MORNING BRIEFING
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Cybersecurity, Transports & Food

Check out the accompanying chart collection.

Executive Summary: Corporate America's cybersecurity budgets are bound to rise after the White House warned that Russian cyberattacks appear imminent and briefed the likely targets. So Jackie examines the implications for cybersecurity software providers. … Also: The transportation industries—rail, truckers, and airlines—are staring up a mountain of challenges. Yet the S&P 500 Transportation index has been outperforming the broad S&P 500 index so far this year. … And: The Ukraine war is highlighting vulnerabilities in global food distribution systems. Vertical indoor farming could be part of the solution—eventually.

Technology: Boosting Cyber Defenses. The importance of cybersecurity was apparent once again this week when White House officials warned that the US government had seen "preparatory" Russian hacking activity aimed at US companies. The government has provided classified briefings to hundreds of US companies that may be targeted and has urged those that provide critical infrastructure to the nation to improve their cyber defense posture, a March 21 Reuters *article* reported.

It's unknown how, where, or whether Russian cyberattacks will occur. But what chief technology officers wouldn't use the current environment to boost their tech budget and cyber defenses? If you spend too little on cybersecurity and an attack occurs, you're out of a job, on the front page of the *WSJ*, and talking to government representatives. Conversely, if you overspend on cyber and no attack occurs, you're a hero!

Let's take a look at what the bad guys have done lately and how cybersecurity stocks have performed:

(1) *Playing Whac-A-Mole.* Hackers keep corporate cybersecurity departments busy. On Wednesday, Okta officials confirmed that they found evidence that they'd been hacked. The company believes the breach occurred through a subcontractor. Shares of Okta, which provides identity management software for more than 15,000 customers worldwide, have fallen 15.0% this week.

Last year, tech departments were dealing with Log4j, a vulnerability in a free software application that's been downloaded millions of times. Developers realized that hackers could remotely target a computer that ran Log4j and steal data, install malware, or take control. Hackers from Russia, China, Iran, North Korea, and Turkey reportedly attempted to exploit Log4j, a December 21 *WSJ* *article* reported. Akamai Technologies has tracked 10 million attempts *per hour* to exploit the Log4j flaw.

Before Log4j, companies raced to tighten security when employees left offices and began working from home because Covid-19 struck in 2020. CTOs have also been defending against ransomware attacks, which are more potent now that the criminals can use cryptocurrency and often evade capture.

And the decade began with the huge SolarWinds hack. Hackers put malware in the Orion software that SolarWinds sold to many large corporations and governments. Hackers may have had access to the hosts' computer systems for more than a year before it was detected.

Gartner estimates that spending on information security and risk management will increase 11.0% to $172 billion this year, a December 20 *article* in *CSO* reported. And that was before the Ukraine war broke out. Spending on cybersecurity software is probably growing even faster than the broader information security and risk management category.

(2) *Lots of acquisitions.* Large players in the software industry often acquire the smaller players to expand their offerings, and software security is no exception.

Earlier this month, Mandiant agreed to be acquired by Google Cloud for $5.4 billion. That deal follows Google Cloud's purchase of Siemplify, another security firm. The deals spurred speculation that Amazon and Microsoft also would make purchases to bolster their cloud offerings.

Norton LifeLock, which sells antivirus software and identity-theft protection products to consumers, agreed in August to acquire Avast for more than $8 billion. Prague-based Avast sells desktop, server, and mobile-device protection to consumers.

Private equity investors have been active in the space, too. McAfee, which provides online protection for consumers, agreed in November to be taken private for more than $14 billion by an investor group that includes Advent International, Permira Advisers, Crosspoint Capital Partners, Canada Pension Plan Investment Board, and a subsidiary of the Abu Dhabi Investment Authority.

Mimecast agreed in December to be acquired for $5.8 billion by private equity shop Permira; Mimecast provides email security to consumers. And Proofpoint, which provides email security to corporations, was acquired for $12.3 billion in August by Thoma Bravo.

(3) *Volatile few months.* After a fantastic 2021, many software security stocks have had a rough start to 2022. The S&P 500 Systems Software industry includes software security stocks Fortinet and Norton LifeLock along with larger software companies Microsoft, Oracle, and ServiceNow. The index has fallen 9.3% ytd through Tuesday's close. That's on par with the 9.8% decline in the S&P 500 Information Technology sector but far worse than the 5.3% drop in the broader S&P 500 (*Fig. 1*).

The industry has given back only some of its outsized gains from last year, when it jumped 49.2% compared to the 33.4% gain in the S&P 500 Information Technology sector and the 26.9% jump in the S&P 500.

Top performers in the world of cybersecurity software have turned in even more impressive gains. Palo Alto shares have risen 7.3% ytd through Tuesday's close and 84.7% y/y. CheckPoint Software shares have risen 19.3% ytd and 18.7% y/y. Mimecast shares climbed 85.0% last year thanks to the company's acquisition. And Qualys shares are up 2.7% ytd and 33.4% y/y.

These share price advances reflect the industry's strong revenue and earnings growth. The S&P 500 Systems Software revenue is expected to grow 17.1% and 13.5% in 2022 and 2023 (*Fig. 2*). The industry enjoys wide profit margins that have climbed over the past four years to 34.4% (*Fig. 3*). After jumping a sharp 33.9% in 2021, earnings growth is forecast to settle in at a more reasonable 15.6% in 2022 and 14.7% in 2023 (*Fig. 4*).

Such earnings growth does not come cheap. The S&P 500 Systems Software forward P/E is 27.9, down from last year's high of 34.3 but still close to average over the past three decades (*Fig. 5*). The P/E multiples of some of the top-performing stocks are even higher. Palo Alto Networks shares, priced at $597.42 as of Tuesday's close, trade at 82.0 times the $7.29 a share that the company is expected to earn in the fiscal year ending July 2022 and at 66.2 times the $9.02 a share that it's forecast to earn in the fiscal year ending July 2023.

For the most part, systems software companies are profitable, unlike some of the tech stocks that have been crushed in the selloff this year.

Transports: Holding On. The S&P 500 Transportation index is holding its own given that the price of oil has topped $100 a barrel, a war in Europe has put a damper on international travel, and supply chains remain fragile, albeit better than late last year. The number of container ships waiting off the coast of Los Angeles has dropped to 43 as of March 15 from 101 on January 1, according a March 16 *article* in *American Shipper*.

That drop in volume could reflect the passing of the US holiday season, the arrival of the Chinese Lunar New Year, and/or shippers opting to sail to East Coast ports instead to avoid the West Coast tie-ups. The spike in Covid cases in China undoubtedly has affected exporters as well. It will take a month or two to see whether import traffic picks up and, if so, how well the West Coast ports handle the increased traffic.

Meanwhile, we'll be keeping an eye on the labor arbitration occurring between Canadian Pacific Railway and its unionized employees. Labor negotiations between the West Coast Port operators and the dockworkers also should be starting soon, as the workers' contract expires June 30.

Were that not enough to pressure supply chains, a 7.4 magnitude earthquake in Japan last week took a toll on businesses' factories. Parts shortages caused by the earthquake led Toyota to suspend operations on 19 production lines in 12 plants, which remained suspended as of March 22, a *Japan Today* *article* reported. And Renesas Electronics, maker of nearly one-third of the microcontroller chips used in cars globally, has restarted two of its plants, but it will take until March 26 to get a third running near full capacity.

The S&P 500 Transportation stock price index has fallen 1.7% ytd through Tuesday's close, outperforming the S&P 500's 5.3% decline. The S&P 500 Railroads industry remains in positive territory ytd (0.8%), followed by Airlines (-2.8), Air Freight & Logistics (-3.8), and Trucking (-5.0) (*Fig. 6*).

Here's a look at what's driving the transport industries:

(1) *Trucking on.* Truckers remain busy. The ATA Truck Tonnage index was flat in February, after climbing 4.3% the prior five months to the highest level since the Covid recession hit in 2020 (*Fig. 7*). The industry has recruited more drivers, helped by steadily increasing wages (*Fig. 8* and *Fig. 9*). The wage and fuel price increases have been offset by surging truck transportation prices, up 19.1% in the February Producer Price Index (*Fig. 10*).

As long as truckers retain the ability to raise prices to offset surging costs, they should remain profitable. Financial analysts believe the S&P 500 Trucking industry will grow revenue 15.2% this year and 6.3% in 2023 ([Fig. 11](#)). Earnings are expected to rise 21.9% and 11.1% ([Fig. 12](#)). While the industry's forward P/E has fallen to 27.1 from a peak of 31.2 in November, it's still elevated relative to its history ([Fig. 13](#)).

(2) *Riding the rails.* Railcar loadings has dropped 5.0% since its recent peak, based on the 26-week average, perhaps reflecting the slowdown in imports because intermodal loadings has fallen more sharply than carloads ([Fig. 14](#)). The number of cars shipped by rails has dropped steeply due to the shortages limiting the production of new cars ([Fig. 15](#)). Conversely, the amount of coal shipped by rail has reversed a decade-long decline and risen over the past year and a half ([Fig. 16](#)).

The S&P 500 Railroads stock price index remains near its all-time highs, as the rails are much less energy- and labor-intensive than their trucking counterparts ([Fig. 17](#)). The industry is expected to produce another year of strong growth, with revenue climbing 9.4% this year and 4.4% in 2023 ([Fig. 18](#)). With earnings forecast to increase 15.7% and 10.3% in 2022 and 2023, the forward profit margin has widened to a record-high 30.2% ([Fig. 19](#)).

The industry's forward P/E has declined to a recent 20.8 from its peak of 23.3 in April 2021. But even after that decline, the P/E remains north of where it had been over the past three decades ([Fig. 20](#)).

(3) *Airlines can't lift off.* The reemergence of Covid-19 this winter together with soaring oil prices have hit the airline industry hard. After falling by almost half in January, the number of passengers going through TSA checkpoints rebounded to 2021 peak levels ([Fig. 21](#)).

The S&P 500 Airlines stock price index is down 30.2% from its 2021 peak and 39.9% from its pre-pandemic 2019 peak ([Fig. 22](#)). This year, the industry's revenue is expected to surge 47.4%, but a small loss is now expected instead of a profit ([Fig. 23](#) and [Fig. 24](#)). Unless the airlines can pass along higher fuel costs in ticket prices, those forecasts may not fly. Analysts have been slashing their forecasts, with net earnings revisions negative for the past five months ([Fig. 25](#)).

Disruptive Technologies: Growing Up. The Ukraine war is shining a light on the vulnerabilities facing our systems for growing and delivering food. Ukraine supplies about 11.5% of the world's wheat, and Russia provides another 16.8%. Russia is one of the world's largest producers of fertilizer and oil, both of which are needed when growing and shipping crops. The US is fortunate to have vast swaths of arable land, but countries that don't are facing food insecurity.

Vertical farming—growing food indoors in trays stacked vertically—won't solve this crisis because the industry is still far too small. But it is growing quickly, expanding the types of plants grown and adding to its customer base. We wrote about vertical farming in the May 6, 2021 *Morning Briefing*. Here's an update on farming's future:

(1) *Moving beyond leafy greens.* Most vertical farms specialize in leafy greens, like lettuce and herbs. But Bowery Farming has added to its repertoire strawberries, grown in a warehouse just outside of Newark, NJ and sold to NYC restaurants and gourmet grocers, a March 15 CNBC *article* reports.

About 90% of US strawberries are grown in California. Many are shipped long distances, which can reduce their tastiness and increase costs. Farming berries indoors results in shorter shipping distances, no pesticides, less water usage, as well as faster grow times and greater yields because the synthetic light shines continually, uninterrupted by nighttime darkness or poor weather.

But indoor farming of strawberries also has some downsides. It requires bees for pollination, uses lots of energy to run light and ventilation, and entails high upfront costs for equipment, building rental, etc. Indoor-grown berries are more expensive than their farm-grown competition. But that may soon change if food prices continue to increase and Bowery improves its margins by expanding output and using robots to harvest the berries.

Bowery faces competition from Plenty, another vertical farming company, which is in California. Plenty plans to expand to the East Coast and move beyond lettuce and other greens to strawberries and tomatoes next year.

(2) *Grocers' buy-in.* Walmart gave the vertical farming industry a huge vote of confidence in January when it invested in Plenty. The size of the investment wasn't divulged, but it's part of a $400 million round of funding for the company, which included One Madison Group, JS Capital, and SoftBank's Vision Fund, a January 25 CNBC *article* reported. A Walmart executive will join Plenty's board, and the company will carry Plenty's products in 280 of its stores.

Kroger went one step further. Its QFC grocery store chain worked with Infarm to install small hydroponic farms in 13 of its stores. Based in Germany, Infarm works with more than 30 top retail chains in 11 countries in North America, Asia, and Europe. Currently growing lettuce, herbs, and mushrooms, Infarm aims to expand into tomatoes, strawberries, peppers, and potted plants.

Publix and hydroponics company Brick Street Farms put a 40-foot hydroponic farm in a parking lot outside a Florida store in 2020; the 720 heads of lettuce produced weekly are sold in the store, a January 25 *article* in *Quartz* reported.

(3) *Harnessing symbiosis.* Upward Farms uses fish to help grow greens. The company raises and sells to consumers mercury-free, antibiotic-free, hormone-free hybrid striped bass raised in tanks that are separate from the greens. “They cultivate soil-building microbes that convert nutrients from the fish into organic fertilizer for the plants,” a January 19 *article* in *Singularity Hub* reported. The company says doing so makes the soil more dense, fertile, and productive than that of most indoor farms.

Upward Farms is building one of the largest indoor farms—250,000 square feet, or almost six acres—in Luzerne County, PA, a bit over 100 miles from both Philadelphia and New York. That location will allow the produce to reach almost 100 million people within a single day instead of the week produce travels from the West Coast. The company also *claims* the facility will save more than 100 million gallons of water *annually* and eliminate 1.7 million food transportation miles per year.

Calendars

US: Thurs: Durables Goods Orders, Total, Ex Defense, and Core Capital Goods - 0.5%/0.1%/0.5%; Initial & Continuous Jobless Claims 212k/1.41m; IHS Markit M-PMI & NM-PMI Flash Estimates 56.3/56.0; Kansas City Manufacturing Index; Natural Gas Storage; Natural Gas Storage; Waller; Evans. **Fri:** Consumer Sentiment 59.7; Pending Home Sales 1.0%; Baker-Hughes Rig Count; Williams; Waller. (Bloomberg estimates)

Global: Thurs: Eurozone, Germany, France C-PMI Flash Estimates 53.9/53.7/54.3; Eurozone, Germany, France M-PMI Flash Estimates 56.0/55.8/55.0; Eurozone, Germany, France NM-PMI Flash Estimates 54.2/53.8/55.0; UK C-PMI, M-PMI, and NM-PMI Flash Estimates 58.7/57.0/58.0; ECB Economic Bulletin; EU Leaders Summit; Beerman. **Fri:** Germany Ifo Business Climate Index Headline, Current Assessment, and Expectations 94.2/96.5/92.0; Spain GDP 2.0%q/q/5.2%y/y; Italy Consumer & Business Confidence 108.3/111.7; UK Headline & Core Retail Sales 0.6%m/m/7.8%y/y & 0.5%m/m/5.6%y/y; EU Leaders Summit; BOE FPC Meeting Minutes. (Bloomberg estimates)

Strategy Indicators

Stock Market Sentiment Indicators (*link*): The Bull/Bear Ratio (BBR) climbed to 1.00 this week, after three weeks below, as bullish and bearish sentiment converged. The BBR was at 0.84 last week, which was its lowest level since late March 2020; it was at 2.15 in early January. Bullish sentiment increased for the second time in three weeks to 35.3% this week after slumping to 29.9% three weeks ago—which was the fewest bulls since the start of 2019. Meanwhile, bearish sentiment slipped to 35.3% this week from 36.5% last week, which was the most bears since March 2020. The correction count sank for the fifth time in six weeks, to 29.4% from 40.0% in early February—which just missed equaling March 2020's high count of 40.9%. The AAII Ratio fell for the second week last week from 42.3% to 31.1%, as bullish sentiment fell from 30.4% to 22.5% over the period and bearish sentiment rose from 41.4% to 49.8%.

MSCI World & Region Net Earnings Revisions (*link*): Analysts' recent earnings revisions through March suggest continued but weakened optimism about profits throughout the world. The US MSCI's NERI was positive in March for a 20th straight month after 14 negative readings, but dropped to a 20-month low of 1.8% from 6.1% in February. That compares to post-pandemic high of 21.1% in July and an 11-year low of -36.9% in May 2020. The AC World ex-US MSCI's NERI was negative for the first time in 18 months, falling to -0.6% from 0.6% in February. That compares to July's 12-year high of 6.4% and an 11-year low of -23.9% in May 2020. NERI was negative in March for EM Asia and the Emerging Markets as all but EM Latin America weakened m/m. Here are March's scores among the regional MSCIs: EMU (3.5% in March [12-month low], down from 5.2% in February), Europe (3.0 [11-month low], 5.2), Europe ex-UK (2.9 [14-month low], 5.0), EAFE (2.1 [16-month low], 4.0), US (1.8 [20-month low], 3.6), EM Eastern Europe (1.7 [17-month low], 5.9), EM Latin America (1.0, -1.3), AC World (0.1 [19-month low], 1.4), AC World ex-US (-0.6 [18-month low], 1.3), Emerging Markets (-2.5 [20-month low], -1.8), and EM Asia (-3.3 [20-month low], -2.4).

MSCI Countries Net Earnings Revisions (*link*): NERI was positive for 27/41 MSCI countries in March. That's down from 28/41 in February and the lowest count since November 2020. It had peaked at 35/41 during May 2020, which nearly matched the record-high 36/41 from June 2004. That also compares to zero countries with positive NERI from April to June 2020. NERI improved m/m in March for 13/41 countries, down from 19/41 in February. Among the countries with improving NERI in March, Turkey remained near a record high and South Africa was at a 13-month high. The US and the following four countries have had positive NERI for 20 straight months: Canada, Norway, Sweden, and

Taiwan. New Zealand has the worst negative-NERI streak, at 18 months, followed by Hong Kong (10), China (7), and Malaysia (7). NERI flipped back into positive territory for the Philippines, but turned negative for Denmark and Singapore. The highest NERI readings in March: Turkey (21.0%), the Czech Republic (17.7), Austria (13.6), France (10.8), South Africa (10.7), and Chile (10.2). The weakest NERIs occurred this month in Israel (-13.3), Hong Kong (-12.7), Korea (-7.2), Belgium (-5.9), Switzerland (-5.3), and China (-3.9).

US Economic Indicators

New Home Sales (*link*): New home sales (counted at the signing of a contract) dropped in February for the second month after a strong finish in 2021, as rising mortgage rates and high home prices depressed demand. New home sales fell 2.0% in February and 10.2% over the two months through February to 772,000 units (saar). Revisions saw January sales revised down to 788,000—initially reported at 801,000 units. Sales peaked at 993,000 units last January, which was the highest since the end of 2006. Of the 772,000 homes sold during February, only 204,000 were completed, while 359,000 were under construction and 209,000 were yet to be started. Meanwhile, there were 407,000 new homes for sale at the end of February (the highest since August 2008)—though only 35,000 units were completed, with 266,000 units under construction and 106,000 units yet to be started. At the current sales pace, it would take 6.3 months to run through the supply of new homes, compared with 4.5 months' supply last February. "Builders are reporting growing concerns that increasing construction costs (up 20% the last 12 months) and expected higher interest rates connected to tightening monetary policy will price prospective home buyers out of the market," according to Robert Dietz, NAHB's chief economist. Builders' sentiment is deteriorating, with NAHB's HMI dipping for the third month this month to 79, after climbing steadily from 75 last August to 84 by the end of 2021. Of the three components of the HMI, sales expectations showed the biggest deterioration, losing 15 points (to 70 from 85 in December) the first three months of this year; it was at a record high of 89 during November 2020.

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