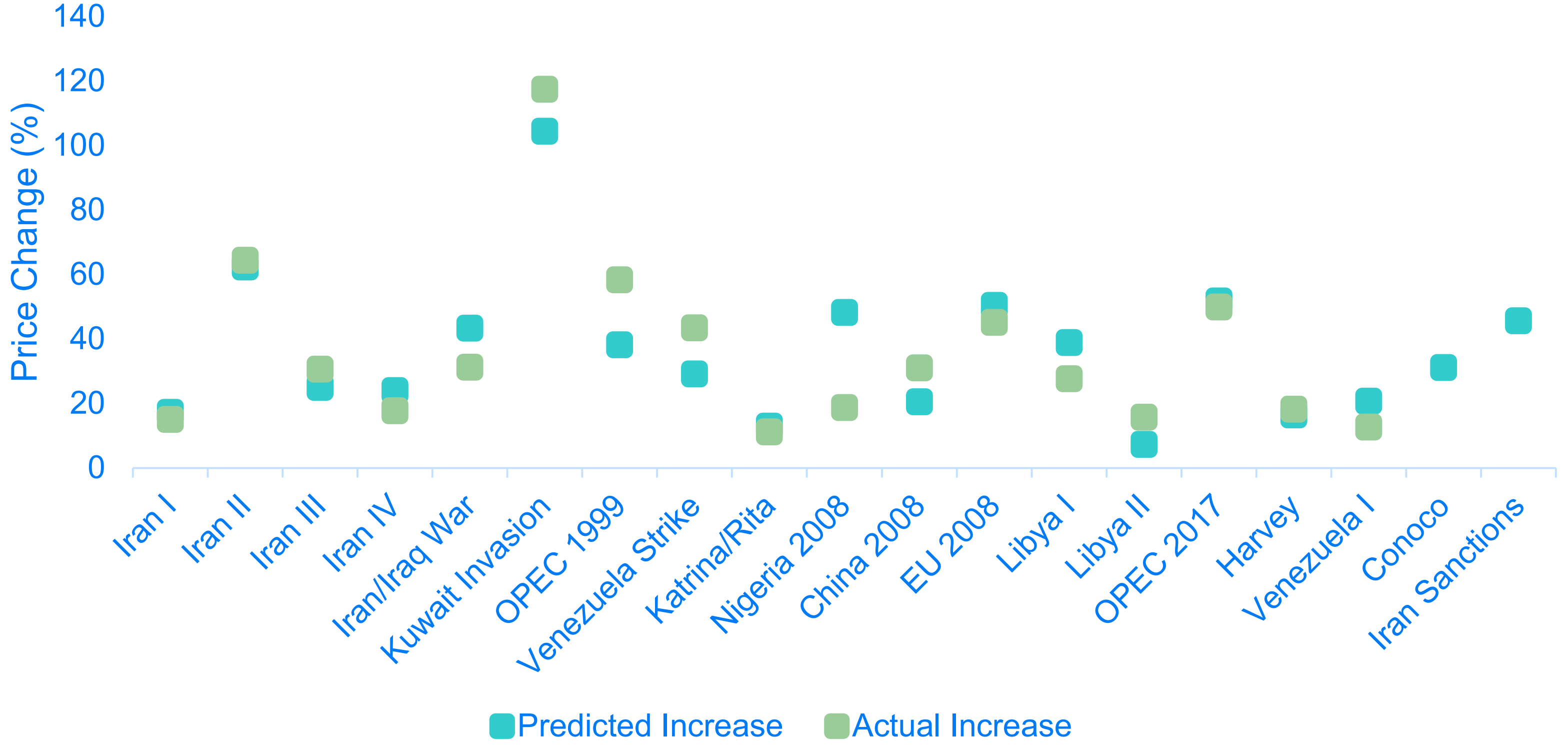
Event	Start Date	Duration (Weeks)	Price Change (%)	Supply Loss (%)
Arab Embargo	Oct-73	4	231.6	-3.3
Iranian oil strikes	Oct-79	2	15.1	0.2
Saudi Arabia’s refusal to increase output	Jan-79	2	64.5	-2.5
Saudi Arabia’s supply cut to major companies	May-79	1	30.7	-0.2
Hostage-taking at US embassy in Iran	Nov-79	14	17.8	-0.3
Outbreak of Iran/Iraq War	Sep-80	2	28.4	-1.5
Iraq invasion of Kuwait	Aug-90	6	58.4	-0.5
OPEC unilateral production cut	Jan-99	12	43.5	0.1
Venezuela oil strike	Nov-02	2	117.5	-5.1
Hurricanes Katrina/Rita	Aug-08	4	11.2	-1.2
Unexpected cut in Nigerian production	Early-07	4	18.8	-1.1
Surge in Chinese distillate demand	Late-07	6	31.1	0.7
EU enforcement of 10-ppm sulfur diesel	Spring-08	6	45.2	-1.3
Collapse of Libyan production	Jan-11	3	27.7	-0.7
Second Libyan collapse	Jul-14	3	15.8	1.3
OPEC 2017 production cut	Jan-17	Ongoing	7.8	-1.7
Hurricane Harvey	Sep-17	3	12.7	-0.6
First Venezuelan production collapse	Nov-17	Ongoing	12.7	0.5
Conoco attachment of Venezuelan assets	May-18	Ongoing		-0.9

Source: PKVerleger LLC.

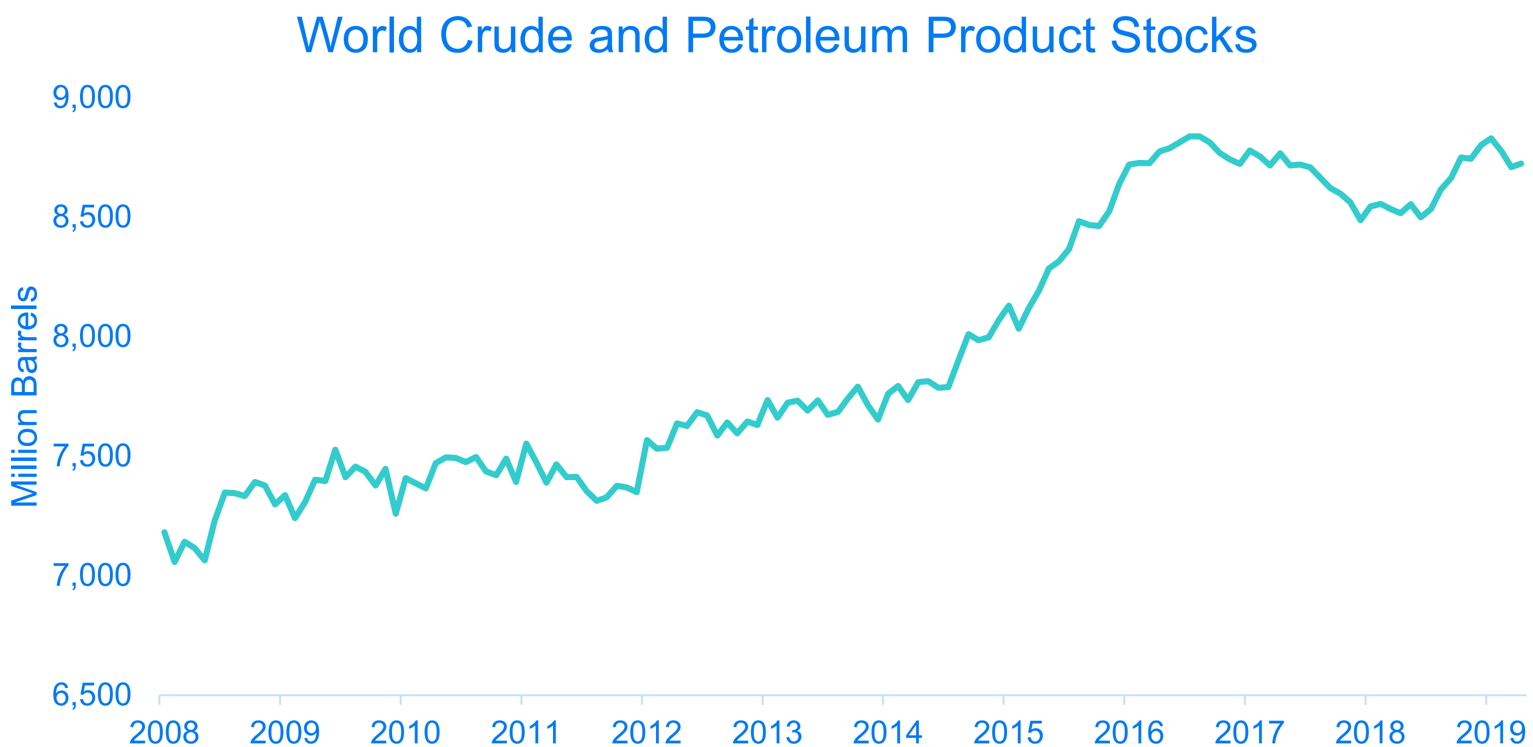
This disruption will rank with the worst – if OPEC+ oil-exporting countries do not increase supply.

- Saudi Arabia has predicated increases in output on declines in global crude oil stocks.
- Saudi minister al-Falih stated that he wants to drive inventories down “gently.”
- There are no indications of production increases to offset losses.
- The modeling suggests prices could rise to $120 if past episodes are a guide.

Percentage Oil Price Increase in 19 Market Disruptions vs. Price Increase Predicted by Key Market Characteristics



Global inventories remain high.



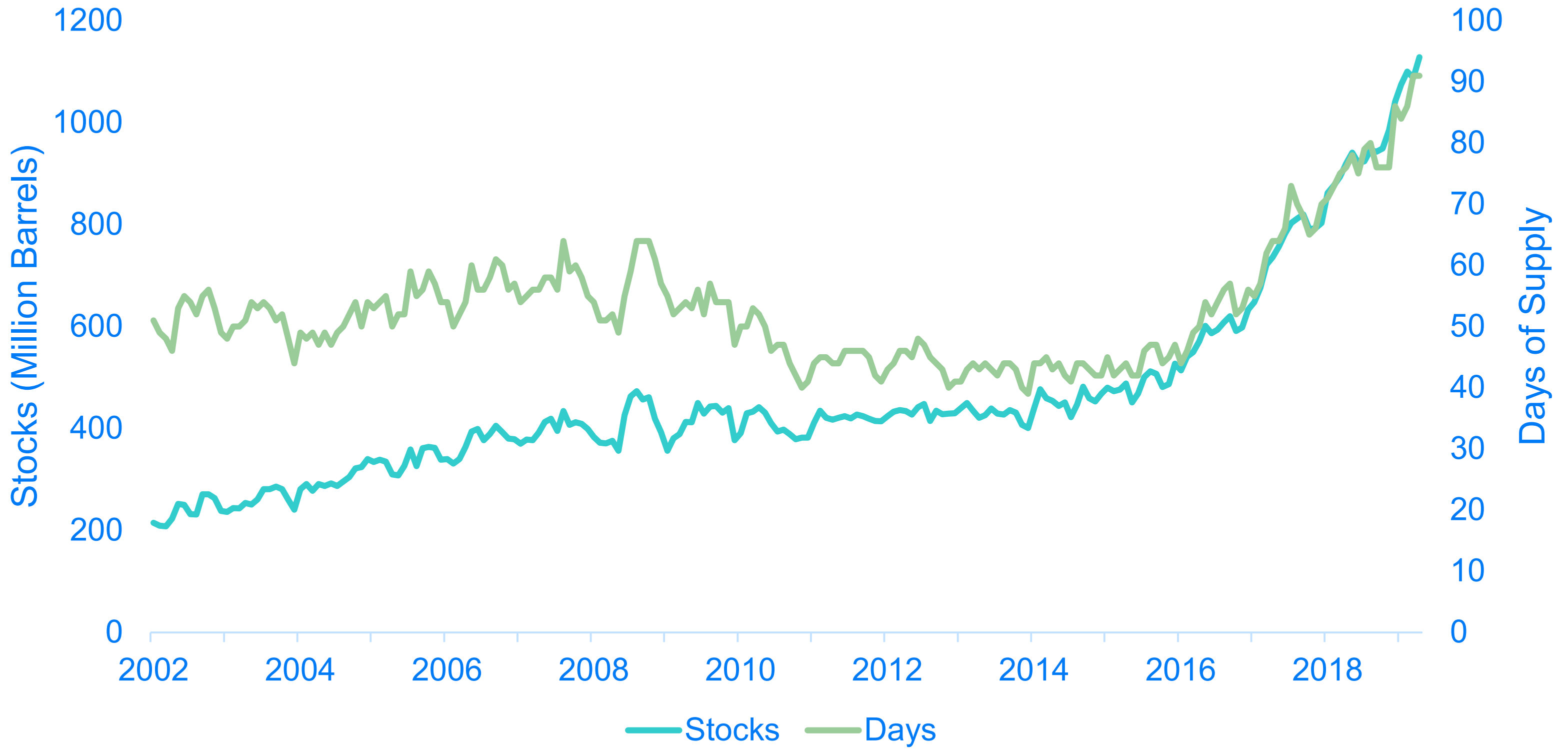
Source: Energy Intelligence Group.

However, the holders of stocks have changed. OECD countries have reduced stocks as have non-OECD countries. China has increased its stocks.

	2016 High (Million Barrels)	Most Recent (Million Barrels	Change (Million Barrels)	% Change
OECD	3,127	2,855	(272)	(8.7)
Non-OECD	2,122	1,765	(57)	(16.8)
Total excl. China	5,167	4,620	(547)	(10.6)
China	514	1,128	614	119.5

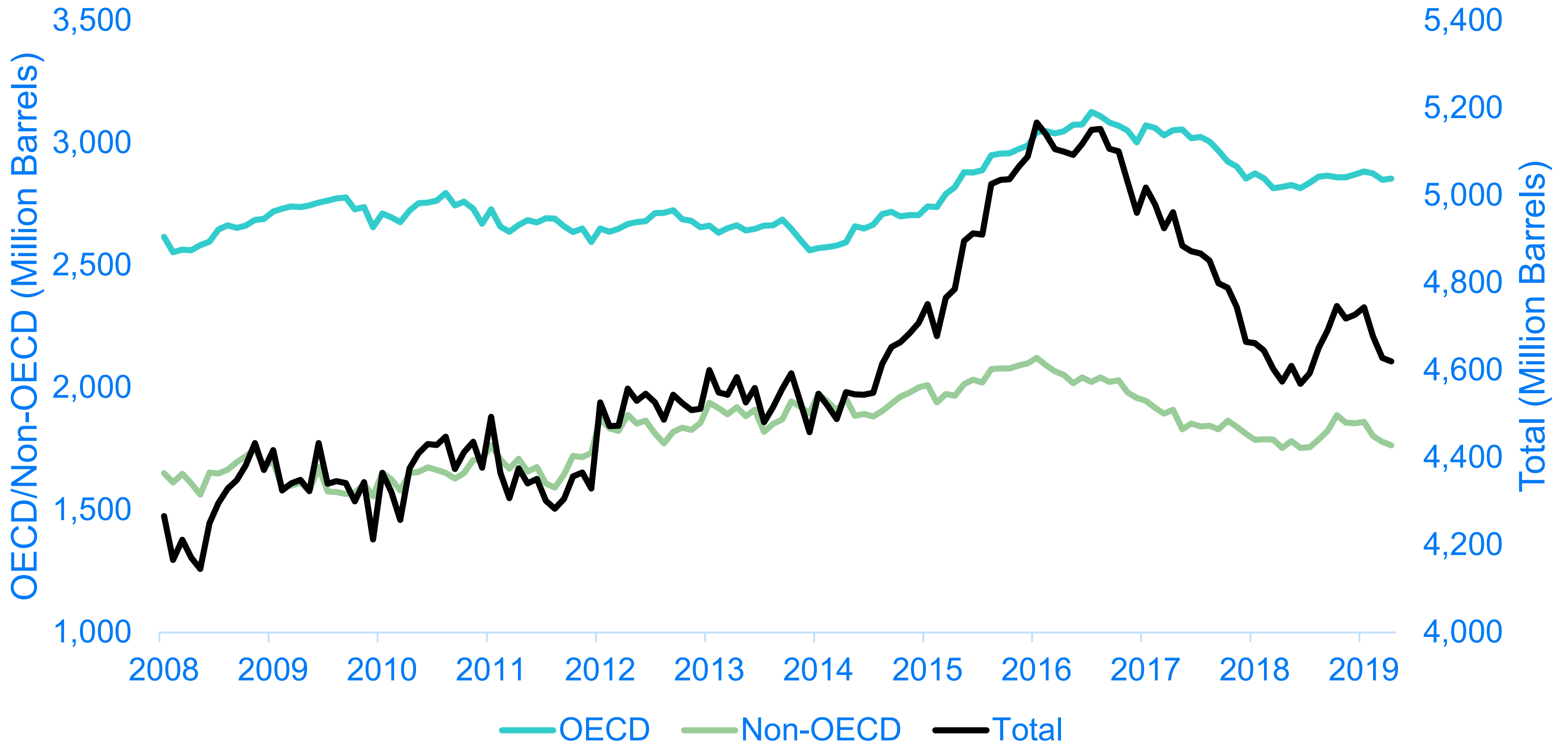
Source: PKVerleger LLC.

Chinese Monthly Crude Oil and Petroleum Product Stocks vs. Days of Supply, January 2002 to April 2019



Source: Energy Intelligence Group.

OECD/Non-OECD Crude Stocks, 2008-2019



Source: Energy Intelligence Group.

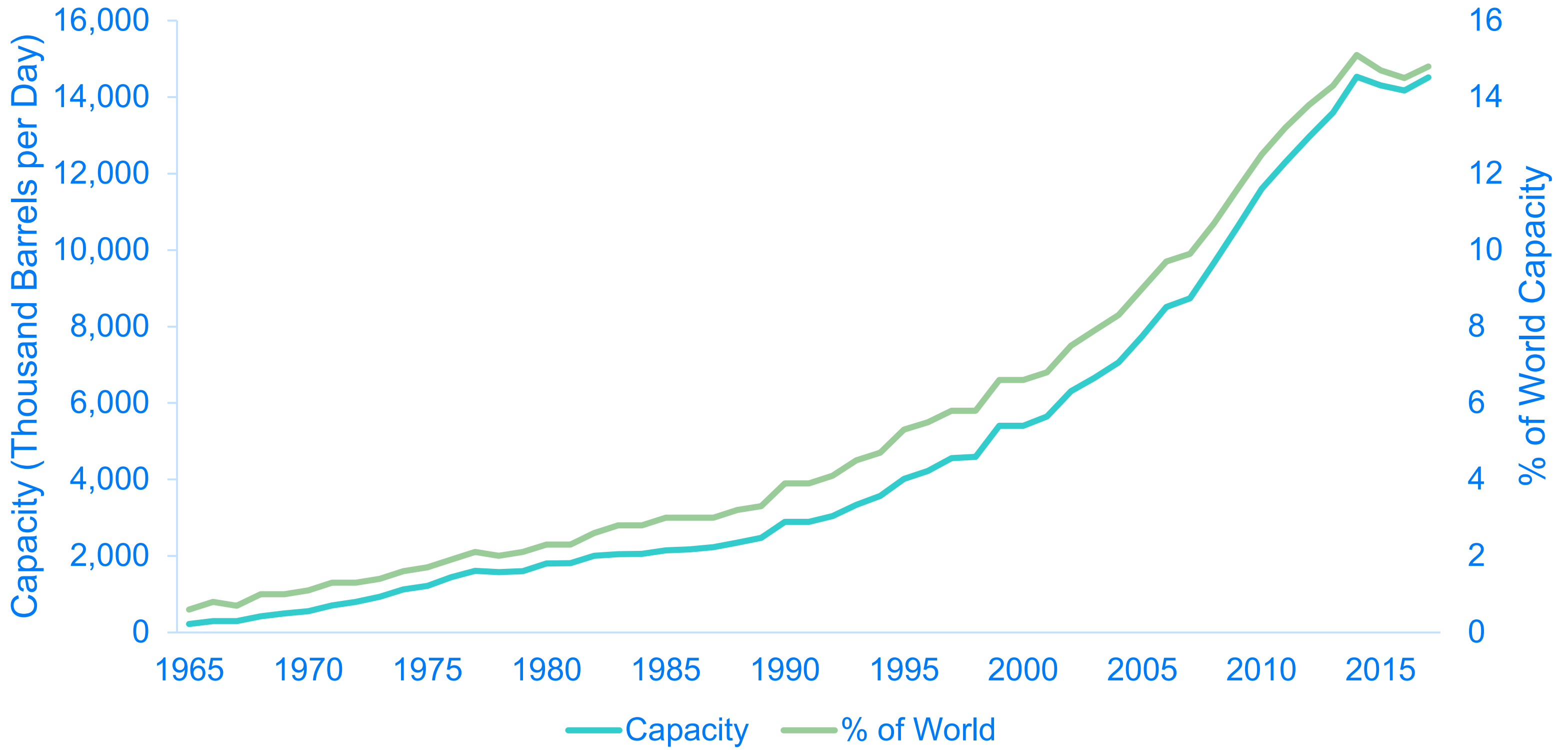
The increase in China's inventories may matter.

- Exports account for 18% of China's GDP.
- Exports to US are threatened by US trade actions. The US accounts for 19% of China's exports. These exports will decline.
- Thirty percent of China's exports go to underdeveloped countries that are vulnerable to oil price increases.
- China's economy could suffer greatly from lost sales to these nations should oil prices rise.

China can prevent oil price increases. China can even cause a decline.

- A key but unacknowledged fact is that product prices lead crude prices.
  - Refiners look to product prices to set their bids for crude.
  - Product netbacks are the key determinant.
  - Rising product prices have pulled up crude in almost all prior disruptions.
- China has expanded its refining capacity in a massive way.
  - Chinese refiners account for 14% of world capacity.
  - China has 45% of Asia's refining capacity.

Chinese Refining Capacity, 1965 to 2017

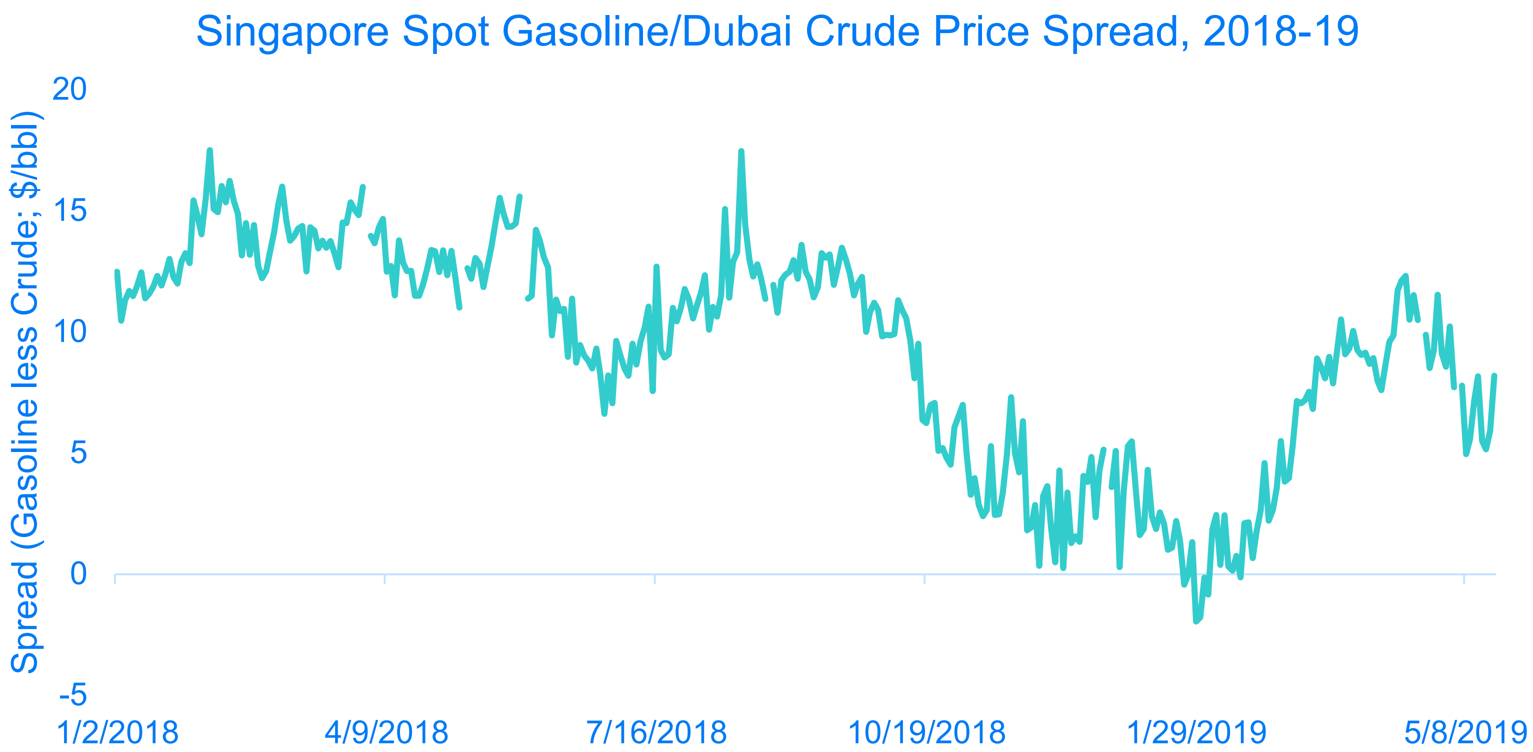


Source: BP Statistical Review of World Energy.

China’s threat to the petroleum market was noted in January by *The Wall Street Journal*.

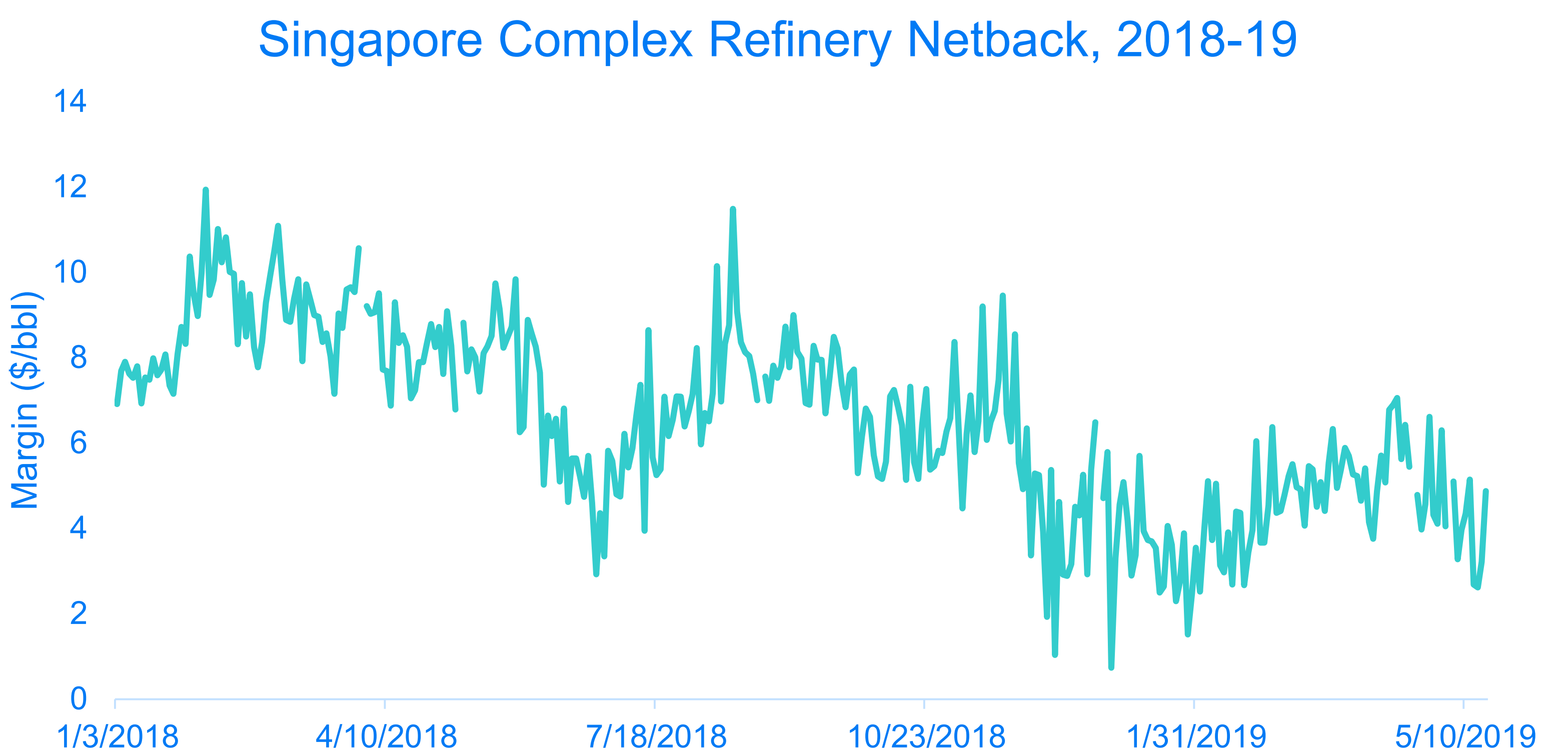
- “An economic slowdown will curb China’s appetite for gasoline this year. That could mean a flood of exports to the rest of Asia, further pressuring regional refiners’ margins” (Kevin Kingsbury, “China’s Slowdown Is a Drag for Fuel Refineries, January 23, 2019).
- The economic slowdown in China has limited its gasoline use. Government policies pushing conservation and electric vehicles add further downward pressure.
- Export quotas granted to refiners increased 35% in 2018 in response to the slowdown.
- These quotas have risen another 10% in 2019 through May.

The increased Chinese exports have depressed gasoline prices in Singapore.



Source: PKVerleger LLC.

China's increased product exports have also decreased refining margins.

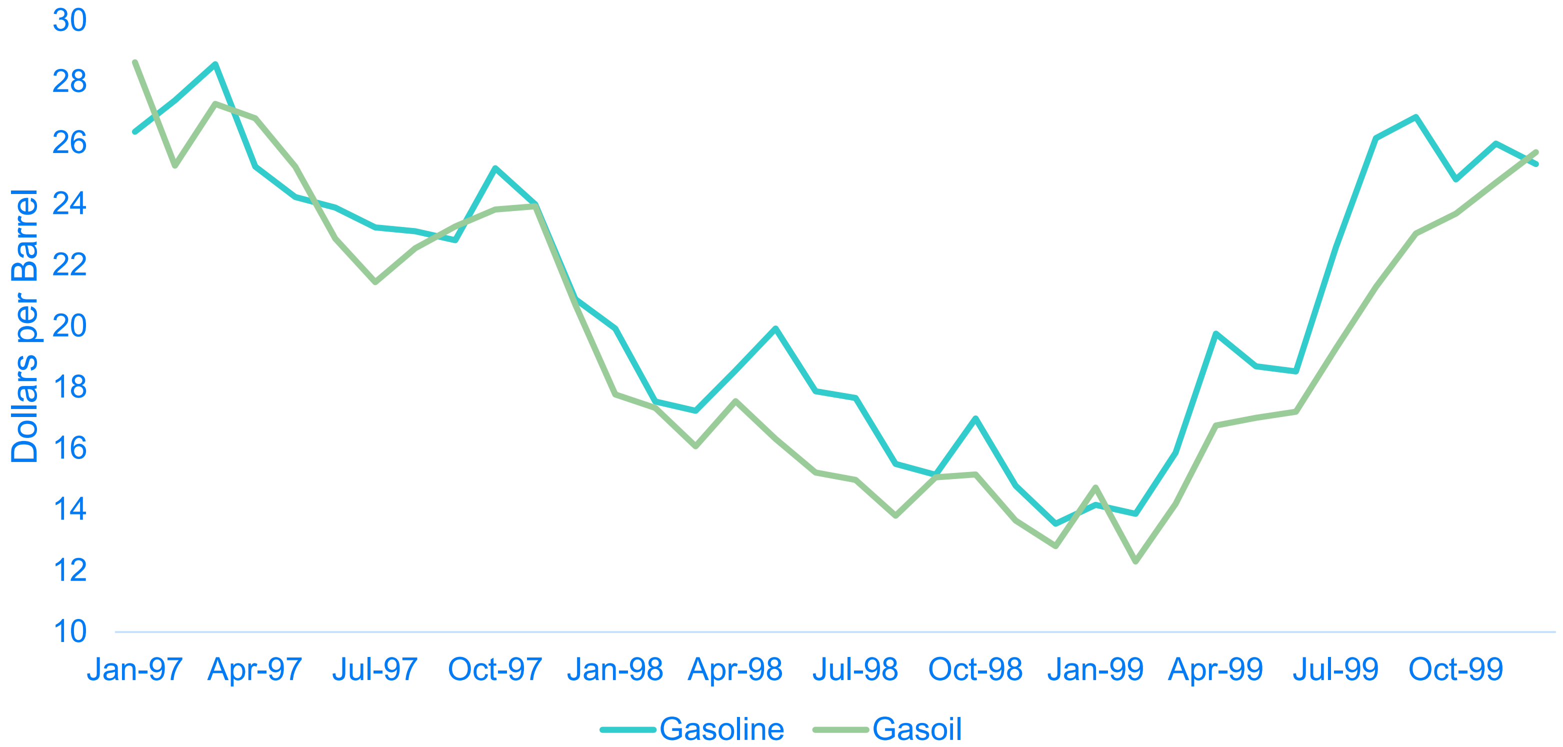


Source: PKVerleger LLC.

There is historical precedence for China's action. South Korean refiners did the same thing during the Asian debt crisis.

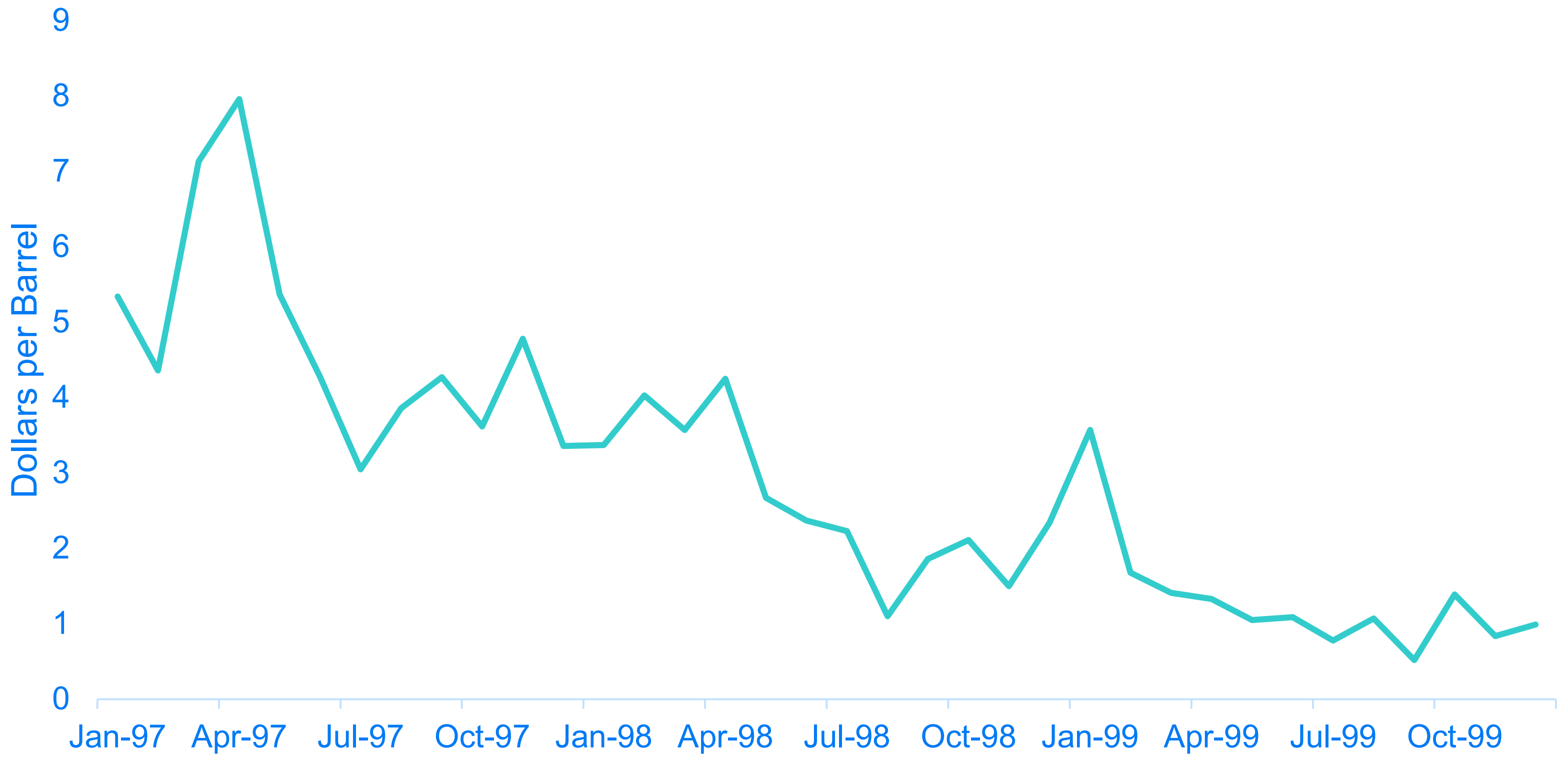
- South Korea had expanded refining capacity prior to the Asian debt crisis.
- South Korean petroleum demand dropped 14% in one year during the crisis.
- The country's refiners continued to process and pushed product into Singapore to maintain cash flow.
- In doing so, they pushed crude prices down almost 60%.

Spot Prices for Premium Gasoline and Gasoil in Singapore, 1997 to 1999



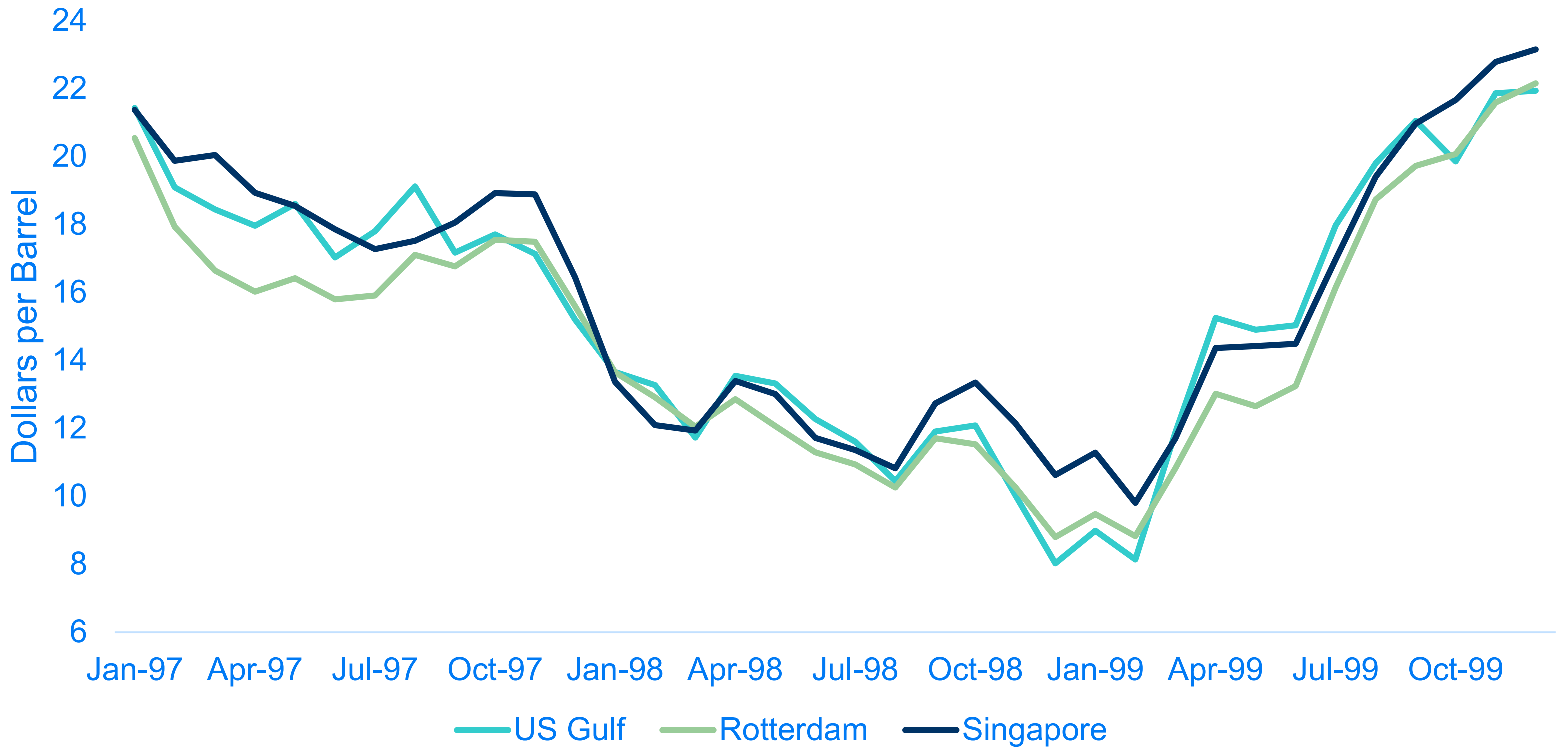
Source: PKVerleger LLC.

Refining Margin on Distillate in Singapore Relative to Dubai Crude, 1997 to 1999



Source: PKVerleger LLC.

Netbacks of Arab Light Crude at US Gulf, Rotterdam, and Singapore, 1997 to 1999



Source: Energy Intelligence Group.

China has the oil, the refining capacity, and perhaps the need to push crude prices down. All that is required is an economic recession.

- US trade actions threaten recession in China.
- China has yet to indicate that it will capitulate in the trade war.
- US limits on selling computer chips to China could cripple some Chinese industries.
- A Chinese ban on selling rare earth minerals to the US could cripple US chip manufacturers.
- A flood of petroleum products into Singapore could drive global crude prices down to or below last December’s low.
- Trade wars are not easy to win.