MORNING BRIEFING
June 24, 2021

Plastics, Earnings & AI

Check out the accompanying chart collection.

(1) Mother Nature has been inflating plastics prices via weather and Covid. (2) Help wanted at plastic plants. (3) Watching recent jump in oil and gas prices. (4) Commodity Chemical industry earnings soar this year but peter out in 2022. (5) Checking out 2022 S&P 500 earnings. (6) Industrials and Consumer Discretionary sectors maintain their leadership next year. (7) Materials and Financials not so much. (8) The US military embraces data and AI. (9) A disturbing view of machine-based warfare.

Materials: Plastic Shortages & Prices. One of the many prices on the rise lately is the price of plastic. Material used in making plastic has risen 28.2% ytd through May and 48.5% from its low in May 2020, according to the Producer Price Index data on plastic resins and materials gathered by the Bureau of Labor Statistics (*Fig. 1*). Resin and other plastic feedstock prices have risen because supply was reduced by the storms last fall and winter that temporarily disrupted plants in Texas, where 85% of US polyethylene is produced. Meanwhile, demand unexpectedly increased despite Covid-19 lockdowns last year. The disrupted market has led to shortages of items like HVAC plastic replacement parts, the prices of which have risen by almost 300%, according to a June 7 *report* on Fox31 News.

Based on earnings estimates for companies in this industry next year, analysts seem confident that supply will catch up to demand by 2022. But until then, chemical companies like LyondellBasell Industries and Dow stand to enjoy rising revenues, margins, and earnings. Here's a look at what's driving prices higher and the ramifications for investors:

(1) *Mother Nature takes a toll.* Two of the main ingredients in plastic are crude oil and natural gas. So in recent years, plastic manufacturers opened plants in Texas to be close to the frackers drilling for the two commodities.

"When COVID first hit the US in March 2020, plastics suppliers reduced stocks based on uncertainties about COVID's effects on the market. But changes in the plastics market did not go as expected. As the social effects of COVID settled in, there was a surge in demand for plastic products. This surge primarily came from changes in consumer buying behavior," a *blog* by Industrial Specialties Manufacturing explained. There was increased demand for

electronics, packaging in the food and healthcare markets, appliances, and auto production.

Supplies got even tighter when two hurricanes hit Louisiana in the fall of 2020, disrupting hydrocarbon extraction and processing. Then in February, a winter storm with unexpected freezing temperatures caused plastic production to screech to a halt. Texas regulators told petrochemical plants to cut their power usage, and even plants that had their own electric generators failed because they couldn't get the natural gas on which the generators run. "At the peak of forced shutdowns, 75% of polyethylene capacity was shut, 62% of polypropylene capacity and 57% of PVC," a March 17 *WSJ* *article* reported citing S&P Global Platts' data.

Four months later, supplies remain tight and demand strong. "Demand, I think, is the real story… [Y]ou have to remember that demand volumes have really stayed with us right through COVID," Dow's CEO Jim Fitterling *said* at the Bernstein Strategic Decisions Conference on June 3. "[O]n the supply side, projects have been delayed and have not come on at the pace that everybody thought. So, we've absorbed all this capacity that's come on since 2017." He continued: "United States inventories are very, very low. And one of the things that you see right now is that the amount being exported is even off. So, the inventories are low, with exports being down. And as exports continue to increase, that'll tighten things up even more."

(2) *Looking for workers.* Besides deploying her weather arsenal, Mother Nature hit the industry with viral means: Employees getting sick with Covid-19 brought labor shortages, and the new safety measures required by the pandemic brought delays in plant repairs. Even in recent days with Covid-19 waning, plants have needed to shut down to do maintenance that was delayed from 2020 because of Covid-19. Adding to their woes, the manufacturers are having difficulties locating the transportation needed to ship their products to customers.

(3) *Rising input prices.* The latest challenge faced by the industry is the rising price of natural gas and crude oil, two key ingredients used to make plastic. Many natural gas companies stopped pumping as the price of natural gas fell to a low of $1.48 last year during the brunt of Covid-19 shutdowns. Supplies were further hampered by the Texas winter storm that clogged wells with ice. The number of US gas and oil rigs fell from 1,083 in December 2018 to a low of 244 in August 2020, and they've only rebounded slightly to 470 as of June 18 (*Fig. 2*).

But now demand has surged, with a heat wave hitting the West and Southwest and a

drought limiting the amount of hydroelectric power generated in those areas too. The combination of limited supplies and rising demand has pushed up the price of natural gas to $3.26 as of June 22, up 120% from 2018's low (*Fig. 3*). Likewise, the price of crude oil has rebounded as the economy has returned to life faster than expected. The price of Brent crude oil futures has risen to $74.81 as of June 22 from its 2020 low of $19.33 (*Fig. 4*).

(4) *Commodity Chemicals' mixed earnings.* Two of the largest producers of plastics, Dow and Lyondell, are both in the S&P 500 Commodity Chemicals stock price index, which is up 190.9% from its 2020 low as of Tuesday's close but has fallen 11.0% from its June 3, 2021 high (*Fig. 5*). Analysts are forecasting a surge in revenue and profits this year, followed by moderate declines next year. Revenue is forecast to climb 32.2% this year and drop 0.8% in 2022, while earnings are expected to soar 233.1% this year and fall 15.5% in 2022 (*Fig. 6* and *Fig. 7*). The surge in earnings this year caught analysts by surprise, and net earnings revisions have been positive for the past nine months (*Fig. 8*). The industry's forward P/E has fallen to 9.3; however, a low earnings multiple in cyclical industries like commodity chemicals can mean the industry is experiencing peak earnings (*Fig. 9*).

Earnings: Peering into 2022. The end of June is always an opportune time to look into the following year to see what sectors and industries are expected to produce strong or weak earnings. It looks like analysts believe the S&P 500 Industrials and Consumer Discretionary sectors will continue to produce market-leading earnings, while results in Materials and Financials sectors will lose their momentum in 2022.

Here's a quick look at how 2022 is shaping up:

(1) *Industrials maintain leadership.* For the second year in a row, the S&P 500 Industrials sector is expected to post the fastest earnings growth of all the index's 11 sectors. Here's the performance derby for the S&P 500 sectors' 2022 earnings growth forecast: Industrials (36.6%), Consumer Discretionary (32.4), Energy (27.1), Communications Services (13.3), S&P 500 (11.6), Information Technology (10.9), Utilities (8.3), Consumer Staples (7.9), Health Care (5.9), Real Estate (4.5), Materials (2.7), and Financials (-0.3).

Some of the low growth rates posted by sectors in 2022 reflect tough comparisons to 2021, when earnings rebounded from Covid-19-related shutdowns in 2020. Here's the performance derby for the S&P 500 sectors' forecasted earnings in 2021: Industrials (83.0%), Consumer Discretionary (70.2), Materials (64.4), Financials (45.6), S&P 500 (37.2), Information Technology (29.7), Communications Services (23.4), Health Care (15.8), Consumer Staples (7.7), Real Estate (5.6), Utilities (1.2), and Energy (from a loss to a

profit).

(2) *Industries leading the way.* The industries posting the strongest earnings growth in 2022 include a smattering of industries in the Energy and Industrial sectors. Here are the 10 industries that are expected to grow earnings the fastest in 2022: Oil & Gas Refining & Marketing (228.2%), Food Distributors (152.4), Movies & Entertainment (77.1), Oil & Gas Equipment & Services (56.6), Wireless Telecommunication Services (49.4), Health Care REITs (38.3), Office REITs (35.6), Automobile Manufacturers (34.3), Publishing (32.6), and Aerospace & Defense (31.3).

The S&P 500 Food Distributors, Movies & Entertainment, and Office REITs earnings will undoubtedly benefit from the reopening of the economy now that Covid-19 cases are on the decline. Movie theaters have already reopened their doors and the trickle of employees returning to work should pick up this fall. Auto Manufacturers should benefit when the shortage of semiconductors is resolved and the auto industry can start churning out cars again.

(3) *Industries lagging behind.* The industries with the slowest earnings growth in 2022 are heavily weighted toward companies in the commodities and financial industries. Steel (-52.7%), Commodity Chemicals (-15.5), Alternative Carriers (-14.4), Investment Banking & Brokerage (-8.1), Specialized REITs (-7.8), Oil & Gas Storage & Transportation (-7.7), Diversified Banks (-6.1), Consumer Finance (-4.0), Life Sciences Tools & Services (-3.8), Household Appliances (-2.4), and Regional Banks (-1.8) are at the bottom of the list.

Analysts might not expect the price of steel to hold up in 2022, but so far in 2021 the price remains in the stratosphere, up 65% ytd (*Fig. 10*). Financials' 2022 earnings face tough comparisons to the levels of 2021, when reserve releases boosted earnings. Financials' results may also come under pressure next year if the Federal Reserve begins slowly to raise interest rates.

Disruptive Technologies: AI and the Military. This week, Elon Musk and the Department of Defense (DoD) both made headlines for events they're holding related to artificial intelligence (AI). The DoD is holding its Artificial Intelligence Symposium and Tech Exchange this week, and Musk announced plans to hold an Artificial Intelligence Day at a yet-to-be-determined date in the future too. While Musk has made his views on AI well known—that it's an existential threat to humankind—we were curious how the military thinks about AI. Let's take a look at how AI is being used by the US and Chinese military services:

(1) *US putting muscle behind AI.* The White House and the DOD are making AI research and implementation a priority. The White House Office of Science and Technology Policy and the National Science Foundation announced earlier this month the launch of the National Artificial Intelligence Research Resource Task Force.

"The new task force will act as an advisory committee and is tasked with ensuring that AI researchers and students across all scientific disciplines receive the computational resources, high quality data, educational tools and other user support. It will submit two reports to Congress that present a comprehensive AI strategy and implementation plan: an interim report in May 2022, and a final report in November 2022," explained a June 11 FedScoop *article*.

The DOD created the Joint Artificial Intelligence Center (JAIC) in 2018 to identify "appropriate use cases for AI across DoD, rapidly piloting solutions, and scaling successes across our enterprise," according to a 2018 *report* laying out the DoD's AI strategy. The JAIC's website describes numerous initiatives, including using AI applications in systems and sensors to "transform the character of warfare." AI sensors can identify objects, make fast decisions, and provide an advantage to the US military.

The JAIC is also applying AI to the DoD's health data, hoping to find cures to disease, increase operational readiness, and decrease costs. It hopes AI applied to business processes will harness information, increase productivity, and reduce costs. AI-driven diagnostics are expected to improve fleet readiness through process improvements, forecasting and supply-chain optimization. And AI is being used to discover cyber threats.

(2) *Army studies AI and machines.* The Army Research Laboratory and the University of Maryland have entered into a five-year agreement that may provide $68 million to explore how devices with AI operate with one another and humans, according to a June 23 *press release* from the University of Maryland.

"The effort … encompasses three main research thrusts, each supported by a team of faculty, staff and students: AI, autonomy, and modeling and simulation. Together, the teams seek to develop technologies that reduce human workload and risk in complex environments such as the battlefield and search-and-rescue operations," the press release states. Researchers aim to transfer dangerous, dirty, and dull work to autonomous platforms.

The research will also focus on designing "new approaches to ensuring closer and more

trusted human-machine teaming and interaction. This work could bolster technologies such as self-driving vehicles or mobile robots, which combine computer vision and remote sensing, robotics planning and control, and other advanced specialties to navigate complex terrains and unstructured environments."

(3) *The AI arms race.* The race for military supremacy may rely more on AI than on developing bigger bombs. Just like the DoD, the Chinese military has been working on how to use AI. In a 2019 defense white paper, it noted that there is a trend towards developing "long-range precision, intelligent, stealthy or unmanned weaponry or equipment."

China has already developed drones that are dispatched from a vehicle on land or from helicopters in the air in a swarm to attack a target, an October 16, 2020 *South China Morning Post* *article* reported.

The Diplomat, an international current affairs magazine for the Asia-Pacific region, presented a hypothetical scenario describing how China might attack Taiwan in 2030 using possible future military technologies. The June 8 *article* suggests the Chinese People's Liberation Army (PLA) could use unmanned arial vehicles (drones) to knock out Taiwan's air defense system. The PLA could also use an unmanned underwater vehicle to target a US Navy carrier in the Philippine Sea. Unfortunately, the hypothetical seems all too possible sooner rather than later.

Calendars

US: Thurs: Real GDP & Price Index 6.4%/4.3%, Headline & Core Durable Goods Orders 2.8%/0.8%, Kansas City Fed Manufacturing Index, Goods Trade Balance, Corporate Profits, Initial & Continuous Jobless Claims 380k/3.47m, Natural Gas Storage, Fed Bank Stress Test Results, Williams. **Fri:** Personal Income & Consumption -2.5%/0.4%, Core PCED 0.6%m/m/3.4%y/y, Consumer Sentiment Index Headline, Current Conditions, and Expectations 86.5/90.7/84.0, Inflation Expectations 4.0%, Baker-Hughes Rig Count. (Bloomberg estimates)

Global: Thurs: Germany Ifo Business Climate, Current Assessment, and Expectations 103.9/97.8/100.6, Spain GDP -0.5%q/q/-4.3%y/y, UK Interest Rate Decision 0.10%, ECB Economic Bulletin. **Fri:** Germany Gfk Consumer Confidence -4.0, Italy Consumer Confidence 112.0, BOE Quarterly Bulletin. (Bloomberg estimates)

Strategy Indicators

Stock Market Sentiment Indicators (*link*): The Bull/Bear Ratio (BBR) advanced for the third time in four weeks this week, from 3.07 to 3.58 over the period. Bullish sentiment climbed 5.0ppts (to 56.5% from 51.5%) over the two-week span, while the correction count fell 4.00ppts (to 27.7% from 31.7%). Meanwhile, bearish sentiment sank to 15.8% this week—the fewest bears since early 2018—after fluctuating in a narrow band (from 16.2% to 17.5%) the past couple of months. The AAII Ratio fell for the second week last week from 69.0% to 61.1% over the period, after fluctuating in an up-and-down weekly pattern since early March. Bearish sentiment rose from 19.8% to 26.2% over the two-week period, while bullish sentiment fell from 44.1% to 41.1%.

MSCI World & Region Net Earnings Revisions (*link*): Analysts' recent earnings revisions through June continue to suggest substantially greater optimism about profits in the US than the rest of the world. Most regions were at record highs in June, with the exceptions of EM, EM Asia, and EM Eastern Europe. The US's NERI was positive in June for an 11th straight month after 14 negative readings, and rose to a record high of 20.6% from 19.0%. That compares to an 11-year low of -36.9% in May 2020. The AC World ex-US MSCI's NERI was positive for an eighth month after 30 straight negative readings, but ticked down to 5.9% from a 12-year high of 6.1% in May. That compares to an 11-year low of -23.9% in May 2020. With the exception of the EMU, which had NERI turn positive in January, much of the world's regions have had positive NERI readings since September and October. Here are June's scores among the regional MSCIs: US (22.5% in June [record high], up from 19.0% in May), Europe ex-UK (14.3 [record high], 13.0), Europe (13.3 [record high], 12.1), EMU (12.8 [record high], 11.3), EAFE (10.3 [record high], 10.0), AC World (9.7 [record high], 9.5), EM Eastern Europe (9.6, 10.3 [16-year high]), EM Latin America (8.1 [record high], 7.8), AC World ex-US (5.9, 6.1 [12-year high]), Emerging Markets (2.5, 3.1), and EM Asia (2.0, 2.6).

MSCI Countries Net Earnings Revisions (*link*): NERI was positive for 36/44 MSCI countries in June. That's down from 38/44 during May, which had matched the record-high count from November 2009. That also compares to zero countries with positive NERI from April to June 2020. NERI improved m/m in June for 21/44 countries, the lowest count in three months and down from 33/44 countries improving in April. Among the countries with improving NERI in June, two were at record highs: Austria and Germany. Twelve other countries were at multi-year highs dating back to 203. The US and the following five

countries have had positive NERI for ten straight months: Canada, Korea, Norway, Sweden, and Taiwan. The Philippines has the worst negative-NERI streak at 17 months, followed by New Zealand (9), Indonesia (4), Greece (3), and China (2). Portugal's NERI turned positive for the first time in 34 months. The highest NERI readings in May: Austria (28.6%), Hungary (26.0), Sweden (23.4), Norway (21.5), and Argentina (20.6). The weakest NERIs occurred this month in New Zealand (-22.4), Egypt (-6.6), the Philippines (-4.5), Indonesia (-2.0), Hong Kong (-1.6), Greece (-1.3), and China (-0.8).

AC World ex-US MSCI (*link*): This index has dropped 0.8% in dollar terms so far in June and is up 7.8% ytd. In local-currency terms, the index is actually up 1.0% in June to a higher 10.0% gain for 2021 to date. Local-currency forward revenues has risen 3.1% since it bottomed in late January, but remains 9.9% below its record high of May 2019. Local-currency forward earnings has jumped 33.5% since it bottomed in July 2020, but remains 2.3% below its record high of October 2018. Revenues are expected to rise 11.6% in 2021 and 5.7% in 2022 following a decline of 6.1% in 2020, and earnings are expected to increase 42.8% (2021) and 9.9% (2022) after falling 13.9% (2020). The industry analysts' sales forecasts imply short-term 12-month forward revenue growth (STRG) of 8.7% and short-term 12-month forward earnings growth (STEG) of 22.6%, compared to 4.1% and 10.0% before Covid-19 hit the news. These measures bottomed at -0.1% and -0.3%, respectively, during May 2020. The profit margin implied by analysts' earnings and revenue estimates calls for a gain to 8.7% in 2021 from 6.8% in 2020, and an increase to 9.0% in 2022. The forward profit margin forecast of 8.8% is up from a 10-year low of 6.6% at the end of May but remains below its 9.0% record high in September 2007. The Net Earnings Revision Index (NERI) for the AC World ex-US MSCI was positive in June for a ninth straight month following 30 negative readings. It ticked down to 5.9% from a 12-year high of 6.1% in May, which compares to an 11-year low of -23.9% in May 2020. The forward P/E of 15.7 remains close to its 12-month low of 15.4 during May and is down from an 18-year high of 17.1 in mid-February. The forward P/E drops to 15.1 using normalized forward earnings. Those readings are up from their March 2020 lows of 10.8 and 10.2, respectively. The index's current 20% discount to the World MSCI P/E remains below its pre-Covid discount of 18%.

Emerging Markets MSCI (*link*): The EM MSCI price index has dropped 2.1% in US dollar terms so far in June to a gain of 4.3% ytd. In local-currency terms, EM is down a lesser 1.3% in June to a greater 5.0% ytd gain. Local-currency forward revenues has risen 2.9% since its bottom in late January but is still down 11.7% from its record high in May 2019. Local-currency forward earnings is up 33.5% since its bottom in June 2020 and now exceeds its prior record high from October 2018 by 3.3%. Revenues are expected to rise

15.8% in 2021 and 8.4% in 2022 after falling 1.0% in 2020. That's expected to lead to an earnings gain of 49.8% in 2021 and 10.1% in 2022, following a 5.7% drop in 2020. Forecasted STRG of 12.0% remains near an 11-year high, up from a five-year low of 3.6% at the end of April 2020. STEG has dropped to 25.1% from a record high of 33.7% in December, but that's up from a 14-month low of 7.5% in April 2020. The implied profit margin is expected to rise from 6.2% in 2020 to 8.1% in 2021 and 8.2% in 2022. The forward profit margin of 8.2% is up from a four-year low of 6.1% at the end of May 2020 and compares to its 10.3% record high in December 2007. NERI was positive in June for a tenth month after 30 straight negative readings, but is down to an eight-month low of 2.5% now from an 11-year high of 6.0% in February. That compares to an 11-year low of -18.7% in May 2020. Emerging Markets' forward P/E of 14.1 is up a tad from a 12-month low of 13.7 during May, but is down from a record high of 16.3 in mid-February. The P/E drops to 13.4 using normalized forward earnings. That's up sharply from those figures' March 2020 lows of 10.1 and 9.3, respectively. The index is trading at a 25% discount to the World MSCI P/E, which is in line with its discount since 2013.

US Economic Indicators

New Home Sales (*link*): New home sales (counted at the signing of a contract) fell 5.9% in May and 13.2% the past two months to 769,000 units (saar), after rebounding 7.7% in March from February's 17.1% weather-related drop, as affordability remains an issue. This May's sales pace is the slowest since last May's 704,000 units. Here's a regional snapshot of how new home sales fared on both a monthly and yearly percent-change basis in May: Northeast (+33.3% m/m & +57.6% y/y), West (+6.7 & +6.7), Midwest (0.0 & +28.4), and South (-14.5 & +3.1). Inventory has been climbing in recent months, rising from a recent low of 284,000 units in November to 330,000 units in May—the highest since July 2019—which should lead to a slower increase in home prices. The median new home sales price accelerated 18.1% y/y in May, the highest since April 2013. Rising lumber prices have put a dent in homebuilders' confidence recently, though it remains at a relatively high level. NAHB's Housing Market Index (HMI) shows builders' confidence slipped to 81 in June—from 83 the prior two months—9 points below November's record high of 90. All three components are drifting lower, though remain at elevated levels not far from their November record highs: traffic of prospective homebuyers (to 71 from 77 in November), current sales (86 from 96), and future sales (79 from 89).

Global Economic Indicators

US PMI Flash Estimates (*link*): "Substantial expansion in private sector activity, but delivery delays stymie manufacturing growth" was the headline of June's flash estimate report. The C-PMI (to 63.9 from 68.7) slowed this month, though remains at a historically elevated rate of expansion across the private sector. The M-PMI (to 62.6 from 62.1) edged up to a new record high this month, while the NM-PMI (64.8 from 70.4) was the second highest on record—last month's being the highest. Output and new order growth are off their peaks in both the manufacturing and services sectors, though the report notes it's because capacity restraints are limiting firms' abilities to cope with demand rather reflecting than a cooling of the economy. Both sectors are having trouble finding suitable workers. Meanwhile, the report notes that price gauges slipped a bit from May's record pace, though prices for both goods and services are still rising very sharply.

Eurozone PMI Flash Estimates (*link*): Eurozone business activity in June expanded at its fastest pace in 15 years, according to flash estimates. Virus containment measures have been eased to the lowest since September and are set to be reduced in July to the lowest since the pandemic began. Price pressures for both goods and services rose at unprecedented rates. The Eurozone's C-PMI advanced for the fifth successive month, from 47.8 at the start of this year to 59.2 this month, as the NM-PMI accelerated from 45.4 to a 41-month high of 58.0 over the five-month period. The M-PMI remained at May's all-time high of 63.1 this month. Looking at the top two Eurozone economies, Germany's June C-PMI (to 60.4 from 56.2) showed the strongest growth since March 2011, while France's (57.1 from 57.0) showed the fastest growth in 11 months. The acceleration in both countries was driven by the service sector, with NM-PMIs for Germany (to 58.1 from 52.8) and France (57.4 from 56.6) the highest in 123 months and 38 months, respectively. Germany's M-PMI (to 64.9 from 64.2) was at a two-month high, while France's (58.6 from 59.4) was at a four-month low, though still robust.

Japan PMI Flash Estimates (*link*): Japan's private-sector economy continued to contract in June, according to flash estimates, after returning to growth in April for the first time since January 2020. The C-PMI fell to 47.8 this month from 48.8 last month, after climbing 11 of the prior 12 months from 25.8 last April to 51.0 this April. The M-PMI eased for the second month from 53.6 in April to 51.5 this month, while the NM-PMI (to 47.1 from 46.5) contracted for the 17th successive month, though at a slightly slower pace than last month. The report notes that panel members commonly associated operational disruptions with ongoing Covid-19 restrictions coupled with severe supply-chain pressures, notably for manufacturers. Despite the ongoing pandemic-related restrictions on the economy,

Japanese private-sector businesses were optimistic that business conditions would improve in the year ahead—expecting accelerating vaccination programs to trigger an easing of restrictions, leading to a broad-based recovery in both foreign and domestic demand.

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