



## MORNING BRIEFING

June 2, 2022

### Oil Trade & AI

Check out the accompanying [chart collection](#).

**Executive Summary:** Ever wonder why the US is still dependent on oil imports even though fracking has boosted the amount of oil produced domestically to about the same as that consumed? And with that being the case, why does the US bother exporting oil anyway? The answers involve both a mismatch between the kind of oil America produces and consumes as well as a 100-year-old shipping law that has outlived its usefulness. Eliminating the Jones Act could not only help the US oil industry but could also revive US shipping and improve supply chains. ... Also: How Nvidia and others hope to capitalize on AI and high-performance computing.

**Energy: Politics at Sea.** The advent of fracking and the surge in US oil production over the past decade is truly an American success story. US oil production was as low as 7.8 million barrels per day (mbd) in 2008 before fracking hit the scene; by 2019, it had surged to 19.3mbd. Over the same period, consumption has risen and fallen marginally but is relatively unchanged. The US consumed 19.5mbd in 2008, and it consumed 19.8 mbd in 2021.

Even though the US produces almost the same amount of petroleum as it consumes, the country has not ended its dependence on oil imports. The US imported 8.5mbd of petroleum products last year. And despite this reliance on oil imports, the US still exported 8.6mbd of petroleum products.

That trend has continued this year. The US exported 9.6mbd of crude oil and petroleum products during the week of May 20, based on the four-week average, and imported 8.4mbd. So the US has been exporting 1.2mbd more than it's been importing ([Fig. 1](#)).

Why would US oil producers be net exporters at a time when domestic demand is so robust with the price of West Texas Intermediate crude oil having risen to \$114.67 a barrel and gasoline fetching \$4.73 a gallon in the US ([Fig. 2](#) and [Fig. 3](#))? And why does the US even need to import at all when there's plenty of petroleum produced domestically to allow for energy independence? The answer to both lies in US refining capacity and a 100-year-old shipping law. Let's take a look:

(1) *Supply/demand mismatch.* Part of the reason US petroleum exports are growing lies in nation's refining capacity. The increase in US oil production has mainly been of light crude oil. However, most US refiners use heavy crude oil. So the US is exporting light crude oil and importing heavier crude oil.

US production of heavy crude (API gravity of 30.0 or less) has fallen 10% from March 2015 through March 2020, while production of light crude (API gravity of 45.1 or more) has risen by 50.4%, according to the Energy Information Administration (EIA) [data](#).

Conversely, US imports of light sweet and sour crude oil has fallen 75.4% to 14.5mbd in March, down from 59.0mbd in March 2009. Meanwhile, imports of heavy sweet and sour crude oil fell only 3.4% to 126.6mbd in March, down from 131.0mbd in March 2009, according to EIA [data](#).

Over many years, US refiners have spent heavily to build facilities to refine heavy crude. Doing so made sense because heavy crude typically can be bought at a discount to light crude and used to produce a variety of products, like chemicals, petrochemical feedstocks, lubricants, waxes and materials for roads and roofs. Some of the heavy crude that the US imports may be refined and exported. US refiners always have been allowed to export their products, but US crude producers have been allowed to do so only since 2015, when an export ban dating back to 1975 was lifted.

Last year, 62% of US crude oil imports came from Canada, 10% from Mexico, 6% from Saudi Arabia, 3% from Russia, and 3% from Columbia, the EIA reports. "U.S. crude oil exports to Canada are typically light, sweet grades that are shipped to the eastern part of the country. U.S. crude oil imports from Canada tend to be heavy and are sourced from oil sands in Alberta (Western Canada), and most of these exports flow to U.S. Midwest refineries," a June 5, 2020 EIA [report](#) stated.

The Biden administration recently said it hasn't ruled out export restrictions to ease US energy prices. But limiting exports won't fix the crude production/refining mismatch. The administration instead should be asking how it can encourage the expansion of US light crude oil refining capacity.

(2) *A history lesson.* When goods are transported between US ports, they must be on ships that are US owned, US crewed, US registered, and US built. The reason dates back to World War I, when the US used foreign-flagged vessels to transport some of the troops and goods needed to fight in Europe. The dependence on foreign ships was seen as a

weakness that legislators addressed with The Merchant Marine Act of 1920. The goal was to bolster the US merchant fleet and industry so that it would be robust enough to help defend the country in times of war.

The act has become known as the “Jones Act,” after supporter Senator Wesley Jones (R-WA). While Jones supported the bill based on its benefits for US defense, his state benefitted when two Canadian shippers no longer could transport goods to Alaska, giving the market to two shipping companies from Seattle.

Defenders of the act—maritime unions, US shipping companies and shipbuilders, and those concerned about national defense—believe the rationale for supporting the Jones Act in 1920 remains valid today. The importance of having US-sourced goods and trained personnel was driven home when the US was unable to quickly produce personal protective equipment when needed at the start of the Covid pandemic.

However, many others, particularly shippers of products within the US, disagree. Many legislators from Alaska and Hawaii support repealing the act because their states import a lot by ship, which the act makes more expensive.

The Cato Institute believes the act fails to achieve its goal, increases costs in the economy, and should be eliminated. A 2018 [report](#) by the libertarian think tank notes that the Jones Act has limited the growth of domestic shipping. Only 2% of US domestic freight travels by sea, far less than the 40% that’s shipped among some European Union members and 15% within Australia.

The Cato Institute report argues that the Jones Act hasn’t achieved its goal of increasing the US merchant fleet. Nine of every 10 commercial vessels produced in US shipyards since 2010 have been barges or tugboats—not ocean-going vessels, which the military would lean on during a war. The number of ships that could be used, i.e., US ocean-going cargo ships of at least 1,000 gross tons, has fallen from 193 to 99 since 2000.

Companies, ships, and jobs have moved overseas, often lured by less expensive options. US-built coastal and feeder ships cost between \$190 million and \$250 million compared to the \$30 million it costs to purchase one from a foreign shipyard. Likewise, a US crew is paid far better than foreign sailors. The higher cost involved with a Jones Act ship gets passed on to consumers.

The impact is also felt by companies providing other modes of transportation. Because

shipping by sea is so expensive, companies opt instead to ship products via railroad or trucks. Resultant higher demand for those modes of transportation presumably increases their prices, and truck traffic degrades roads and generates pollution.

Cato observes that the volume of US cargo shipped internally by waterways—along both coasts and the Great Lakes—has been halved since 1960, while railroad transport volume has risen by 50% and intercity truck volume by more than 200%. While domestic shipping demand has fallen, demand for river barges and coastal ships carrying freight between the US and Canada and Mexico—which isn't bound by the Jones Act—rose more than 300% over the same period.

The act has resulted in some odd and unexpected consequences. Hawaiian cattlemen opt to transport their cattle through Canada and then into the US because it's less expensive than paying a US shipping company to bring the cows directly to the US, the Cato report states. Likewise, airlines operating in Puerto Rico typically import jet fuel from foreign countries instead of buying it from US Gulf refiners.

This brings us back to why the US is importing fuel when its production levels have increased so sharply. In some situations, it's because of the Jones Act.

For example, US gasoline is exported from the US Gulf Coast refiners to Mexico instead of being shipped to New England because doing so avoids transporting it on a Jones Act ship. Avoiding the extra cost of transportation via Jones Act ships is also the reason that New England imports gasoline from overseas instead of from the Gulf of Mexico. Cato points out that “moving crude oil from the Gulf Coast to the Northeast on a Jones Act tanker costs \$5 to \$6 per barrel [versus] only \$2 per barrel when it is shipped from the Gulf Coast to Eastern Canada on a foreign flagged vessel.”

Eliminating the Jones Act could potentially help our oil industry while also ironing out some of the kinks in our supply chain. And with the shackles off, the US shipping industry might just revive.

**Technology: High-Performance Computing.** Nvidia made its name by delivering chips to power high-end gaming computers, but the company's future may depend more on high-performance computing. High-performance computing—or “HPC,” as the cool kids say—is growing quickly as companies generate vast amounts of data and are just now learning how to manipulate it and use it in their business.

HPC is being used in research labs to develop new medicines, understand evolution, track storms, and create new materials. Creators are also using it to edit films and create special effects. The oil and gas industry harnesses HPC to better target where to drill and boost production. Artificial intelligence and machine learning programs use HPC, as do financial pros looking to identify real-time stock trends or automate trading. And HPC is being used to design new products or simulate scenarios, a NetApp [blog](#) explained.

HPC can be accessed from a company's location or it can be accessed elsewhere through cloud service providers; some companies use a hybrid structure. Either way, the need for computing power—and powerful chips and software—has created a race among some of the top players including Nvidia, AMD, and Intel.

Nvidia executives spent much of their fiscal Q1 (ended May 1) [conference call](#) talking about HPC, a far more pleasant subject than the gaming market, which has slowed overseas this quarter. Here's a look at what executives had to say:

(1) *Taken to the woodshed.* Investors have sold Nvidia shares on fears that fewer of its chips will be used by high-end gamers and by crypto-miners. Both activities surged in recent years during Covid lockdowns. Nvidia shares have fallen 36.5% ytd through Tuesday's close compared to the S&P 500's 13.3% decline. The damage is even greater, a drop of 44.1%, from Nvidia's November 29 peak of \$333.76 a share through Tuesday's close.

Their fears proved warranted. Nvidia's gaming revenue climbed 31% y/y and 6% q/q in fiscal Q1, but the company warned that it expects gaming revenue in the current quarter will fall "in the teens" q/q but grow y/y. Nvidia blamed softness in Europe on the Ukraine war and in China on Covid lockdowns. It failed to quantify the impact of the crypto-mining slowdown beyond saying that it expects a "diminishing contribution" from the area going forward.

Nvidia and the gaming segment contributed 43.7% of fiscal Q1 revenue, while the company's data center segment kicked in 45.2%. All in, the company forecasts total Q2 revenue to be \$8.1 billion, plus or minus 2%. If that revenue estimate is on target, it would result in a 24.5% y/y jump but a 2.3% q/q decline.

(2) *AI driving sales.* While Nvidia is known for high-performance computer gaming chips, it also provides chips for servers. The company's fiscal Q1 data center segment grew revenue 83% y/y and 15% q/q. It's expected to have another record quarter in Q2, and the

company is “fairly enthusiastic” about H2.

“Customers remain supply constrained in their infrastructure needs and continue to add capacity as they try to keep pace with demand,” said CFO Colette Kress.

AI is driving much of the business, boosted by the development of transformer-based models. A transformer model is a neural network that learns context and meaning by tracking relationships in data. It allows systems to learn without the need for a human to label the data, which is costly and time consuming. First described in a 2017 paper by Google, the models are driving major advances in AI.

Nvidia explains in a March 25 [blog post](#) that transformers are translating text and speech in near real time, speeding drug design by unlocking the mysteries of DNA and amino acids, detecting trends and anomalies to prevent fraud, streamlining manufacturing, making online recommendations, and improving healthcare.

Transformers have led to a natural language understanding breakthrough, which has led to the increase of chat bots and website customer service that we’re seeing today, explained CEO Jensen Huang. Much of the transformer-driven AI requires hefty computing power and occurs in the cloud, which means more demand for the chips that Nvidia produces.

In addition to the AI computing that’s happening in the Cloud, it’s also occurring “on the edge” in data centers and in robotics located in factories, retail stores, and warehouses. Huang believes AI systems on the physical edge and imbedded in robotics will be the next major computing segment.

The company’s Omniverse enterprise software allows companies to create a digital twin, or replica, of something that exists in the “real” world. For example, Amazon is using Omniverse to create digital twins of its warehouses, so it can improve their design and train intelligent robots, explained Kress. Kroger is using Omniverse to create digital twin stores to “optimize store efficiency,” and PepsiCo is using it to improve the “efficiency and environmental sustainability” of its supply chain.

Third-party software developers are using Omniverse software and tools in various areas including robotics, industrial automation, and 3D design, Kress explained. Omniverse also helps drive demand for Nvidia’s GPUs.

(3) *Tough year for semis.* Nvidia is a member of the S&P 500 Semiconductors industry,

which has a stock price index that's down 23.0% ytd and 25.8% since its peak on November 29, 2021. ([Fig. 4](#)). The drop in the industry's price index has occurred even though analysts forecast rising revenues and earnings this year and next.

The Semiconductors industry's revenue is expected to climb 18.8% this year and 8.9% in 2023 ([Fig. 5](#)). The industry's profit margins have held up despite near-record-high inflation ([Fig. 6](#)). Its earnings are targeted to grow 14.5% in 2022 and 10.7% in 2023 ([Fig. 7](#)). With rising earnings and a falling share price, the industry's forward P/E has tumbled to 15.1 from a recent peak of 25.0 at the end of November ([Fig. 8](#)). At this level, the valuation looks a lot more attractive than it has been in years, presuming that earnings come in near expectations.

---

## Calendars

**US: Thurs:** ADP Employment 295k; Nonfarm Productivity & Unit Labor Costs -7.5%/11.6%; Factory Orders 0.7%; Initial & Continuous Jobless Claims 210k/1.31m; Natural Gas Storage; Crude Oil Inventories & Gas Production; OPEC Meeting; Mester. **Fri:** Employment Total, Private, and Manufacturing 325k/325k/40k; Average Hourly Earnings 0.4%/m/m/5.2%/y/y; Unemployment Rate 3.5%; Average Weekly Hours 34.6; ISM N-PMI 56.4; Baker-Hughes Rig Count; Brainard. (Bloomberg estimates)

**Global: Thurs:** Eurozone PPI 2.3%/m/m/38.6%/y/y; Spain Unemployment Rate; Wuermeling; Buch; Beaudry. **Fri:** Eurozone Retail Sales 0.3%/m/m/5.4%/y/y; Eurozone, Germany, and France, C-PMIs 54.9/54.6/57.1; Eurozone, Germany, France, Italy, and Spain NM-PMIs 56.3/56.3/58.4/54.5/56.0; Germany Trade Balance €1.6b; France Industrial Production 0.3%; Enria. (Bloomberg estimates)

---

## Strategy Indicators

**Stock Market Sentiment Indicators** ([link](#)): The Bull/Bear Ratio (BBR) was below 1.00 for the fifth successive week this week—though just below. It edged up for the second week to 0.93, after dropping the prior three weeks from 1.04 to 0.65, which was the lowest since mid-February 2016. The BBR has been bouncing around 1.00 since late February. Bullish sentiment climbed for the third week by 7.6ppts (to 35.2% from 27.6%)—with 7.0ppts



occurring this week. The 27.6% reading three weeks ago was the lowest since early 2016. Bearish sentiment fell for the second week to 38.0%, after climbing five of the prior six weeks by 12.0ppts (to 43.0 from 31.0)—with the 43.0% reading two weeks ago the highest since October 2011. The correction count contracted for the fourth time in six weeks by 7.8ppts (26.8 from 34.6); it was as high as 40.0% in early February. The AAll Ratio fell to 27.1% last week after climbing two of the prior three weeks from 21.7% (the lowest since March 2009) to 34.0% over the period. Bullish sentiment declined for the second time in three weeks, from 26.9% to 19.9% over the period, while bearish sentiment climbed for the second week to 53.5%, after falling from 59.4% to 49.0% the previous two weeks.

**S&P 500 Earnings, Revenues, Valuation & Margins ([link](#)):** The S&P 500's forward profit margin ticked up 0.1ppt last week to match its record high of 13.4%. Since the end of April 2020, it has exceeded its prior record high of 12.4% in September 2018. It's now up 3.1ppts from 10.3% during April 2020, which was the lowest level since August 2013. Forward revenues and earnings were both back at record highs after ticking down briefly in early February. They have both been making new highs since the beginning of March 2021 after peaking just before Covid-19 in February 2020. Since the Q2-2021 earnings season came in way better than expected, analysts have been playing catch-up with their lowball estimates from the Covid-19 shutdown period. Prior to this catch-up period, consensus S&P 500 forecasts had been falling at rates paralleling the declines during the 2008-09 financial crisis. Forward revenues growth remained steady w/w at 8.1%. That's down from a record high of 9.6% growth at the end of May 2021, but compares to its recent 12-month low of 7.1% from early December. Still, that's up from 0.2% forward revenues growth during April 2020, which was the lowest reading since June 2009. Forward earnings growth ticked up 0.1ppt w/w to 10.0%. It remains above its 16-month low of 8.2% in early December. That's down from its 23.9% reading at the end of April 2021, which was its highest since June 2010, and up substantially from its record low of -5.6% at the end of April 2020. So far this year, analysts' revisions to their forecasts for 2022 revenues have outpaced their revisions for 2022 earnings, so the imputed 2022 profit margin estimate that we calculate from those forecasts has ticked down 0.2ppt to 13.0%. They expect revenues to rise 11.2% (up 0.1ppt w/w) in 2022 and 4.9% in 2023 (unchanged w/w) compared to the 16.4% gain reported in 2021. They expect earnings gains of 10.7% in 2022 (up 0.2ppt w/w) and 9.6% in 2023 (down 0.1ppt w/w) compared to an earnings gain of 51.0% in 2021. Analysts expect the profit margin to remain steady at 13.1% in 2022 (up 0.1ppt w/w) compared to 13.1% in 2021 and to improve 0.6ppt y/y to 13.6% in 2023 (unchanged w/w). The S&P 500's weekly reading of its forward P/E rose 0.2pt w/w to 16.9 from a 25-month low of 16.7. That's down from an eight-month high of 21.7 at the end of 2021 and compares to 23.1 in early September 2020, which was the highest level since July 2000 and up from a 77-month low



of 14.0 in March 2020. The S&P 500 weekly price-to-sales ratio ticked up 0.03pt w/w to 2.25 from a 22-month low of 2.22. That compares to a record high of 2.88 at the end of 2021 and a 49-month low of 1.65 in March 2020.

**S&P 500 Sectors Earnings, Revenues, Valuation & Margins** ([link](#)): Last week saw consensus forward revenues rise for seven of the 11 S&P 500 sectors, forward earnings gain for six sectors, and the forward profit margin move higher for two sectors. Nearly all sectors are at or near record highs in their forward revenues, earnings, and profit margins. Energy still has forward revenues and earnings well below record highs, but its profit margin rose 0.1ppt w/w to a new record high of 11.6%, exceeding its prior 11.2% record from August 2007. Utilities has forward earnings at a record high, but its forward revenues and margin are lagging. Only three sectors posted a higher profit margin y/y in 2020: Consumer Staples, Tech, and Utilities. During 2021, all but the Utilities sector posted a y/y improvement. Five sectors are now expected to see margins decline or remain flat y/y in 2022: Communication Services, Consumer Staples, Financials, Health Care, and Real Estate. Here's how they rank based on their current forward profit margin forecasts along with their record highs: Information Technology (25.4%, matches its prior record high from late February), Financials (18.9, down from its 19.8 record high in August 2021), Real Estate (17.0, down from its 19.2 record high in 2016), Communication Services (16.0, down from its 17.0 record high in October), Utilities (13.8, down from its 14.8 record high in April 2021), Materials (13.6, record high), S&P 500 (13.4, matches its record high achieved intermittently since March), Health Care (11.0, down from its 11.5 record high in early March), Industrials (10.3, down from its 10.5 record high in December 2019), Energy (11.6, a new record high this week), Consumer Discretionary (7.6, down from its 8.3 record high in 2018), and Consumer Staples (7.4, down from its 7.7 record high in June).

---

## US Economic Indicators

**JOLTS** ([link](#)): April job opening fell 455,000 to 11.400 million after jumping 511,000 in March to a new record high (11.855 million), while quits also held around record highs. There were 5.94 million unemployed in April, so there were 1.9 million available jobs for each unemployed person that month. By industry, health care & social assistance (-266,000), retail trade (-162,000), and accommodation & food services (-113,000) posted the largest losses, while transportation, warehousing & utilities (+97,000), nondurable goods manufacturing (+67,000), and durable goods manufacturing (+53,000) recorded the largest gains. The number of quits slipped 25,000 to 4.424 million in April, not far from its record

high of 4.510 million in November, fluctuating in a flat trend just below its record high the past five months. Before the pandemic, quits hovered around 3.5 million. Many employers are raising wages and incentives amid a severe labor shortage, which gives workers confidence that they can get better pay elsewhere. Hirings remain on a volatile uptrend, though fell 246,000 during the two months through April to 6.586 million. Still, they are up 926,000 since their recent bottom during December 2020.

**Construction Spending** ([link](#)): Total construction spending rose less than expected in April though continued its streak of new record highs, climbing for the 21st time in 22 months, by 0.2% in April and 21.6% over the period. Private construction spending expanded 0.5% and 30.2% over the comparable periods, with residential investment the catalyst, soaring 51.0% over the 22-month period—with both measures reaching new record highs. Within private residential investment, single-family construction climbed for the six successive month, by 0.5% m/m and 14.3% over period, boosting it to a new record high. Meanwhile, multi-family construction remains on a volatile uptrend, advancing 0.8% in April to a new record high after dipping 0.4% in March. Home-improvement spending also recovered from recent losses, rebounding 1.5% to a new record high after slumping 1.4% during the two months through March. Meanwhile, private nonresidential spending fell for the second successive month, by a total of 0.9%, after increasing nine of the prior 10 months by 11.2%. Public construction spending contracted for the fourth time in six months, down only 0.7% over the period; it's up 3.4% from its recent low in mid-2021.

---

## Global Economic Indicators

**Global Manufacturing PMIs** ([link](#)): Global manufacturing activity in May was little changed from April's 20-month low, with factory production contracting for the second month, led by a sharp downturn in China. Inflationary pressures remained elevated in May, with both input costs and selling prices among the highest in survey history—though slower than April. The JP Morgan Global M-PMI ticked up to 52.4 in May after falling in three of the prior four months, from 54.3 in December to a 20-month low of 52.3 in April. The M-PMI for advanced economies (55.0 from 56.3) sank to its lowest level since December 2020 in May, after averaging 56.5 over the prior seven months—while the M-PMI for emerging economies (49.5 from 48.1) contracted for the third month—though moved closer to the breakeven-point of 50.0. Here's how May M-PMIs ranked by country/region from highest to lowest: Netherlands (57.8), US (57.0), Canada (56.8), Austria (56.6), Ireland (56.4), Australia (55.7), Germany (54.8), Vietnam (54.7), UK (54.6), EUROZONE (54.6), France (54.6), India

(54.6), Brazil (54.2), Colombia (53.9), Spain (53.8), Greece (53.8), Japan (53.3), WORLD (52.4), Czech Republic (52.8), Kazakhstan (52.0), Thailand (51.9), Italy (51.9), Russia (50.8), Mexico (50.6), Malaysia (50.1), Taiwan (50.0), Myanmar (49.9), Turkey (49.2), Poland (48.5), and China (48.1).

**US Manufacturing PMIs** ([link](#)): Manufacturing activity remained robust in May, according to ISM, a welcome surprise given the weakness in the regional manufacturing surveys during the month. The M-PMI moved up to 56.1 last month, after easing five of the prior six months from 60.8 to 55.4 over the period, with all of the six largest manufacturing industries recording moderate-to-strong growth during the month. The M-PMI peaked at 63.7 last March and averaged 60.6 for all of 2021. The new orders index recovered to 55.1 last month after falling from 61.7 in February to 53.5 by April, while the production measure edged up to 54.2 after slowing from 58.5 to 53.6 over the comparable two-month period. The inventories (55.6 from 52.1) gauge is showing inventories accumulating at the fastest pace this year. Meanwhile, the employment (to 49.6 from 50.9) measure slipped into contractionary territory for the first time since November 2020—down from March’s 56.3. ISM’s chair Timothy Fiore noted that while May’s measure fell below 50, “companies improved their progress on addressing moderate-term labor shortages at all tiers of the supply chain.” Meanwhile, the supplier deliveries (65.7 from 67.2) measure continues to show slow deliveries, with tight supply chains exacerbated by the war in Ukraine. Inflation may be showing signs of peaking: ISM’s prices-paid measure eased for the second month in May to 82.2 after climbing from 68.2 in December to 87.1 in March; it was at 92.1 in mid-2021—which was the fastest since summer 1979.

---

Contact us by [email](#) or call 480-664-1333.

Ed Yardeni, President & Chief Investment Strategist, 516-972-7683  
Debbie Johnson, Chief Economist, 480-664-1333  
Joe Abbott, Chief Quantitative Strategist, 732-497-5306  
Melissa Tagg, Director of Research Projects & Operations, 516-782-9967  
Mali Quintana, Senior Economist, 480-664-1333  
Jackie Doherty, Contributing Editor, 917-328-6848  
Valerie de la Rue, Director of Institutional Sales, 516-277-2432  
Mary Fanslau, Manager of Client Services, 480-664-1333  
Sandy Cohan, Senior Editor, 570-228-9102

Copyright (c) Yardeni Research, Inc. Please read complete [copyright and hedge clause](#).

