

## What's News

### Business & Finance

**R**ising fuel prices are taking a toll on small businesses, prompting owners of everything from furniture retailers to swimming-pool service companies to trim back work and revise contracts as they try to soften the financial hit. **A1**

◆ **Canadian Pacific trains** were halted Sunday morning, after an impasse in contract negotiations between the railway and its conductors and engineers. **B1**

◆ **State oil giant Saudi Aramco** said its 2021 net profit more than doubled to \$110 billion. **B1**

◆ **Nielsen said it** rejected a roughly \$9 billion takeover offer from a private-equity consortium. **B1**

◆ **Thoma Bravo** struck a deal to buy software maker Anaplan for \$10.7 billion, the latest in a recent string of big leveraged buyouts. **B1**

◆ **Investors are piling** back into U.S. stocks, betting that the domestic equity market can withstand new economic headwinds better than other parts of the world. **B1**

◆ **U.S. importers** are starting to reset supply chains to avoid disruptions ahead of contract talks for West Coast dockworkers. **B3**

◆ **Cargo ships** are accumulating at one of China's busiest ports after another Covid-19 outbreak shut down factories and warehouses in Shenzhen. **B3**

◆ **The Shanghai Disney Resort** has announced that it will close until further notice, citing China's recent wave of infections. **B2**

### World-Wide

◆ **Russia's assault** on Ukraine has forced more than 10 million people to abandon their homes, the U.N. said, with the scale of the humanitarian disaster showing little sign of easing as Moscow presses its attack with missile strikes and artillery fire. **A1, A6-10**

◆ **Air-safety regulators** recently stepped up scrutiny of mid-air collision warnings around the U.S., prompted by an increase of close calls at a handful of busy airports. **A3**

◆ **A substantial risk** of severe weather, including tornadoes, thunderstorms, hail and damaging winds, looms in several states as a storm moves east along the Gulf Coast. **A3**

◆ **The federal commission** charged with commemorating America's sesquicentennial is at war with itself over allegations of featherbedding, favoritism and misappropriation of taxpayer funds. **A3**

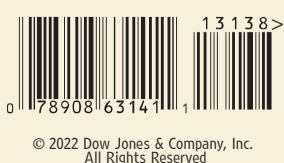
◆ **The Biden administration** has transferred a number of Patriot antimissile interceptors to Saudi Arabia. **A12**

◆ **Musk's ties** to China are causing unease in Washington, including among some GOP lawmakers who have been among the entrepreneur's ardent supporters. **A4**

◆ **China reported** its first mainland deaths from Covid-19 in over a year as it battles a surge of Omicron cases across the country. **A13**

◆ **A new Vatican** constitution opens the way for women to run some offices at the Catholic Church that have always been run by men. **A12**

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# Ukraine Assault Uproots 10 Million



A woman on Sunday stands in front of a home destroyed by Russian shelling in the village of Krasylivka, east of Ukraine's capital. Below, at the train station in Lviv, a mother embraces her son, who escaped the besieged city of Mariupol.

Attacks on population centers intensify; humanitarian situation in Mariupol worsens

KYIV, Ukraine—Russia's assault on Ukraine has forced more than 10 million people to abandon their homes, the United Nations said, with the scale of the humanitarian disaster showing little sign of easing as Moscow presses its attack with missile strikes and artillery fire.

By Alan Cullison, Isabel Coles and Matthew Luxmoore

"The war in Ukraine is so devastating that 10 million have fled—either displaced inside the country, or as refugees abroad," said Filippo Grandi, the U.N.'s high commissioner for refugees, on Sunday. That means almost a quarter of the country's prewar population has been uprooted.

About 3.4 million people have left Ukraine since the Russian offensive began Feb. 24, mostly women and children bound for Poland, according to the U.N., which said the number of refugees could reach four million. The flow of people has eased in recent days, but still tops 50,000 refugees a day, according to the latest U.N. figures.

In the southeastern port city of Mariupol, where fighting has reached the streets, the humanitarian situation worsened. Ukrainian officials said an art school where around 400 people had been sheltering was bombed by Russia, trapping people beneath the rubble. Their condition couldn't be determined. The incident comes days after...

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## Russia's Bid to Cut Its Import Reliance Falls Short

By GEORGI KANTCHEV AND ALEXANDER OSIPOVICH

Russia spent years trying to wean itself off imported goods to fortify its economy against Western sanctions.

Now, the impact of sanctions imposed after Russia's invasion of Ukraine has made it clear that Moscow's efforts didn't work. Russia's continued dependence on imports means it is facing a painful economic readjustment.

Parts of Russia's auto industry are shutting down for lack of foreign parts. The country's flagship homemade passenger jet gets its engine and other key parts from overseas suppliers. Foreign pet food and medication have disappeared from store shelves.

"Import substitution has failed to achieve its goal of making Russia less vulnerable to sanctions like these," said Janis Kluge, a specialist in the Russian economy at the German Institute for International and Security Affairs. "The Russian ambitions were unrealistic to start with because a small economy like Russia's isn't able to produce complex and high-tech goods by itself. It's just simply not possible."

Replacing the foreign products could take years, he said. Import substitution is supposed to replace foreign goods with homemade ones. Though most economists believe that...

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# Putin Is Seen as Shifting to Plan B

By MICHAEL R. GORDON AND ALEX LEARY

After Russian forces failed to secure a quick victory over Ukraine, senior U.S. officials see signs the Kremlin is shifting to a new strategy to secure key territorial objectives while seeking leverage to compel the Ukrainian government to accept neutrality between Russia and the West.

The U.S. and its allies had widely interpreted Russian

President Vladimir Putin's initial objectives to include the seizure of Kyiv in a matter of days, and the replacement of Ukrainian President Volodymyr Zelensky's government with a pro-Russian regime.

None of that has come to pass. A senior U.S. official said indications suggest more than three weeks of grueling combat—in which Ukraine has put up fierce resistance to Russian forces—has prompted Mr. Putin to adjust his tactics.

The new assessment of Mr. Putin's intentions, which is shared by senior officials within the Biden administration, is to compel Kyiv to accept Russian claims to Ukraine's southern and eastern territories. Having seized both Crimea and regions of Donbas in 2014, Russia seeks to secure a "land bridge" between western Russia and the Crimean Peninsula, and to expand Russian control of the Donbas region.

Mr. Putin would also continue his military pressure, including the pummeling of Ukrainian cities, calculating...

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### The Ukraine Crisis

- ◆ Pentagon program becomes flashpoint..... A6
- ◆ Blame game begins for Russian agencies..... A6
- ◆ War takes toll on food supplies..... A8

## High Fuel Prices Sting Small Businesses

By RUTH SIMON

Rising fuel prices are taking a toll on small businesses, prompting owners of everything from furniture retailers to swimming-pool service companies to trim services and revise contracts as they try to soften the financial hit.

Keon Enterprises, in Harris-

burg, Pa., has paid as much as \$3,180 for gas in recent weeks, up from about \$1,500 in mid-December. "It's keeping me awake," said Omara Riechi, chief executive officer of the company, which operates under the name Keon Transport and operates 32 vehicles that provide door-to-door transportation to people with disabilities. "I keep checking gas prices."

Fifty-two percent of small-business owners said higher energy prices were affecting their businesses, according to a March survey of more than 780 small businesses for The Wall Street Journal by Vistage Worldwide Inc., a business coaching and peer advisory

firm. The national average price of gasoline stood at \$4.27 a gallon on March 18, according to AAA, up from \$3.53 a month ago and a pandemic low of \$1.77 in April 2020. Diesel-fuel prices average \$5.07 a gallon, up from \$3.94 a month ago.

Higher fuel costs are the...

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## Trombonists Are Sliding Into Starring Roles on Broadway

Horn's sound is hard to replicate, giving players their moment in musicals

By CHARLES PASSY

Broadway, looking to regain its prepandemic audiences, is relying on boldface names such as Hugh Jackman, Daniel Craig, Sarah Jessica Parker...and Mike Boschen.

Mr. Boschen is in the current revival of "The Music Man." He is a trombonist, and they are having a moment.

In "Hedestown," trombonist Brian Drye appears on stage and interacts with the cast. (As one theater observer noted on Twitter: "Phenomenal cast and all, but the trombone is the real star.") In "Chicago," trombonists Bruce Bonvissuto and James Burton III have coveted places on stage with the rest of the or-

chestra. "We can feel very viscerally the energy coming from the audience," says Mr. Bonvissuto.

Then, there's Mr. Boschen in "The Music Man." "This is probably the coolest trombone part I've ever gotten to play" on Broadway, says the 48-year-old journeyman, who has performed with about 40 productions in a career that includes shows both familiar ("Cats") and forgotten (a musical adaptation of Aristophanes' "The Frogs").

"The Music Man," starring Mr. Jackman, a beloved take on Midwestern life circa early 1900s, is all about the band. Its key numbers include a homage to all things brassy—namely,...

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### INSIDE



**U.S. NEWS**  
Elon Musk's China entanglements draw concerns in Washington. **A4**



**PERSONAL JOURNAL**  
Tips for paying down debt as the Federal Reserve raises interest rates. **A15**

## Thefts and Burglaries Plague San Francisco

Retailers face security, repair costs; 'these last two years have been insane'

By ZUSHA ELINSON

SAN FRANCISCO—Terry Asten Bennett's family has been running Cliff's Variety Store since 1936. In all that time, they've never experienced the amount of burglaries and property damage that they have recently, Ms. Bennett said.

Thieves smashed a display window and broke down a door to steal items as small as spray paint, and people shattered glass doors on two occasions for no apparent reason.

"These last two years have been insane," she said. "It used to be a rare occurrence."

Although violent crime in

San Francisco is lower than in many other major U.S. cities, business owners, residents and visitors here are dealing with a rash of thefts, burglaries and car break-ins.

Among the 25 largest U.S. cities, San Francisco has had the highest property-crime rate in four of the most recent six years for which data is available, bucking the long-term national decline in such crimes that began in the 1990s. Property crimes declined in San Francisco during the first year of the pandemic, but rose 13% in 2021. Burglaries in the city are at their highest levels since the mid-1990s. There were 20,663 thefts from vehicles...

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# U.S. NEWS

THE OUTLOOK | By Harriet Torry

## Seniors Lift Spending—and Economy



Covid-19 kept many older Americans on the sidelines of the recovery

in consumer spending as they held back from in-person services like dining and travel. But their spending is picking up as the Omicron wave recedes, and analysts say that could help fuel economic growth in the months ahead.

Total household spending fell sharply in the spring of 2020 when the pandemic first hit the U.S. economy and has generally risen since.

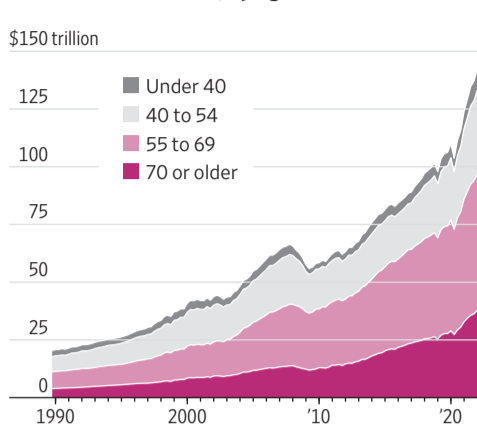
Consumers age 65 and over have increased their spending more slowly than those in other age groups for most of the past two years, according to Visa Inc.'s index of credit and debit card "spending momentum," which measures the number of people boosting or cutting their spending compared with the long-term trend, from a year before.

The index for the older group was more than 6 percentage points lower on average than spending by the groups age 45 to 64 years old and 25 to 44 years old from March 2020 through January 2022.

In February, the spending index for those age 65 and older rose above that of 45- to 64-year-olds, and was just 3.2 percentage points lower than the youngest group, which typically has the highest spending momentum.

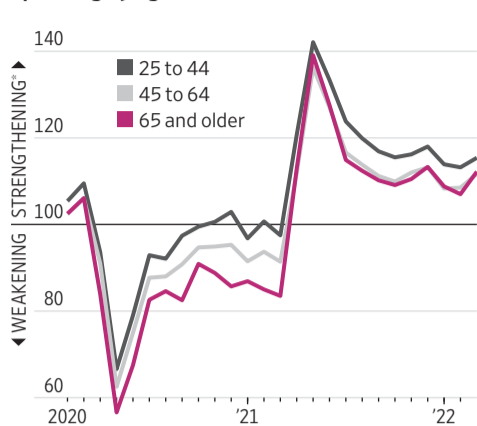
The 2020 recession was unusual in that stock and

Wealth of Americans, by age



\*Consumer spending momentum relative to previous year  
Source: Federal Reserve (by age); Visa Business and Economic Insights, VisaNet (spending)

Spending by age



housing values boomed in its wake, said Constantine Yannelis, assistant professor of finance at the University of Chicago Booth School of Business.

"We have this big [older] demographic, their wealth went up tremendously these past two years," he said, adding that with "much more available cash on hand, it's quite likely they're going to boost consumer spending, particularly on experiential categories they've not been able to patronize the last two years" like restaurants and hotels.

Sam Paglionis, a partner at JFS Wealth Advisors, said his clients, who tend to skew older, "really want to get back out there after two years of lockdowns and no travel, that's bubbling up."

"Ukraine is definitely on their minds from a geopolitical impact and how it affects markets, it paralyzes a bit,"

he said, adding, however, that "so far we haven't seen a lot of people changing plans," and clients continue to pursue projects like installing a new kitchen or putting in a pool.

The size and the wealth of America's older population has grown in recent years. The number of Americans who are 65 or older increased by more than a third in the decade through 2019, according to the Census Bureau. They accounted for nearly 17% of the population in 2020, a share that is expected to rise to more than 20% by 2030.

U.S. household wealth—which includes assets such as real estate and equities minus debt—rose 38.1% among people over 70 from the first quarter of 2020 through the final quarter of 2021, according to the Federal Reserve. That was a slightly faster increase than the 37.1% rise in

total U.S. household wealth during the pandemic.

Mark DeOrio retired in early 2018, having been chief financial officer at several companies, and one of the top things on his to-do list was travel. "Covid threw a wrench in those plans," the 67-year-old said, and he and his wife shifted their planned travel budget to spending on home improvements and landscaping.

After receiving vaccinations and boosters, and as parts of Colorado dropped mask mandates in early February, things have started to get back to normal, he said. Most recently, he started exercising indoors at a fitness center with no mask, and he is planning a trip overseas this year to London.

Retiree Karen Keeter, 63, reined in travel during the pandemic and decided not to renew theater season tickets this year as she wasn't com-

fortable being in close proximity to people.

Ms. Keeter, who lives in Atlanta, said she is gradually resuming activities like indoor restaurant dining now that Omicron is beginning to subside, and she and her husband are planning two trips to Hilton Head, S.C., this summer rather than their usual one. Still, she continues to avoid air travel as she doesn't like the idea of being in a crowded airport or airplane.

Several factors could restrain the anticipated pickup in spending by older Americans, analysts say. Older and wealthier people tend to spend less and save more as a percentage of income than others, and the reverse is true for younger and less-affluent people.

A wave of early retirements among baby boomers during the pandemic means many have seen their incomes fall.

And some older Americans may hold back on spending because of higher inflation or stock-market volatility stemming from the conflict in Ukraine.

David Lang, a 65-year-old living in Gambier, Ohio, said that while he is concerned about inflation, it hasn't changed his habits yet.

If the price of gasoline "goes much higher, I might think twice about going for a long drive," he said. But he added that the jump in gasoline prices would have hit harder 10 years ago when he was driving to work every day.

### ECONOMIC CALENDAR

**Monday:** Federal Reserve Chairman Jerome Powell speaks at a National Association of Business Economists conference on "sustainable and inclusive growth." That topic is likely to include Mr. Powell's thoughts on **interest rates and inflation** less than a week after the Fed raised rates and signaled several more increases through the year in an effort to tamp down on consumer prices, which are climbing at the fastest pace in four decades.

**Wednesday: U.K. consumer prices** rose at their fastest pace in three decades in January. Inflationary pressure isn't expected to have abated in February, as the economy absorbed higher costs for natural gas, electricity, fuel and other goods and services—likely keeping the Bank of England on track for additional interest-rate increases this year.

**U.S. new-home sales** likely increased in February, according to economists surveyed by The Wall Street Journal, as builders stepped up construction and buyer demand remained strong.

**Thursday:** Surveys of **pur-chasing managers** at businesses in the U.S. and Europe are expected to record a modest slowdown in activity during the early weeks of March.

New orders for **durable goods**—products designed to last at least three years—are estimated to have declined in February after auto production was again held back by supply-chain bottlenecks and Boeing Co. had a relatively weak month for aircraft orders.

**Friday:** The University of Michigan's **consumer sentiment index** for the opening weeks of March is expected to post its worst reading since 2011.

### U.S. WATCH

#### ARKANSAS

#### One Killed, 28 Hurt in Car-Show Shooting

A shooting at a car show in southeast Arkansas on Saturday left one person dead and 28 wounded, including multiple children, state police said.

A man was detained while trying to leave the scene of the shooting, Arkansas State Police Col. Bill Bryant said Sunday. The man, who is from Jacksonville, Ark., is being held on unrelated charges while the investigation continues, he said.

Police believe the gunfire erupted between two shooters, Col. Bryant said. It wasn't immediately clear if the shooters knew each other, he said.

Police said 23-year-old Cameron Shaffer was killed. Mr. Shaffer was also from Jacksonville, Ark., but isn't believed to have any connection to the suspects or involvement in the shooting, according to police.

Arkansas Children's Hospital in Little Rock on Sunday said it had received six victims from 19 months to 11 years old with gunshot wounds. Most of the patients were treated and released, the hospital said.

—Ginger Adams Otis



**SPRINGING TO LIFE:** People stroll along the blooming cherry blossom trees in Washington, D.C., on Sunday, the first day of spring. The peak bloom is forecast for this week, from Tuesday to Saturday, the National Weather Service said.

#### CALIFORNIA

#### Sheriff's Helicopter Crashes; Six Injured

Authorities are investigating the crash of a Los Angeles

County Sheriff's Department rescue helicopter in Southern California mountains that left six people injured.

The department's Air Rescue 5 helicopter crashed shortly before 5 p.m. Saturday while re-

sponding to a vehicle that rolled over on a winding road in Angeles National Forest, the county's fire department said.

All six people on board were airlifted to a hospital with a variety of injuries including fractures

and broken ribs, Los Angeles County Sheriff Alex Villanueva said Saturday night. "They are in stable condition, some more banged up than others, but thankful to be alive," he said.

Photos from the scene showed

the damaged Super Puma helicopter on its side along a cliff-side roadway in Azusa Canyon near the San Gabriel Dam.

"The fact that it did not roll over and go all the way down (the cliff), or that there was no fire, is nothing short of a miracle," the sheriff said.

—Associated Press

#### BOSTON

#### Drug Kingpin Tied To Attack on Ortiz

A Dominican drug trafficker who was jealous of David Ortiz and felt disrespected by him had him shot at a Dominican nightclub in 2019, according to private investigators the Red Sox slugger hired to look into the attack that nearly killed him.

The findings by former Boston police commissioner Edward Davis, reported by the Boston Globe on Saturday, contradict the theory of the crime developed by Dominican prosecutors.

Mr. Davis said César Peralta orchestrated the shooting by placing a bounty on Mr. Ortiz. Mr. Peralta is being held without bail in Puerto Rico on unrelated charges of conspiracy to import cocaine and heroin.

—Associated Press

## High Fuel Prices Hurt Small Firms

Continued from Page One latest obstacle for small businesses, which have borne the brunt of inflation and supply-chain challenges because they don't have the heft and sophistication to thrive in a time of strong demand and short supply.

Small businesses are also struggling to find workers in a tight labor market. Rising interest rates will mean higher costs for firms that need to take on debt to fund inventory and other purposes.

"We thought we would get through 2020 and 2021 and it would get better, but it seems like the same problems are

persisting," said Chris Fleiner, general manager of Reno Carson Lumber, a dealer with 47 employees and locations in Sparks and Carson City, Nev.

Until recently, volatile lumber prices and rising labor costs were the lumber yard's biggest challenges. Lately suppliers have begun sending out notices warning of increased fuel surcharges. The company is weighing whether it will still offer free delivery to customers within a two-hour radius.

"We want to continue to do that, but I don't know how much longer we can," Mr. Fleiner said. "It's something we've always prided ourselves on and used as a competitive advantage."

Some small businesses are passing on higher costs as rising gas prices compound other inflationary pressures. "I am absolutely raising all my prices across the board and I am doing so aggressively," said David Hastings, chief executive of Hastings Water Works Inc., a 30-year-old swimming-pool service, maintenance and management company.

Mr. Hastings expects to spend as much as \$110,000 on gasoline this year, up from \$50,000 in 2021. Pay for life-

guards employed by the company has climbed to as much as \$17 an hour from \$11 in May 2021. The cost of pool chemicals has increased an average of 20% since November and continues to rise almost weekly, Mr. Hastings said.

The Brecksville, Ohio, company increased commercial rates about 15% this year and residential rates by 10%. Mr. Hastings also has asked some customers in the middle of

**'It's keeping me awake,' says Keon's Omara Reichi of high gasoline costs.**

three-year contracts to accept interim price increases of as much as 20%.

"This is the first time ever that I have come back and said I need more money in the middle of an agreement," said Mr. Hastings, who expects revenues to increase 12% this year and profit to fall 10%.

Eighty percent of the customers agreed to pay the higher rates. The company expects to complete agreements with the others in the next few weeks.

Weekends Only Inc., a St. Louis-based furniture retailer with eight stores and about 400 employees, plans to boost delivery fees at the end of March. The average delivery charge is likely to rise about \$30 to \$149, Chief Executive Lane Hamm said.

"We are now losing a pretty-good-sized chunk of change on deliveries now that we can't continue to accept," he said.

Fuel surcharges on inbound shipments have increased to 72 cents a mile from 46 cents in October, Mr. Hamm said. He expects rising energy prices to result in higher costs for mattresses and upholstered furniture because petrochemicals are used to produce foam for these products.

"It will be difficult to pass those costs along to consumers," said Mr. Hamm, who is seeing a slowdown in furniture purchases from lower-income customers.

Navigating higher fuel costs is particularly challenging for small businesses that boosted prices earlier this year in response to inflationary pressures. Blue Eagle Logistics Inc., a trucking company based in Breinigsville, Pa., raised rates 6% in February, before Russia invaded Ukraine. Just

40% of Blue Eagle's contracts allow for fuel surcharges.

"You can't continually break contracts and raise rates, especially as a small business," said Blue Eagle President Andy Plank, who figures he might have to wait three months before imposing another increase. "A \$200,000 account can be 5% or 10% of my business. There's a lot of risk there."

Some small businesses are looking for ways to reduce the sting of rising fuel prices on employees. U.S. Energy Development Corp., an oil-and-gas producer in Arlington, Texas, recently began adding \$50 to worker paychecks to offset higher gas costs.

Keon, the transportation company, has asked drivers to pick up more customers on a given trip and is turning away jobs in far-flung locations. "We are more selective," said Mr. Reichi, who has also had to raise hourly pay for drivers this year. "They should be able to fit into existing routes so we don't have to go the extra mile."

Dennis Pepperman, who has driven for Keon for about a year, used to pick up four or five passengers on a typical trip. "Now, we have six passengers, which fills the van," Mr. Pepperman said.

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## U.S. NEWS

# More Midair Close Calls Bring Scrutiny

FAA looks into increase in collision warnings, but no imminent risks to passengers seen

By ANDY PASZTOR  
AND MICAH MAIDENBERG

Air-safety regulators recently stepped up scrutiny of midair-collision warnings around the U.S., prompted by an increase of close calls at a handful of busy airports, according to people familiar with the matter and industry documents.

Neither the Federal Aviation Administration nor airlines think there are imminent risks to passengers, and they haven't issued emergency orders or mandated other changes to carrier operations. Rather, safety experts said they are concerned that potential collision risks could rise as traffic continues to rebound from the Covid-19 pandemic.

Airborne close calls requiring airline pilots to take last-second evasive maneuvers have been largely eliminated by advances in technology over the years. Since last summer, however, some FAA and airline officials have become concerned that in-

stances of commercial aircraft flying dangerously close to other planes rose in 2021 from pre-pandemic 2019 levels near some airports, according to the documents and officials familiar with them.

Senior regulators, veteran airline managers and pilot-union leaders held a series of discussions and conducted fresh studies of the issue during the summer through late last year, documents summarizing some of those meetings show.

The documents identified escalating midair risks in 2021 near Minneapolis-Saint Paul International Airport and Hollywood Burbank Airport in Southern California. The documents, which haven't been reported before, designated additional "airports of interest" requiring further analysis. They include New York's John F. Kennedy International Airport, Miami International Airport and Honolulu's Daniel K. Inouye International Airport.

Earlier this year, a different industry document identified the Dallas region as among those showing a pattern of increases in midair-collision warnings.

Flight safety is the purview of the FAA, and airport opera-

## Flying Safety Vastly Improved Over Years

Traffic Alert and Collision Avoidance Systems, on board airliners and other types of planes, alert pilots to potential midair hazards.

The equipment has drastically reduced midair collisions over the decades. Known as TCAS, the systems initially provide pilots with automated warnings about nearby air traffic. If planes continue to converge, TCAS becomes an aviator's ultimate lifeline by issuing more-urgent, automated voice commands to descend or

tors haven't participated in the FAA-industry groups evaluating airborne risks. Representatives from those airports either had no comment or noted the FAA's regulatory role.

Denver International Airport, according to the documents and separate FAA safety updates, is of particular concern to government and industry officials. For more than a decade, safety officials have tried to reduce potential collision risks that are most

climb—technically called resolution advisories—that pilots typically are obliged to follow. Those advisories are tracked by both the NTSB and FAA.

Cockpit crews are expected to react in a few seconds and at most, typically have about half a minute to take emergency action to prevent an airborne catastrophe.

Denver International, which has described itself as the third-busiest U.S. airport, illustrates the difficult technical challenges of combating midair risks. The airport's mile-high elevation and layout can confuse TCAS software, resulting in more-frequent warnings requiring pilots to go around for another landing at-

tempt, according to government, industry and independent safety experts. Many airlines and the FAA describe those warnings as "nuisance alerts."

To avoid longer flights and increase runway capacity, many pilots approaching certain Denver strips are allowed to turn off the TCAS collision-avoidance feature. That is permitted under strict conditions, such as when planes approach runways in daylight and with enhanced monitoring by air-traffic controllers, according to pilots and flight-safety officials.

Responding to persistent industry efforts to expand daily operations, the FAA has blessed the practice for years.

Mer to consider monitoring several issues related to airborne-collision warnings. Joint FAA-industry groups have stepped up efforts to analyze and counter the trend, according to industry documents and officials involved.

The spokesman for the FAA said data the agency collects through voluntary reporting programs has been effective in identifying midair-collision threats and other risks.

Meanwhile, data collected by the National Transportation Safety Board through a mandatory reporting system shows increases in airborne-collision warnings near several major hubs. The NTSB's data, which tracks incidents differently than the FAA, indicates collision warnings rose around several busy airports last year compared with pre-pandemic traffic in 2019.

The number of warnings captured by the NTSB is minuscule compared with the roughly 6.2 million domestic airliner flights last year tracked by the federal Bureau of Transportation Statistics, but they represent some of the most serious potential risks in aviation. Each incident tracked by the NTSB involved what the board's reporting criteria categorized as requiring pilot action in response to "a substantial risk of collision."

The full significance of the NTSB data and industry documents viewed by The Wall Street Journal isn't clear. The data from the NTSB isn't reliable enough to make definitive risk assessments around specific airports because airlines are inconsistent in reporting close calls leading to collision-avoidance warnings, a spokesman said.

## Gulf Coast Faces Risk Of Storms, Tornadoes

By DEANNA PAUL

The National Weather Service said there is a substantial risk of severe weather including tornadoes, thunderstorms, hail and damaging winds this week as a storm moves east along the Gulf Coast.

The storms are predicted to begin Monday afternoon in eastern Texas and could include damaging wind gusts, authorities said Sunday. The Weather Service issued a warning of enhanced risk for severe thunderstorms from the Texas Hill Country to the Upper Texas Coast, which spans cities including Houston, Pasadena and Austin.

By Tuesday, the greatest risk is predicted for Louisiana, Mississippi and eastern Alabama. The Weather Service said there is moderate risk of severe thunderstorms on Tuesday from southern Louisiana to southern Mississippi. Strong tornadoes, damaging winds and hail are most likely Tuesday evening and overnight. The Weather Service warned of flash flooding that could affect the Southern Plains, which includes central and northern Texas, and the Lower Mississippi Valley.

Nearly two million people are considered to be at moderate risk for severe weather Tuesday, including in Baton Rouge, La., and Jackson, Miss.

By Wednesday, the storm system will diminish and "likely spread across southern Alabama and into the Florida Panhandle," the Weather Service reported. The potentially dangerous weather should move offshore by Thursday.

Southwest Texas, meanwhile, is at high risk of fires Monday due to strong winds, just days after wildfires in the region killed one person.

## Ski Areas in West Now Gird for Fire Season

By JIM CARLTON

TWIN BRIDGES, Calif.—When John Rice, general manager of the Sierra-at-Tahoe Resort, spoke at an industry conference, he was asked the same question several times: How did his property survive a catastrophic wildfire?

Mr. Rice told them it wasn't easy. "When this thing hit, there was no book to pull off the shelf of when a catastrophic fire hits, this is what you do," said Mr. Rice, whose resort was heavily damaged by the 221,835-acre Caldor Fire last August.

Sierra-at-Tahoe is the first ski resort to suffer a direct hit from one of the increasingly common large wildfires ravaging the West. Forestry researchers fear it won't be the last. Fueled by the impacts of a warming climate, 14 of the 20 largest fires on record in California have broken out over the past decade.

Ski areas are making plans to try to avoid wildfire damage, or recover after it happens, ahead of what forestry officials warn could be another bad fire season following severe drought.

The U.S. ski industry generates some \$20 billion annually and it often provides a significant boost to surrounding communities. Sierra-at-Tahoe has an annual economic impact of \$50 million, according to the Phoenix consulting firm Applied Economics.

Its season-long closure following the Caldor Fire devastated not just its own business, but nearby restaurants and ski rental shops. The resort lost a maintenance shop, a lift and much of its forest to the fire.

"This is something our areas are going to have to think about every summer and fall," said Michael Reitzell, president of Ski California, the industry trade group that held the meeting Mr. Rice attended.

At Colorado's Purgatory Resort, in the San Juan Mountains above Durango, an insurance team accompanied resort



Sierra-at-Tahoe Resort electrician Bob Dean, left, and mechanic Joe 'Snowball' Hanania remove equipment damaged by a wildfire last year.

managers across the property earlier this winter, pointing out vulnerabilities such as open vents in buildings where embers could ignite.

Purgatory, which was threatened by a wildfire in 2018, plans to install metal mesh screens at all its buildings with unprotected openings this summer, said general manager Dave Rathbun. "Anytime you have one little ember find its way into a structure, that can spell disaster," Mr. Rathbun said.

Elsewhere around Lake Tahoe, both the Kirkwood Mountain and Heavenly Mountain resorts, which narrowly escaped damage from the Caldor, are looking at securing more private firefighters to help stave off disaster. In addition, they are ensuring local first responders know how to fight blazes with the water guns that make artificial snow, said

Sara Roston, a spokeswoman for Vail Resorts, which owns the properties.

At the Winter Park Resort near Denver, crews are continuing to remove dead and dying trees after two large fires broke out in 2020 amid local pine forests that have been decimated by a bark beetle infestation.

Forestry managers say the buildup of timber at the base of many ski areas—such as existed below Sierra-at-Tahoe—is especially threatening because fire spreads quickly uphill.

"If this is our new normal because of climate change, we do need to rethink how we protect these ski areas," said Jeff Marsolais, supervisor of the El Dorado National Forest, which leases 2,000 acres to Sierra-at-Tahoe.

Nearly half the 220,000 acres of timber in the Lake Tahoe Basin has been thinned in

recent years, with another 59,000 acres planned along the west shore of the lake where another ski area is located.

Sierra-at-Tahoe is readying itself for a future fire while rebuilding from the last one as it seeks to fully reopen in the fall. Most of its buildings survived because snow-making guns kept water on the main administration building and other base camp structures, and they were coated with fire-retardant gel by a private fire crew.

But a maintenance shop farther up the mountain was destroyed along with all the snowmobiles, snowblowers and other equipment stored inside, after flames ignited a wooden ramp adjoining the cinder-block structure, Mr. Rice said. The shop is being rebuilt with a fire-resistant roof and sprinklers.

One technique to prevent damage to ski lifts is to keep

them running during a fire, so no single section absorbs too much heat, Mr. Rice said.

One of the most heavily affected parts of the resort is an area known as West Bowl, which was popular for its terrain that allowed skiing through trees. But the fire left many of the trees looking like blackened matchsticks, which makes it easier for them to fall and injure skiers. Thousands of trees will be removed by next winter, Mr. Rice said.

Surveying the devastation one afternoon late last month, mountain operations director Paul Beran said the newly exposed terrain opened fresh skiing possibilities. "We had a lot of undergrowth where you couldn't ski, and now maybe you can," he said, as his boots crunched over snow. "There are rock outcroppings you can see now where maybe you can jump off."

## Planners Battle Over 1776 Anniversary

By JESS BRAVIN

PHILADELPHIA—The federal commission charged with commemorating 250 years of American independence in 2026 is at war with itself over allegations of featherbedding, favoritism and misappropriation of taxpayer funds.

At a closed-door meeting earlier this month, the U.S. Semiquincentennial Commission voted 12-10 to support its chairman, Pennsylvania developer Daniel DiLella. Some dissenting commissioners have accused him of improperly transferring the body's functions and federal appropriations to the private America-250 Foundation, which he and his allies control.

The foundation, the commission and an affiliated non-profit—collectively called

America250—were sued on discrimination claims last month by four female former executives of the foundation who allege they were effectively forced out by the "boys club" running the project after objecting to what their lawsuit says was "cronyism, self-dealing, mismanagement of funds, potentially unlawful contracting practices and wasteful spending." The foundation denies the allegations.

With Mr. DiLella's leadership under fire, his allies put forward a resolution that augments his power, reduces public access to official proceedings and limits members' ability to vote on budget and planning issues or speak at commission meetings. Mr. DiLella convened the March 9 session over Zoom and proceeded to a vote without debate.



Daniel DiLella, U.S. Semiquincentennial Commission chairman.

Several commissioners, including some members of Congress, sought to speak, people who attended said. Rep. Bonnie Watson Coleman (D., N.J.) held

up a sign reading, "I Demand to Be Heard." Mr. DiLella ignored both her and Rep. Robert Aderholt (R., Ala.), who also asked to speak, said former Rep. Joseph Crowley (D., N.Y.), who serves on the commission as a private citizen.

"What was done was very authoritarian and not at all in the Spirit of '76," Mr. Crowley said. Mr. DiLella has said the changes would make America250 operate more like a business, people who spoke with him said.

Mr. DiLella, chief executive of Equus Capital Partners Ltd., declined interview requests.

"We have hit many roadblocks along the way, and there may be more," he said through a spokesman, "but we are on the right path to fulfill our sacred mission to honor this great country."

## Justice Thomas Treated For Illness at Hospital

By JESS BRAVIN

WASHINGTON—Supreme Court Justice Clarence Thomas was admitted to Washington's Sibley Memorial Hospital on Friday evening after experiencing flulike symptoms, the court said Sunday.

"He underwent tests, was diagnosed with an infection, and is being treated with intravenous antibiotics," the court's statement said. "His symptoms are abating, he is resting comfortably, and he expects to be released from the hospital in a day or two."

Justice Thomas, 73 years old, is a 1991 appointee of President Bill Clinton, President Biden's nominee to succeed Justice Breyer, are scheduled to begin Monday before the Senate Judiciary Committee.

The Supreme Court is

## U.S. NEWS

# Hearings Set For Nominee To High Court

By Ken Thomas  
and Stobhan Hughes

WASHINGTON—Judge Ketanji Brown Jackson and her supporters plan to highlight her legal experience and history of working with Republicans during her Supreme Court confirmation hearings this week, as GOP senators prepare to question her record on sentences for people convicted of crimes.

White House officials, previewing the start of Monday's hearings, said Judge Jackson is expected to point out that her confirmation would make history as the first Black woman to serve on the nation's highest court.

But the White House and outside groups supporting her nomination said she will place a greater emphasis on her experience as a federal judge for the past decade, her work with Republicans while serving as vice chair of the U.S. Sentencing Commission, and her time as a law clerk for retiring Justice Stephen Breyer, a member of the court's liberal wing who has been viewed as a bridge-builder with conservatives.

"You will see without any hesitation or any concern that this is a person who is eminently qualified to be on the

Supreme Court," said NAACP general counsel Janette McCarthy Wallace.

Ahead of the hearings, Judge Jackson has held mock sessions with Paige Herwig, senior counsel to President Biden, and White House counsel Dana Remus playing prominent roles, according to people familiar with the preparations. Former Sen. Doug Jones (D., Ala.) has been serving as the judge's Senate "sherpa," advising her during meetings with members of the Senate Judiciary Committee and other senators.

Senate Minority Leader Mitch McConnell (R., Ky.) has said that his party won't mount personal criticisms of the nominee, after then-Supreme Court nominee Brett Kavanaugh in 2018 faced sexual-assault allegations that many Republicans viewed as unfair.

Republican members of the committee say they plan to focus on Judge Jackson's background as a public defender and her experience on the sentencing commission. They have signaled that crime could be a central theme of the hearings, amid a rise in shootings and killings in U.S. cities. Republicans have criticized progressives in the Democratic Party for proposals that Republicans say would weaken police, such



Judge Ketanji Brown Jackson, President Biden's nominee for the Supreme Court, visited Capitol Hill last week.

as calls to cut departments' funding. Some cities have moved to restore or boost funding to police departments recently.

"There's no question that elements on the left have been very critical of law enforcement and very soft on criminals," said Sen. John Cornyn (R., Texas), who voted against confirming Judge Jackson to the Court of Appeals for the District of Columbia Circuit last year. "We'll talk about it—I'm not sure she'll give any kind of assurances."

Sen. Josh Hawley (R., Mo.) wrote on social media recently that he planned to ask Judge Jackson about sentences for

child predators, saying she had been too lenient on them as a judge and on the sentencing commission.

"It's positions she's taken all the way back to law school; she suggested that sex-offender registries, for instance, might be unconstitutional," Mr. Hawley, who is seen as a potential 2024 presidential contender, said in an interview.

White House press secretary Jen Psaki said that in most cases involving child sex crimes, Judge Jackson imposed sentences that were consistent with or exceeded recommendations by prosecutors or the corrections arm of the federal judiciary.

Sen. Amy Klobuchar (D., Minn.) noted that the judge had garnered support from law enforcement and has family members who have served in the police. "She's got such a story to tell about her own background and her own connections to law enforcement," Ms. Klobuchar said.

Republicans also plan to ask Judge Jackson about a push by some progressives to make changes such as adding seats to the Supreme Court and imposing term limits for justices. That effort came after Mr. McConnell, at the time the Senate majority leader, declined to hold a confirmation vote in 2016 for a Supreme Court nom-

inee chosen by then-President Barack Obama, a Democrat, in hopes that a Republican would win the presidential election and name a conservative to the court instead.

Following his election, President Donald Trump won confirmation of three conservative justices, giving the court a 6-3 conservative majority.

Some 51% of voters in a Wall Street Journal poll conducted in early March said the Senate should confirm Judge Jackson to the court, while 30% said they were opposed. Just under 20% said they had no opinion or didn't know.

—Aaron Zitner  
contributed to this article.

# Durbin Pushes for a More Civil Confirmation Process

By Natalie Andrews

WASHINGTON—After three confirmation fights in which Democrats vigorously opposed former President Donald Trump's Supreme Court nominees, Illinois Sen. Dick Durbin is working to persuade Republicans to not return the favor.

The Democratic chairman of the Judiciary Committee will gavel in the confirmation hearings of Judge Ketanji Brown Jackson on Monday with many lawmakers in both parties pulling for a return to more decorous proceedings but with ill feelings lingering.

Republicans, while pressing the nominee on her record, are pledging to keep the temperature down and not seek payback against President Biden's nominee, cognizant of the midterm Senate losses Democrats suffered after the bruising and emotional battle over Justice Brett Kavanaugh in 2018. Democrats are expected to remain united and are aiming to pick up at least some GOP votes as they work to get the first Black woman high-court nominee confirmed.

"If we can get back to bipartisanship in selecting these justices, that's good for the court's future," Mr. Durbin said in his Senate office, sitting un-



'I want to get my part of this right,' said Sen. Dick Durbin (D., Ill.), head of the Judiciary Committee.

der a painting of Abraham Lincoln. "I want to get my part of this right."

The proceedings are kicking off after a series of partisan battles that reshaped the confirmation process. Many Democrats declined to even consider supporting Mr. Trump's picks, while Republicans fumed over the treatment of the nominees. The feuding dates back

years. In 2016, Senate Republican leader Mitch McConnell (R., Ky.) cited the coming election in refusing to hold hearings or votes for then-President Barack Obama's nominee, Merrick Garland. Later, with Mr. Trump in office, Republicans changed Senate rules to get around a Democratic filibuster and allow a simple majority vote to confirm Justice Neil Gorsuch,

whom almost all Democrats opposed.

The 2018 nomination fight over Justice Kavanaugh centered on an accusation of sexual misconduct, which he denied. Republicans called it a smear campaign, while Democrats demanded a lengthier investigation than Republicans granted.

Judiciary Committee Democrats, including Mr. Durbin, boy-

cotted the panel vote to advance Justice Amy Coney Barrett, nominated after Justice Ruth Bader Ginsburg died less than two months before the 2020 election. Democrats argued that Mr. McConnell, in moving to fill the seat, was contradicting his stance from four years earlier. Mr. McConnell maintained the situation was different.

Iowa Sen. Chuck Grassley, the top Republican on the Judiciary Committee, has pledged that the 11 members on his side of the evenly divided panel will be more decorous toward Judge Jackson than they thought Democrats were for Mr. Trump's nominees. "We're going to be fair, thorough and we're not going to get in the gutter like the Democrats did with Kavanaugh," he said, while noting he wasn't disparaging Mr. Durbin in that statement.

Some Republicans have signaled a tougher approach. Another committee member, Sen. Josh Hawley (R., Mo.) has accused Judge Jackson of being soft on child predators, a characterization the White House called false and that Mr. Durbin said distorts her record.

Mr. Durbin, 77 years old, has served as the No. 2 Democrat since 2005, focusing on immigration policy and voting rights among other issues, but this is

his first committee chairmanship. He will lead four days of hearings, starting with statements by senators and the nominee on Monday and questions and answers the next two days, followed by expert testimony on Thursday.

Democrats can confirm Judge Jackson with just their caucus's votes in the 50-50 Senate, if they remain united, with Vice President Kamala Harris able to break a tie. Still, Mr. Durbin, who took the helm of the committee last year, said he has a list of Republicans he is hoping will also back her.

In a sign of the softening mood on Capitol Hill, Mr. Durbin said he is hoping to win over Sen. Lindsey Graham, the South Carolina Republican who denounced Democrats in the confirmation of Justice Kavanaugh.

After President Biden announced the selection of Judge Jackson to succeed retiring liberal Justice Stephen Breyer, one of Mr. Durbin's first calls was to centrist Republican Sen. Susan Collins of Maine, who has supported Judge Jackson in her past confirmations in the Senate and has said she is keeping an open mind. A spokeswoman for Ms. Collins pointed to the senator's past comments saying she expects Mr. Durbin to conduct fair and thorough hearings.

# Musk's China Entanglements Draw Concerns in Washington

By Brody Mullins  
and Susan Pulliam

Elon Musk's ties to China are causing unease in Washington, including among some Republican lawmakers who have been among the billionaire entrepreneur's ardent supporters.

The concerns center on the potential for China to gain access to the classified information possessed by Mr. Musk's closely held Space Exploration Technologies Corp., including through SpaceX's foreign suppliers that might have ties to Beijing.

Some lawmakers also are troubled by the lack of clear lines between SpaceX and auto maker Tesla Inc., which also is run by Mr. Musk and has extensive operations in China. Tesla has developed advanced battery packets sought by the Chinese, and China has adopted a less-expensive battery technology championed by Mr. Musk.

The concerns come amid a fierce rivalry between the U.S. and China that recently has been stoked by China's focus on space technology. Tensions are also rising because of Chinese President Xi Jinping's partnership with Russian President Vladimir Putin.

Rep. Chris Stewart (R.,

Utah) is seeking confidential briefings on Capitol Hill with officials from agencies including the National Reconnaissance Office, which coordinates the launch of intelligence satellites, to determine whether the Chinese government has any direct or indirect links to SpaceX.

"I am a fan of Elon Musk and SpaceX, but anyone would be concerned if there are financial entanglements with China," said Mr. Stewart, a senior member of the House Intelligence Committee. "Congress doesn't have good eyes on this."

Representatives of Mr. Musk, SpaceX and Tesla didn't respond to requests for comment.

Mr. Stewart also wants to find out whether any companies with Chinese ties have invested in SpaceX, which isn't publicly traded.

Tesla is publicly held, and in 2017 Chinese technology giant Tencent Holdings Ltd. disclosed that it bought 5% of the car maker's stock. Mr. Musk said it was more than just an investment: In announcing the development, he tweeted that he was "glad to have Tencent as an investor and advisor to Tesla."

Tencent disclosed in 2018

that its ownership dropped to 4.97%, with no further disclosures since. When asked if Tencent still owns Tesla stock, a Tencent representative said he couldn't provide any information.

Tencent owns the WeChat messaging app that former President Donald Trump sought to ban in the U.S., and which remains under a security review by the Biden administration.

## Some lawmakers worry China could gain access to classified material.

China is one of Tesla's biggest markets, thanks in large part to support of China's Communist Party and Mr. Xi. Chinese authorities gave Mr. Musk low-interest loans, cheap land and other incentives for a Shanghai facility that opened in 2019 where Tesla vehicles and battery packs are assembled.

In 2018 and early 2019, Tesla was facing financial problems as its U.S. manufacturing plant failed to produce enough cars to meet expecta-

tions and the company ran low on funds.

In 2019 and 2020, Tesla received two loans from Chinese banks, according to the company's 2021 annual report, including a \$1.4 billion facility to help with construction of its factory in Shanghai. Last year, Tesla paid back \$614 million it owed the banks under the agreements and terminated both facilities, the company said.

The White House declined to comment on potential security risks from Mr. Musk's China ties.

Commerce Secretary Gina Raimondo, whose department shares responsibility for safeguarding U.S. technology, said U.S. companies need to take extra care in dealing with China.

"It's certainly true that China's coercive practices, anti-competitive practices, practices trying to steal our IP or steal our technology and know-how are well documented," she said.

The Chinese Embassy didn't respond to a request for comment.

The concerns over potential security risks have been exacerbated by Mr. Musk's praise for China, lawmakers said. Along with being seen as a security threat, China has aligned

itself with Russia and has been accused of oppressing Uyghur minorities in its remote Xinjiang region, an accusation that Beijing disputes.

This month, Mr. Musk hosted China's ambassador to the U.S., Qin Gang, at Tesla's factory in Fremont, Calif. "Had an inspiring talk with @elonmusk today," Mr. Qin tweeted afterward, "on cars on the road, stars in the sky, research of human brain, meaning of life on earth and our future into the space."

On the 100th anniversary last year of China's Communist Party, Mr. Musk tweeted that the "economic prosperity that China has achieved is truly amazing, especially in infrastructure!"

"China rocks in my opinion," Mr. Musk said in a July 2020 podcast from Automotive News. "People there—there's a lot of smart, hardworking people...whereas I see in the United States increasingly much more complacency and entitlement."

Several Democrats on the Senate Intelligence Committee are also wary of Mr. Musk's ties to China and are monitoring his moves, a committee aide said.

—Alex Leary  
contributed to this article.

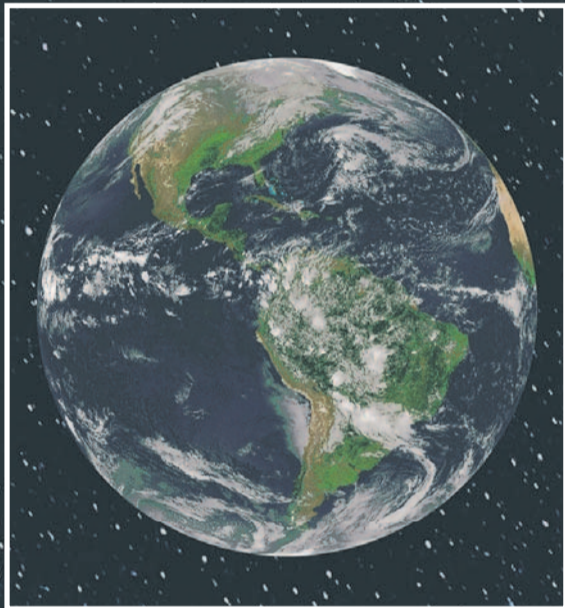
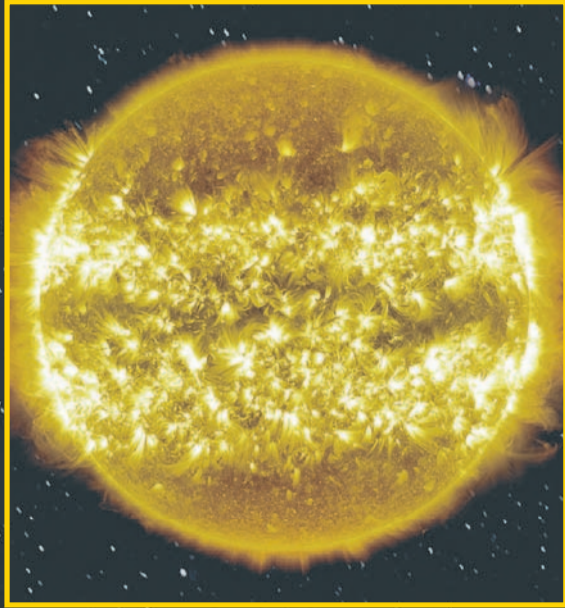
## Bill Aims to Protect Space Technology

Sen. Marco Rubio (R., Fla.), the top Republican on the Senate Intelligence Committee, introduced a bill in December to address the threat of China gaining access to space technology secrets via third parties.

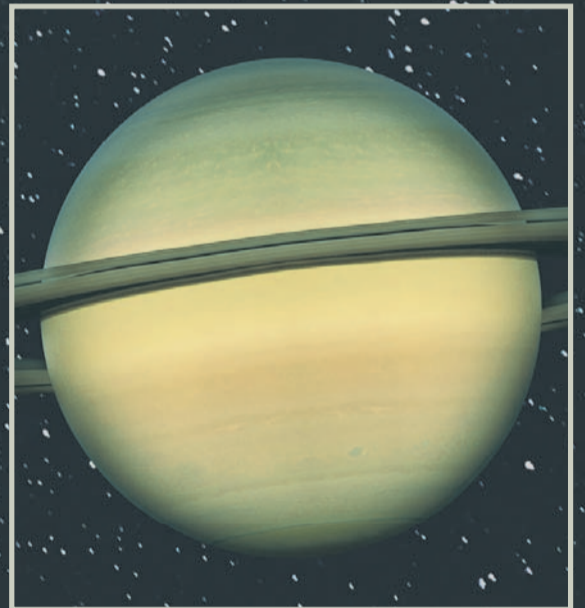
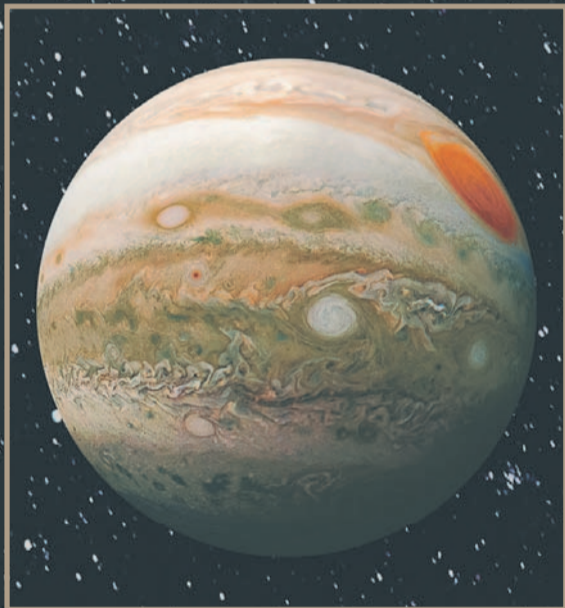
The bill would bar the National Aeronautics and Space Administration and other U.S. government agencies from awarding contracts to companies with suppliers who have ties to China, and would require more disclosure of Chinese investments in U.S. companies involved in the private space-launch industry.

"Any company operating in China is going to be pressured and exploited by the Chinese Communist Party," Mr. Rubio said in a statement to The Wall Street Journal, referring to Elon Musk's Tesla operations in China.

Mr. Rubio is a top recipient of campaign donations from Mr. Musk, and Florida is home to several launch facilities, including NASA's Kennedy Space Center, that SpaceX uses.



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## THE UKRAINE CRISIS

## Pentagon Program Becomes Flashpoint

U.S. worked to secure dangerous materials; Moscow accuses it of funding biowarfare

By SHARON WEINBERGER

On his first official visit abroad, the new senator from Illinois, Barack Obama, was taken to a facility in Ukraine where the U.S. helped scientists working with dangerous biological materials. But rather than produce biological weapons, U.S. officials in that ramshackle building were trying to prevent lethal pathogens from falling into the hands of terrorists.

"I removed a tray of glass vials containing *Bacillus anthracis*, which is the bacterium that causes the anthrax," recalls Andrew Weber, the Pentagon official who was in charge of the U.S.-funded program that worked with the Ukrainian government. Mr. Weber said he showed the tray "to a very concerned-looking young senator."

Mr. Obama himself recalled seeing in his 2005 trip to Ukraine "test tubes filled with anthrax and the plague lying virtually unlocked and unguarded."

A decades-old Pentagon program that was used to secure biological weapons across the former Soviet Union—and

to build trust between Washington and Moscow after the Cold War—has instead become a new flashpoint in an information war between the two countries in the wake of Russia's invasion of Ukraine.

Moscow has accused the Pentagon of funding weapons work in Ukraine's biological laboratories. "These were not peaceful experiments," Russian Foreign Minister Sergei Lavrov said earlier this month.

China, whose leader Xi Jinping has cultivated a close relationship with Russian President Vladimir Putin, has echoed those allegations. "Russia has found during its military operations that the U.S. uses these facilities to conduct bio-military plans," the Chinese Foreign Ministry spokesman told reporters.

U.S. officials have flatly denied those claims and warned that Moscow could use its allegations to justify its own use of weapons of mass destruction in Ukraine.

"We believe that Moscow may be setting the stage to use a chemical weapon and then falsely blame Ukraine to justify escalating its attacks on the Ukrainian people," Secretary of State Antony Blinken said last week. "Manufacturing events and creating false narratives of genocide to justify greater use of military force is a tactic that Russia has used before."



Then-Sen. Barack Obama in 2005 visited a facility in Ukraine where the U.S. helped scientists secure biological materials.

The allegations have shocked those who are most familiar with the Pentagon's post-Cold War initiative, called the Cooperative Threat Reduction program. That is because not only has Russia been aware of the Pentagon's work securing chemical, biological and nuclear facilities across the former Soviet Union, but it had also been its beneficiary for many years.

"They're outrageous claims," said Robert Pope, the head of the Defense Threat Reduction Agency, or DTRA, the arm of the Pentagon in charge of running the program. "We were created 30 years ago to eliminate weapons of mass de-

struction, and Russia knows well we eliminate weapons of mass destruction."

The program, which dates back to 1991 and continues today, stretches across the former Soviet Union. Since the program started, the Pentagon has spent approximately \$12 billion on securing material used in weapons of mass destruction in post-Soviet republics, according to a DTRA spokeswoman. Of those funds, about \$200 million has been spent on the biological work in Ukraine since 2005. The funds have supported dozens of labs, health facilities and diagnostic sites around the country, the DTRA spokes-

woman said.

Mr. Weber, who was in charge of negotiating the initial agreement with Kyiv to work on securing the country's biological materials and facilities, said that work expanded to Ukraine after the 9/11 attacks, when al Qaeda terrorists hijacked aircraft and crashed them into the World Trade Center towers and the Pentagon. U.S. policy makers grew worried about the potential for terrorists to steal biological materials—fears that were heightened after letters containing anthrax were sent through the U.S. mail to congressional offices and media outlets. The Federal Bureau of Investigation eventually concluded that an American scientist employed at a military lab sent the letters.

The president of Ukraine at the time, Leonid Kuchma, concerned about the threat of terrorism in his own country, asked the U.S. for help. Since the collapse of the Soviet Union a decade earlier, Ukraine had been starved of the funds needed to secure its biological facilities.

Mr. Weber put together a team that visited Ukraine's biological and chemical facilities, which ranged from large laboratories to small veterinary research centers.

"We found that a number of them had dangerous pathogen collections left over from So-

viet days," he said. "They were in pretty bad shape."

Ukraine's laboratories—unlike some in other former Soviet republics—weren't directly involved in the Cold War biological-weapons program, but they did have pathogens that fed into offensive work, according to Mr. Weber.

Those pathogens, like anthrax, could pose a threat if released, whether accidentally or on purpose. The focus of U.S. work in Ukraine was to consolidate that biological material, much of it related to agriculture, into secure facilities, which the U.S. would pay to build or upgrade.

Paul McNelly, who from 1995 to 2003 directed the Defense Department's chemical and biological elimination programs in Russia, Kazakhstan and Uzbekistan, said he was stunned with what he saw inside the former Soviet facilities.

"You would walk into these places and the refrigerators that stored these dangerous pathogens, they had no locks on them at all," Mr. McNelly said. "There would be vials that were labeled tularemia, plague, different things like that. And these people, most of them, weren't masked. Their gowns were antiquated." He added: "It was horrible."

—Warren P. Strobel and William Mauldin contributed to this article.

## Blame Game Begins For Russia Agencies

By WARREN P. STROBEL AND MICHAEL R. GORDON

WASHINGTON—Recriminations and finger-pointing have begun within Russia's spy and defense agencies, as the campaign that Moscow expected to culminate in a lightning seizure of Ukraine's capital has instead turned into a costly and embarrassing morass, U.S. officials said.

The blame game, which includes the detention of at least one senior Russian intelligence official, doesn't appear to pose any immediate threat to Russian President Vladimir Putin's iron grip on power, but the U.S. officials are watching the machinations closely.

A U.S. official described as credible reports that the commander of the FSB intelligence agency's unit responsible for Ukraine had been placed under house arrest.

The official, in an interview, said bickering had broken out between the FSB and the Russian Ministry of Defense, two of the principal government units responsible for the preparation of the Feb. 24 invasion.

Central Intelligence Agency Director William Burns told Congress earlier this month that Mr. Putin had planned to seize Ukraine's capital of Kyiv within two days, suggesting the Russian leader expected minimal resistance.

Russian forces instead encountered fierce Ukrainian counterattacks and their ground advance stalled amid mounting casualties. Some U.S. government calculations estimate as many as 7,000 Russian troops have been killed in action, though officials caution those are uncertain estimates.

Current and former U.S. officials say Russian intelligence agencies often shy away from telling their bosses bad news and may have reinforced Mr. Putin's views, which he has expressed publicly, that Ukraine was a dysfunctional country whose leadership would rapidly collapse as some of its citizens welcomed Russian troops.

"It is hard to imagine some senior intelligence person talking with Putin and not telling Putin what he wants to hear, especially if it is a belief that is deeply held, like Putin's beliefs about Ukraine," said Jeffrey Edmonds, a former CIA and National Security Council official specializing in the region.

"When it comes to this guy, it's also clear that the culture of 'someone is at fault and is going to pay' is clearly still operative," said Mr. Edmonds, now at the nonprofit research organization CNA, of the Russian president.

The Russian Embassy didn't respond to a request for comment.

The FSB officer said to be under investigation and house arrest is Col.-Gen. Sergei Beseda, head of the intelligence agency's Fifth Service, also known as the Service for Operational Information and International Communications.

Another former U.S. intelligence official who has studied Russia for decades said Mr. Putin, a former FSB chief, helped create the Fifth Service, which operates as the de facto foreign-intelligence arm of the overall agency, which is primarily focused on internal security. It would have shared responsibility for preparing the way for the invasion of Ukraine, the former official said. That, he said, likely included a plot made public by the U.S. and U.K., but denied by Russia, to eliminate Ukraine's leadership and install pro-Moscow successors.

Russian investigative journalist Andrei Soldatov, who co-wrote the first report on Mr. Beseda's house arrest, said

Chief of intelligence agency's Ukraine unit is said to be under house arrest.

Mr. Putin may be blaming the FSB for failing to bring about the rapid collapse of the Ukrainian government that he had expected.

"Putin himself has been absolutely sure that he understands Ukraine really well," said Mr. Soldatov, who is a senior fellow at the Center for European Policy Analysis, a nonpartisan Washington think tank. "He expected his agencies, and first of all the FSB, to do some groundwork like cultivating political groups that could provide support for the Russian invasion. And now obviously that's not what is happening."

The Russian leader, Mr. Soldatov added, may also suspect the FSB of leaks, given U.S. intelligence agencies' detailed knowledge of the Russian invasion plan, some of which Washington made public.

Andrea Kendall-Taylor, who was U.S. deputy national intelligence officer for Russia and Eurasia from 2015-18, said Russian security services have overlapping responsibilities and compete for favor from the Kremlin.

Mr. Putin appears to be singling out individuals to "scapegoat and pass the blame," said Ms. Kendall-Taylor, now at the Center for a New American Security. "I think he's in a much more precarious position now."



A Russian tank outside the besieged Ukrainian port city of Mariupol. Moscow's forces are using increasingly destructive tactics.

## Putin Seen Shifting To Plan B

Continued from Page One

that it will lead Mr. Zelensky to abandon his hopes of joining the West and agree to a neutral status and other Russian demands.

Should Mr. Putin's demands for territory and neutrality be rebuffed, he is expected to try to hold all of the ground his forces have taken, and fight on, U.S. officials said. "Based on our assessments militarily, it does appear that he is reverting to siege tactics," another U.S. official said.

For Ukraine's beleaguered citizens, the shifting strategy means weeks—possibly months—of attacks from a weakened Russian military often content to fire missiles and artillery from a distance, they said. This shift is designed to pressure Mr. Zelensky's government into giving up territory and ceding security arrangements.

The assessment of Mr. Putin's "Plan B," as one official called it, comes with a number of important caveats. U.S. officials note Mr. Putin might expand his war aims, should his military begin to have more success against Ukraine's forces. The status of the capital remains an open question, and given stout Ukrainian resistance, it is unclear whether the Russian military can marshal sufficient troops to tightly cordon off Kyiv and take the Ukrainian capital, some U.S. officials said.

The interpretation of Mr. Putin's strategy isn't the result of a formal intelligence com-

munity assessment, but is the view of some U.S. officials with access to classified information who are not saying the strategy will work. Some analysts note the difficulty of assessing Mr. Putin's goals and objectives, and warn against reading too much into battlefield developments.

"His objective has not changed at all," said Daniel Fried, a former senior State Department official who served as U.S. ambassador to Poland. "What has changed is his tactics."

"The quick decapitation of the Ukrainian government didn't work," Mr. Fried said. "Now he just wants to pound them because they are resisting and therefore it must be purged. It's Stalinesque."

At present, Russian forces are faced with enormous challenges, including faulty logistics, a shrinking supply of precision-guided munitions and growing casualties, which could include as many as 7,000 Russian troops killed in action, according to U.S. calculations.

In Mariupol and other cities, his forces have reverted to some of the siege tactics they employed in Grozny in 1999 and 2000 during the second Chechen war, when Mr. Putin rose to power as prime minister and then president.

In Chechnya, Russian forces sought to gain control of a major city in a Russian territory that is smaller than New Jersey. In Ukraine, Russia faces the challenge of trying to gain control of multiple cities in a country that had a population of more than 40 million before more than three million Ukrainians fled, and is larger than France.

After weeks of tough fighting, Russian troops have pushed into the streets of the port city of Mariupol, an important strategic objective for

Moscow as it seeks to establish a corridor from the Crimean Peninsula to western Russia. Seizing control of the city would give the Russians a battlefield victory, though one achieved at a high cost.

"We've seen deliberate targeting of cities and towns and civilians throughout in the last several weeks," U.S. Defense Secretary Lloyd Austin said Sunday to CBS News. "He's taking these kinds of steps because...his campaign is stalled."

After initial rounds of negotiations, Ukraine and Russia remain far apart on key issues, including the Kremlin's demands that the Zelensky government recognize Russian sovereignty over Crimea, for-

Russian forces face enormous logistical challenges and growing casualties,

mally cede control of the Donbas region and renounce its longer-term aspiration to integrate with the West, including its goal of eventually joining the North Atlantic Treaty Organization.

John Herbst, a former U.S. ambassador to Ukraine, agreed that the Russian military had shifted its tactics on the battlefield, but said there was no indication that Mr. Putin had backed away from his maximum demands.

Mr. Putin's main purpose in agreeing to talks with Ukraine, Mr. Herbst said, was to encourage the West to offer concessions while creating the impression for the Russian public that he is open to diplomacy. The talks, he said, aren't being led on the Russian side

by a top-level official.

"I think he began the negotiations at a much lower level because he realized things were not working out on the battlefield," Mr. Herbst said. "He is still trying to win the war on the battlefield, but he has in no way publicly endorsed anything other than his maximalist checklist."

President Biden is traveling to Brussels for a NATO summit on Thursday and will also participate in a European Council meeting. The trip comes as Mr. Biden, a Democrat, has received both praise and criticism at home for his handling of the crisis. Some lawmakers continue to push a plan that would supply Soviet-built MiG-29 combat jets to Ukraine, an idea Mr. Biden and his advisers have rejected.

Mr. Zelensky has sought to apply pressure on Mr. Biden and leaders in other countries to establish a no-fly zone to shield his country from air attacks. The U.S. and NATO nations have rebuffed that proposal and are moving to send more air defense systems to Ukraine so the Ukrainians can better defend their airspace on their own.

Last week, Mr. Biden said the U.S. would send an additional \$800 million in security assistance to Ukraine, including Stinger anti-aircraft systems to help Ukraine defend its airspace and Javelin anti-tank missiles.

Russia said that it has fired two hypersonic missiles in recent days in an apparent effort to show it could overcome a no-fly zone and any air defenses Ukraine might field, experts said. Mr. Putin said in his television appearance that he wouldn't "confirm or dispute" that the Russians had used such a weapon. But he added the missile wasn't "a game changer."

## THE UKRAINE CRISIS

## Russian Cargo Carrier Grounds Boeing Jets

By DOUG CAMERON

Russia's biggest cargo airline, **Volga-Dnepr Group**, said it has suspended flights with **Boeing Co.** 747 jumbo freighters and smaller 737 jets, removing capacity from a global air-freight fleet stretched by pandemic-driven travel restrictions.

The privately held airline on Friday said it was responding to sanctions that have cut off imports of aircraft spare parts and support. Related moves by overseas regulators have left hundreds of jets still flying in Russia in contravention of international aviation rules.

Russian carriers have suspended almost all interna-

tional flights, which leasing companies said was an effort to prevent planes from being repossessed at overseas airports. Aviation analyst Ascend by Cirium estimates around 80 planes have been recovered outside the country by lessors.

That still leaves around 430 rented jetliners in Russia, valued at around \$8 billion. Around 350 are still flying domestically, said Cirium, even after their operating certificates were removed by Bermuda, where most were registered for tax and safety reasons.

Many could be permanently removed from the rest of the global market because of inadequate maintenance driven by

the sanctions, said Cirium. European Union sanctions have given leasing companies until March 28 to end their contracts with Russian carriers. Lessors face what they say is the near-impossible task of repossessing planes still in the country.

Volga-Dnepr has stopped flying Boeing jets in recent days, some of which are rented from lessors including **AerCap Holdings NV**. The fleet includes 18 Boeing jumbos regularly used on international cargo routes and six Boeing 737s focused on domestic routes.

"The management of Volga Dnepr has made a conscious decision to find a possible solution together with partners

and state regulators," the company said.

Russia this month said airlines could register aircraft there, effectively offering its carriers a workaround for some sanctions. Leasing companies have said this would trigger insurance claims that could take years to settle.

Leasing-company executives said they were more hopeful of reaching deals with private airlines, versus with state-controlled carriers such as **Aeroflot-Russian Airlines PJSC**.

The decision by Volga-Dnepr to ground its Boeing jets is a sign that some carriers are trying to negotiate, leasing company executives said.



A Boeing 747 cargo aircraft operated by Volga-Dnepr during maintenance at Kazan International Airport in Russia in 2020.

## Chernobyl Staff Gets To Leave Facility

By LAURENCE NORMAN

Staff at the Chernobyl nuclear plant have been able to rotate and return home for the first time in nearly four weeks, the United Nations atomic agency reported on Sunday.

Ukraine's national regulator confirmed that the rotation of on-site personnel had begun in the morning and that those who had left had been replaced by other Ukrainian staff, the International Atomic Energy Agency said. Half of the staff who had been working since the plant was taken over by Russian forces were able to return home. The plant is the site of the world's biggest nuclear accident in 1986.

Some 210 technicians and other support staff have been working at Chernobyl since Russia invaded Ukraine on Feb. 24.

"It is a positive—albeit long-overdue—development that some staff at the Chornobyl NPP have now rotated and returned to their families. They deserve our full respect and admiration for having worked in these extremely difficult circumstances," International Atomic Energy Agency Director-General Rafael Grossi said.

## Australia Expands Sanctions

By STUART CONDIE

SYDNEY—Australia has banned the export of alumina and aluminum ores to Russia as it widens its sanctions on the country over its invasion of Ukraine.

The Australian government on Sunday said the ban on exports including bauxite will limit Russia's capacity to produce aluminum, which it then exports for use in industries including automotive, aerospace, packaging, machinery and construction.

Aluminum is also a critical input into armaments industries and Australia supplies nearly 20% of Russia's alumina, it added.

"Russia must pay a very high price for its brutality. It must pay that price economically," Prime Minister Scott Morrison said.

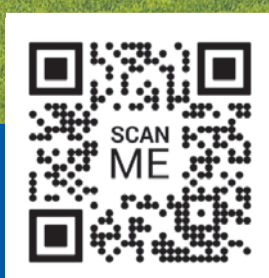
Australia, a global mining giant that in 2021 exported bauxite, alumina and aluminium valued at 13.75 billion Australian dollars, equivalent to \$10.2 billion, said it would work with exporters and peak bodies affected by the ban to find new and expand existing markets.

ASX-listed miner **Rio Tinto Ltd.** said this month it planned to cut commercial ties with Russia. Rio Tinto is evaluating options for its joint-venture with Russia's **Rusal International PJSC**, which is one of six alumina refineries in Australia.

Australia on Sunday also said it would donate at least 70,000 metric tons of thermal coal to support Ukraine's energy security. **Whitehaven Coal Ltd.** has arranged shipment, with Australia footing the bill for the coal and delivery to the destination port.

Australia has made available three-year humanitarian visas for Ukrainians who have recently arrived in the country.

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THE UKRAINE CRISIS

# Sanctions Hinder Manufacturers

Companies with ties to Russia try to adapt as curbs cut flow of goods and payments

By AUSTEN HUFFORD

Manufacturers with Russian ties are working to figure out how to survive, after sanctions leveled on Russia over recent weeks curb the flow of goods and money between the country and Western markets.

Sanctions, and private companies' moves to pull back from Russia, have upended operations for companies whose ownership and supply chains link back to Russia. Executives of Russia-connected companies said they are reconfiguring suppliers and logistics, temporarily suspending production and transferring control to U.S. employees in an effort to keep doing business.

IMZ-Ural Group Inc., which has been based in Redmond, Wash., for more than a decade, on March 2 suspended production of the sidecar motorcycles it makes in Siberia and sent its production workers there home, in a bid to save cash. The company doesn't know when it will be able to resume shipping products to its customers in Europe and the U.S., executives said.

"Ural is the motorcycle that was fighting in World War II to bring peace and now the same motorcycle is caught between a rock and a hard place," said Madina Merzhoeva, the company's marketing head, who works in Redmond.

Ural relies on global supply chains, importing most of its components from other countries, assembling them in its factory on the eastern side of Russia's Ural mountains and then exporting the finished machines to buyers looking for the off-road-capable bike with a sidecar.

Russia was the 24th-largest trading partner with the U.S. in 2021, according to census data, with the U.S. importing about \$29.7 billion of goods from the country and exporting about \$6.4 billion. Many of the imported goods from Rus-



Russian fiber-optic cable maker Incab LLC started producing cables in Arlington, Texas, in 2018 through its U.S. subsidiary.

sia include oil and other energy products, as well as fertilizers, nickel, steel and other industrial materials.

Russian fiber-optic cable maker Incab LLC started producing cables in Arlington, Texas, in 2018 through its U.S. subsidiary. Last year, the unit, Incab America, was making about 75% of its own cables, but it still relied on its Russian parent company for critical components. Now shipments of those components have stopped, Incab America executive Mike Riddle said.

"We are scrambling to lay out how I can replace these semifinished products," he said. "I'm working to sever my supply chain from Russia as fast as I can."

Incab America is bringing more production in-house, Mr. Riddle said. European-made machinery that was bound for the parent company in Russia is being redirected to Texas, he said.

Incab is also altering its ownership structure. Mr. Riddle

said he and potentially other Western investors will soon own the U.S. subsidiary, in what Mr. Riddle described as a corporate restructuring. The move was motivated by a law passed by Texas last year that doesn't allow Russian-owned firms to play a role in critical infrastructure in the state, and was hastened by fallout from Russia's invasion of Ukraine, Mr. Riddle said. He is becoming president of the newly independent company after being executive vice president of Incab's American subsidiary.

Before the invasion, Incab America was expecting 60% revenue growth for 2022. Now it hopes to match 2021 revenue, Mr. Riddle said.

Companies that manufacture products in the U.S. but rely on Russian products and materials are also facing challenges.

**North American Plywood Corp.** imports Russian-made birch plywood to its factory in Parsippany, N.J., where workers cut the wood and digitally

stain it. It ends up in recreational vehicles, trucks, children's furniture and concert speakers, said general manager Donald Kuser. Now, he said, the company can't get plywood from factories in Russia because shipping companies aren't entering Russian ports.

Mr. Kuser said he has already had some of his orders delayed into April because his suppliers say they aren't sure they can get products to him.

"They are still making plywood," he said. "How do we get it here? That's the question." His suppliers might eventually charter their own boats or use trucks to ship from European ports, if they are allowed, Mr. Kuser said.

He has been getting calls from customers asking for alternative supplies, which he said are also in short supply. In the short run, it won't be possible to replace the Russian birch, he said.

The Kitchen Cabinet Manufacturers Association estimated

that Russia supplies roughly 10% of the hardwood plywood in the U.S., and that imports from Russia have been growing quickly in recent years.

Ural has finished bikes at its factory as well as two containers full of completed motorcycles at the Port of Hamburg in Germany, waiting to reach customers in Europe and the U.S. German customs officials won't sign paperwork and shipping companies won't move the goods because they are from Russia, said Ural Chief Executive Ilya Khait, a Russian national who is based in Washington state.

Mr. Khait said his focus right now is on trying to ensure his company is still in business 12 months from now. Ural said it has extra inventories of spare parts that were built up in response to supply-chain challenges driven by the pandemic, and the company has its money stored in a Russian bank that hasn't been hit with sanctions.

# Medicinal Chemistry Industry In Peril

By DENISE ROLAND

Russian attacks are endangering Ukraine's world-leading medicinal chemistry industry, which supplies scientists across the globe with molecular building blocks needed for early drug development.

Ukraine's dominance in medicinal chemistry is little known beyond drug developers, who fine-tune a drug's molecular design to give it the best chance of hitting the desired biological target in the body. Kyiv-based **Enamine Ltd.** has become a go-to supplier for drug-discovery scientists at academic laboratories and the largest pharmaceutical companies.

"It's a bit like Amazon for chemistry," said Ed Griffen, a U.K.-based medicinal chemist working with closely held Enamine on a low-cost Covid-19 antiviral pill.

Now the Russian invasion has scattered Enamine's roughly 700 scientists across Ukraine and nearby countries as they sort out how to resume their work.

Ivan Kondratov, a senior scientist at Enamine, said he fled Kyiv on Feb. 24 to get his wife and two children, ages 10 and 6, to safety. His family is now in Münster, Germany. Mr. Kondratov, 39, is staying near Lviv in western Ukraine, forbidden to leave the country like many men because of the war.

He said some colleagues remained in Kyiv, while some moved to western Ukraine and others went abroad. Enamine quickly uploaded data stored in Ukraine to servers else-

## Kyiv-based company became a go-to supplier for drug-discovery scientists

where. The company's laboratories and main warehouse are closed—and so far intact—although deliveries from two smaller warehouses in Riga, Latvia, and New Jersey are continuing.

Ukraine's dominance in medicinal chemistry grew out of its Soviet history. During the Cold War, Soviet and Western chemists worked in spheres with little overlap. When the Iron Curtain fell, it revealed techniques and molecules unseen in the West. Some former Soviet scientists seized the opportunity to start companies to sell their collections of novel molecules to Western academics and drug developers. Enamine was established in 1991.

"For all the Eastern Bloc countries that came out of the Soviet Union that managed to keep their scientists at home, those scientists are top-notch," said David Lewis, a professor emeritus of chemistry and biochemistry at the University of Wisconsin-Eau Claire.

Scientists said Enamine gives them ready access to compounds that would be time-consuming and expensive for them to build in house. Drug design is an iterative process of testing large collections of molecules against the biological target, with the aim of arriving at a molecule that fits the target, a bit like a lock and a key. Enamine provides the molecular building blocks needed to make drug developers' tweaks, or can produce the modified molecules ready for a fresh round of testing.

"They've reached that level where they are the trusted partner for most of us in the U.K.," said Ed Tate, professor of chemical biology at Imperial College London and the Francis Crick Institute, who uses collections of Enamine compounds to research new drug targets.

Even large pharmaceutical companies, which have vast libraries of molecules for early drug development, commonly use Enamine to supplement their own collections. Without companies like Enamine, the universe of molecules available to test against new disease targets would be far narrower and would likely lead to missed opportunities in drug discovery, researchers said.

# Chip Blockade Tests Russian Tech Ambitions

An international tech blockade threatens to deprive Russia of sophisticated semiconductors needed to power advanced weaponry and cutting-edge technologies like 5G, artificial intelligence and robotics, experts say.

By Yang Jie in Tokyo and Jiyoung Sohn in Seoul

In late February, the U.S. imposed a ban on selling high-tech

products including semiconductors and telecommunications systems used by the defense, aerospace and maritime industries to Russia and its ally Belarus, days after Russia invaded Ukraine. The ban also extended to certain foreign items produced with U.S. equipment, software or blueprints.

South Korea and Taiwan, which dominate in high-end chips, and Japan, strong in chip-making materials and tools, have also banned exports

of the items that the U.S. has put on its export-control list. Their moves cut off Russia's access to many top-end chips, and materials and components needed to re-create production of such items locally.

For Russia, the impact from the coordinated sanctions will be significant, said Tom Rafferty, Asia regional director at the Economist Intelligence Unit. "The big export bans are going to be on semiconductors and high-end semiconductors in particular, for which Korea and Taiwan almost monopolize production. So there won't be supply of that anywhere that Russia can lean on."

While the sanctions would appear to limit Russia's access to chip supplies, the actual impact couldn't fully be determined. Russia's Ministry of Industry and Trade and the Ministry of Economic Development didn't respond to requests for comment.

Russia continues to largely rely on foreign technology to design chips and has limited chip-production capabilities of its own. In 2020, Russia imported roughly \$440 million worth of semiconductor devices, including components like diodes and transistors, and around \$1.25 billion worth of electronic integrated circuits, or "chips," built by incorporating various components, according to the United Nations Comtrade database.

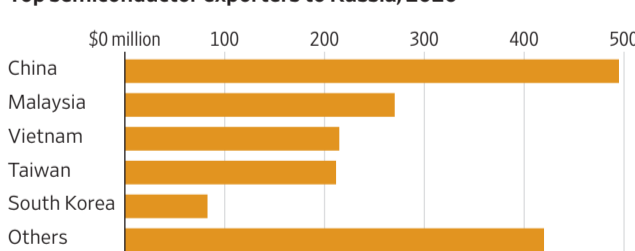
While the majority of these imports come from Asian countries that aren't imposing sanctions, Russia would still be left in the dark on high-end chips or homegrown chips. Taiwan produces most of the world's cutting-edge semiconductors, with the rest produced in South Korea, data from Washington, D.C.-based trade group Semiconductor Industry Association showed. South Korea also dominates in memory chips, while Japan is a stronghold of semiconductor materials and manufacturing tools, both crucial for chip building.

**Taiwan Semiconductor Manufacturing Co.**, the world's biggest contract chip



A Mikron worker at the Moscow plant manufacturing microchips.

## Top semiconductor exporters to Russia, 2020



Note: Combines figures for integrated circuits and other semiconductor devices. Source: WSJ analysis based on data from U.N. Comtrade

maker, said it is committed to complying with the new export-control rules. South Korea's **Samsung Electronics Co.**, a leading memory-chip maker and an electronics producer, said this month it has suspended shipment of all its products to Russia because of geopolitical developments and is monitoring the situation to determine its next steps.

Russia's chip-building technology lags behind that of industry leader TSMC by more than 15 years, said Western semiconductor-industry executives who have studied the state of Russia's industry. The country's leading chip maker, **Mikron Group**, has said it is the only local company capable of mass producing semiconductors with 65-nanometer circuitries—a technology introduced to the industry for mass production around 2006. Mikron didn't respond to a re-

quest for comment. Some of the leading Russian-designed chips are assembled by TSMC. Russia could lose access to some of these chips, though it couldn't be determined whether these chips would be hit by sanctions.

The latest Baikal microprocessors, widely used in many Russia-made computers and servers, are built by TSMC, according to **Baikal Electronics JSC**, a Russian company that designs the chips. Certain latest Elbrus microprocessors, designed by the Moscow Center of SPARC Technologies, were slated to be manufactured by TSMC, documents from the Russian company showed.

TSMC declined to comment beyond its statement on the sanctions. Baikal and MCST didn't respond to requests for comments.

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## THE UKRAINE CRISIS

# War Takes Toll on Food Supplies

By Alistair MacDonald

Ukrainian farmer Igor Borisov has 2,000 metric tons of corn from the fall harvest stuck in a warehouse behind Russian battle lines. Like other farmers across Ukraine, his crop for this year is also imperiled.

Global concerns that Russia's invasion would curtail Ukraine's 2022 harvest have come to fruition. The crop shortfall will extend to the many countries that rely on Ukraine for wheat, corn and cooking oil.

With wheat already in the ground, and only a few weeks left to plant corn, farmers in Ukraine can't get needed fertilizers and chemicals. They are low on fuel for tractors and other farm equipment. Workers are quitting to join the fight or to leave the country, leaving farms short-handed.

Mr. Borisov said he and other farmers need to start their corn, sunflower and barley crops in April and May. That is now in doubt, and the impact on food supplies and prices will be felt world-wide.

"We hope we will plant, and we want to plant, but the situation is totally unpredictable," Mr. Borisov said. "You cannot build a forecast on Vladimir Putin."

Ukraine's nutrient-rich soils yield 10% of global wheat exports, 14% of corn exports and about half of the world's sunflower oil, according to the U.S. Department of Agriculture. In just three weeks, war disrupted Ukraine agriculture, triggering higher prices as well as the threat of global shortages. Much of the exports go to developing economies already struggling with food-cost inflation.

Mr. Borisov's farm is close to the border with Russia, in an

area that was overrun on the first day of fighting. He had been away when the Russians invaded. His parents, who live close to his farm, called him to say hundreds of tanks were moving past the fields.

Russia's naval blockade and fighting around Ukraine ports has all but stopped maritime shipping and left limited means for transporting goods. Wheat prices have hit record levels over the effect on Ukrainian and Russian shipments.

Like Ukraine's military efforts, the country's agriculture sector is rallying. Exports are being rerouted, and Ukraine is asking the U.S., Poland, France and others for supplies, said Taras Vysotskyi, Ukraine's deputy minister of agrarian policy and food. In the best case scenario, the country's agricultural exports will fall by a fifth this year compared with 2021, he said, but a much bigger drop is more likely.

Should Russian forces leave immediately, Dmitry Skorniakov said, his four farms would still struggle to resume work. Tractors, chemical sprayers and a grain silo were destroyed on one farm located close to the besieged city of Mariupol, he said. Some of his workers have left to join the country's defense.

Further along the Black Sea coast, Larissa Boden's asparagus farm, Ukraine's largest, is in territory now held by Russia. Neighboring farms in what is one of Ukraine's most important growing regions have had fields chewed up by tanks and artillery fire, she said.

Ms. Boden planned to take delivery of 340,000 asparagus crowns from the Netherlands to plant more crops by April. She made a down payment of €78,000, about \$85,500. After



Grain storage outside of Lviv, Ukraine, above. A grain bag, below, damaged by the war at one of Dmitry Skorniakov's farms.

the invasion, she canceled the order and asked the supplier to try to sell them elsewhere. Like Mr. Skorniakov, she fears she won't have enough workers.

The government of Ukraine has made farmworkers largely exempt from conscripted military service. Many are joining anyway.

Even on Mr. Skorniakov's farm near the comparatively peaceful border with Poland, his remaining farm hands are able to do less than 60% of the work, he said. Fertilizers and chemicals haven't been delivered, Mr. Skorniakov said. Fuel he typically buys from Russia and Belarus is unattainable.

Ukraine is the world's fourth and fifth largest exporter of corn and wheat, respectively, according to the USDA, and 85% of its crop exports travel by sea, said Mr. Vysotskyi, the government minister.

With ports closed, the country is trying to shift some exports through its Western borders. Around 25% to 30% are now heading to Romania, Poland and Slovakia by train and on to other ports, Mr. Vysotskyi said.

It is an imperfect solution. Ukraine's railways don't accommodate as high a volume of crops as ports can, and grains



must be transferred to different train cars at the border because Ukraine's Soviet-era railways use a different gauge than those in the European Union. The shipping detours will add 10% to 15% to the cost of crops, Mr. Vysotskyi said.

The war in Ukraine is inflating global food prices that are already at decade highs, largely from the pandemic's lingering supply-chain troubles. Wheat futures are up 42% so far this year; the price of corn has risen 27%.

Worsening food supply prospects, Russia, also a major grain exporter, is struggling to get its crops out of the Black Sea. JPMorgan Chase & Co. es-

timated a decline of 60% in Russian grain shipments in the second week of March compared with the typical volume for that period in past years.

Grain is used for animal feed, and the supply interruptions have already hit the meat industry.

Over the past two decades, the world's wheat trade has almost doubled, in large part because of stepped-up exports from Ukraine and Russia, according to the Agricultural Market Information System, a Group of 20 global food policy initiative. An estimated 25 countries source at least half of their supplies from the two countries, according to AMIS.

Today, more than 41 million hectares of agricultural land cover 70% of Ukraine. Agriculture is the largest part of the Ukrainian economy, accounting for 14% of gross domestic product in the third quarter of last year.

When Kees Huizinga arrived in Ukraine 20 years ago, straight from Dutch agriculture college, he saw potential in the country's many abandoned fields.

Mr. Huizinga farms wheat, barley and sugar beet, and raises livestock in central Ukraine. Three weeks ago, he paid the equivalent of 80 cents for a liter of gas. Now, it is \$1.65, he said. "If you can even get your hands on it."

Mr. Huizinga said he needs to plant his corn within three weeks. His farm has enough fuel for maybe three-quarters of a regular crop. The shortage of chemicals and fertilizers also will diminish crop yields, he said.

Farmers reported having, on average, only 20% of the fuel they needed, according to an online government poll of 1,700 farmers, who represented 15% of Ukraine's arable land.

—Will Horner, Amira El-Fekki and Adnan Ghassan contributed to this article.

## Ukraine Technology Startups Pivot Toward War Effort

By Heather Somerville

Anton Kolomyeytsev stood at Romania's border with Ukraine, waiting for his mother and families of employees of his tech company, which just weeks earlier had been based in Kyiv.

In all, nine people made it, and Mr. Kolomyeytsev drove them that night in early March into Hungary. Moving people across borders—finding them rides, shelter and food—still occupies him, more than a month after he started shuttling his employees and data servers out of Ukraine in anticipation of a Russian invasion.

"We understood that we are pretty much on our own to save the business and to save our people and save human lives," said Mr. Kolomyeytsev, the 44-year-old chief executive officer of StarWind Software Inc., a data-storage company.

In an escalating war, business leaders responsible for large Ukrainian workforces have become evacuation coordinators, military strategists, provid-



People.ai CEO Oleg Rogynskyy said when employees decided to enlist, their co-workers raised more than \$30,000 to buy supplies.

ers of humanitarian aid and, in some cases, financiers of the Ukrainian army. Startups like StarWind are using their tech savvy, dispersed workforces and relative agility to help mitigate the business trauma and human catastrophe of war.

Their preparations for the war started months ago. The startups secured passports and Covid-19 vaccines for employees and their families, converted money into U.S. dollars and transferred staff to safer locales. Now, from perches in Poland,

Germany, Israel, Silicon Valley and elsewhere, these startup leaders continue to run their businesses while adding another task—helping to defend Ukraine.

StarWind doubled the salaries of employees who enlisted in the Ukrainian army, Mr. Kolomyeytsev said.

Ukrainian startup Lemon.io, an online marketplace for software engineers to find jobs, is giving its profits to the army at the end of each month—around \$124,000 so far—and donating to organizations purchasing drones for the army, said CEO Aleksandr Volodarsky.

When employees at software company People.ai Inc. decided to enlist, their co-workers raised more than \$30,000 to buy the army sleeping bags and mats, ham radios and other communications hardware, said CEO Oleg Rogynskyy, a Ukraine native who has lived in Silicon Valley for almost a decade.

These startup leaders and their workers say such efforts ease the helplessness of watching from afar.

Mr. Volodarsky of Lemon.io, is one of around 10 people from his company that made it out of Ukraine; he fled to Jerusalem with his wife and two children, ages 6 and 3 years old. To escape, they broke curfew and drove out of Kyiv in the early morning to the border with Hungary, where they crossed on foot and then flew to Israel. He said he talks daily with the 33 employees in Ukraine, three in Russian-occupied cities, offering to help them relocate.

They feel it is too late, Mr. Volodarsky said. Men fit for military service aren't allowed out of the country; others have deemed the journey too risky.

"People are just too scared to go into the street to leave," said Mr. Volodarsky, age 35. He paid out two months of salaries in advance to employees and increased payments to the freelancers, in case banks went offline. He told his employees, if war starts, grab your emergency bag and first-aid kit and meet at his co-founder's house in western Ukraine.

"We will support you unless you decide to move to Russia," Mr. Volodarsky wrote to his employees before the invasion.

Things didn't go as planned, and workers remained put, some retreating to bomb shelters. "The feeling of guilt is stuck in my throat," Mr. Volodarsky said.

Lemon.io, People.ai and StarWind say their businesses continue to operate, helped in part by early preparations and being accustomed to operating with a globally dispersed workforce.

StarWind is based in Massachusetts but was founded by Ukrainians, and three-quarters of its staff was based in Kyiv. It moved some data servers out of the country in personal cars; the rest of its data was transferred to other servers that the company bought or rented.

People.ai, a Silicon Valley-based company that uses artificial intelligence to help companies improve sales and operations, transferred some work that was done in Ukraine to San Francisco and Toronto.

## Putin Can't Ease Trade Reliance

Continued from Page One building everything domestically is costly and inefficient, the Kremlin embraced the strategy to combat sanctions that followed its takeover of Crimea in 2014. It was part of a multiyear plan to protect the economy, dubbed by observers as Fortress Russia.

But Russia's dependence on imports actually worsened over the years. In 2021, some 81% of manufacturers said they couldn't find any Russian versions of imported products they needed. More than half were dissatisfied with the quality of homegrown production. Both figures were the highest recorded since the survey by Russia's Gaidar Institute for Economic Policy began in 2015.

In 2020, imports accounted for 75% of sales of nonfood con-

sumer goods in the Russian retail market, according to a study by the Higher School of Economics in Moscow. In some sectors the share was even higher, rising to 86% for telecommunications equipment, the study found. Imports equaled around a fifth of GDP in 2020, compared with 16% in China and higher than other big economies such as India and Brazil.

Russia's auto makers have been especially hard-hit by a lack of imported components such as computer chips. On Wednesday, the leader of Russia's Tatarstan region warned in televised remarks that truck maker Kamaz was facing a production drop of up to 40% and that some 15,000 of its employees could be idled until the company's supply-chain issues are resolved. A Kamaz spokesman described the leader's comments as a worst-case scenario and said the company was shifting more of its production to truck lines made with Russian parts.

Technology products are among the most critical goods cut off by the sanctions, including semiconductors, com-

puters, lasers and sensors. The ruble, meanwhile, has plummeted in value, raising the price of the goods Russia can still import.

Another high-risk area for Russia is its energy industry. Russia relies on Western technology for its aging oil and gas fields. Earlier sanctions forced Russian energy companies to delay or cancel projects while domestic technology has often proven inadequate, analysts said.

Until last month, Russia was highly integrated in the global economy. Untangling itself from international supply chains will be a slow and difficult process. President Vladimir Putin of Russia has acknowledged the hardships ahead. "Our economy will need deep structural changes in these new realities, and I won't hide this—they won't be easy," Mr. Putin said Wednesday.

Russian officials said domestic companies will benefit from the situation. "Previously it was unprofitable to produce certain goods inside the country whereas now this is becoming more interesting for

businesses," central bank governor Elvira Nabiullina said Friday. Still, she acknowledged that this will come at a cost, including rising inflation.

Some imported products are deeply integrated in companies' operations. Up to 90% of Russian banks and companies use Western software, estimated Maria Shagina, visit-

### Despite the strategy, Russian dependence on imports worsened over the years.

ing senior fellow at the Finnish Institute of International Affairs. "It was possible to replace low-tech items like pipes, things that don't require a lot of know-how and R&D investments," Ms. Shagina said. "But anything that is high-tech is still very much reliant on Western technology, Western software, Western know-how."

Even prestige projects that the Kremlin has touted as ex-

amples of the resurgence of Russian industry have proved to be stubbornly dependent on imports.

The Sukhoi Superjet 100, unveiled in 2007, was a bid to revive the country's flagging civilian aircraft sector. But Russian officials have said around half the cost of parts used to build the Superjet comes from imported parts. French aerospace firm Safran SA—which produces the jet's engines, landing gear and engine covers—said it would stop all activities in Russia because of Western sanctions.

A planned version of the plane made almost entirely of domestic parts won't enter mass production until 2024, officials have said.

Sanctions have also hit consumers used to getting imported products. Svetlana Ryabova, a 36-year-old Moscow resident who helps run a rescue program for stray cats, said foreign pet food and medicine had become harder to find. Some brands such as Monge have disappeared from stores, and vaccines such as Nobivac and Purevax are in

short supply, she said.

Ms. Ryabova hopes domestic manufacturers will make up the shortfall. "We have them, of course, but people are in a panic and buying up everything," she said.

Russia launched the import-substitution drive by barring many Western food imports. French cheeses, Spanish ham and other delicacies appreciated by the country's wealthier urban elite disappeared from store shelves. The import substitution drive later expanded to other industries, including medicine and technology.

Between 2015 and 2020, authorities allocated over 2.9 trillion rubles, or \$27 billion, to the import substitution program, equivalent to 1.4% of budget expenditures over the period.

But the policy didn't boost the Russian economy, which was suffering from sanctions and low oil prices. Its gross domestic product growth has been slower than the world average since 2014 and Russians are poorer than before the Crimea annexation: by the end of 2020, real incomes had fallen by 9.3% from their 2013 level.

## THE UKRAINE CRISIS

# Mariupol Family Navigated A Perilous Passage to Safety

By JAMES MARSON

Darya Peshkova's decision to leave her family home in Mariupol came slowly, then all at once.

Russian forces were shelling the southeast Ukrainian port city she had lived in for all of her 37 years, but her family had good supplies of food and water, the gas was still working, and friends who had tried to leave had come under fire.

"There was no guarantee that we would make it," said Ms. Peshkova. "But the chances of staying alive in Mariupol were shrinking."

Then, at the beginning of March, Russian airstrikes brought new terror to the city of some 450,000. A neighbor said a convoy of cars was preparing to head out the next morning.

Ms. Peshkova told her husband and two daughters, "We are leaving." No one protested.

What followed was a "whole life in one journey," she recalled, including an hours-long standoff with Russian gunmen, a detour through countryside strewn with dead bodies, and a dash through a disputed village.

Russia's bombardment of cities, towns and villages is confronting millions of Ukrainians like Ms. Peshkova with a painful dilemma: Abandon their shattered lives and seek safety elsewhere, or cling on in the hope it passes.

That decision has been particularly stark in Mariupol, which is surrounded by Russian forces that are bombing it heavily. Local authorities say more than 2,000 civilians have died.

The situation since the Peshkovs left has turned sharply worse. The city has been under constant Russian shelling and air attack, with an average of 50 to 100 bombs dropped on the city a day, authorities said. Eighty percent of the city's residential buildings are wrecked, with around one-third beyond repair.

Thousands of people have left the city in recent days on safe routes agreed upon with Russian forces, while 350,000 remain, authorities said.

Ms. Peshkova recalls a different time in Mariupol, a steel-producing city on the Sea of Azov with green parks and sandy beaches. Ms. Peshkova, who is head of investments at the commercial port, enjoyed playing board games with her husband and friends.



Darya Peshkova and her family took one last photograph before they fled from Mariupol this month.

On weekends, the family would go to the park, the movies or the skating rink. Alexandra, their 8-year-old, was into tennis, while 14-year-old Veronika preferred dance.

"We lived like any other family in the peaceful world," she said.

Russian-led militants briefly took control of Mariupol in 2014 before a Kyiv-backed militia kicked them out. The city became a hub for those from Russian-occupied territories who wanted to live in Ukraine. Funding poured in from Kyiv and its Western backers, seeking to make it a success to contrast with occupied areas.

When Russia invaded Ukraine on Feb. 24, Ms. Peshkova quickly filled up on gasoline and stocked up on food and water.

The Peshkov family lived in the district near the port and the beaches, which was largely spared early bombing. But the shelling grew louder by the day, so they moved mattresses into the corridor of their three-room apartment.

Four days into the war, electricity and heating went out. Water followed at the start of March. A shell killed one of Veronika's classmates. But the Peshkovs hung on.

The tipping point was the airstrikes. Then a neighbor said she was hoping to take advantage of a so-called green corridor announced by the Russians to allow civilians to escape.

The Peshkovs rose early on March 5 and piled into two cars, along with their cat, Rafaella, and Ms. Peshkova's parents.

The convoy delayed their departure as the shelling had barely let up. Families hung white flags from their cars. Al-

exandra drew a sign saying "children" along with a picture of a dog.

Around 11 a.m., they passed the Ukrainian checkpoint on the western edge of the city, where a soldier wished them good luck. Some 120 cars made it through before shelling started and the Ukrainians halted the rest.

Less than a mile down the road, they hit the first of five checkpoints with Russian flags, where soldiers examined passports and car trunks before allowing them through.

Some 25 miles along the road to Zaporizhzhia, the nearest large city, they ran into a different kind of unit. Sixteen gunmen with no armored vehi-

**The airstrikes were the tipping point that made the Peshkovs want to leave.**

cles or body armor said they were from the so-called Donetsk People's Republic, a pseudo-statelet that Moscow carved out of Ukraine in 2014. The men said they had been told not to let any adult men through.

The people in the convoy pleaded, but the young gunmen wouldn't budge. Some cars carrying only women and children were allowed through. Others tried to return to Mariupol. The rest sat with their engines off to conserve fuel.

As dusk fell, a woman appeared, saying she was the mayor of the nearby village of Temryuk and offered the Mariupol escapees shelter. Ms.

Peshkova feared a trick. But the evening cold was starting to bite. So they jumped into their cars and followed the woman.

The whole village was waiting to greet them. Temryuk was poor but was off the beaten path so the Russians had bypassed it when they seized the main road.

They didn't have electricity, but could burn coal for warmth. The Peshkovs lodged with a woman named Maryna and her teenage son. "They didn't have much, but gave us everything they had," said Ms. Peshkova. "It warmed our hearts." They slept squeezed onto three sofas. The next morning, Maryna refused payment.

While four men set off to scout out another route, the rest of the group gathered at the school. After a nervous 90 minutes, the men returned. The good news: They had found a route to the main road avoiding the checkpoint. The bad: There had been fighting there recently.

The convoy set off at a crawl along a potholed road, with children lying on the floor in case someone opened fire. Soon, they were swerving around the detritus of a battle: soldiers' corpses, burned-out vehicles and unexploded munitions.

They made it back onto the main road to Zaporizhzhia.

As they approached the exit from the village, Russian warplanes appeared overhead and opened fire on a Ukrainian army position 200 yards away. The drivers slammed on the brakes. The plane didn't make another run, so the cars sped onward.

A few miles down the road, they spotted a group of armored vehicles at a checkpoint with a Ukrainian flag. They had made it.

# Pop Star Gets Out Of War Zone to Play South by Southwest

By ELIZABETH FINDELL

AUSTIN, Texas—Oleksandra Zaritska was weaving camouflage nets for soldiers on the western edge of Ukraine, days after her home fell to Russian soldiers, when her phone rang.

The voice on the other end of the line was her band's producer. He thought she should go ahead with a planned concert at the famed South by Southwest festival in Austin, Texas—alone, as her two bandmates fought for their lives at home. Ms. Zaritska, known as Sasha, didn't know what to do.

Her pop trio, called Kazka, had been rehearsing for a seven-city American tour before the Russian invasion began. The band has boomed in popularity in Ukraine and elsewhere since its debut on Ukrainian television show X-Factor in 2017. Ms. Zaritska, 29, is the lead singer, with instrumentalists Mykyta Budash and Dmytro Mazuriak.

Initially, Ms. Zaritska didn't believe her mother when she called to say Russia was invading on the morning of Feb. 24. She told her mother "that's not something to kid about," she recalled.

But soon, Ms. Zaritska could hear the bombs herself.

Ms. Zaritska fled her apartment in Kyiv for another home on the northwestern outskirts of the city, she said. Days later, she was forced to flee again as that area, near the village of Vorzel, fell to Russian occupation. Ms. Zaritska, her mother, sister and three dogs wound up in a small town near the Hungarian border, volunteering with school children to support the war effort. The U.S. shows remained in limbo.

"It was a big discussion be-

cause, OK, maybe it is not a good time for singing," said producer Yuriy Nikitin, who was on vacation abroad when the war began. "Our American friends...said it's important to be here telling the truth."

Ultimately, Ms. Zaritska felt a duty to be a voice of Ukraine, she said. She called it devastating to imagine playing without Messrs. Budash and Mazuriak, who as able-bodied men were required to stay in the country and fight.

The day before the scheduled show, Ms. Zaritska bought an airplane ticket.

Austin's music and Ukrainian-American communities worked quickly once Ms. Zaritska arrived. Locals organized a Saturday night music showcase after her plane arrived too late for her scheduled set.

On Saturday night, fans wrapped in Ukrainian flags packed into downtown bar Speakeasy for the show. Ms. Zaritska took the stage, warning the crowd that it was her first time playing with the musicians behind her.

"It's a little bit improvisation," she said.

Ms. Zaritska bantered in Ukrainian and English to a crowd that screamed and sang along with her hits. She danced, twirled a flag and sprayed drinks into the crowd. Austin guitarists Charlie Sexton and Gary Heimbauer joined her to play a cover of Bob Dylan's "Masters of War," which Ms. Zaritska called "a message to [Russian President Vladimir] Putin."

During a break between songs, she had a message for her audience. "Not only Ukraine is in danger," she said of Russia's aggression. "It can be bigger. It can be Europe. It can be the whole world."



Oleksandra Zaritska played with a pickup group at a hastily organized show at the South by Southwest festival in Austin, Texas.

# Conflict Uproots 10 Million

Continued from Page One  
ter a theater in the city was bombed. Rescue workers had freed 130 people from the rubble as of Friday, though 1,300 people remained trapped in the basement where they had been sheltering, a local official said.

U.S. Secretary of Defense Lloyd Austin said Russia's military had been deliberately targeting population centers because President Vladimir Putin's campaign had stalled in the face of an effective Ukrainian defense and counterattack.

"He's not been able to achieve the goals that he wants to achieve as rapidly as he wants to achieve them," Mr. Austin said Sunday on CBS News. "It's had the effect of him moving his forces into a wood chipper."

Russia's Defense Ministry on Sunday gave defenders of the besieged city of Mariupol, the site of some of the worst civilian casualties of the war, until Monday morning to surrender and allow the evacuation of civilians.

"We call on all the units of Ukraine's armed forces, the battalions of its territorial defense and foreign mercenaries to cease their military activities and lay down their weapons," said Mikhail Mizintsev, the head of the Defense Ministry's National Defense Control Center, according to Interfax.

Mr. Mizintsev said that Kyiv must respond to Russia's offer by 5 a.m. Moscow time on Monday. Describing Mariupol city officials as "odious ban-

ditions," he said they had a "historic choice" to accept Russia's initiative, according to RIA Novosti, the official Russian state news agency.

The Russian Defense Ministry showed no sign of letting up even as its own military has taken big losses. It said Sunday that its forces carried out a range of activities, including firing a number of long-range weapons at targets in Ukraine, striking a military base in the country's Zhytomyr region, where it alleged foreign fighters were located, and attacking a large number of military facilities in helicopter raids.

On Sunday, the governor of the Crimean city of Sevastopol reported that the deputy head of Russia's Black Sea Fleet was killed in the attack on Mariupol, the latest in a number of high-ranking officers to die in the invasion.

President Volodymyr Zelensky of Ukraine said his country's military was imposing heavy losses on Russian troops but added, "We are well aware that Russia has just a bottomless human resource and a lot of equipment, missiles and bombs."

President Biden is heading to Europe this week for a

round of meetings with allies and partners in the North Atlantic Treaty Organization, the Group of Seven and European states, where they are expected to discuss deterrence efforts, humanitarian relief and the campaign of sanctions against Russia. He will travel to Warsaw on Friday for talks with Polish President Andrzej Duda, White House press secretary Jen Psaki said Sunday.

The White House said that Mr. Biden wouldn't be visiting Ukraine.

Mariupol's City Council said on Sunday about 4,000 civilians in the city have been

killed since the start of the fighting. It also accused Russian forces of forcibly evacuating some of the city's residents to Russia and into the territory of Donetsk and Luhansk, the pro-Russian breakaway regions in eastern Ukraine.

"People who are being forcibly transported onto Russian territory are having their Ukrainian passports seized and given papers that have no legal weight," the council said in a statement posted to Telegram.

Russia hasn't commented on the reports of forced evacuations from Mariupol.

Mariupol is a strategic objec-

tive for Moscow as it attempts to open an overland corridor to the Russia-annexed region of Crimea and shift the momentum in its three-week-old invasion. During weeks of bombardment and attack, Ukrainians said they had kept Russian forces at bay on Mariupol's outskirts, but that changed Saturday, Ukrainian officials said.

The capture of Mariupol would be a victory for Russia, which has so far failed to take any big Ukrainian cities since the start of its invasion.

"Mariupol has not yet fallen," retired U.S. Gen. David Petraeus said on CNN. "It is out of food, fuel, water, everything except for heart. They are still fighting very hard. This is the first place where the Russians are having to do no-kidding urban fighting, having to go building to building."

Dima Shvets, who left Mariupol last week with his wife and 7-year-old daughter, described scraping snow off cars to melt for drinking water and using supermarket shopping carts to carry the dead to hastily dug graves.

He said he had lost count of the number of Russian checkpoints through which the family passed on the way from Mariupol to Berdyansk, down the Sea of Azov coast to the west. The drive, which usually takes 40 minutes, lasted 15 hours. Russian soldiers made the men remove their shirts and checked their bodies for tattoos that would identify them as Nazis, he said.

—Alex Leary contributed to this article.



Tetiana Chornovol, former member of the Ukrainian Parliament, pulled an antitank missile out of a car in the Kyiv region on Sunday.

## Watch a Video

Scan this code for a video on the weapons sent by the U.S. and NATO.

Special Advertising Feature



# Can the U.S. Win the Hypersonics Race?

TAKING A NEW APPROACH  
TO HYPERSONIC RESEARCH  
AND TESTING TO CATCH UP  
WITH COMPETITORS

Last summer, following China's successful launch of a test missile that circled the globe with impressive accuracy, the term "hypersonic" immediately became a part of the world's lexicon. (It also made headlines again recently when Russia ran nuclear drills amid its siege of Ukraine.) The reason China had leapfrogged the U.S. in this technology? Its commitment to ground testing research facilities.

The U.S., which had pioneered hypersonics, had ceded its leadership position because China had invested so heavily in testing infrastructure and research facilities. In fact, in October, a leading Chinese researcher gave an online presentation in which he boasted that China's research investment would soon put it 20 to 30 years ahead of other powers.

To respond to this challenge, the U.S. returned to the place where it did much of its fundamental hypersonic research decades ago when it dominated this area: Purdue University, which maintains one of the greatest concentrations of hypersonics researchers in the world.

#### FIRST-OF-ITS-KIND FACILITY

Technically, the term "hypersonic" refers to flight at speeds of about five times the speed of sound (Mach 5). But today when we talk about hypersonics, it's really shorthand for hypersonic maneuvering systems, like a hypersonic cruise missile — designed to fly, maneuver and operate at altitudes that make it particularly difficult for military defense to detect and stop.

Recapturing the lead in hypersonics requires the U.S. to embrace new approaches. The Hypersonic Ground Testing Center (HGTC), an independent, nonprofit consortium developed by the Purdue Research Foundation (PRF), is a case study of the new kind of thinking that the expanding hypersonics arms race requires. HGTC is the first-of-its-kind U.S. facility to test hypersonic technologies.

"In this test facility, think of Purdue as a neutral host," says Dr. Mung Chiang, executive vice president and dean of the engineering college at Purdue University. "Different defense companies will come here and share some common facilities, providing economies of scale in certain components, while being able to protect their intellectual property."

HGTC's capabilities will leverage Purdue's own research capabilities, including a 65,000-square-foot facility that will feature the nation's first Mach 8 quiet wind tunnel, which collects data at higher speeds to provide insight into the physics around hypersonic travel, such as heat transfer. It will also house a hypersonic pulse (HYPULSE) shock tunnel, providing a shockwave of high-temperature air to recreate specific hypersonic flight conditions, only the second of its kind in the U.S. The two wind tunnels will be complemented by an advanced manufacturing research center, all located in Purdue's Zucrow Laboratories right next to HGTC.

According to Mark Lewis, executive director of the National Defense Industrial Association's Emerging Technologies Institute (ETI), a nonpartisan think tank, and former director of defense research at the U.S. Department of Defense, HGTC will have the capabilities to solve problems that have long bedeviled the U.S., like designing engines for hypersonic vehicles.

The difficulty is not simply that a hypersonic vehicle travels at five times the speed of sound, but that at takeoff it begins at near zero velocity. "Building an engine that can power you from Mach 0 to Mach 5 is quite a challenge," Lewis says. "We're not exactly sure how to do it, but we have ideas, which involve combining multiple types of engines."

#### COMPETITIVE ADVANTAGE FOR U.S.: INNOVATION

Aerospace engineer and space architect Wernher von Braun famously said: "One good test is worth a thousand expert opinions."

**\$3.8  
BILLION**

The Pentagon's fiscal  
year 2022 budget  
request  
for hypersonic  
research (up from  
\$3.2 billion in 2021)



The unique approach taken by the HGTC will allow the U.S. to exploit its competitive advantage of technical innovation by giving individual companies shared resources that will allow them to move quickly.

"People often ask, 'Can't you just develop hypersonics with computer simulations?'" Lewis says. "But computers can only simulate what we know. We need testing facilities so we can explore what we don't know."

"If today I wanted to test a Scramjet engine in the United States at full scale, I basically have only two alternatives," Lewis continues. "I can either go to NASA Langley Research Center or to an Air Force tunnel, and those tunnels don't operate at low speeds." HGTC will provide the much-needed enhanced ground-testing capabilities.

HGTC is part of what Chiang calls "a hypersonics trifecta" that Purdue saw last summer. In August, the Hypersonics Summit 2.0, a joint effort between Purdue University, Purdue Research Foundation, Nine Twelve Institute and the National Defense Industry Association, was held. The summit featured participation from major leaders in hypersonics in the U.S.

In the same month, Rolls-Royce, an aerospace engine manufacturing giant, announced it will expand its current footprint at the university as well. The new Rolls-Royce test facilities, which are adjacent to the campus, will be used to develop high-altitude and hybrid-electric engines to power the next generation of U.S. military aircraft.

The stakes are high and there is no time to delay, experts say. "There's a practical reality that every time we did war games and analysis, if the United States did not have hypersonic capabilities in certain important scenarios, we didn't win," Lewis says. "It was as simple as that."

In addition, he notes China's students flood technology conferences, in some cases presenting fundamental research, demonstrating the priority and investment China is applying to this area that the U.S. must match.

"They appear to have linked their industrial capabilities with their universities, developing multiple concepts and investing in the infrastructure that will make sure that they can succeed," Lewis says. "They're training their future workforce."

According to the U.S. government, China has conducted 20 times as many hypersonic tests as the United States in the last decade. In response, the U.S. is ramping up its investment. The Pentagon's fiscal year 2022 budget request for hypersonic research is \$3.8 billion — up from \$3.2 billion in the fiscal year 2021 request. Still, there is a long way to go.

#### PARTNERING WITH BUSINESS

Lewis says Purdue is perfectly situated to help the U.S. regain its standing in hypersonics because of the university's and the PRF's expertise in technology, as well as its expertise in working with business — a dynamic combination that is the only way to counter the efforts of China and our other competitors.

"You look at a top research university, like Purdue University, and you see not just an aerospace department, but also electrical engineering, material science and all these other disciplines," Lewis explains. "Hypersonics is a multidisciplinary area. If I'm going to build a hypersonic vehicle, by definition it's going to travel really fast. That means it's going to reach high altitudes and become hot due to friction with the air."

That makes hypersonics more than an aerodynamics challenge. It's also a materials and controls challenge as well as a design challenge. "A college of engineering that has multiple disciplines can fill an extremely important role in our national hypersonic efforts," he says.

"I think they've created this environment where they attract the best and the brightest to conduct research in service to national defense," Lewis continues, noting Purdue's strong relationship with the Department of Defense, partnerships across Indiana in industry as well as state and federal government, and the support Purdue gets from government leadership. "They leverage assets across the state. It's made for a really powerful combination."

Learn more: [TheDistrict.PRF.org](https://TheDistrict.PRF.org)

# WORLD NEWS

## U.S. Delivers Patriot Missiles to Saudis

Kingdom sent urgent request for resupply to repel drone attacks by Iran-backed rebels

By DAVID S. CLOUD

WASHINGTON—The Biden administration has transferred a significant number of Patriot antimissile interceptors to Saudi Arabia within the past month, fulfilling Riyadh's urgent request for a resupply amid sharp tensions in the relationship, senior U.S. officials said.

The transfers sought to ensure that Saudi Arabia is adequately supplied with the defensive munitions it needs to fend off drone and missile attacks by the Iran-backed Houthi rebels in neighboring Yemen, one of the officials said.

The Saudi military had been appealing to the U.S. since late last year for more Patriot interceptors—used to shoot down airborne weapons—warning that their supply was running dangerously low.

U.S.-Saudi relations have deteriorated since President Biden took office over issues such as a White House decision to remove the Houthis from a list of designated terrorist groups as well as Mr. Biden's dealings with Saudi Crown Prince Mohammed bin Salman, the country's de facto leader.



Patriot antimissile batteries are one of the weapons used by the Saudis and the United Arab Emirates to counter the Houthi attacks.

forces in Yemen fired missiles and drones at energy and water-desalination facilities run by Aramco, the Saudi state oil company.

The Houthis claimed responsibility for the attacks, which a spokesman said were in response to “the continued aggression and unjust siege of our people.”

Jake Sullivan, Mr. Biden's national-security adviser, condemned the Houthi attacks Sunday.

“The Houthis launch these terrorist attacks with enabling by Iran, which supplies them with missile and UAV components, training, and expertise,” he said, referring to unmanned aerial vehicles, or drones.

The missiles and drone attacks were fired at a water-desalination plant in Al-Shaqeeq; a distribution station in Jizan; a liquefied-natural-gas plant in Yanbu; a power station in Dhahran al Janub; and a gas facility in Khamis Mushait. Aramco said there were no casualties or impact on its supplies, while the Saudi-led military coalition backing the Yemeni government said the strikes damaged civilian vehicles and homes in the area.

Patriot antimissile batteries are only one of the weapons used by the Saudis and the United Arab Emirates to counter the Houthi attacks. Many of the slow-flying drones are shot down by fighter aircraft.

The longstanding Saudi request for more interceptors had been a point of contention between Washington and Riyadh, feeding Saudi officials' displeasure over what they contend was a lack of U.S. support for their intervention in the Yemen civil war.

U.S. officials said the decision to send the interceptors had taken months because of the high demand for the weap-

ons by other U.S. allies and the need to go through normal vetting—not because the White House was deliberately delaying the resupply.

The interceptors and other munitions sent to Saudi Arabia were taken from U.S. stockpiles elsewhere in the Middle East, one of the officials said.

The decision to go ahead with the arms transfer was part of an effort by the admin-

istration to rebuild its relationship with Riyadh. Among other things, the U.S. hopes Saudi Arabia will pump more oil to mitigate soaring crude prices, officials said. But providing Patriot interceptors hasn't resolved all the strains in the relationship.

Mr. Biden also publicly criticized Saudi Arabia over its protracted war in Yemen and cut off the flow of some weapons

Riyadh could use to target Houthis. The president also reversed a move by his predecessor that put the Houthis on the U.S.'s official list of global terrorist groups, a move that Saudi leaders said had emboldened the Yemeni force and thwarted efforts to broker a cease-fire.

The latest attacks on Saudi Arabia came late Saturday and early Sunday when Houthi

## Vatican to Expand Management Roles for Women

By FRANCIS X. ROCCA

ROME—A new Vatican constitution published on Saturday opens the way for women to run some offices at the Catholic Church's universal headquarters that have always been run by men.

The change is the latest move by Pope Francis to expand the presence of women in the senior management of a church with an all-male clergy.

The new constitution of the Roman Curia, the Catholic Church's central administration at the Vatican, stresses the need “for the involvement of laywomen and laymen, even in roles of government and responsibility.”

It also states that “any member of the faithful can preside over” an office of the Curia, if compatible with the office's specific function and area of authority.

The constitution doesn't expand the role of laymen or women in worship, as opposed to management.

The constitution doesn't specify which offices of the Curia, which include those that oversee bishops and priests around the world, must continue to be headed by cardinals, bishops or priests, who are always men. But it makes clear that certain officials, including the Vatican secretary

of state and the head of the Vatican's supreme court, will normally be cardinals.

By contrast, the previous constitution, promulgated by St. John Paul II in 1988, stated that offices of the Curia were normally to be headed by a cardinal or an archbishop.

Pope Francis pledged early in his pontificate “to create still broader opportunities for a more incisive female presence in the church,” including “the pos-

sible role of women in decision-making in different areas of the church's life.” He has named several women to Vatican leadership positions that were previously held only by men.

The Vatican's communications office has been run by a layman, Italian journalist Paolo Ruffini, since 2018.

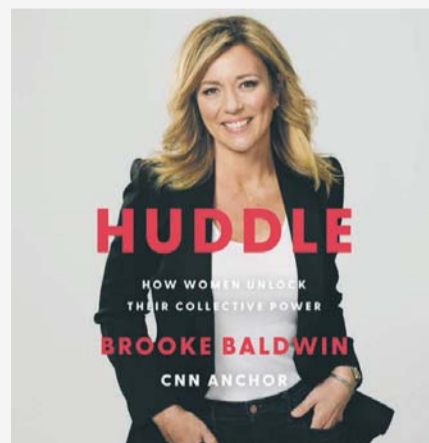
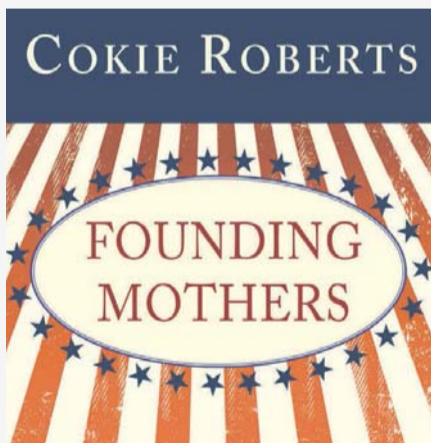
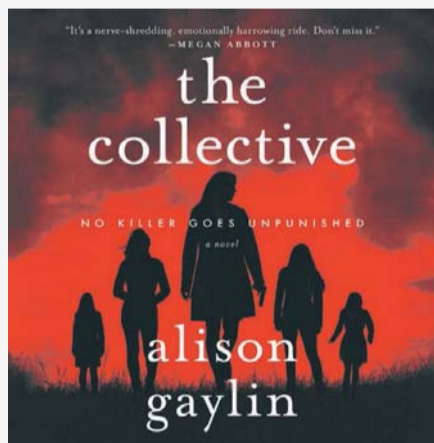
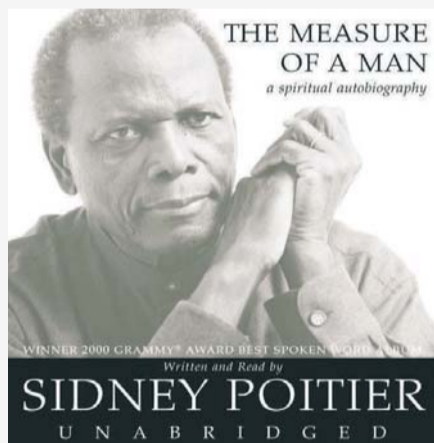
The constitution released on Saturday, more than eight years in the making by a committee of cardinals including

Cardinal Sean O'Malley of Boston, is largely a codification of changes made by Pope Francis since his election in 2013, such as the merger of offices for social justice, peace, healthcare, migration and charitable works.

Changes announced on Saturday include additional mergers, including that of the offices for education and culture. Pope Francis will personally assume the portfolio of a new office for evangelization.

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WORLD NEWS

# Home Sales Defy Beijing's Data

By CAO LI

HONG KONG—According to government statistics, China's housing market has cooled from its hot gains of years past but is still ticking along. The average new-home price rose 1.7% year over year in January and 1.2% in February.

Yet financial filings, marketing materials for apartments, property agents and analysts tell a different story: Debt-burdened developers are selling apartments at falling prices and in some cases providing big discounts to get cash in the door. Since last summer, most residential real-estate developers in China have reported steep drops in contracted sales. Many have also disclosed substantial declines in average selling prices this year, according to a Wall Street Journal analysis of their monthly stock-exchange filings.

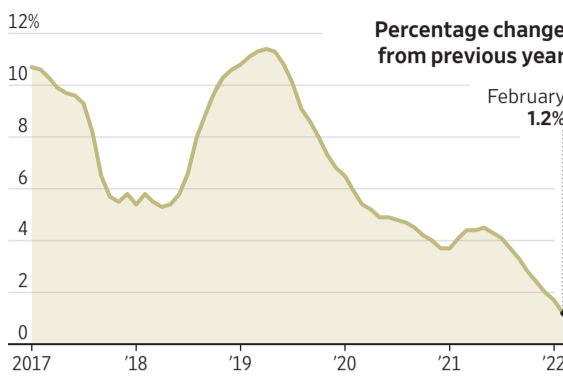
Industry giant **Country Garden Holdings Co.**, one of China's financially stronger developers, reported a 14% decline in its average selling price in January and February from the same months in 2021. A mid-size developer, Logan Group, said its average selling price tumbled close to 40% year over year in the first two months of 2022.

"The market has yet to show a clear recovery," said Lin Bo, vice-research director at CRIC, a real-estate-industry data provider. "The supply, demand and prices are going down," he added, referring to homes.

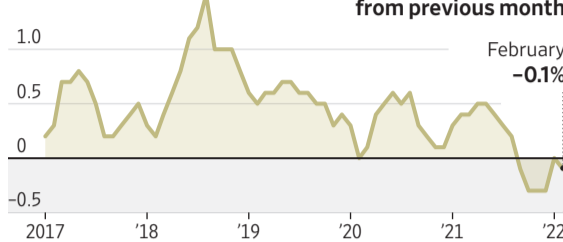
Property developers in China have been under pressure since the government imposed curbs on their extravagant borrowing in the summer of 2020. Investors have dumped their dollar bonds, pushing average yields above 30% recently and making it too costly for most developers to raise money in the debt markets. To avoid defaulting, many real-estate companies are rushing to sell apartments, which are now one of their biggest sources of cash.

Earlier this month, Soho China, a developer of mixed-use commercial and residential

Average new-home prices in China, monthly\*



Percentage change from previous month



\* Based on indexes for 70 major Chinese cities  
Sources: China's National Bureau of Statistics, Shanghai E-House Real Estate Research Institute (prices); ICE Data Services (yield)

Yield to maturity



buildings, said it would sell nine projects in Beijing and Shanghai at a 30% discount and use all the proceeds to pay off its debts

In Zhengzhou, capital of central China's Henan province, property developers have been struggling to sell their inventory while many buyers remain sidelined, according to property agents and online discussion forums. Over the past decade, industrialization and rapid urbanization transformed Zhengzhou into a mega city that developers flocked to.

"People have lost confidence," said a property agent surnamed Li who sells apartments in Zhengzhou, referring to home buyers. "On one hand, they are worried that developers won't be able to finish the construction; therefore, they will lose money. On the other hand, they are worried that prices will keep dropping."

Some developers have been offering big discounts to draw buyers. On social media, an apartment from China Vanke Co. that was listed at 21,500 yuan per square meter, roughly equivalent to \$314 a square

foot, last July, was recently marketed by agents at about a 19% discount. Some local home buyers, meanwhile, complained online last month about similar discounts being offered on a Country Garden project in Zhengzhou, saying that had a negative effect on the value of apartments they had recently purchased.

China Vanke didn't respond to a request for comment. Country Garden said it "adjusted the prices of some buildings in some projects at times" in Zhengzhou, based on the market situation and selling prices of neighboring projects, and called it a normal promotional practice.

Economists and property analysts say one main reason the country's official home-price data has shown muted changes is because of its composition. The national index surveys property prices in 70 out of China's nearly 700 cities, and the largest and richest cities such as Beijing, Shanghai and Shenzhen have registered stronger price gains. The average selling prices

that developers report, though, can vary a lot based on the companies' geographical coverage, timing of project launches and any discounts they have provided to buyers, said Franco Leung, head of China property corporate ratings at Moody's Investors Service. The government's home-price data also serves as a measure to influence the market, and officials have an interest in smoothing out the data and keeping it relatively stable, some analysts say. Big price drops in the official numbers could make people even less eager to buy homes.

China started to compile its housing-price index about two decades ago. The National Statistics Bureau decided on the list of 70 cities in 2005, when many other Chinese cities were still villages. Some analysts think it doesn't reflect the reality of today's market.

The index has a disproportionate focus on cities whose housing prices are stronger, analysts say.

—Serena Ng contributed to this article.

# China Officials Note Covid-19 Deaths

By ELAINE YU

HONG KONG—China reported its first deaths from Covid-19 in the mainland in more than a year as the country battles a surge of Omicron infections across the country. Two patients died of Covid-19 in the northeastern province of Jilin, which has been hard hit by the Omicron wave, China's National Health Commission said on Saturday. The deaths, both of which occurred the previous day, are the nation's first recorded fatalities since Jan. 26, 2021.

Earlier in the week, Chinese health authorities barred Jilin's 24 million residents from leaving the province, which borders Russia and North Korea, the first time such restrictions have been imposed on an entire province since Hubei province, home to the city of Wuhan, was locked down at the start of the pandemic. Millions of residents in Changchun, Jilin's capital, have been ordered to stay indoors, allowed out once every other day to buy food and other necessities.

The southern manufacturing and tech hub of Shenzhen also went into lockdown before relaxing some measures on Thursday.

China recorded 2,157 new locally transmitted Covid-19 cases on Friday, health authorities said on Saturday, compared with only about 70 local

infections earlier in the month. The country has recorded a total of roughly 17,000 new local cases in a week, most of them in Jilin.

China—the world's most populous country—has reported fewer than 5,000 deaths from the coronavirus since the pandemic began in 2020. It has kept infections and death counts low through costly and laborious measures including tight border controls, targeted lockdowns, mass testing and digital surveillance.

In recent months, the government has tried to use more targeted containment measures in an effort to lessen disruptions to the economy.

Chinese leader Xi Jinping vowed on Thursday to bring the outbreak under control, but also "minimize the impact of the Covid situation on economic and social development," a first acknowledgment from the Chinese leadership of the costs of the government's stringent policies.

The new outbreaks come as the highly contagious Omicron variant continues to rip through Hong Kong, a Chinese city with a separate tally of Covid-19 cases, where low vaccination coverage among the elderly drove the city's death rate past most of the world's worst pandemic peaks.

◆ Shanghai Disney Resort to close as cases surge..... B2



A healthcare worker in Beijing on Sunday took a swab sample before conducting a Covid-19 test.

## WORLD WATCH



Thousands of mourners escort the body of Rabbi Chaim Kanievsky at his funeral in Bnei Brak, Israel.

### PAKISTAN Mine Companies End Government Dispute

Two mining companies resolved a decade-long dispute with Pakistan, officials said, in a deal that will restart work on a giant copper mine and spare the country from having to pay billions of dollars in compensation. Canada's Barrick Gold Corp. and Chile's Antofagasta PLC had stopped preliminary work in 2011 when Pakistani authorities refused to grant them a mining license to develop the Reko Diq mine, located in the poor and sparsely populated western province of Balochistan.

Under the agreement, Pakistan will buy out Antofagasta's interest in the mine for \$900 million, the two companies and the government said. Barrick and Pakistan will split ownership of the mine evenly.

The new deal will represent the largest single investment in the country, Pakistani officials said on Sunday, with Barrick and Pakistan investing around \$10 billion.

—Saeed Shah

### NORTH KOREA Military Launches Artillery Into Sea

North Korea fired suspected artillery pieces into the sea, South Korea's military said, days after the North's latest missile

launch ended in failure amid the country's recent burst of weapons testing activity.

There is speculation that North Korea could soon try to launch its developmental longest-range ballistic missile to bolster its arsenal and dial up pressure on the U.S. to wrest concessions. South Korea's military suggested North Korea's midair missile explosion last Wednesday involved parts of the Hwasong-17 missile, its biggest weapon.

On Sunday, South Korea's Defense Ministry said it detected firings likely from multiple rocket-launch systems off North Korea's west coast.

—Associated Press

### SOUTH KOREA New President Plans To Relocate Office

South Korea's incoming president said he will abandon the mountainside presidential palace of Blue House and establish his office at the Defense Ministry compound in central Seoul to better communicate with the public.

The plan drew a backlash from critics, who warned that a hasty move would undermine national security, require excessive spending and violate property rights of residents in the new presidential office area.

Relocating the office was one of President-elect Yoon Suk-yeol's main campaign promises.

—Associated Press

### ISRAEL Rabbi's Funeral Draws Masses of Mourners

Hundreds of thousands of people attended the funeral of a prominent ultra-Orthodox rabbi in a city in central Israel.

Rabbi Chaim Kanievsky, 94 years old, one of the most influential scholars in the country's religious community, died on Friday.

The Belarus-born rabbi was laid to rest on Sunday in Bnei Brak, the predominantly ultra-Orthodox city near Tel Aviv where he lived. Israeli media estimated that over 350,000 people attended the funeral procession from his home to a nearby cemetery.

The rabbi was considered a luminary in the non-Hasidic ultra-Orthodox world.

—Associated Press

### BELGIUM Car Strikes Revelers, Killing at Least Six

A car slammed at high speed into Carnival revelers in a small town in southern Belgium early Sunday, killing six people and leaving 10 more with life-threatening injuries, authorities said.

The prosecutor's office said two local people in their 30s were arrested at the scene in Strépy-Bracquegnies, 30 miles south of Brussels. Prosecutors there said they didn't suspect terrorism.

—Associated Press

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## FROM PAGE ONE

# Trombone Players Get Star Roles

Continued from Page One  
“Seventy-Six Trombones.”

The production actually features two trombonists—Mr. Boschen, who plays the common tenor version, often simply referred to as the trombone, and Jack Schatz, who plays the bass version. Mr. Boschen jokes, “We’re 74 trombones short, but we’re trying our best to make up for it.”

Other tunes let him play in a jazzy or more romantic vein. He stays in the pit, but his presence is constantly felt.

Typically, trombonists have played supporting roles “like an offensive lineman,” says Mike Davis, a trombonist with “Moulin Rouge! The Musical.”

Producers have been reducing the size of Broadway orchestras as a cost-saving measure. Long gone are the Golden Age days when 25-piece ensembles were the norm, anchored by sizable string sections. Now, some shows can rely on 10 or fewer musicians—with digital instruments and tools often used to replicate the real deal.

But it’s hard to replicate a trombone, or “bone,” as it’s called in industry parlance, with its signature sliding sound. Also, the trombone is an instrument that adapts particularly well to many genres. “It’s good for so many things,” says veteran Broadway orchestrator Jonathan Tunick.

Mr. Boschen, a native of the Philadelphia area, has been wedded to his trombone since he picked up the instrument in third grade—it was either that or the cello, since both were suited to his height. He went on to study with trombonists in the Philadelphia Orchestra

and then trained at the Eastman School of Music in Rochester, N.Y., and the Juilliard School in New York City.

He could have looked for a full-time job in a symphony orchestra, but decided he liked the varied life of a New York freelancer, where the gigs can range from playing jazz standards at a cocktail party to performing with classical ensembles, sometimes within the space of a day. A Broadway job is a coveted base, especially if it’s in a show that has potential for a decent run.

Last July, while teaching one of his trombone students at his home near Peekskill, N.Y., he got a text telling him to call about “The Music Man.” He phoned and was told he had the job.

“He knows how to make something a comic moment or make it a jazz moment. It’s an art to what he does,” says Patrick Vaccariello, music director and conductor of “The Music Man,” who worked with Mr.

Boschen on previous shows.

Like many Broadway musicians, Mr. Boschen is willing to play other instruments, if needed. Over the years, he has doubled on bass trombone and euphonium in shows, though he says he has a strict “no tuba” policy.

At “The Music Man,” Mr. Boschen shares an area the

**Trombonists usually play supporting roles, ‘like an offensive lineman.’**

size of a modest suburban living room with about a dozen other brass and woodwind players (string musicians are in a separate spot). He is always mindful about where he aims his slide. During another show, he worried about knocking down the conductor’s po-

dium.

“It would have been a showstopper in a different sense,” he says.

Mr. Jackman calls Mr. Boschen a “spectacular trombonist.” The actor, best known for his role as Wolverine in the X-Men cinematic franchise, says despite studying violin in high school he can’t fathom the skills required of playing in the pit. Mr. Jackman buys the musicians scratch-off lottery tickets every week in recognition of the valuable role they perform. Mr. Boschen says he’s won a couple of bucks so far.

“I have no business being down there other than delivering lottery tickets,” Mr. Jackman says, though he adds, “If there’s a part for a triangle player, I’m in.”

Pit musicians must contend with long stretches of a show where there’s nothing to do. Some text on their phones or do crossword puzzles during downtime.

On a recent Saturday mati-

nee performance, Mr. Boschen kept busy reading a book on stock trading.

There’s always the risk of missing a cue to start resuming playing. Mr. Boschen says he internalizes the score so that rarely happens. The only time it did on “The Music Man,” he says, was when he got caught up in a moment hearing Sutton Foster, who plays Mr. Jackman’s romantic interest in the show, work her way through “Goodnight My Someone.”

“I lost myself in the beauty of the singing,” he says.

Mr. Boschen has never seen this production of “The Music Man” from the audience—nor does he plan to. That’s almost standard practice among Broadway musicians, who view their jobs as strictly focused on the score, not the broader production.

“I have my own version of the story playing itself out like a movie in my mind. I see it through hearing it,” he says.



San Francisco’s mix of retail stores, tourists, commuters and wealthy residents have made it an inviting target. The Chinatown neighborhood, left. Police Capt. Julian Ng, right, has beefed up foot patrols.



# Petty Theft Plagues Businesses

Continued from Page One  
hicles last year—almost 57 a day—a 39% increase from the prior year, although still below the record of 31,398 in 2017, according to the police.

Smashed storefronts are so common that the city launched a program to fix them with public money. Car owners leave notes declaring there is nothing of value in their vehicles, or leave their windows open to save themselves from broken glass. Videos of shoplifters hauling goods out of drugstores such as Walgreens have gone viral, and a smash-and-grab robbery by 20 to 40 people at a Louis Vuitton store last November made the national news.

Owners of small businesses say the costs of security and repairs are eating into profits already diminished by the Covid-19 pandemic. In the Castro, the neighborhood where Cliff’s is located, shops have recorded nearly 100 instances of smashed windows and doors that cost \$170,000 to repair since the beginning of 2020, according to the neighborhood’s merchant association.

Criminologists say San Francisco’s high density of retail stores and its mix of tourists, commuters and wealthy residents have made it an inviting target for thieves. Locals point to a host of other factors that may be exacerbating the problem, including the tactics of the police and prosecutors, statewide changes intended to reduce the number of people behind bars, and the city’s dual crises of drug use and homelessness. There has been no end of finger-pointing.

Despite the city’s long history of progressive politics, some business owners and residents are demanding that political leaders shift to a more law-and-order approach.

District Attorney Chesa Boudin, who took office in 2020 as part of the national “progressive prosecutor” movement and has de-emphasized the prosecution of low-level offenses, will face a recall election in June.

“Nothing is more important than to make sure that people who live in this city, people who work in the city, people who visit San Francisco, feel safe,” Democratic Mayor London Breed said at a news conference last month. “The fact is, that does require police officers.”

Some former police officials and business owners blame Mr. Boudin’s focus on keeping people who commit small-scale crimes out of prison. His office, for example, discourages filing charges in cases where suspects are pulled over for traffic infractions and officers find small amounts of drugs. Others point the finger at the police, who cleared just 6% of the city’s property crimes in 2020, more than 8 percentage points lower than the national average. A case is considered cleared if a suspect is arrested, charged and turned over to a court for prosecution, or is identified with sufficient evidence for a charge but can’t be taken into custody for circumstances beyond police control.

## Organized crews

Some business owners say the city’s large population of people living on the streets and using drugs such as fentanyl is a big factor in the small-scale thefts. Law-enforcement officials, though, say they suspect organized crews of petty criminals are carrying out a large portion of them.

Police Chief Bill Scott has deployed more officers to tourist spots such as Fisherman’s Wharf to stop car break-ins, and to retail shopping districts to stop thefts and burglaries. He has beefed up his retail theft investigations unit.

Businesses have been affected in every corner of San Francisco, even traditionally low-crime areas such as the Sunset District, where commercial and residential burglaries rose 80% in between 2019 and 2021.

Michael Hsu’s Footprint shoe store got broken into for the first time in February 2021. The thief used a blowtorch to crack the glass door without setting off the alarm and took tens of thousands of dollars worth of high-end North Face jackets. More people arrived soon after, taking whatever they could grab before they set off the alarm.

Mr. Hsu, who grew up in the

Sunset, said he recalled thinking: “Oh, they finally got me.”

Mr. Hsu was the first recipient in the new grant program for small businesses to fix their storefronts. Three weeks later, his store was hit again, this time by a thief who climbed up scaffolding, broke in through a second-story window and made off with several boxes of shoes.

He now equips his employees with pepper spray and a key fob that calls the police directly. He upgraded his security system and is putting money aside for other anti-theft measures.

The grant program has distributed more than \$500,000 to nearly 400 businesses to fix their storefronts.

Sharky Laguana, who is president of the city’s small business commission and runs the van-rental company Bando, said thieves frequently smash his vehicles’ windows and steal his customers’ belongings. “It gives customers a bad experience, it costs them a lot of money and it costs us a lot of money,” he said.

Police and prosecutors say the majority of car break-ins are committed by organized crews. Mr. Laguana grew so frustrated he launched a reward program for information that leads to busts of big fencing operations that buy mer-

chandise from such thieves. He thought he would be able to raise tens of thousands of dollars at best; he got \$250,000 in pledges from rental-car companies and other businesses.

The day after the Louis Vuitton smash-and-grab robbery, San Francisco police deployed a mobile command center that still sits across the street from the luxury-goods store. The department sent more foot patrols to the Union Square retail district, pulling officers from all over the city, said Captain Julian Ng who oversees the area.

“It’s a resource drain, but if I had my way, we’d do this forever because it’s such an important area for the city,” said Capt. Ng.

Five people were arrested in connection with the Louis Vuitton incident. Captain Ng said there are many reasons for the city’s overall low rate of clearing property-crime cases, including the department’s no-chase policy for misdemeanors and nonviolent felonies, which aims to reduce unnecessary accidents. Car break-in crews can easily zip away in their own vehicles without police cars chasing them, he said.

Some former police officials said in interviews that officers don’t feel it is worth making an arrest in low-level cases be-

cause they assume the district attorney won’t file charges. They also point to a statewide ballot measure passed in 2014—Proposition 47—that raised the dollar amount at which theft can be prosecuted as a felony from \$400 to \$950.

## Policy debate

Mr. Boudin, a former public defender, said his office hasn’t changed the way it prosecutes property crimes from the previous district attorney, George Gascon, who is now district attorney in Los Angeles and facing his own recall campaign. The office’s rate of filing charges against people arrested for burglaries and thefts dipped to 41% in Mr. Boudin’s first year in office, but increased to 58% in 2021, similar to the rate during Mr. Gascon’s tenure.

Mr. Boudin has pointed the finger back at the police, arguing that the certainty of arrest is low in San Francisco compared with other cities. More consistent arrests of criminals, he has said, would be a more powerful deterrent than the length of prison sentences.

Last November, officers were caught on a surveillance camera sitting in a squad car, watching as burglars made off with stolen product from a cannabis dispensary. The department is investigating the incident.

Lt. Scott Ryan, who heads a unit that investigates property crimes, said clearance rates aren’t a good measure because police often nab serial offenders who they believe to be responsible for far more burglaries or thefts than they can prove.

He said consequences aren’t severe enough for repeat offenders. Police investigators have a list of 48 people arrested five or more times for burglaries in recent years, he said, and more than half of them are no longer behind bars. “There’s got to be a line in the sand,” he said.

In February, Ms. Bennett, the owner of Cliff’s Variety, received an email alert that angered her. The burglar who broke into her store to steal spray paint and gloves was being released from jail, it said.

Charles Andrews, who was convicted in the burglary, was getting out of jail after 244 days. It was the second time that Mr. Andrews had been arrested for breaking into Cliff’s,

the first coming in 2017.

The other burglar, who smashed a \$4,500 display window to steal a \$200 emergency kit, was never caught.

Sylvia Cediell, a public defender who represented Mr. Andrews, said his repeated arrests “reflect the circumstances of his life—primarily extreme poverty.” Mr. Andrews has been homeless since he came to the Bay Area more than a decade ago, she said, and his time in jail has been the only time he has spent off the streets. Ms. Cediell said the city needs to do a better job addressing poverty and lack of housing.

Ms. Bennett said she believes the worsening drug problem within San Francisco’s homeless population has led to thefts and some of the property damage at Cliff’s. Last year, Mayor Breed declared a state of emergency because of overdoses in the city’s Tenderloin neighborhood.

In an effort to deter shoplifters, Ms. Bennett now stations employees at the door to greet customers. She installed a camera system and gave employees walkie-talkies so they could monitor shoplifters and confront them before they leave the store. Shoplifting losses have since dropped from 2% to 1% percent of annual sales, she said.

The increase in burglaries, which often involves breaking into closed shops, may be driven in part by emptier streets during the pandemic, police and criminologists say.

Ms. Bennett, whose great-great-grandfather Hilario DeBaca started the business, said the increase in crime hasn’t made her consider closing Cliff’s, which she said is woven into the neighborhood. But the break-ins are eating into the store’s bottom line.

New metal gates to protect the entrances plus repairs from the two burglaries and shattered door totaled about \$22,000, less than half of which was covered by insurance, she said. She is applying to the city grant program to fix the most recently shattered door.

“When you’re a small-business owner, you spend more hours at work than at home, so you take it very personally when someone attacks you,” she said. “Whether it’s an attack on you or just your building, it really doesn’t matter. It feels the same.”



Signs warn visitors to remove valuables from their vehicles at the tourist destination of Twin Peaks.

## Business Attire Is Dressing Down

As more workers return to the office, they are increasingly giving wardrobes a casual turn



PHOTO ILLUSTRATION BY YASARA GUNAWARDENA FOR THE WALL STREET JOURNAL (2)



**WORK & LIFE**  
**RACHEL FEINTZEIG**

**B**ill Hall has 50 French-cuff dress shirts, twice as many cuff links, 100 ties on motorized racks and at least 40 pairs of suspenders, most of them silk. He hasn't touched any of them since March 2020.

Instead, his uniform has been a T-shirt, slippers and pajama pants, or baggy jeans when carrying his phone around in the pocket of his PJ pants started to bug him. Occasionally, he will indulge in a pair of silk pajamas—dark blue with white pinstripes—he received for Christmas.

"Why get dressed up at home?" asks the 70-year-old, who works in procurement from his Frederick, Md., home these days.

What do we wear while working remotely? Whatever we want. Even as we get called back to the office, we might take some of our new sartorial selves with us.

We've gone casual, yes—good-bye, hard pants—and we have also gone weird, authentic and free. Our hair is gathered in messy po-

nytails, left to its natural colors or textures, or hidden under beanies and ball caps. We have ditched makeup, razors, deodorant. A January survey from a consortium of academic researchers found that commuters spend an average of 27.8 minutes grooming and getting ready for the day, compared with 19.1 minutes for telecommuters. The latter are less likely to shower daily and put on fresh clothes, too.

### Business attire doesn't consistently increase workers' feelings of power, a study shows.

Freed from seeing patients in person, psychologist Lane Vander Sluis has whittled his wardrobe down to three pairs of shorts and six T-shirts. Shielded from the elements in a forever 68-degree home office, it can be springtime all year long, several remote workers told me.

(Don't worry: Dr. Vander Sluis, of the Vancouver, Wash., area, says he keeps an emergency stash on hand: a single pair of jeans, in case of an

emergency such as an earthquake, tsunami or wedding invitation.) Karah Preiss, a New Yorker who runs a website for book lovers, dons baseball caps and overalls.

"I dress like a middle-school baseball player!" she wrote me. "I'm not sure why..."

In the Seattle area, Guinnivere Rincon began her WFH journey by dutifully pulling on her office slacks and skirts. Slowly she slid into yoga pants, a pink fuzzy bathrobe emblazoned with cats, and finally, broke into her stash of theater costumes. Occasionally dressed as a witch or werewolf, a ghost or Greek goddess to switch things up, she found she could fully concentrate at her computer.

"When you're in your office you're so focused on, 'Is my slip showing? Are my shoes OK?'" Ms. Rincon says. "With a costume, all that stuff's out the door."

Forget dressing for the job you want—dress for the environment you're in, says Erica Bailey, a doctoral student in organizational behavior at Columbia University and the lead author of a recent paper about remote-work attire and productivity. Researchers assigned hundreds of participants, all remote workers, to various states of dress: formal, casual or "Zoom

mullet"—business on top, stretchy pants below. Researchers confirmed compliance through photographs of the outfits participants selected, and measured the impact of the clothes through surveys.

The big reveal: Wearing business attire didn't consistently increase participants' feelings of power. Throwing on comfies while working from home, however, boosted the workers' feelings of authenticity and engagement, indicating that they were more immersed in their tasks and more present.

"People could get more out of their employees if they let them express themselves in a way that's relatively costless to the employer," Ms. Bailey says.

Back at the office, Heather Jameson, an underwriter for a mortgage lender, often felt irritable and like she had to play a part. "OK, you're making me come here. You get me from 8 to 4. That's it," was her attitude, she says.



Since November 2019, she has worked from her Little Rock, Ark., home. She slips out of bed, wearing soft shorts and one of 30 bodysuits she has collected in various colors, grabs coffee and heads right to her computer.

"I work all the time now and it doesn't bother me one bit. It's not a stressful thing," she says. Wearing her work-from-home uniform, she has noticed her Southern accent, camouflaged at the office, has re-emerged. She feels more like herself, and happier. The number of loans she finishes a month has increased to 80 from 40, she says.

Tech companies figured this out long ago, says Richard Ford, a Stanford Law School professor and author of a book on dress codes. Silicon Valley behemoths long attracted prospective talent with bountiful buffets, on-site salons and the ability to do it all in a sweatshirt.

No wonder many of us are working longer and harder now that we're comfortable at home, without the bookending ritual of peeling off our black pants and blazers at the end of the workday.

As we head back to the office, a few days a week or all the time, Prof. Ford believes the standards will change.

"The kind of clothing you see people wearing on Zoom is just going to become understood as professional clothing," he says.

Tailored sweatshirts, tennis shoes and some athleisure wear will be fair game at the office, he predicts.

Within limits, that is. Pajama pants, he notes, are still a no-go.

And some bosses will bristle at the shifting norms. One manager at a tech company told me he can't help but judge workers who wear baseball caps on video calls; they don't seem like leadership material, he says. Other employees confessed they just feel weird not slipping on a jacket for presentations.

But for most, there is a specific thrill in throwing dress codes out the window.

"I'm going to start my day and do it a little bit more on my own terms," says Alexander Lyle, a financial-services worker who sometimes wears his old soccer uniforms while working from his sunroom. "I'm in my own clothes and don't have to fake impress anybody."

Still, when he went back to his office on a hybrid schedule earlier this month, he was ready. He had been periodically trying on his old work wardrobe during the pandemic to make sure it still fit, so he was able to pull his suit pants, jacket and a button-down from the closet, despite relaxed dress codes.

"I just feel a bit more prepared," he says.

By VERONICA DAGHER

**N**ow is the time to pay off high-interest debt before it gets more expensive.

Adjustable-rate debt, such as credit-card balances or auto loans, is about to get pricier because last week, the Federal Reserve raised interest rates.

The Fed also signaled several more increases are coming this year, with six more expected.

Fed rate increases don't immediately raise the interest you pay on loans, but they do affect it indirectly.

Financial advisers say you should pay down your high-interest debt as quickly as possible, given the Fed's stance. It will cost you if you don't.

Here are some tips on how to tackle it.

### Create a sense of urgency

You can use the prospect of additional interest-rate increases to create a sense of urgency to pay off your debt. Karol Ward, a psychotherapist and confidence coach in New York, suggests visualizing what it would feel like to have to pay more and more interest. Then picture the relief of having your debt eliminated faster.

"You'll recognize quickly by either feeling energized or discouraged which decision is best for you," she said.

Resolving debt faster means you will likely have to cut back on some extras in your life now.

While that might not feel good in the short term, Ms. Ward suggests focusing on the eventual gratification you will feel when you are relieved of that debt.

"Connect to the pride of both the effort and steps you are taking to become free of that debt,"

## How to Pay Off Debts Before Six Rate Rises



Ms. Ward said.

### Get motivated

Reframe paying off the interest of your debts as a return, which can motivate you to pay off the debt with the highest interest rate first, said Michael Liersch, head of advice and planning at Wells Fargo. Count how much money you will get back over the lifetime of the debt you are paying off, he said.

The Fed's quarter-percentage-point increase won't be a big deal for most credit-card borrowers, said Ted Rossman, senior industry analyst at Bankrate. It will add only about \$1 a month to the minimum payments toward the average credit-card debt

of roughly \$5,500 at the average credit-card rate of about 16.34%, he said.

Still, if you make only minimum payments, you will end up paying more than \$6,000 in interest and it will take you more than 16 years to pay off the debt. The amount you will owe and time it will take to repay it will increase as the Fed raises rates.

### Know your debts

Once you have your timeline, list each of your debts along with its corresponding interest rate, said Manu Lakkur, director of product at Credit Karma. Creating a spreadsheet or tracking what you owe in

an app can help you feel more in control, he said.

Pay special attention to credit-card debt, adjustable-rate mortgages, home-equity lines of credit, auto loans and private student loans, as the interest rates on these loans may rise faster than those on other types of loans.

### Make a plan

Financial planners generally recommend paying off expensive debt first before tackling lower-rate balances.

The interest on your debt may compound faster than the growth you may expect from your investments over the same period of time, said Kyle McBrien, financial planner at digital investment ad-

viser Betterment.

Consider your minimum debt payments as fixed expenses, Mr. McBrien said. Then, get aggressive about paying off the highest-interest loan first, then moving on to the next to minimize total interest paid over time.

Consider a "scorched-earth" strategy by spending as little as possible and selling any assets you don't need right now—such as collectibles—to help you get out of debt faster, said Benjamin Rickey, a financial planner in Yakima, Wash.

"It will be painful," said Mr. Rickey.

### Refinance your debt

If you have loans with a variable interest rate, consider refinancing to lock in a fixed rate. This will give you a dependable monthly payment that won't rise further if interest rates continue to go up.

The decision to refinance depends largely on your financial situation and what your goal is, said Mr. Lakkur at Credit Karma: to save money over the life of your loan or to be able to lower your monthly payments to free up some extra cash.

If you have a large amount of pricey credit-card debt or are juggling several credit-card payments, consider consolidating with a personal loan, which tends to come at lower interest rates, especially if your credit is good.

Sign up for a 0% balance transfer credit card, said Mr. Rossman at Bankrate. You may be able to avoid interest for up to around 21 months and could save hundreds in interest payments depending on how much you owe, he said. Most offers charge a transfer fee of 3% to 5%, but it can be worth the cost as long as you are disciplined about paying the money back during the 0% offer period, Mr. Rossman said.

GETTY IMAGES

## PERSONAL JOURNAL.

By ANDREA PETERSEN

# Finding Joy Is as Good As Gold in a Grim World

Liz Horvath was feeling excited and optimistic last month. Covid cases were declining and life was returning to some sort of pre-pandemic normal.

Then the invasion of Ukraine happened.

"It's like a whole other type of crushing sadness," says Ms. Horvath, 24, who works in education in the suburbs of Philadelphia. "There's some guilt about even trying to take time to do things that I enjoy when there's so much pain and suffering in the world."

It can be tough to be happy—and might even feel unseemly to be so—when people are dying and fleeing for their lives. But psychologists say it is exactly times like these that it's most important to cultivate moments of joy and fulfillment. Positive emotions have many benefits for physical and mental health and help us get through the hard times, says Dacher Keltner, professor of psychology and faculty director of the Greater Good Science Center at the University of California, Berkeley.

There are strategies to help you create these moments of joy. Mental-health professionals recommend activities such as taking a walk

outside in nature, doing something helpful for someone else and scheduling time to do things that make you happy.

It isn't selfish or frivolous to seek happiness, says Lynn Bufka, a clinical psychologist and associate chief, practice transformation at the American Psychological Association.

"It doesn't diminish someone else's pain for us to feel happy or good about something," she says. Instead, feelings of joy and happiness make us feel more connected to other people and can give us the energy and perspective to help others, she says.

Americans are certainly stressed out. A March 2022 survey commissioned by the American Psychologi-

cal Association found that 87% of adults said rising prices are a significant source of stress, and 80% cited the invasion of Ukraine. More people rated these as stressors than any other issue the poll has covered during its 15-year history. About three-quarters of survey participants said they are overwhelmed by the number of crises facing the world now, according to the poll, which involved more than 2,000 adults. Meanwhile, in a February poll, 58% said the pandemic is a daily stressor.

Positive emotions are directly linked to better health. In scientific studies, so-called positive affect is associated with longer life, stronger immune function, lower blood pres-

sure and lower levels of the stress hormone cortisol, among other benefits, according to a paper published in 2019 in the Annual Review of Psychology. The paper's authors define positive affect as "the experience of pleasurable emotions such as happiness, joy, excitement, enthusiasm, calm and contentment."

Regularly doing activities that you enjoy is important for mental health, too, says Natalie Christine Dattilo, a clinical psychologist at Brigham and Women's Hospital in Boston. She notes that scheduling pleasurable activities is a key component of behavioral activation, an effective treatment for depression.

"We have to practice feeling good in order to feel good in the

future. It's kind of like a muscle," Dr. Dattilo says. She advises people to be mindful of how much time they're spending exposing themselves to negative or stressful information and balance it with positive experiences.

For several weeks after the war in Ukraine started, Ms. Horvath says she and her boyfriend were consuming news and talking about it for hours every day. Now, Ms. Horvath has instituted a 45-minute daily time limit. "I hit a wall. It was too much," she says. Ms. Horvath is making time to binge fun TV shows and movies and pet her cat instead.

When things are so gloomy, it can be tough to know where to start to create moments of joy.

Think back to activities you used to do, or people you used to spend time with, that have previously been sources of happiness, suggests Dr. Bufka. If that seems too difficult, she advises focusing on experiencing the senses in the smallest moments, such as the

color of a flower or the sound of laughter.

Dr. Bufka also recommends getting outside. Scientific studies have found that spending time in nature is linked to decreased anxiety and greater feelings of well-being.

Berkeley's Dr. Keltner advises people to take an "awe walk," where you focus your attention on the trees and sky around you.

"You stop thinking about all of your self-focused strivings and worries," he says. Or spend a few minutes thinking about what you're grateful for, which research has linked to better sleep and greater happiness.

Plan an activity or experience that you think will bring you joy regularly; every day is ideal, Dr. Dattilo says. Schedule it for a specific time. Put it into your Google calendar, like you would an important meeting.

One of the most powerful ways to bring ourselves joy is to do something helpful for someone else,

notes Dr. Dattilo.

When Cathy Dunsby was feeling sad and overwhelmed by the war in Ukraine, she bought a Ukrainian flag, attended a local vigil in support of Ukraine and donated to several GoFundMe efforts to bring money and supplies to refugees from the war.

"Every single story is heart-breaking. There's no way not to be impacted by it," says Ms. Dunsby, a 53-year-old mother of four children ages 14 to 23 in Easton, Conn. Ms. Dunsby is also making an effort to connect with friends and is busy planning a summer trip to Europe for her family. Finding joy in these activities, she says, makes her better able to meet the needs of her family.



PHOTO ILLUSTRATION BY GABRIEL ZIMMER/THE WALL STREET JOURNAL. ISTOCK



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## M.B.A.s Market Selves as SPACs

PHOTO ILLUSTRATION BY GABRIEL ZIMMER/THE WALL STREET JOURNAL. ISTOCK

By LINDSAY ELLIS

Plenty of M.B.A.s finish business school with a hot startup pitch for investors. The latest breed of student-entrepreneur is skipping the startup part and pitching themselves as the investment.

Consider the model a SPAC of sorts—akin to the stock-market trend in which a special-purpose acquisition, or "blank-check," company raises money and lists its shares, then finds a private business with which to merge. In this case, the investment vehicle is a fund for a newly minted M.B.A. graduate. The M.B.A. uses the money to search for a privately held, under-the-radar business and run it as chief executive and part owner.

These so-called search funds came on the business-school scene decades ago, but they have taken off in the pandemic years as investors—awash in capital—look for promising places to put it.

Arielle Lawrence, a student at MIT's Sloan School of Management who plans to search for an acquisition this year, came to business school with a corporate-finance and private-equity background. Her parents asked why she was rejecting a more stable career.

"The reality is, there's a risk and a choice that every entrepreneur makes," she said. Most M.B.A. searchers

hailed until recently from Harvard and Stanford universities, whose M.B.A. programs supported them with relevant coursework and in-the-know professors. Now, more schools and students are getting in on the action.

According to Stanford's Graduate School of Business, there were 51 new search funds in 2019, then a record. Its preliminary numbers show at least 70 in 2020. It estimates more launched in 2021.

70

Stanford's minimum number of new search funds in 2020

Business schools see search funds as a way to compete with other programs on entrepreneurship. The returns have been good enough to entice investors, who after the search often finance the acquisition. A Stanford study of nearly 400 search funds through 2019 found three-quarters of companies acquired by searchers yielded a positive return for investors. Of those, 69% delivered at least double the return on investment.

The money often comes from family offices and institutional investors, as well as friends and relatives or high

net-worth individual investors, said Sara Heston, the associate director of Stanford's search-fund project.

For M.B.A.s, the search-fund model is a way to become a CEO and business owner soon after graduation, without starting a business from scratch. But the path can be challenging. Identifying a business means cold calls to potential sellers and many rejections. About a third of searches have ended without an acquisition. Searchers miss out on campus recruiting.

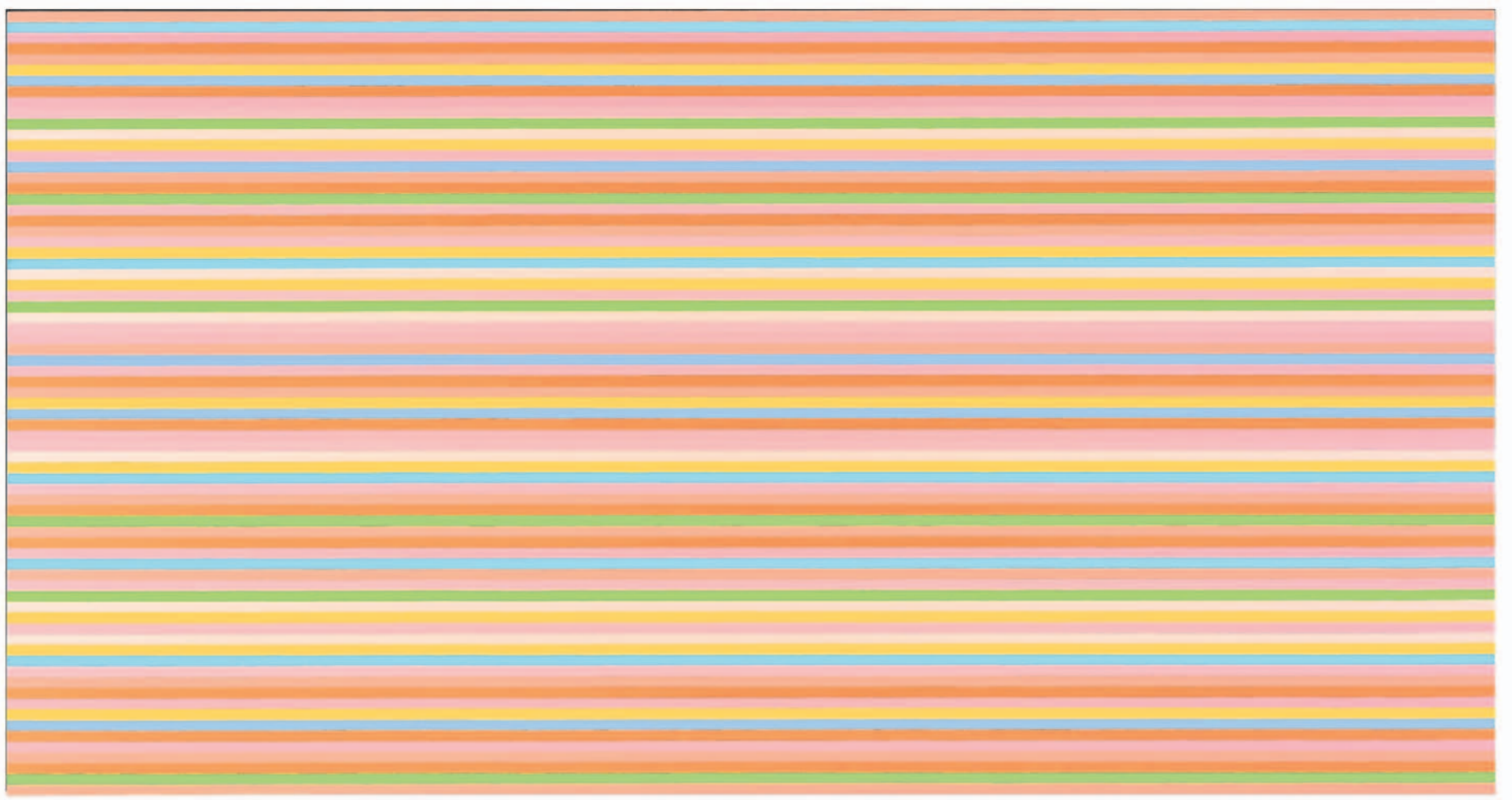
The companies that M.B.A. searchers target aren't flashy startups or well-known brands. Many are family firms without a succession plan or companies too small to attract typical investors. The searchers typically hold the businesses for six to 10 years, sometimes selling to private equity. Recently acquired companies operate in insurance sales, security, software services, pest abatement and construction, Stanford said.

Investors said they know searchers are often inexperienced, so the businesses they target must be in growing markets and have strong recurring revenue.

That way, "even if these new CEOs make mistakes and screw up—which we expect them to do, they're new CEOs—they can't screw things up that badly," said Sara Rosenthal, a partner at TTCER Partners, which primarily invests in search funds.



## ARTS IN REVIEW



BY PETER PLAGENS

Washington and  
New Haven, Conn.

The day before I went to the Yale Center for British Art in New Haven for the full Bridget Riley retrospective, I sat for almost an hour on a bench in a small gallery in the Phillips Collection in Washington, pondering two large paintings by Ms. Riley and, less intently, one by Pierre-Auguste Renoir. This tidy little exhibition is one in a series of the Phillips's "One-on-One" shows in which a contemporary artist chooses a work in the collection to which he or she significantly responds.

"Luncheon of the Boating Party (1880-81), the Renoir Ms. Riley selected, is a complicated painting, with a lot of narrative goings-on. It's flanked by her big "Red Overture" (2012), an abstract painting consisting of equal horizontal stripes in cheerful, popsicle-like hues, and the equally large "Red With Red 1" (2007), a curvy, waving-in-the-breeze composition made with a dark blue and the same hot-orange-deep-pink combination common to 1960s California coffee shops.

Trying to find connections between Renoir's work and the eye-boggling geometric abstraction of Ms. Riley, the 90-year-old English painter, is as conceptually puzzling as her paintings are, in a pleasurable way, optically confusing. Ms. Riley encountered the Renoir in London in 1985 and said, according to the Phillips, "Renoir was passionately interested in all matters of color. I was enthralled by his use of red, one of the most difficult colors for a painter, by virtue of its strength. He takes red through every possible modulation and every shade of light and dark, using it as contrast or harmony." For most of the Phillips's audience, I suspect, it's a bit of a leap from the comparatively gentle optics of Impressionism to the full-on Op Art of Ms. Riley.

The term "Op Art"—by which is meant abstract paintings and prints that involve eyeball wobbling illusions and misdirections—was coined almost 60 years ago by Time magazine and served as the subject of an expansive 1965 show, "The Responsive Eye," at the Museum of Modern Art in New York. Naturally, Ms. Riley was included. The persistent, or perhaps even nagging, question about the style is whether it can ever really be as profound or emotionally moving as, say, the equally abstract work of such artists as Mark Rothko, Ad Reinhardt, Helen Frankenthaler or Joan Mitchell, or is it forever tied to optical switcheroos. As the art historian Sarah K. Rich put it in retrospect, "For a long time, Op Art has occupied a position similar to that of the bouffant hairdo. Briefly fashion-forward, it quickly became an embarrassment." That's a tad severe, but if Ms. Riley is the exemplar, transcendence is possible though not guaranteed.

Bridget Riley was born in 1931 in London, where she attended Goldsmiths and the Royal College of Art and had her first solo gallery show in 1962. In "The Responsive Eye" she exhibited a black-and-white painting ("Current," 1964), but afterward began adding gray to her palette. This was, the Yale online catalog notes, "a testing ground, a bridge she

## ART REVIEW

# The Eye-Boggling Op Art of Bridget Riley

A pair of exhibitions, one intimate and one expansive, look at the painter's pioneering work in the genre



Bridget Riley's 'Red Overture' (2012), top; installation view of 'Bridget Riley: Perceptual Abstraction,' an exhibition on view at the Yale Center for British Art, above; Ms. Riley's 'Red With Red 1' (2007), below



had to cross to start using color." The "Late Morning" (1967-68) series of paintings featuring skinny vertical stripes were her first color paintings. Fifteen years later, she became the first woman to win the international painting prize at the Venice Biennale.

Following her early success, Ms. Riley started traveling widely—to Australia, Egypt, Japan, Bali, Java and Tahiti, among other places. All of those named locations, it should be

noted, are visually more colorful than overcast Old Blighty. In fact, says the Yale catalog, "When Riley visited Egypt in 1979, she was struck by the stark color contrast of the blindingly bright desert against the green cultivation along the banks of the Nile River."

The large Yale exhibition (which is not curatorially connected to the smaller one at the Phillips) consists of 52 works chosen by the artist in collaboration with the curators. It occupies two

floors of the Center for British Art, one dedicated to the earlier monochrome paintings and the other to paintings with color. The Center itself, designed by the great architect Louis Kahn, is a handsome edifice inside and out, but given the warm luster of its interior wood and the beige gallery walls, it's impossible to mount Ms. Riley's work on the crisp white surround her paintings really need.

That said, the exhibition is

meaty. The collages and gouache studies included with the paintings demonstrate that Ms. Riley employs a good deal of old-fashioned trial-and-error and, as the catalog quotes the artist, takes a form "through its paces to find out what it can do." She gets considerable bang out of her deceptively uniform layouts, but later works with undulating curves seem fruitlessly baroque. "Late Morning" (1968), an oddly soothing 8-foot-wide painting of narrow vertical bands, invites contemplation, while the curvy "Rêve" (1999) seems to gild the perceptual lily. I will go along, nevertheless, with the Center's claim that Ms. Riley's work demonstrates a "cycle of repose-disturbance-repose overtaken by a logic of sensation." The artist sometimes reworks tentatively completed paintings later on—

**The nonagenarian's inventively planned, carefully crafted works reward close looking.**

even years later—but the impressiveness of that clear dedication to get things right is tempered by the fact that the actual paintings are executed by assistants.

However they come into being, Ms. Riley's works still reward close looking. The planning is careful and inventive, the craft and care of the execution (whoever is doing it) is well-nigh perfect, and the final effect—in the colored band paintings, especially—pleasant to the point of being uplifting. Compared with other painters whose work is roughly in the same mode—Julian Stanczak, Richard Anuszkiewicz and Gene Davis—Ms. Riley is more subtle and nuanced. Yet with few exceptions, even with her smaller works, her paintings don't seem suitable for intimate spaces, but rather as if they're intended as museum material from the outset. The paintings are theatrical but—often enough—stunning.

At the same time, we might wish for more—something I admittedly can't define—that would decisively separate Ms. Riley's work from complex decoration or elegant solutions to advanced two-dimensional design-class problems. Workmanlike comments from the artist in the catalog aren't particularly helpful, unfortunately: e.g., "Back in my Warwick Road Studio, I got on with my work, continuing to develop the use of grays and colored grays, and pushed on toward color."

Although Ms. Riley is arguably the best of all the Op Art artists, her visually exhausting paintings are more enjoyable in small doses. While I was content at the Riley exhibition at Yale, I was happy at the Phillips.

**Bridget Riley / Pierre-Auguste Renoir**

The Phillips Collection, through May 8

**Bridget Riley: Perceptual Abstraction**

Yale Center for British Art, through July 24

*Mr. Plagens is an artist and writer in New York.*

SPORTS

# Vaccine Restrictions Hit MLB

Unvaccinated players won't be allowed to enter Canada to play the Toronto Blue Jays

By JARED DIAMOND

Major League Baseball players have been more reluctant to take the Covid-19 vaccine than their counterparts in any of the other American professional sports. Now that decision could have a significant impact on how the upcoming season unfolds.

Because of Canadian border restrictions, unvaccinated players won't be allowed to enter the country to play against the Toronto Blue Jays. They won't be paid or receive service time for any games missed because of their vaccination status under the industry's new labor contract, which the owners and players' union agreed to last week.

The rule will, for the first time, provide a clear glimpse into how many players have declined to take the shots, which have been found to be safe and effective by experts around the world.

While the NFL, NBA, NHL and WNBA have all reported that nearly all of their players have been vaccinated, baseball is a different story.

MLB has never revealed the vaccine rate among its players. Instead, it said that 88% of "Tier 1" employees had been vaccinated by the end of last season. "Tier 1" encompasses more than just players and also includes managers, coaches, trainers and other support personnel who are regularly in contact with them.

Those employees, who are not represented by a union, are largely required to be vaccinated by MLB. Players are not. And even including all of the additional people in the count, baseball still has the lowest vaccine uptake in American sports by a comfortable margin.

Last year, MLB tried to incentivize vaccination by allowing teams with an 85% rate in Tier 1 to relax many pandemic restrictions, such as dropping a mask requirement in the dugout and allowing for freer mobility on road trips. All but six clubs reached that threshold.

The Blue Jays are poised to be one of the best teams in the American League, even without what could turn into a gigantic competitive advantage if key players from opponents are sidelined because they are unvaccinated.

"It's a concern," Tony Clark, the executive director of the players' union, said of the Toronto vaccine regulation. "We, as everyone knows, appreciate and respect the decisions that are made, particularly when in regard to player health and community health. But that is an issue."

Things could be even worse for unvaccinated players in New York, where the current rules would prohibit them from appearing in any game in the city. That is because



Unvaccinated players won't be allowed to enter Canada. MLB has never revealed the vaccine rate among its players.

of the same private-sector mandate that is preventing NBA star Kyrie Irving from playing at home for the Brooklyn Nets.

The result is that as of now, an unvaccinated member of the Yankees would be able to play in only 70 of the team's 162 games this season—and would lose about 57% of his salary. Players for the Mets, who don't travel to Toronto this season, would be able to play in 79, missing 81 games at home and two at Yankee Stadium. The Mets failed to reach the 85% vaccine threshold for easing protocols in 2021. (Unvaccinated travelers can enter Canada if they quarantine for two weeks, far longer than any baseball trip to Toronto.)

Baseball officials are cautiously optimistic that New York's rules will change before opening day on April 7, people familiar with the matter said, though the decision lies with Mayor Eric Adams.

The Yankees said this past week that team president Randy Levine "is working with City Hall and all other appropriate officials on this matter."

All of this comes at a time when MLB is dropping its most stringent Covid restrictions.

Players won't be subject to testing in 2022 unless they develop symptoms, whether they are vaccinated or not. Unvaccinated players will still be required to quarantine

for five days if they are deemed a close contact if somebody who tests positive—and they can't play in Canada. Vaccinated players who get sick can also test out of isolation quicker than unvaccinated players.

Yankees manager Aaron Boone said earlier this week that the team still had "a few guys at least" who haven't been vaccinated.

Outfielder Aaron Judge, the Yankees' biggest star, was asked recently if he was vaccinated given New York's private-sector mandate. He sidestepped the question, saying, "I'm still focused on just getting through the first game of spring training, so I think we'll cross that bridge whenever the time comes. But right now, so many things could change. So I'm not really too worried about that right now."

The Yankees have also signed first baseman Anthony Rizzo, who wasn't vaccinated last season. His current status isn't known. None of this was a problem for the Yankees last year, as New York's workplace vaccine regulation didn't go into effect until December.

That won't help anybody in Toronto, though, where unvaccinated players will be banned for the foreseeable future. It will only help the Blue Jays, who have emerged as a potential powerhouse.

Buoyed by the breakout of

Vladimir Guerrero Jr., the Blue Jays finished with 91 wins in 2021 and missed the playoffs on the final day of the season. They have been busy this winter, signing free-agent pitchers Kevin Gausman and Yusei Kikuchi and trading for third baseman Matt Chapman, making them a force in the competitive AL East.

One of their primary division rivals, the Boston Red Sox, was one of the least vaccinated teams in baseball last season. They endured an outbreak last August and September, when 12 players and two staffers tested positive. Another player was forced to quarantine as an unvaccinated close contact. This year, the Red Sox have 10 games in Toronto, enough to have an enormous impact on the standings if they were to play at less than full strength. The Yankees play nine at Rogers Centre.

Multiple Red Sox players who were unvaccinated last year have said that they were vaccinated during the offseason, including star shortstop Xander Bogaerts. They will be allowed to play when Boston heads to Toronto.

Star pitcher Chris Sale, who says he remains unvaccinated, won't—showing that in 2022, the winner in the AL might not be the team with the best players, but the team with the most vaccinated ones.

# Creighton Stuns No. 2-Seed Iowa

By RACHEL BACHMAN

Lauren Jensen transferred from Iowa to Creighton after last season. On Sunday, Jensen sank the go-ahead 3-pointer that boosted the 10th-seeded Bluejays to a win over 2-seeded Iowa and their first-ever trip to the Sweet 16.

Iowa's stunning loss, in front of a sold-out crowd of more than 14,000 in Iowa City's Carver-Hawkeye Arena, ended the tournament hopes of one of the most dominant players in the game. Iowa guard Caitlin Clark led the nation in scoring (27.4) and assists (7.9) this season, and drew attention for her "logo shots" from near half-court.

But Clark was off—for her—on Sunday, shooting 4-for-19 (21%) from the field in the face of Creighton's pressure defense compared with her usual 45.9%. She still finished with a near-triple double: 15 points, 11 assists and eight rebounds.

Jensen, a sophomore who played sparingly at Iowa last season, squared up and swished a 3-pointer with 12.6 seconds left to put the Bluejays up 63-62. Coming out of an Iowa timeout, Clark missed a layup. On the other end, Creighton guard Emma Ronsiek made the second of two free throws to extend the Bluejays' lead, 64-62, with 4 seconds left.

After a timeout, Iowa center Monika Czinano missed a short jumper, McKenna Warnock missed a layup, and Kate Martin was unable to put back the rebound before the buzzer sounded.

"Obviously I'm pretty familiar with the arena because I played here all of last year, but I felt like that definitely helped," Jensen said.

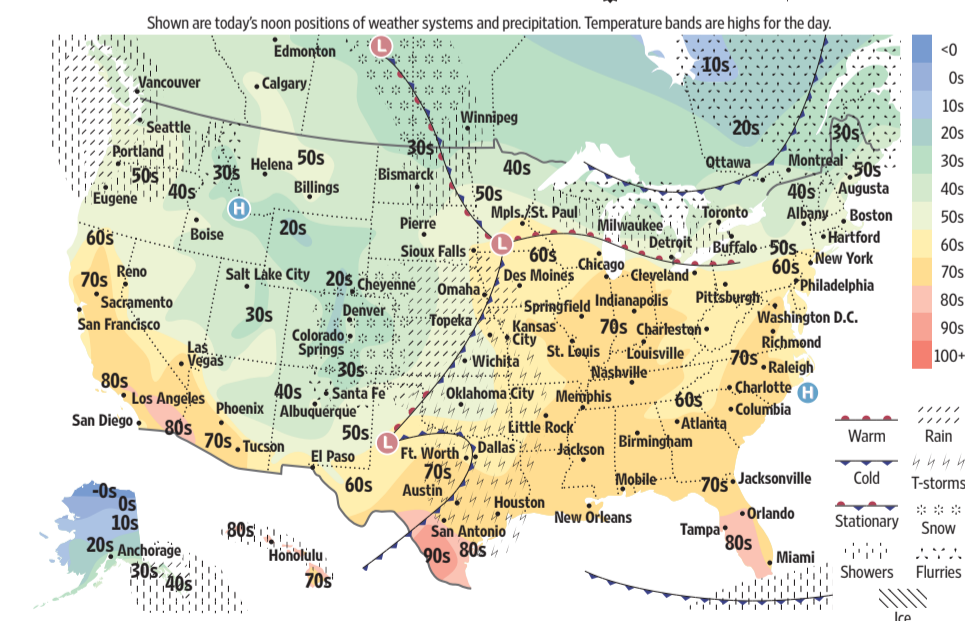
Czinano led all scorers with 27 points. Jensen led the Bluejays with 19 points on 8-of-15 shooting.

"This is for everybody that's played at Creighton," said head coach Jim Flanery.



Caitlin Clark was held to 15 points.

## Weather



## U.S. Forecasts

s...sunny; p...partly cloudy; c...cloudy; sh...showers; t...t-storms; r...rain; sf...snow flurries; sn...snow; l...ice

City	Today		Tomorrow	
	Hi	Lo	Hi	Lo
Anchorage	32	18	35	22
Atlanta	71	50	73	62
Austin	75	52	65	42
Baltimore	69	42	68	46
Boise	54	37	63	39
Boston	53	37	49	34
Burlington	47	29	43	27
Charlotte	72	45	73	59
Chicago	71	49	62	47
Cleveland	61	43	58	50
Dallas	67	49	78	41
Denver	42	26	58	42
Detroit	59	40	47	42
Honolulu	84	70	82	70
Houston	74	65	70	44
Indianapolis	70	49	65	52
Kansas City	67	49	53	35
Las Vegas	73	54	77	56
Little Rock	73	58	65	45
Los Angeles	79	58	86	60
Miami	79	71	83	75
Minneapolis	62	42	46	38
Nashville	64	41	54	34
New Orleans	74	55	61	58
New York City	77	70	80	53
Oklahoma City	60	44	59	37
Portland	56	40	49	33

## International

City	Today		Tomorrow	
	Hi	Lo	Hi	Lo
Amsterdam	60	43	65	39
Athens	47	43	49	43
Baghdad	70	50	74	52
Bangkok	90	79	92	79
Beijing	50	24	47	29
Berlin	55	33	60	36
Brussels	63	42	64	38
Buenos Aires	72	64	68	65
Dubai	85	69	88	70
Dublin	53	46	57	42
Edinburgh	52	37	57	41

## City Forecasts

City	Today		Tomorrow	
	Hi	Lo	Hi	Lo
Frankfurt	61	37	61	36
Geneva	58	35	58	34
Havana	86	66	88	66
Hong Kong	82	73	81	66
Istanbul	45	38	47	39
Jakarta	91	78	90	77
Jerusalem	48	36	46	36
Johannesburg	71	56	75	59
London	60	46	63	43
Madrid	54	47	56	48
Manila	97	81	96	80
Melbourne	81	61	75	60
Mexico City	79	53	80	52
Milan	56	33	59	33
Moscow	48	32	48	31
Mumbai	93	80	96	81
Paris	63	42	63	39
Rio de Janeiro	75	71	77	69
Riyadh	90	68	94	64
Rome	57	36	58	37
San Juan	84	72	84	73
Seoul	51	33	56	34
Shanghai	51	46	53	45
Singapore	88	80	88	80
Sydney	75	64	81	70
Taipei City	86	66	87	64
Tokyo	53	45	46	41
Toronto	50	29	43	32
Vancouver	48	44	54	46
Warsaw	54	29	60	31
Zurich	59	30	59	31

## The WSJ Daily Crossword | Edited by Mike Shenk

## WALKING THE BEAT | By Sam Buttrey

- Across**
- 1 Penn State rival
  - 5 Moves smoothly
  - 10 Straight-laced
  - 14 Toledo's lake
  - 15 "C'est \_\_\_!"
  - 16 Make over
  - 17 State of boredom, casually
  - 18 Soccer setting
  - 19 Physical, say
  - 20 "Walking \_\_\_" (1992 Annie Lennox song)
  - 23 Goes ballistic
  - 24 Finishes a hole
  - 27 Defeat soundly
  - 28 "Walking \_\_\_" (1979 Police song)
  - 32 Snapshot
  - 34 Cool-cucumber link
  - 35 Coin on the Continent
  - 36 Rowboat item
  - 39 Homes of swallows?
  - 42 Take to the impound lot
  - 43 Bumpy amphibian
  - 45 Possible answer to "Are you sure?"
  - 46 Sleuth Spade
  - 48 "Walking \_\_\_" (1991 Marc Cohn song)
  - 51 35-Across predecessor in Italy
  - 54 Brown shade in old photos
  - 55 See 59-Down
  - 58 "Walkin' \_\_\_" (1957 Patsy Cline song)
  - 62 Wise men
  - 64 Head out
  - 65 Partner
  - 66 "A Death in the Family" author James
  - 67 Store events
  - 68 Lotion ingredient
  - 69 Seamstress Betsy
  - 70 Like good sentries
  - 71 Give, but not to keep
- Solve this puzzle online and discuss it at [WSJ.com/Puzzles](https://www.wsj.com/puzzles).

- Down**
- 1 River of New Mexico
  - 2 Did pressing duty?
  - 3 Forest call
  - 4 Shreds
  - 5 Bit of 26-Down
  - 6 City on the Rio Grande
  - 7 Kitchen fixture
  - 8 Plane part
  - 9 Close living
  - 10 "Dr. Livingstone, I \_\_\_"
  - 11 Writer of Nero Wolfe mysteries
  - 12 Ore-\_\_\_ (Tater Tots maker)
  - 13 Honoree of a Sunday in May
  - 21 Elliptical path
  - 22 Orangutan, e.g.
  - 25 Lawn mower brand
  - 26 Winter fall
  - 29 Tennis star Osaka
  - 30 Screening org.
  - 31 Milliner's wares
  - 33 Integrated circuit, for example
  - 36 Singer Redding
  - 37 Tops
  - 38 Runs riot
  - 40 Cheering call
  - 41 Beautician's business
  - 44 Puts on a pedestal
  - 47 Very little
  - 49 Yoga need
  - 50 Narrow shard
  - 52 Entertain, with talk or food
  - 53 Kutcher of "Dude, Where's My Car?"
  - 56 That is, in Latin
  - 57 Spirited horse
  - 59 55-Across in "Born Free"
  - 60 Genuine
  - 61 Like bulls and boars
  - 62 Impair
  - 63 In the past

**Previous Puzzle's Solution**

L	I	B	A	M	A	I	S	A	G	E	S		
A	G	O	A	P	O	L	L	O	V	O	L		
C	U	B	A	N	B	E	A	D	E	A	S		
T	A	C	I	T	E	S	T	A	T	E	S		
I	N	A	M	E	S	U	N	T	I	E			
C	A	T	E	P	O	P	R	E	C	O	R	D	S
D	U	O	A	L	L	S							
A	S	S	K	R	I	P	I	T	O	V	E	N	
S	K	A	T	H	E	R	A	N	D				
P	U	L	L	E	D	A	W	A	Y	E	R	I	S
S	A	V	O	R									
A	L	S	O	R	A	I	N						
Y	O	G	I	H	Y	P	E	R	D	R	I	V	E
T	I	B	E	T	O	N	S	I	D	E			
P	I	S	A										

The contest answer is LAS VEGAS. In each of the four long Across answers, if you start with the first letter, then skip two (as suggested by 39-Across), take the next letter, and so on, you'll get a four-letter word. Those four words, CARD PROS PLAY HERE, suggest the contest answer, an anagram of SALVAGES at 38-Down.

## OPINION

## War Always Muddles Markets



**INSIDE VIEW**  
By Andy Kessler

Wars perplex investors. I'm always slow to react. Back in my days as a Wall Street analyst at Morgan Stanley, we would bus top investors around Silicon Valley to see Apple, Intel, Adobe, plus Jim Clark at Silicon Graphics, Scott McNealy at Sun Microsystems and even Steve Jobs at NeXT. Breakfast on Aug. 2, 1990, was disrupted by news of Iraqi tanks rolling into Kuwait. Even though the 1990s proved to be paradise for technology, most investors rushed back to New York. The stock market dropped 6% over three days.

My office in Manhattan was next to Wall Street's top oil analyst. That fall, he studied data from the world's producers and spoke at Morgan Stanley's morning meeting. Armed with tables and charts, he basically declared that world demand was X million barrels a day, but without Iraq, there was only Y amount of oil production, so prices were going to rise for the next decade. Sound familiar? I watched salesmen peel out of the room to call their clients. It turns out he was spectacularly wrong.

The rest of 1990 was awful. The market dropped 21% from its July peak to its October low. Fearing terrorists, few

were flying. The economy went into a recession. Companies missed on earnings. Uncertainty hung over markets. On Jan. 16, 1991, the companies I was recommending with buy ratings, such as Intel and Motorola, reported awful earnings. That night, like everyone else, I watched Operation Desert Storm unfold on CNN. Still, I dreaded the next day's morning meeting, where I would have to cut my earnings estimates and eat crow as my stock picks tanked.

As I got off the elevator, the head of sales grabbed me by the arm and started shouting, "It's dawn in America. We're shooting missiles right down chimney stacks. Cruise missiles are making left turns down city streets. The market's going higher. Tech is king!" Sure enough, the market was up before the open. All my stocks were bid up 20% or more. Dawn indeed. It certainly cheered me up.

Markets during wartime are confusing. Baron Rothschild's line about buying when there is blood in the streets and selling to the sound of trumpets is a great contrarian battle cry. Sometimes it works, often it doesn't. Although I know some Russian banks today that you can buy real cheap.

The New York Stock Exchange closed from July to November 1914. Stocks dropped nearly 25% when they finally started trading on Dec. 12. With the uncertainty

of the Great War, from late 1916 to early 1917, the Dow Jones Industrial Average dropped 40%. Meanwhile, New York displaced London as finance's center of gravity.

You didn't want to buy stocks after Pearl Harbor in 1941, not for another nine months anyway. You also didn't want to sell on D-Day,

### Ukraine could end soon or turn into World War III. That weighs on stocks.

or V-E Day, but you did in 1946 as the victory and rebuilding sunk in. The German stock market is another matter. The Germans froze it after the Nazi defeat in Stalingrad. When trading resumed in 1948, their stocks were down almost 85%. Keep markets open!

Sept. 11, 2001, cast a similar pall over the stock market. No one knew anything. Travel was restricted. Worse, the stock market closed for three days that month. Highflying dot-com stocks had crashed the year before, and a transition away from technology was already happening. The market went sideways until the Afghanistan and Iraq wars began. Finance and real estate led the market until both cracked in 2008.

Right now, the market is

juggling many competing inputs: a war, a rebounding pandemic-weakened global economy, inflation and a supply-chain goat rodeo. We are seeing a rotation out of finance and consumer technology led by Amazon, Facebook and Apple into commodities, defense and consumer staples. A rotation was long overdue after all the bubbly tech IPOs and SPACs, but knee-jerk reactions are often short-lived. Oil prices, remember, were negative two years ago.

Markets hate uncertainty. Wars can end quickly or last decades. The low-tech conventional war in Ukraine could end tomorrow or turn into World War III. It's tough to estimate 2023 earnings in that kind of environment. Many investors will simply sell and wait for the victory trumpets, though that is often too late.

Wars end. In the '90s, the market started valuing the pending technology peace dividend right when those first cruise missiles launched. What will lead this time? Maybe we'll see a resumption of the molecular-biology and genomics revolution that Covid and mRNA brought to the fore.

How will your portfolio react? Each war is different. Sometimes the big picture, like today's inflation, overrides the details of battle. One certainty? Beware of experts; they are most often wrong.

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**BOOKSHELF** | By Marc M. Arkin

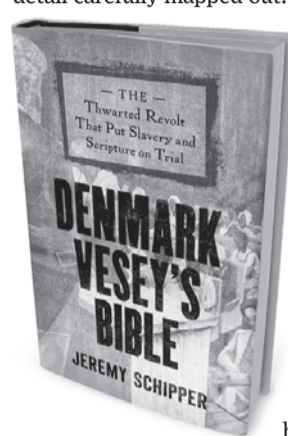
## The Plot Against Charleston

### Denmark Vesey's Bible

By Jeremy Schipper  
(Princeton, 181 pages, \$26.95)

In late May 1822, white residents of Charleston, S.C., confronted their worst nightmare, an insurrection plot by the city's majority black population. Charleston was ripe for revolt. Slave and free, black Charleston was able to gather for worship in two bustling black churches, built in the mid-1810s with help from Philadelphia backers, and hear a coded gospel message of equality. And despite South Carolina's draconian slave laws, a surprising number of black Charlestonians were literate, opening the community to diverse intellectual influences and subversive communications from antislavery interests.

The planned revolt was four years in the making, every detail carefully mapped out. The conspirators intended to seize



weapons from a local armory and set fires all over the city, including at the governor's mills and the many fine homes near the seaport. As white men rushed out to answer fire bells, house servants lying in wait were to kill them with axes, knives and clubs. The menfolk dispatched, the plotters were then to murder all the women and children. In this they believed themselves to be one with the Old Testament Israelites who, at the Battle of Jericho, "utterly destroyed all that was in the city, both man and woman, young and old . . . with the edge of the sword" (Joshua 6:21). Freed from white rule, the plotters would commandeer a ship and escape to the black Republic of Haiti. Fittingly, the uprising was planned for July 14, Bastille Day.

Had it not been betrayed by two would-be recruits, the revolt would likely have surpassed South Carolina's Stono Rebellion of 1739 as the largest slave insurrection in American history. Instead, it was swiftly suppressed by local authorities. A total of 131 black men were arrested. More than 60 were convicted in a series of trials that lasted through the summer; 35 were hanged. Among the first to die was the group's leader, a charismatic free black man named Denmark Vesey.

By mid-fall, white investigators published two accounts of the proceedings. It is largely from these documents and the outpourings of local white clergymen interpreting events for their flocks that we know about Vesey and his compatriots. The plotters themselves left no written record; indeed, Vesey is said to have destroyed all his papers, including his Bible. From the first, however, Vesey was a hero in the black community.

By all accounts, Vesey was a remarkable presence. Likely born in the Danish West Indies, he was transported in 1781 from Saint Thomas to Saint-Domingue (later Haiti) aboard a slave ship. The captain, one Joseph Vesey, named the youth Telemaque, eventually assumed ownership of him, and settled in Charleston. In 1799, Telemaque, now in his early 30s and called Denmark by local blacks, won \$1,500 in a lottery. He used \$600 to buy his freedom and with the remaining money began a successful carpentry business. Literate and multilingual, Vesey in his 50s became a lay leader in Charleston's African Church (precursor to the city's famed Emanuel AME Church) and presided over weeknight class meetings outside the watchful gaze of whites. In these, according to confessions from fellow plotters, he discussed both the Bible and current events, including the antislavery speeches in the 1819 debates over the Missouri Compromise. At Vesey's trial, a bewildered magistrate exclaimed that it was difficult to imagine what "infatuation" could have prompted a "comparatively wealthy" free man to attempt an enterprise "so wild and visionary," in which success was "impracticable." One possible answer was Vesey's many children, all slaves born to enslaved mothers.

### By 1822 Vesey had persuaded black followers to see themselves as Israelites and whites as Canaanites in a divinely sanctioned war of extermination.

In "Denmark Vesey's Bible," Jeremy Schipper, a professor of religion at Temple University, explores how Scripture informed both sides' understanding of slavery and slave society. Although our record of Vesey's thought is filtered through the eyes of unsympathetic white observers, he clearly drew on biblical authority to attack the very foundations of slavery and attract recruits for his plot. Imprisoned conspirators recounted how Vesey began their meetings with Old Testament texts that punished "manstealing" by death. In what Princeton's Seth Perry terms "performed biblicism," Vesey convinced his followers to see themselves as Israelites and white Charlestonians as Canaanites in a divinely sanctioned war of extermination.

Much of the remainder of the book explores the biblical justifications for slavery invoked by white Charleston in an effort to turn Vesey's revolt into what Mr. Schipper calls a "cautionary tale of the consequences of improper religious instruction" and to vindicate the slave society from which they benefited. While this emphasis reflects the surviving sources, it is somewhat disappointing nonetheless. As anyone with even a passing acquaintance with the Bible knows, there are texts aplenty recognizing slavery, regulating slavery, counseling masters how to treat slaves, and exhorting slaves to obey their masters, all reflecting the slave society of the ancient world. Even Vesey's trial became a battle over conflicting uses of the Scriptures. As he sentenced Vesey to death, presiding magistrate Lionel Kennedy, a Yale-educated lawyer, accused him of a crime beyond treason, "attempting to pervert the sacred words of God into a sanction for crimes of the blackest hue." Kennedy then cited his own favored prof text from the New Testament (Colossians 3:22): "Servants, obey in all things your masters . . . in singleness of heart, fearing God."

In the end, despite its excellent and concise account of the insurrection, the persons involved and their eventual fates, the book comes up short. For example, the author distinguishes at length between precise quotations and inexact biblical references in the Charlestonians' arguments. Yet it is not clear what difference this makes outside the classroom; all of it shows that the Bible formed the authoritative backdrop for everyday life both intellectually and morally. Indeed, a lay observer might be forgiven for concluding that the book does not substantially advance our understanding of black and white Charleston beyond what Abraham Lincoln said of North and South in his Second Inaugural Address: "Both read the same Bible and pray to the same God; and each invokes His aid against the other. . . . The prayers of both could not be answered; that of neither has been answered fully. The Almighty has His own purposes."

Ms. Arkin is a professor emerita at Fordham University Law School.

## A Chávez Admirer Could Take Colombia



**AMERICAS**  
By Mary Anastasia O'Grady

Colombians might want to take note. They're not at risk of losing their freedom at the point of a gun, but the peril they face if former left-wing M-19 guerrilla Gustavo Petro wins the May 29 presidential election is no less daunting.

Dictatorships in Venezuela, Nicaragua, Cuba and Bolivia all started with popular support for change. Mobs cheered the consolidation of power that later led to the reign of terror. In Colombia the Supreme Court is already controlled by Mr. Petro's friends, and drug money has infiltrated many institutions. The stage is set.

Colombia's 2016 surrender to the narco-trafficking guerrilla group FARC was negotiated in Havana, under the guidance of the Obama administration. Then-President Juan Manuel Santos called it a "peace" agreement. But since that deal, drug-trafficking cartels with political ambitions have soaked the country in blood.

As part of the agreement, a special court is supposed to uncover the truth about seven decades of rebel violence, mete out justice and compen-

sate victims. Instead that court has become a tool to hunt enemies of the rebels while innocents are ignored. Colombia has also become poorer. All of this, seemingly without a bottom.

The nation is dispirited by its lack of leadership under center-right President Ivan Duque, a protégé of former president Alvaro Uribe. Yet as any Venezuelan can tell you, things can always get worse. If Mr. Petro wins in May—or in a June 19 runoff—that's likely.

A Petro victory is by no means a fait accompli. But as the presidential primaries on March 13 demonstrated, the opposition has its work cut out if it hopes to bring liberty-loving Colombians together to defeat him.

Mr. Petro, a former mayor of Bogotá, won the nomination for the left-wing Historic Pact coalition. He received the most votes—almost 4.5 million—cast for any candidate that day. Federico Gutiérrez, a former mayor of Medellín, won the nomination for the center-right Team for Colombia alliance. He received the second-most votes, nearly 2.2 million.

Sergio Fajardo, a center-left former mayor of Medellín and a former governor of the department of Antioquia won the nomination for the Center Coalition for Hope with about 723,000 votes.

With around a half dozen candidates expected to be on the ballot and a simple majority of valid votes needed to win in the first round, a runoff

is likely but far from certain. Mr. Petro's base is around 30%—the green, woke crowd—but in the 2018 presidential runoff he got 42% of the vote. High abstention will favor him.

A third of the country despises Mr. Petro for his record on the side of domestic terrorists. In 1985 a group of his M-19 comrades snuck into the basement of the Palace of Justice in Bogotá, machine-gunned security guards, and took control of the building.

### Presidential candidate Gustavo Petro, a former M-19 guerrilla, defends violence.

Even as they were making demands on President Belisario Betancur, they began executing hostages. Eleven of the Supreme Court's magistrates were murdered. The Colombian military stormed the building, saving hundreds of lives. The incident remains one of the bloodiest assaults on Colombian democratic institutions in modern history.

In an interview with Colombian journalist Vicky Dávila last year for Semana magazine, Mr. Petro justified the 1985 attack. He called the elected government "a dictatorial state, a state of siege" in need of revolution. "Don't make what [was] a rebellion look as if it were a group of thugs. What you had in the

M-19 were young politicians," Mr. Petro said. He further alleged preposterously that the military killed the magistrates and called what came out of the slaughter "peace" and therefore "worth it."

Mr. Petro was a close friend of the late Venezuelan strongman Hugo Chávez. He told Ms. Dávila that he had last been in Venezuela in 2006. That was quickly corrected by Colombian columnist Daniel Raisbeck, in the daily El Nuevo Siglo. Mr. Raisbeck noted that Mr. Petro attended the 2013 funeral of Chávez, "whom he then praised as 'a great Latin American leader.'" Semana magazine posted a March 2016 Petro tweet, in which the Colombian politician said he was in a Caracas supermarket where he claimed shelves were well-stocked.

Mr. Petro wants to put the state at the center of the Colombian economy. He would expropriate private pension savings and stop Colombian oil production, the country's No. 1 export. Yet that would be the least of the country's woes. When asked by Ms. Dávila if he would respect his four-year term, he refused to provide a straightforward answer.

Mr. Petro is a master of dissembling and, like Chávez in 1998, he touches a nerve with the common man when he denounces corporatism and corruption and promises peace. Too bad his solutions to these all-too-common problems are also chillingly *chavista*.

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## Russian Withdrawal Isn't Enough

By Bing West

In January 1943, President Franklin D. Roosevelt met Prime Minister Winston Churchill in Casablanca, Morocco. They agreed that the objective of the war was unconditional surrender. This week President Biden meets with leaders from the North Atlantic Treaty Organization in Brussels. His objective in imposing sanctions on Russia was to deter an invasion of Ukraine. That failed. So what should Mr. Biden's objective be now? The NATO meeting is the ideal setting to announce it.

Mr. Biden and Ukraine's President Volodymyr Zelensky have different objectives. Ukraine is fighting alone because NATO has refused it membership. It is understandable if Ukraine reaches terms whereby the Russians leave, while Ukraine accepts some sort of neutrality. Mr. Zelensky's objective is to end the destruction of his country, while retaining its freedom.

Mr. Biden's objective must be broader. Mr. Putin has challenged America as the defender of democracy and of Western values. NATO is providing aid to Ukraine, within timorous strictures. After Mr. Putin muttered threats, Mr. Biden forbade the transfer of MiG-29s, to be flown by Ukrainian pilots over Ukrainian territory. The

### Biden should tell NATO that sanctions will continue until Putin leaves power.

president said adding those MiGs to the Ukrainian air force would escalate the conflict. The administration is clearly hedging. Satellite images show Russian warships gathered off Odessa. These are legitimate targets. Yet antiship missiles are absent from the weapons the administration has approved for Ukraine.

President Biden has called Mr. Putin a "war criminal." From Ukrainian sources and communications intercepts, it is highly likely that the Biden administration and NATO know the identities of all Russian generals in Ukraine and the commanders of the units accused of war crimes. Yet the administration hasn't named them publicly or banned them from the West. When Iraq invaded Kuwait in 1990, President George H.W. Bush declared, "This will not stand." Such a robust declaration from Mr. Biden is noticeable by its absence.

Why the timidity? In 1991 U.S. forces easily hurled the Iraqi Army out of Kuwait. That option isn't even considered today because Russia has nuclear weapons. A disturbing lesson is that having nuclear weapons enhances an aggressor's inclination to attack with conventional forces. In any putative assault against Taiwan, Xi Jinping is likely to threaten the use of nuclear weapons to deter the U.S. from intervening with

conventional force. For Mr. Putin to emerge intact after tearing apart Ukraine sets a terrible precedent.

If Russian troops withdraw from Ukraine but Mr. Putin is still in charge in Moscow, it will be a severe defeat for America. In his meeting with all 30 NATO nations, Mr. Biden must cross his Rubicon. He must declare that the sanctions crippling Russia will remain in full force, with no exit ramps, as long as Mr. Putin remains in power. America's objective isn't a return to the status quo ante; it requires removing Mr. Putin in order to reinforce, or perhaps restore, America's role as the defender of liberty. If Mr. Biden doesn't clearly state that objective at this week's NATO meeting, when the world is united behind him, he won't do so in the future.

Mr. West, a former assistant secretary of defense, is author, most recently, of "The Last Platoon: A Novel of the Afghanistan War."

## OPINION

## REVIEW &amp; OUTLOOK

## Don't Go Wobbly on Ukraine Now

The Ukrainian people are making great sacrifices fighting against Russia's war machine, and their resistance is helping the free world. As NATO's leaders meet this week in Brussels, now is the time for the alliance to repay this fortitude by escalating support for Kyiv.

"Ukrainian forces have defeated the initial Russian campaign of this war. That campaign aimed to conduct airborne and mechanized operations to seize Kyiv, Kharkiv, Odesa, and other major Ukrainian cities to force a change of government in Ukraine," concludes the Washington-based Institute for the Study War (ISW) in a Saturday analysis. "Russian forces continue to make limited advances in some parts of the theater but are very unlikely to be able to seize their objectives in this way."

This is a remarkable achievement. Contrary to Western intelligence predictions, Ukraine's military and burgeoning civil-defense forces have fought the Russian invaders to a stalemate. The easy victory Vladimir Putin anticipated to install a puppet government has been stymied—albeit at great cost in lost lives and ruined cities.

Yet Mr. Putin shows every sign of continuing his campaign of bombing and starving cities. The rape of Mariupol should be a permanent scar on Russia, like Stalin's 1940 murder of 22,000 Polish officers and intellectuals in the Katyn forest. Europe hasn't seen anything like this since World War II. ISW says Russians are digging in around cities as if they plan a long siege. Civilian casualties aren't incidental. They are central to the dictator's war strategy.

Mr. Putin hopes to break Ukrainian morale, and sooner or later kill President Volodymyr Zelensky to rob Ukraine of his charismatic leadership. The Russian also hopes to crack NATO's resolve by issuing threats of nuclear escalation while flooding Western Europe with millions of refugees—at least three million so far.

As NATO meets, the temptation in Brussels will be to look for a way out of the war. The Washington Post is filled with reports, clearly informed by U.S. officials, fretting that Mr. Zelensky doesn't seem to have an "end game" for the war. The risk as the conflict continues is that the will of Team Biden and NATO will flag

and at some point they will pressure Ukraine to settle.

That's exactly the wrong message to send to Ukraine and Russia, and the NATO leaders should signal the opposite this week. The top priority is escalating weapons shipments to Kyiv, especially air defenses against Russia's long-range missiles and high-altitude aircraft. Ukraine also needs more Turkish drones that have been effective against Russian tanks and artillery.

The leaders should also banish talk of giving Mr. Putin an exit ramp other than complete withdrawal from Ukraine. He can take that exit at any time. But if he refuses, then the Western goal should be to inflict as much pain as possible on Russia as a lesson to Mr. Putin and any other country that might try to conquer its neighbors.

That means following Mr. Zelensky's lead on what Ukraine is willing to accept. Ukraine has earned the right to determine what concessions, if any, it can live with. The Ukrainian president has already taken NATO membership off the table, but he understandably is refusing to concede Russian control over Ukrainian territory. No one in the West should pressure him to accept such terms.

The U.S. and Europe can also increase the sanctions pressure on the Kremlin. Sanctions on Russian energy sales still aren't in place, though they would hurt Mr. Putin's war financing the most. Sanctions relief for Russia shouldn't even be on the table until Mr. Putin withdraws his tanks and concedes Ukraine's right to be an independent state.

What should be on NATO's agenda is why Western intelligence misjudged the war. The CIA did very well in anticipating that Mr. Putin would invade, but it vastly overestimated the ability of his military to conquer Ukraine. That pessimism may have convinced President Biden that more military aid earlier wouldn't have made a difference. Congress's intelligence committees should investigate.

Ukraine's brave resistance has given the West an opportunity to push back against Russia and show the world's authoritarians that democratic states can unite in defense for a righteous cause. As Margaret Thatcher once famously told George H.W. Bush, now is not the time to go wobbly.

## The best route to a settlement is more NATO support for Kyiv.

## Make Congress Show Up to Vote Again

Most Americans have resumed something close to normal life after Covid-19, but not the U.S. House of Representatives. Many lawmakers have become accustomed to the convenience of voting in absentia, and they want to make a supposed emergency measure an accepted practice.

The House has allowed Members to vote by proxy for almost two years, and the Covid-19 dispensation will expire on March 30 unless Speaker Nancy Pelosi extends it another 45 days, as she has many times. Only 101 Representatives didn't vote by proxy at all last year—78 Republicans and 23 Democrats, according to a Ripon Society analysis. Proxy voting is especially popular on Fridays—on the rare occasions that Congress works more than four days a week.

Proxy voting is no small institutional change, and having a quorum present is essential to House procedures and character. If Members aren't around, it's easier for leadership to ram through bills without debate or amendment. The rough and tumble of negotiation is harder. The Senate—average Member age: 64—has nav-

igated pandemic risks without proxy floor voting, and vaccines obviate whatever public-health rationale once existed.

Lawmakers seem to have thought better of, say, casting a committee vote while out on a boat, but there's talk of a new system that allows members to vote by proxy for a good reason, or perhaps a certain number of times a year. "The world has changed. Technology is extraordinary," Democrat Steny Hoyer said at a House hearing last week, arguing Congress should adapt like other businesses.

But Members have always missed votes. Voters are best equipped to make distinctions between a Member who isn't available to rename post offices because she's away due to family illness and a Member who skips votes to attend fundraisers and appear on television.

Some Representatives don't want to relocate their families to Washington and thus want more time at home. But serving in Congress is supposed to be public service. Voting is the core duty of Congress, and House Members should respect the office enough to come to the floor when the roll is called.

## Yale Law Students for Censorship

Students at Yale Law School recently disrupted speakers in an example of cancel culture that is common on so many university campuses these days. Now comes a senior federal judge advising his judicial colleagues against hiring the protesting students for clerkships.

The March 10 panel was intended as a debate over civil liberties. It was hosted by the Yale Federalist Society and featured Monica Miller of the progressive American Humanist Association and Kristen Waggoner of the Alliance Defending Freedom, a conservative outfit that promotes religious liberty. The two broadly agree on protecting free speech, despite their differences on other issues.

A hundred or so students heckled and tried to shout down the panel and Federalist Society members in attendance. One protester told a member of the conservative legal group she would "literally fight you, bitch," according to the Washington Free Beacon, which obtained an audio and videotape of the ruckus. The speakers were escorted from the event by police for their safety. It's not too much to say that the students were a political mob.

No punishment seems forthcoming from Yale Law School, despite its ostensible policy barring protests that disrupt free speech. But the event prompted Senior Judge Laurence Silberman of the Court of Appeals for the D.C. Circuit to write the following letter to all of his fellow Article III judges last week:

"The latest events at Yale Law School in which students attempted to shout down speakers participating in a panel discussion

on free speech prompts me to suggest that students who are identified as those willing to disrupt any such panel discussion should be noted. All federal judges—and all federal judges are presumably committed to free speech—should carefully consider whether any student so identified should be disqualified for potential clerkships."

That should get some attention at Yale and other law schools. The woke young men and women might not care about the First Amendment, but they care about their careers. Judicial clerkships are plum post-graduate positions that open a path to jobs at prominent law firms, in state and federal government, and later to powerful judgeships. Appellate-court clerkships in particular are highly prized and are often a stepping stone to clerk for a Supreme Court Justice.

Some readers may think these students should be forgiven the excesses of youth. But these are adults, not college sophomores. They are law students who will soon be responsible for protecting the rule of law. The right to free speech is a bedrock principle of the U.S. Constitution. If these students are so blinkered by ideology that they can't tolerate a debate over civil liberties on campus, the future of the American legal system is in jeopardy.

Individual judges choose their clerks, and no doubt some will figure they can educate these progressive protesters. But Judge Silberman's letter should, if nothing else, warn these students that there may be consequences for becoming campus censors.

## Maybe those who shout down speakers shouldn't get judicial clerkships.

## LETTERS TO THE EDITOR

## Masks, Conformity, Melodrama at the Theater

As soon as I read the headline "I Covered My Face, and I'm Ashamed" (op-ed, March 15) I knew exactly what Rebecca Sugar meant. The masking policies foisted on the American public were ineffective at best and harmful at worst. Very early on in the pandemic, I wondered how cloth masks adorned with sports-team logos, smiley faces and color coordinated to match our outfits could do anything to stop the spread of Covid. They couldn't and to keep pretending they can is irrational and sad.

MIKE MCKEEN  
Centerville, Mass.

Ms. Sugar is ashamed of not standing up for her convictions? I don't disagree. But I find her self-indulgent hand-wringing jarring. Some perspective please.

No one forced Ms. Sugar to buy tickets to a performance in a theater with whose mask policies she disagreed. No one forced her to attend the event once the tickets were bought. No one forced her to sit through the entire performance. New York City may not be perfect, but you, Ms. Sugar, are extraordinarily lucky to live here—free to choose and free to actively campaign to bring about change. If you have strong convictions, stand by them and act on them. If you do not, admit to yourself that not all your convictions matter—some are downright inconsequential.

MYROSIA DRAGAN  
Dobbs Ferry, N.Y.

I share Ms. Sugar's shame, but had we opted out of the excellent play "Prayer for the French Republic," we would merely have been casting a vote for Netflix. I guess Ms. Sugar and I might attend the play, remove our masks and stand up in a silent protest. But realistically, such a protest would likely get two people to remove their masks and stand with us, and 20 people to yell "sit down!" a request that we would promptly honor. I challenge Ms. Sugar to come

up with a more effective strategy than staying home alone.

By the way, I did rebel. As soon as the lights went out, I lowered my mask so it no longer covered my nose and searched the dark room for other rebels. I saw two partners in crime looking around to see if anyone noticed them.

DAHIA PEYSER  
Mountain Lakes, N.J.

We read that a Russian woman knowingly risked her freedom to interrupt a Moscow news broadcast and display a homemade sign calling for peace. She was hauled away by police. At the same time, you carry an article written by an American woman, Ms. Sugar, who was so offended by a New York theater's mask requirement that she thought seriously about walking out or displaying an antimask sign. She did neither, enjoyed the show and survived.

KENNETH LEE  
Raytown, Mo.

Each of us must decide which principled stands to take in life, and mask-querade mandates sometimes force us to choose between convenience and conviction. Even before mandates were lifted last month in California, I entered many retail establishments without harassment from staff or management, and only slight frowns from other customers. But other venues tested my principles: barefaced, I could not enter restaurants, theaters, libraries or museums. I am still barred from airports, public transit and doctors' offices.

This virus era will be over when we, as a people, stand up and determine that it's over. Ms. Sugar is correct that those who do not act on their principles are the reason that mask mandates still exist, since it's now clear that "the science" offers no valid justification for these questionable, confusing edicts.

JANE JOHNSON  
Ventura, Calif.

## Why Do We Nickel and Dime Vladimir Putin?

To say that the king of nickel, Vladimir Potanin, is "Russia's richest man" is to underestimate the rapacity of the Russian kleptocracy ("Russia Can Hold Nickel Hostage" by Allysia Finley, op-ed, March 15). Vladimir Putin, who can dip his paw into any cookie jar and extort tribute from a raft of oligarchs and a coterie of nervous satellite states, is generally billed not only as Russia's richest man, but also the richest man on the planet, including Elon Musk and Jeff Bezos. Mr. Putin's wealth has been estimated at nearly half a trillion dollars. Perhaps you should apologize to Mr. Putin for the erratum before he uses the slight as an excuse to invade the Journal's offices.

JEFF SMITH  
Alameda, Calif.

Your editorial "A Nickel for Your Ukraine Thoughts" (March 9) states, "Climateers block U.S. mining for nickel and other minerals at every opportunity." Let me expand on that.

Copper is a critical element for almost everything people build or use, including vehicles, wind power and vital transmission lines. All indications are that there will be a future copper shortage. There are four ma-

JOR copper developments in the U.S., and each one is opposed and blocked by environmental groups.

The most egregious environmental obstruction is at a development called Twin Metals in northern Minnesota. This is a huge, world-class occurrence of copper, nickel, platinum-group elements and cobalt, all in tight supply and critical to electric vehicles. Recently, the Biden administration arbitrarily withdrew vital leases, which had been in place for decades, essentially killing the project, unless the withdrawal is reversed at some later time.

M.A. KAUFMAN  
Spokane Valley, Wash.

## Refuse to Give the MiGs? Fine. What About Its Parts?

It seems the Biden administration thinks the Ukrainians might use Poland's MiG-29s to attack Russia rather than defend its own airspace or attack Russian ground forces in Ukraine. The administration also seems to think it knows better than Ukrainians about what Ukraine needs to defend itself ("The Ukraine MiG-29 Fiasco Gets Worse," Review & Outlook, March 11).

The people who say that the Polish MiGs would be of little value must either have forgotten what they learned as fighter wing commanders or they never had that privilege. Mission-capable rates in the U.S. Air Force seldom rise above 70%. That means at least 3 in every 10 aircraft need maintenance, and most of those need some kind of part. Every one of those Polish MiGs is a three-wheeled parts bin that could be used to repair a Ukrainian MiG that is down for parts.

If we really fear the aircraft's use as offensive weapons against Russia, take the wings off and ship the fuselages to Ukraine. At least that would allow Ukraine to make better use of its own airplanes.

GEN. RICHARD E. HAWLEY, USAF (RET.)  
Newport News, Va.

## Pepper ... And Salt

THE WALL STREET JOURNAL



"You're making this up as you go along, aren't you?"

Letters intended for publication should be emailed to wsj.letters@wsj.com. Please include your city, state and telephone number. All letters are subject to editing, and unpublished letters cannot be acknowledged.

V.J. SINGAL  
Houston

## A Modest Proposal for NYU

One realizes the world has changed when students are immersing themselves in a study of Taylor Swift at the expense of the more valuable study of Jonathan Swift ("NYU Shakes It Off With Swift Class," Page One, March 16).

LEO GORDON  
Los Angeles

## OPINION

# What to Do With Those Polish MiGs

By Kate Bachelder Odell

Western countries are pouring weapons into Ukraine, but no arms deal has attracted as much attention as the question of whether to give the Ukrainians a couple of dozen old Polish MiG-29 fighter jets. The Biden administration shut down a transfer as not “tenable,” arguing the additional Soviet-designed jets wouldn’t be useful enough on the battlefield to justify what Vladimir Putin might perceive as an escalation.

The MiGs exploded into a larger debate: Is Mr. Putin dictating which weapons America can send its friends? The administration says ground-based air defenses would be more useful, and that it’s working with allies who have versions the Ukrainians know how to operate, a welcome development. White House press secretary Jen Psaki noted acutely on Wednesday that she’s been asked about the MiGs “167 times.” But if the MiGs aren’t effective at killing Russians, how are they an escalation?

## Team Biden doesn’t want to give the Ukrainians fighter jets, but why not send them as spare parts?

Here’s a compromise that would salvage American credibility and show some ingenuity: Break down the Polish MiGs and send the parts to Ukraine. Defense Department officials have said that the Ukrainians still have usable aircraft. But they’re at war with the country that produced those planes, and an infusion of parts could be put to good use sustaining their fleet, as retired Air Force Gen. Joseph Ralston, who was Supreme Allied Commander of Europe from 2000 to 2003, explained recently at a Center for Strategic and International Studies event.

In 2002 Gen. Ralston took a ride in a MiG-29 owned by Germany. “What I remember most about that day was the Germans complaining about how difficult it was to maintain those airplanes because all the spare parts had to originate in Moscow.”

Then, when relations with Russia were decent, when the German air force needed a part for the MiG, it “had to go to the German MOD”—Ministry of Defense—“who had to go to the Ministry of Foreign Affairs, who had to go to the Russian Ministry of Foreign Affairs . . . and down the food chain to get the spare part. And you can imagine how frustrating that was to maintain the airplanes.” The Germans sold their MiG-29s to the Poles.

Perhaps of particular use would be more MiG-29 engines, which are known for wearing out quickly. Cannibalizing the planes could be done rapidly, and sending in parts is logistically no tougher than shipping other types of military equipment. No pilots need to fly off a Western base.

The U.S. would need to help the Poles find replacement aircraft, but upgrading Polish defenses would pay a double dividend as Russia creeps closer to North Atlantic Treaty Organization countries. New F-16s coming off the line are spoken for—the U.S. is trying to speed deliveries to Taiwan, for example. But the U.S. Air Force has suggested it would be able to provide used F-16s to Poland.

Before the U.S. entered World War II, it took aircraft to the Canadian border to help the British while remaining neutral. America needs such creativity now. Reliable information about Ukrainian air operations has been hard to come by—U.S. officials have suggested the Ukrainians aren’t flying many sorties—and MiG-29s are old and limited aircraft. But Americans can appreciate the instincts of a fighter pilot who wants to defend his country for as long as possible, no matter the risks.

Mrs. Odell is a member of the Journal’s editorial board.

# Why Deterrence Failed in Ukraine

By Nadia Schadlow

A credible deterrent is designed to alter a potential aggressor’s calculations of risk and reward. Vladimir Putin determined that the potential cost of invading Ukraine was relatively low, and on Feb. 24 he attacked. It will be the job of historians to try to understand why deterrence failed.

Deterrence involves two factors: capability and will. Capability means having the military strength to deliver intolerable damage to an adversary. Will is the determination to use that strength and deliver that damage.

The U.S. spends hundreds of billions of dollars a year to strengthen its military capabilities, and they are formidable. Resolve costs nothing, but it is priceless when it comes to deterring aggression. By signaling that the U.S. had no intention of using its capabilities, the Biden administration seriously weakened their deterrent value.

The White House has consistently broadcast what it won’t do, removing a crucial component of deterrence: the ability to amplify risk through ambiguity. Mr. Putin now knows exactly how much to escalate the conflict because U.S. officials have told him exactly what the maximum U.S. response will be.

In early December, President Biden ruled out the possibility of using U.S. military power, stating that any consideration of American combat troops in Ukraine was “off the table.” In January, even after trying to explain his comment that a “minor incursion” wouldn’t warrant a forceful response, Mr. Biden repeated what he wouldn’t do. There wouldn’t be “any American forces moving into Ukraine,” he said. In February he did it again, explaining that U.S. actions



CHAD CROWNE

were “totally defensive” and that we “had no intention of fighting Russia.”

What is particularly puzzling is that these messages were broadcast against a backdrop of increasing intelligence that Russia was preparing

## The U.S. has a formidable military. When Biden said he wouldn’t use it, Putin saw it as a green light.

for war. While the White House apparently had a strategy to “aggressively release” intelligence, it concurrently made clear that it wouldn’t act on this intelligence to deter Mr. Putin.

Most recently, Secretary of State Antony Blinken discounted the possibility of deploying North Atlantic Treaty Organization warplanes to support the Ukrainian resistance. He explained publicly that he was worried such an arrangement might drag

the U.S. and NATO into open conflict with Russia. This view was repeated by top military leaders. The commanding general of the U.S. European Command announced that the American intelligence community had assessed that the “transfer of MiG-29s to Ukraine may be mistaken as escalatory.” In case this wasn’t clear, the command further clarified that it had no plans to “facilitate an indirect, or third party transfer of Polish aircraft.”

Such statements consistently play down the will of the U.S. The Biden administration’s repeated statements that it is unwilling to escalate under any circumstances increases the risks of unintended escalation. Mr. Putin and his military are calculating American will based on what they see and hear. This is likely why they are acting as though there is little threat of resistance from any power more potent than the Ukrainian military.

This doesn’t necessarily mean that the U.S. should deploy its troops to Ukraine or establish a no-fly zone by contesting Russian aircraft. The cur-

# Healthy Children Don’t Need Covid Vaccines

By Allysia Finley

The Sunshine State is bucking the public-health consensus again. “The Florida Department of Health is going to be the first state to officially recommend against the Covid-19 vaccines for healthy children,” Surgeon General Joseph Ladapo announced March 7.

Cue the outrage. The American Academy of Pediatrics called the recommendation “irresponsible.” The Infectious Diseases Society of America accused Dr. Ladapo of putting “politics over the health and safety of children.” White House press secretary Jen Psaki jabbed: “It’s deeply disturbing that there are politicians peddling conspiracy theories out there and casting doubt on vaccinations.”

Dr. Ladapo is doing no such thing. He is merely acknowledging the abundant scientific evidence that Covid-19 poses a negligible risk to healthy children, which makes it impossible to know if the benefit of vaccination outweighs the risk.

Start with the exceedingly low likelihood of severe illness or death. A recent study in the Lancet estimated the infection fatality rate for those under 18 at between 0.0023% and 0.0085%—meaning 2.3 to 8.5 of every 100,000 children who get infected will die. Rates are lowest among those 5 to 11.

The Centers for Disease Control and Prevention reports there were 66 Covid-19 deaths among children 5 to 11 between Oct. 3, 2020, and Oct. 2, 2021—exactly the same number as died from suicide, which is exceedingly rare among this age group—in 2019. By comparison, there were 969 deaths in this age group from unintentional injury and 207 from homicide in 2019.

Polio paralyzes 1 in 200 infected children, and the fatality rate for measles ranges between 0.1% to and 0.3%. That’s why childhood vaccinations are recommended for both. The risk of hospitalization from the flu for children 5 to 11 is 50% higher than from Covid and the related multisystem inflammatory syndrome combined. MIS in rare instances can cause gastrointestinal and cardiovascular symptoms after infection.

Hospitalizations among children did increase during the Omicron

wave relative to previous surges, but they still remained very low—80% lower than among young adults—and it’s not known how many children tested positive during admission for other maladies such as broken bones.

The Food and Drug Administration granted emergency-use authorization last October for Pfizer’s vaccine for children 5 to 11 after a small trial (about 1,500 kids received Covid shots) found it was 90% effective at preventing symptomatic illness. But the vaccine’s efficacy rapidly waned, even more so than in adults, especially as the Omicron variant spread.

A recent study from New York state found that vaccines showed efficacy against hospitalization among 5- to 11-year-olds, though it declined from 100% in mid-December to 48% by the end of January. But because that risk is so low to begin with, the protection against it doesn’t amount to much.

Vaccine efficacy against infection, meanwhile, turned *negative* during the Omicron surge a month after kids were inoculated (minus 10%) and declined even more after six weeks (minus 41%). This means vaccinated children were significantly *more* likely to catch Covid than the unvaccinated. How can that be? One possible explanation is that the un-

vaccinated may have been more likely to have been previously infected, and natural immunity is more protective than vaccines.

But this makes vaccinating children even more senseless. The vast majority have already been infected. The CDC estimates that 58% of children under 18 had infection-induced antibodies as of January, based on commercial laboratory blood samples.

## Florida is right. Especially for kids under 12, the risks are trivial. And most have natural antibodies.

This is almost certainly an underestimate. Antibodies have probably faded in those who were infected earlier in the pandemic, and a study in the Journal of the American Medical Association found 63% of children under 18 who tested positive for the virus on PCR tests didn’t generate antibodies in their blood. Unlike the current crop of vaccines, prior infection stimulates mucosal immunity—including antibodies in the saliva and nasal passages—that can provide a strong barrier to infection.

As for risks, there’s no evidence that Pfizer’s vaccine causes long-

term harm to children. But its trial enrolled too few children to discern very rare adverse events, which could exceed the risks from the virus. Some 40% of children 5 to 11 reported systemic reactions after their second shot (e.g., fatigue, headache, fever). About 10% missed school, and 1% needed medical care.

Such literal headaches may be worth enduring for adults, but it’s far from clear they are for children. One nontrivial risk that should concern public-health officials is that side effects from Covid shots could make children and parents wary of other vaccines.

Pfizer CEO Albert Bourla said on CBS’s “Face the Nation” that vaccinating children is the right thing to do, and “this is also what the authorities of all the world believe, with the exception, of course, of Florida.” That isn’t quite true. Germany, Norway and Sweden don’t recommend vaccines for healthy children under 12, and the Danish Pediatric Society has urged its government to follow suit.

The public-health consensus has been wrong time and again during the pandemic. When it comes to vaccinating children, especially the youngest, Dr. Ladapo is right.

Ms. Finley is a member of the Journal’s editorial board.

# The SEC’s Climate-Change Overreach

By Jay Clayton  
And Patrick McHenry

The Securities and Exchange Commission will propose sweeping new rules this week requiring publicly traded, and perhaps even private, companies to disclose extensive climate-related data and additional “climate risks.”

Setting climate policy is the job of lawmakers, not the SEC, whose role is to facilitate the investment decision-making process. Companies choose how best to comply and thrive under those policies, and investors decide which business strategies to back. That approach addresses many societal issues—think vaccines—and enhances global welfare. Taking a new, activist approach to climate policy—an area far outside the SEC’s authority, jurisdiction and expertise—will deservedly draw legal challenges. What’s worse, it puts our time-tested approach to capital allocation, as well as the agency’s independence and credibility, at risk.

Understanding and addressing global climate change is one of the most complex and significant issues of our time. Some predict we face inevitable catastrophe, while others say the costs of the transition to a “net-zero world” outweigh the benefits.

We know four things for sure. First, implementing an economywide emissions-reduction policy will have a profound impact on the domestic energy, labor, transportation and housing markets, among others. Many jobs will be destroyed while

others are created. Some businesses will close while others will flourish. Even if the long-term benefits outweigh the costs, near-term stresses on working Americans are inevitable and will be distributed unequally.

Second, leaving policy decisions this significant to a single regulator—or even a patchwork of regulators—has failed time and again. Tellingly, there is no indication that the SEC has meaningfully coordinated with any of the other relevant federal agencies and departments on the policy choices embedded in its proposed rules.

## Congress shouldn’t palm its responsibility for social and economic policy off on financial regulators.

Third, Russia’s war against Ukraine demonstrates again the clear and longstanding links between energy policy, global stability and competing national interests. America’s ability to lead on the global stage depends on our economic and military strength, and energy policy is a key to both. These issues are far outside a financial regulator’s depth and mandate.

Fourth, the body that the Constitution prescribes for weighing the relevant trade-offs in this area is Congress. Congress, duly elected by and responsible to the people, is precisely where climate policy, in all its

complexities and consequences, should be resolved. Yet over decades, elected leaders have pushed hard policy questions to federal agencies staffed by unelected bureaucrats, whose decisions are reviewed only by unelected judges. This is at best bad for democracy and at worst unconstitutional.

Demanding that the SEC “act on climate change” allows politicians to say that they are working on their constituents’ behalf without accepting responsibility for the hard choices involved in crafting policy.

Executive branch and independent agencies, including the Environmental Protection Agency; the Transportation, Labor, State and Treasury departments; and other financial regulators, have a role to play. They should work to inform Congress during the policy-making process and then implement legislative mandates in their respective areas of expertise.

Unfortunately, because the SEC has decided to move forward unilaterally, the debate will shift not to Congress, where it belongs, but to the courts. The commission’s chosen path will allow the political buck-passing to continue and delay thoughtful, appropriate and democratically accountable policy.

If and until Congress acts on climate policy, the message to regulators must be clear: Stay in your lane.

Mr. Clayton served as SEC chairman, 2017-20. Mr. McHenry, a North Carolina Republican, is ranking member of the House Financial Services Committee.

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## Rail Stoppage Stalls Shipments

Talks between Canadian Pacific and Teamsters restart with federal mediator

By JACQUIE MCNISH

Canadian Pacific Railway Ltd. trains were halted Sunday morning, stalling global shipments of manufactured goods and commodities such as fertilizers, after an impasse in contract negotiations between the company and its conductors and engineers.

Canadian Pacific and the Teamsters Canada Rail Conference, which represents more than 3,000 conductors, engineers and yard workers at the railway, disagreed over what triggered the breakdown in talks.

The railway has been in negotiations and mediation since September with the union, which seeks increased wage and pension benefits and more rest times.

A spokesman for Canadian Minister of Labour Seamus O'Regan said officials with the railway and union restarted

discussions Sunday afternoon with a federal mediator.

Canadian Railway said if the two sides were unable to agree on a new contract, it would favor shifting the talks to binding arbitration.

The Teamsters initially referred to the work halt Sunday as a lockout and later described it as both a lockout and a strike. Patrick Waldron, a spokesman for Canadian Pacific, disputed the characterization of the shutdown as a lockout.

The railway's representatives were still at the negotiating table Saturday night with a

federally appointed mediator in Calgary, Alberta, Mr. Waldron said, waiting for a response to a new offer when the union issued its statement that the railway had initiated a lockout.

Canadian Pacific continues to want to bargain in good faith with the union, he said. "The union's actions show a complete disregard for the unnecessary damage this will cause to the supply chain," Mr. Waldron said.

The union didn't respond to a request for comment.

The prospect of a strike prompted several businesses,

customers and politicians to publicly urge the Canadian government to introduce back-to-work legislation that would force striking workers to return to their jobs.

Mr. O'Regan traveled to Calgary, where contract negotiations are taking place.

He had urged both sides to avoid a work stoppage that would exacerbate existing supply-chain bottlenecks and rising commodity prices. Halting Canadian Pacific's trains "could not have come at a worse time," he said in a video posted on Twitter.

## Aramco Profit More Than Doubles

By SUMMER SAID

DUBAI—State oil giant Saudi Aramco said Sunday its 2021 net profit more than doubled to \$110 billion, a boon to the Middle East's largest economy as it seeks to use its hefty profit for investment opportunities domestically and abroad.

The world's largest oil exporter is benefiting from rapidly rising oil prices and said it raised its spending target this year as demand surges and the impacts from the pandemic recede. Brent crude, the global oil benchmark, surged to an average of \$70.86 a barrel last year after falling to an average of \$41.96 a year earlier. It settled Friday at \$107.93 a barrel, down 4.2% for the week. Early this month, oil at times traded above \$130 a barrel.

Aramco's income jumped 124% in 2021 from \$49 billion a year earlier, due to higher crude oil prices, stronger refining and chemicals margins and the consolidation of the full-year result of its chemicals business, known as Sabic, the company said. It is the highest net income Aramco has posted since it started trading its shares on the domestic stock exchange.

Aramco shares jumped earlier in the day to 43.85 Saudi riyals a share, valuing the company at \$2.34 trillion.

The Saudi government, with a stake of more than 94% in Aramco, has sought to monetize the country's massive oil assets and use the proceeds to

Please turn to page B2

## Green Startups Face Pressure to Deliver

By AMRITH RAMKUMAR

Green startups hit the lottery last year. Investors have turned cautious since then, putting added pressure on the cash-rich companies to deliver better batteries, more sustainable materials and zippy electric cars.

About 1,200 privately held green startups raised a record \$45 billion last year, roughly double the previous year's total, according to PitchBook. Companies tied to sustainability raised just as much by going public on U.S. stock markets, giving the once-capital-starved industry a \$90 billion war chest.

Whether or not investors turn a profit, the cash could jump-start the transition away from fossil fuels if companies achieve breakthroughs for longstanding challenges in areas such as energy storage, sustainable products and supplies of raw materials.

The scale of the new cash could prevent a bust similar to the one that ended the previous green investing boom. The bankruptcies of solar startup Solyndra LLC and battery upstart A123 Systems Inc. in the early 2010s caused a yearslong drought in funding.

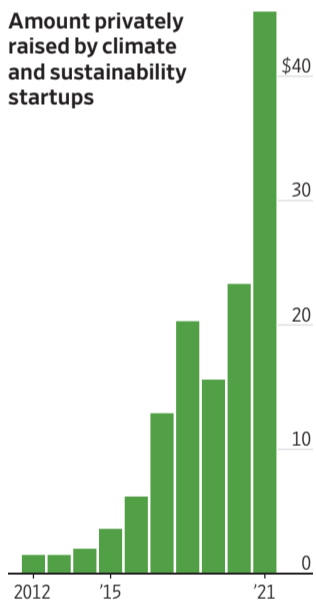
"That's the big distinction this time," said Eli Aheto, who helps run a climate-focused fund at the investment firm General Atlantic. "You've got these businesses that are properly funded."

The money was a game changer for many companies. Battery maker Freyr Battery

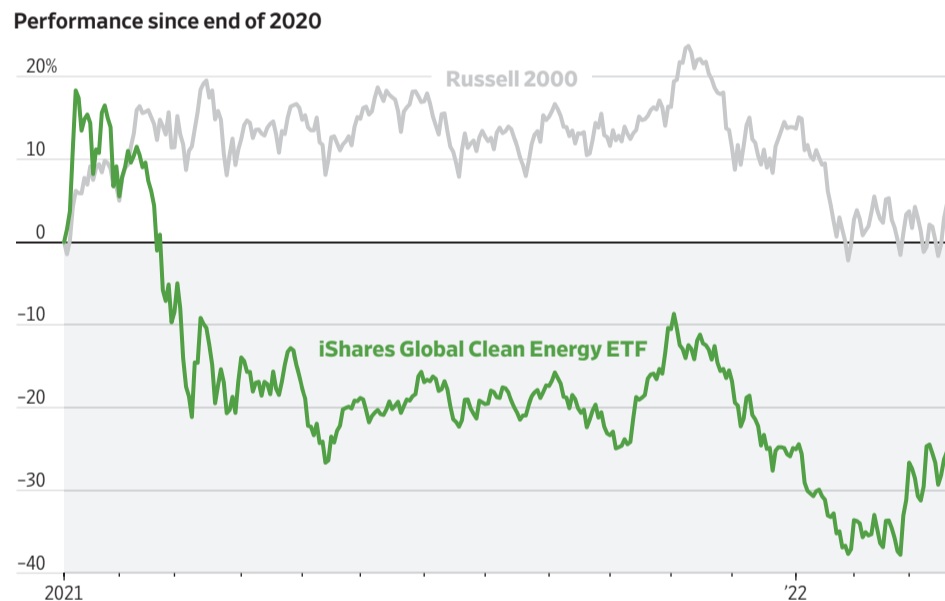
Please turn to page B2



Lucid Group started trading on Nasdaq via a SPAC merger last year. A Lucid Air electric car is on display in New York City.



Sources: Pitchbook (amount raised); FactSet (performance)



## U.S. Stock Rally Extends Yearslong Winning Streak

By KAREN LANGLEY

Investors are piling back into U.S. stocks, betting that the domestic equity market can withstand new economic headwinds better than other parts of the world.

They are shying away from European markets because of the war in Ukraine and the Continent's dependence on Russian energy, and looking askance at China, where Covid-19 lockdowns recently halted production at electronics and auto factories.

The U.S., by contrast, is less

reliant on Russian oil, while counts of Covid-19 patients entering hospitals have fallen substantially. And many investors believe the U.S. economy entered the geopolitical tumult of recent weeks in strong enough shape to withstand the jump in oil prices and heightened anxiety sparked by Russia's invasion of Ukraine.

The S&P 500 rose 6.2% last week, its best performance since November 2020, after the Federal Reserve raised interest rates for the first time since 2018. The index is now up 5.6% since Russia invaded Ukraine

and has trimmed its losses for the year to 6.4%.

The recent rally extends years of U.S. outperformance. Since the start of 2010, the S&P 500 has quadrupled, while an MSCI index tracking stocks outside the U.S. is up about 30% over that time.

More recently, Germany's DAX index is down 1.5% since the Russian invasion on Feb. 24. The Shanghai Composite has declined 6.8% and Hong Kong's Hang Seng has tumbled 9.5% over the same period.

"The U.S. is a safe haven in

Please turn to page B2

## Nielsen Spurns Deal Valued at \$9 Billion

By CARA LOMBARDO

Nielsen Holdings PLC rejected a roughly \$9 billion takeover offer from a private-equity consortium, saying that it undervalues the TV-ratings company.

The Wall Street Journal reported last week that Elliott Management Corp. was part of a private-equity group in advanced talks to buy Nielsen for roughly \$15 billion, including debt. Nielsen said Sunday it wouldn't proceed with a bid that would have valued the company at \$25.40 a share, without naming members of the consortium.

Nielsen said that WindAcre Partnership LLC, which has a roughly 10% stake and additional exposure of 14% through swaps, had told the company that if it were to accept the proposal, the Houston investment firm would block the transaction. Nielsen said WindAcre was considering joining the buyer group but ultimately decided against it, believing the proposal undervalued the company.

Nielsen also said it intends to start \$1 billion worth of previously approved share repurchases when the window to do so opens, likely after the

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STREETWISE | By James Mackintosh

## Don't Count on Buying the Dip Anymore



Maybe Cathie Wood was right to keep buying unprofitable speculative technology stocks for her ARK Investment Management ETFs as the prices plunged: Last week, ARK's main fund recorded its best four-day streak since its launch in 2014, leaping more than 25%.

The outside gain wasn't thanks to Ms. Wood's investment acumen, since ARK Innovation remains down al-

most a third this year alone. But it is indicative of two interconnected issues that matter hugely to investors: rising interest rates and whether to buy the dip.

On the face of it, the Federal Reserve's plans to raise interest rates rapidly are terrible for stocks and even worse for unprofitable tech shares, since speculation generally thrives on cheap money.

There are two reasons you might be tempted to buy the dip. The first is that the longest-dated bond yields came

down as the Fed tightened, and that means far-off profits—so long as they prove not to be imaginary—are worth more now. The second is that stocks already fell a long way (a very, very long way in the case of the stocks ARK likes), which means investors were prepared for bad news.

Both these reasons need scrutiny.

Let's look at the first. There's logic to the idea that 30-year yields would fall. The Fed's sharp rate increases now should slow the

economy, mean less inflation and so less need to raise rates aggressively later.

That is what Fed policy makers think will happen. Their own predictions show they expect to raise rates now so that they can cut them later. Their median forecast is that interest rates will rise to 2.8% by the end of next year, from 0.25% to 0.5% today, before falling back to a long-run rate of 2.4%—and the market, broadly speaking, has bought the idea. The 10-year yield is

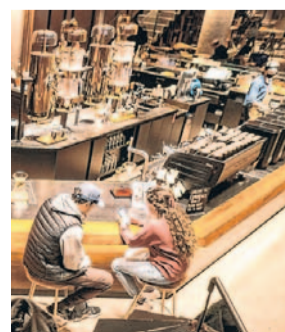
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The resort said it would consult local authorities before reopening, as virus cases in China soar.

# Shanghai Disney Resort To Close Over Covid Wave

By GINGER ADAMS OTIS

The Shanghai Disney Resort has announced that it will close on Monday until further notice, citing China's recent wave of Covid-19 infections.

The resort said on its website that it would consult local authorities and notify guests as soon as it had a confirmed date to resume operations.

China reported 1,656 new locally transmitted Covid-19 cases on Saturday, health authorities said, compared with about 70 cases at the beginning of the month. Meanwhile, mainland China reported its first deaths from Covid-19 in more than a year on Saturday.

Two patients died of Covid-19 in the northeastern province of Jilin, China's National Health Commission said. The deaths on Friday are the nation's first recorded fatalities since Jan. 26, 2021.

Walt Disney Co., a minority owner in the Chinese resort, said its theme parks and resorts generated record income in its fiscal first quarter, signaling that the worst of the damage the company suffered from the coronavirus pandemic may be behind it.

Shanghai Disneyland, which first opened in 2016, was the first Disney park to close as the pandemic spread in early 2020. Disney later closed all of

its parks, costing the company billions of dollars in revenue. Shanghai Disneyland reopened in May 2020.

In late October, Shanghai Disneyland locked more than 30,000 visitors inside its theme park and forced them to take Covid-19 tests after one customer came back positive for the virus—an example of the zero-tolerance policy imposed by the Chinese government.

China is attempting to move on from its so-called Covid-Zero lockdown measures in favor of a more precise approach to containing the virus that is less damaging to its economy.

## Software Firm to Go Private

Continued from page B1 was founded in 2006 and went public in 2018, closed at \$50.59 on Friday.

Buyout firms, flush with piles of cash, have been on a deal-making tear. Software, with its steady cash flows, has been a hot area.

Anaplan is among several big software companies in a take-private deal. In January, Vista Equity Partners and the private-equity arm of Elliott Management Corp. agreed to buy Citrix Systems Inc. for about \$13 billion. In November, Advent International Corp. and Permira announced a \$12 billion deal for McAfee Corp. Other big LBOs that have been in the works include one for TV-ratings company Nielsen Holdings PLC that could be valued at about \$15 billion including debt, The Wall Street Journal reported.

Last week, activist investor Sagem Head Capital Management LP disclosed a nearly 5% stake in Anaplan. Sagem Head is part of a group of activists that together hold an even larger stake, a filing shows.

Thoma Bravo plans to use Anaplan as a platform for further acquisitions.

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## Stocks Extend Advances

Continued from page B1 an increasingly unsafe world," said Jim McDonald, chief investment strategist at Northern Trust, which was managing \$1.6 trillion at the end of 2021.

This week, investors will look to a speech Monday by Fed Chairman Jerome Powell for further clues about the economic outlook. They also will parse earnings reports from Nike Inc., General Mills Inc. and Darden Restaurants Inc. to gauge the strength of the U.S. consumer.

The U.S.'s production of energy and agricultural products helps insulate it from the recent increases in commodities prices, while a strong U.S. labor market should support the domestic economy, Mr. McDonald said. Northern Trust has been buying U.S. stocks over the past month and selling shares from other parts of the world, he said.

The Chicago firm isn't alone. Money managers in recent weeks have shifted their appetites for regional equities, loading up on U.S. stocks and dropping shares of European companies. The net percentage of respondents to BofA Global Research's global fund manager survey who said they were overweight U.S. equities jumped 27 percentage points from February to March, returning the country's stocks to a net overweight position in the poll.

Overseas, it was a different



The best-performing sectors of the S&P 500 over the past month are energy stocks, which benefit from higher oil prices, and utilities and healthcare shares. Above, an Eli Lilly operation in 2020.

story: The share of survey respondents who were overweight eurozone stocks dropped 48 percentage points to the largest underweight reading for that region since July 2012. Preferences for stocks in emerging markets, Japan and the U.K. also declined.

The conflict in Ukraine is expected to stress European economies as it strains supply chains and raises the cost of energy. Europe's economic recovery was less robust than that of the U.S. even before the invasion by Russia of Ukraine.

Atlanta-based wealth-management firm Homrich Berg is considering lowering its allocation to international equities and moving to short-term bonds because of the risk of

economic slowdown outside the U.S., said chief investment officer Stephanie Lang.

"We're not seeing the recession risk in the U.S.," she said. "We are starting to see heightened recession risk globally. There's a bifurcation."

To be sure, some investors say that even with elevated geopolitical instability, stocks overseas trade at a steep enough discount to U.S. shares to merit consideration. The S&P 500 traded last week at 19.2 times its projected earnings over the next 12 months, according to FactSet. Germany's DAX had a forward multiple of 12.7, while the Hang Seng traded at 10.1 times projected earnings.

"I think most of the risks are actually priced into the interna-

l markets at this point," said Ben Kirby, co-head of investments at Thornburg Investment Management.

Thornburg in recent weeks added to its positions in Dutch insurer NN Group NV and French oil-and-gas company TotalEnergies SE, he said.

U.S. equity funds saw their largest inflows in five weeks in the week ended Wednesday, while emerging markets equities had their first outflows since December and European equities recorded a fifth consecutive week of outflows, according to a BofA Global Research analysis of EPFR Global data.

The U.S. makes up about 60% of the MSCI ACWI All Cap Index, one measure of the global equity market.

## Aramco Posts Jump In Profit

Continued from page B1 invest in industries outside of oil as part of Crown Prince Mohammed bin Salman's plan to restructure the economy by 2030.

To help meet that goal, Prince Mohammed has tasked the Public Investment Fund to invest in companies and industries untethered to hydrocarbons. The government also transferred the \$29.4 billion it raised from Aramco's initial public offering on the Saudi stock exchange in 2019 to the PIF to deploy.

Last month, the Saudi government said it transferred Aramco shares valued at about \$80 billion to the PIF as part of efforts to diversify the kingdom's hydrocarbon-dependent economy.

The fund has used the cash it has received or raised in the past few years to invest in a diverse set of businesses such as electric-vehicle manufacturer Lucid Motors Inc., Citigroup Inc. and the Premier League soccer club Newcastle United.

It also has played a more-

active role in the global markets after receiving \$40 billion from the kingdom's reserves in early 2020. It plans to invest an additional \$10 billion in listed stocks this year, according to people familiar with the fund's plan.

Aramco's results came a few hours after a Saudi-led coalition said Iran-backed Houthi forces in Yemen fired missiles and drones at Aramco energy and water desalination facilities late Saturday and early Sunday.

The missiles and drone attacks were fired at a water desalination plant in Al-Shaqeeq; a distribution station in Jizan; a liquefied natural gas plant in Yanbu; a power station in Dhahran al Janub; and a gas facility in Khamis Mushait. Aramco said there were no casualties or impact on its supplies, while the coalition said the strikes damaged civilian vehicles and homes in the area.

The Houthis claimed responsibility for the attacks, which a spokesman said were in response to "the continued aggression and unjust siege of our people."

Later Sunday, the coalition said an Aramco petroleum products distribution plant in Jeddah also was attacked by the Houthis, leading to a "limited fire" in one of the tanks. The fire was brought under control and no casualties have been reported.

## Green Startups Pressed

Continued from page B1 SA raised roughly \$700 million last year, after previously pulling in about \$30 million since its founding in 2018. Northvolt AB, another battery company, raised \$2.75 billion in a single fundraising round last year. Electric-vehicle maker Rivian Automotive Inc. raised nearly \$14 billion in the biggest U.S. initial public offering since 2014.

"There is a lot of progress coming," said Robert Piconi, chief executive of Energy Vault Holdings Inc., an energy-storage startup based outside Los Angeles and in Switzerland.

Energy Vault is one of many companies trying to store renewable energy to provide power when the sun doesn't shine and the wind doesn't blow. The company uses surplus renewable energy to lift

30-metric-ton blocks in what look like elevator shafts, then lowers them when needed to produce energy.

In the past six months, Energy Vault raised about \$350 million and went public through a merger with a special-purpose acquisition company. Before that, it had raised about \$60 million from its founding in 2017. It recently announced partnerships and investments from Saudi Arabian Oil Co. and mining company BHP Group Ltd. It expects to build its first commercial projects this year.

Companies such as Energy Vault still must prove their technology works at scale and answer skeptics who argue they are overvalued based on their minuscule revenue. Shares of many publicly traded startups have fallen lately amid a selloff in risky stocks. The shifting market environment is slowing the pace of clean-energy fundraising and increasing pressure on companies that promised breakthroughs, investors say.

"We have to build credibility," said Tom Jensen, CEO of Freyr, a Norwegian company working to produce low-cost,

sustainable batteries. Freyr plans to open large battery factories in Norway, Finland and the U.S. in the next several years. The roughly \$700 million it raised last year came from investors including mining company Glencore PLC and a unit of private conglomerate Koch Industries Inc.

Swedish battery maker

**'We have to build credibility,' says Tom Jensen of battery maker Freyr.**

Northvolt was among the winners of the 2021 fundraising frenzy. It is working to mass-produce batteries after getting \$2.75 billion from investors including Volkswagen AG, Goldman Sachs Asset Management and asset manager Baillie Gifford last summer.

About 40 companies tied to sustainability completed SPAC mergers in 2021, generating about \$25 billion of cash, led by electric-car startup Lucid Group Inc., according to a

Wall Street Journal analysis of SPAC Research data. Many SPAC deals that were announced late in 2021 are expected to close soon, raising billions more. Twenty-seven green companies went public through regular IPOs last year and raised more than \$20 billion, a Journal analysis of Dealogic data shows.

The flood of cash often went to competitors in emerging industries, pushing some to try to get ahead but running the risk of more failures. "The next couple of years are going to be an explosion" as companies accelerate their plans, said John Bissell, co-CEO of Origin Materials Inc., a startup working to make plastics and other materials from wood chips and other plant-based products.

Origin, founded in 2008, raised about \$500 million in its combination with a SPAC last year. Two other companies working to make eco-friendly materials, Danimer Scientific Inc. and Footprint International Holdco Inc., reached SPAC deals in the past 18 months featuring investor commitments for roughly \$1 billion.

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## BUSINESS NEWS



Labor talks on the West Coast—covering 22,400 dockworkers at 29 ports—are expected to begin in the coming months.

# Importers Ready for Disruption Ahead of Port Labor Talks

By PAUL BERGER

U.S. importers are starting to reset their supply chains to avoid disruptions ahead of potentially contentious contract talks this summer between West Coast dockworkers and the companies that manage the flow of goods through ports.

Some shippers are pulling forward their holiday-season orders to get them into domestic networks early, logistics operators said, and many are diverting cargo that normally moves through the West Coast to East Coast and Gulf Coast ports. Shipping executives said that is helping spread congestion that gripped California's ports of Los Angeles and Long Beach, underscoring the difficulty importers face in reconfiguring supply chains built around the West Coast gateways.

"There are limited options available and that's why a lot of them still pray and hope they can get a lot of their product through L.A.-Long Beach," said Sidney Brown, chief executive of **NFI Industries Inc.**, a third-party logistics operator in Camden, N.J.

Labor talks on the West Coast—covering 22,400 dockworkers at 29 ports from Washington state to Southern California—are expected to begin in the coming months, though no formal start date has been set. The sides will be

seeking to replace an agreement that expires July 1. In past years, labor talks have taken months to resolve. During combative negotiations that ran from 2014 to 2015, slowdowns at the ports caused lengthy backups in ships off the Southern California coast.

"It does have our attention and we are considering the impact it would have on our supply chain," said Jon Cargill, senior vice president and chief financial officer of **Hobby Lobby Stores Inc.**

This year's talks will take place as dozens of ships are backed up in the Pacific Ocean because of pandemic-triggered supply-chain congestion. Efforts to get around that bottleneck by routing cargo elsewhere led to backlogs from the Port of Houston in the Gulf to the ports of Savannah, Ga., and Charleston, S.C.

David Arsenaault, president of **GSC Logistics Inc.**, a third-party services company that specializes in moving cargo through Northern California and the Pacific Northwest, said some shippers agreed to contracts earlier than usual in the annual shipping cycle this year to ensure space on alternate routes.

Other gateways would be hard-pressed to process much of the cargo from the ports of Los Angeles and Long Beach, which together handle nearly 40% of U.S. container imports, Mr. Arsenaault said.

"Big retailers understood the limit to how much East Coast capacity they could secure, and if they waited too late, that space could have already been spoken for," he said.

Small- to medium-size importers, which tend to book cargo last-minute rather than on long-term contracts, say they have contingency plans, but will wait and see how bad any disruption might be.

Mark Riskowitz, head of operations at **Caraway Home**

## Many shippers are diverting cargo to East Coast and Gulf Coast ports.

Inc., an almost three-year-old kitchenware company, said he is considering diverting cargo from California to the Port of New York and New Jersey, and to Prince Rupert, a port in British Columbia, Canada, that has rail connections to Chicago.

Roel Dekkers, director of supply chain at an aftermarket automotive filtration supplier, **Premium Guard Inc.**, said he is considering shifting time-critical goods to East Coast ports while continuing to send less time-sensitive shipments to the West Coast.

Container volumes through

East Coast ports grew faster in recent months than those through the West Coast, though it isn't clear how much of the gap is because congestion slowed the handling of volumes at the California gateways and how much is because cargo was diverted to other gateways.

Overall imports into major West Coast ports declined 14% in December, from the year before, according to the Pacific Merchant Shipping Association, while East Coast volumes rose nearly 13% and Gulf Coast imports increased almost 14%.

In February, the National Retail Federation urged the dockworkers union and port terminal employers to begin talks early to allay shipper concerns. The two sides have a lot to discuss: from work rules at West Coast facilities to more thorny issues such as automation, pay and benefits.

The Pacific Maritime Association, which represents terminal employers, on Wednesday said it is prepared to begin negotiations immediately. The International Longshore and Warehouse Union, which represents dockworkers, said it won't be ready until May.

Jonathan Gold, vice president for supply chain at the retail federation, said shippers don't expect the talks to conclude before the contract expires. But they would like to see signals from both sides that there won't be any disruption.

# China Outbreak Threatens Backlog

By COSTAS PARIS

Cargo ships are accumulating at one of China's busiest ports after another Covid-19 outbreak shut down factories and warehouses in Shenzhen, raising the prospect of a new round of bottlenecks that could push up freight rates and slow deliveries.

There are more than 35 ships waiting to dock in Shenzhen and another 30 farther north in Qingdao, according to shipping brokers. The Port of Shenzhen, which serves a major manufacturing and export hub, includes the Yantian terminal, which handles about a quarter of all U.S.-bound Chinese exports. Shenzhen remains open, but most manufacturing plants and warehouses were ordered to close last week, and container loading is falling fast as fewer trucks are arriving.

"Very little moves in Shenzhen. You need to test repeatedly, and I don't know if the ship will be allowed to come in," said Wei Wu, a truck driver moving boxes for a European logistics operator.

The lockdown in Shenzhen was partially lifted on Friday after President Xi Jinping told a Politburo meeting that while sticking to its zero-Covid-19 policy, the government should "minimize the impact" of the pandemic on the economy.

A Covid-19 outbreak closed down the Yantian terminal for almost a month in June, creating a backlog of tens of thousands of containers while dozens of ships waited for weeks outside Shenzhen to load up. Operators diverted a number of



The Port of Shenzhen's Yantian terminal handles about a quarter of all U.S.-bound Chinese exports.

vessels to other ports, which made their way back across the Pacific and created bottlenecks at the California ports of Los Angeles and Long Beach.

The Yantian outbreak cut operations at that terminal by about 75%, according to shipping brokers. Daily freight rates across the Pacific shot up by a quarter during the lockdown as cargo owners tried to find vessels that would call at other Chinese ports and move their products.

The freight forwarder **Seko Worldwide** said in a recent report that there are restrictions for trucks traveling in and out of Shenzhen and that trucks from Shenzhen to Hong Kong stopped operating, except for essential goods to Hong Kong.

It said truck restrictions remain in Shanghai, with some ships rerouting to Ningbo.

A.P. Moller-Maersk AS said

that although terminals in Shenzhen are operational, it came up with contingency plans and could divert ships if restrictions there remain.

**Kuehne & Nagel International AG**, a logistics operator in Switzerland, said in some cases it was switching drivers for trucks coming into Shenzhen to get around delays because of restrictions on intercity transportation. It said vessels are waiting an average of about 3½ days for berths at Yantian.

Freight rates last week from China to Los Angeles held steady from the previous week at around \$16,242 per container, according to the Freighters Baltic Index, but they remained near record levels and have tripled compared with a year earlier.

The backup outside the ports of Los Angeles and Long Beach was 48 vessels on Thurs-

day, down from a record 109 in early January, according to the Marine Exchange of Southern California. Los Angeles Port Executive Director Gene Seroka said he expects a fresh surge of ships in the coming weeks.

Analysts said if the ports in China stay open, the pause in manufacturing will clear some of the backlog of boxes waiting to be loaded. But with warehouses closed, finding space for incoming containers will be challenging.

"All things considered, the impact—for now—is clearly not as large as last year," said Lars Jensen, chief executive of **Vespucci Maritime**, a Denmark-based consulting firm.

The latest outbreaks have led major manufacturers including **Foxconn Technology Group**, a supplier to **Apple Inc.**, **Toyota Motor Corp.** and **Tesla Inc.** to cut production.

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## BUSINESS &amp; FINANCE

# Chinese Shares Leave Investors Reeling

By QUENTIN WEBB  
AND DAVE SEBASTIAN

Chinese stocks crashed in recent days, only to rebound with unprecedented force. To some investors, the recovery was nearly as worrying as the selloff.

The turbulence follows a yearlong slide that caused widespread investor losses. Trillions of dollars in market value across American depository receipts, Hong Kong shares and other Chinese stocks evaporated as Beijing pursued a series of regulatory crackdowns and as the global appetite for riskier, high-growth shares waned.

This month, the turmoil reached a new pitch, as investors worried about whether China could suffer Russian-style financial isolation, while more bad news emerged on Covid-19 and on regulatory pressure from Beijing and Washington.

In recent days the market was gripped by panic selling, in one of the biggest episodes in the history of China ADRs, said Tony Chin of Infini Capital Management Ltd.

“People were basically selling with no price limit—they just wanted to de-risk,” said Mr. Chin, founder and chief executive of Infini, a Hong Kong hedge-fund manager.

There is a lot at stake for international investors. U.S. institutions hold about \$750 billion of Chinese shares of all sorts, Goldman Sachs analysts estimate, while many individuals hold U.S.-listed Chinese shares or exchange-traded funds.

The latest rout began March 10, after the Securities and Exchange Commission provisionally named five Chinese companies whose audit papers it couldn't inspect, a move toward eventual delistings under the Holding Foreign Companies Accountable Act.

Taken alone, this was an incremental step in the gradual decoupling of American and Chinese markets. But it prompted investors to revisit the big question of how investible Chinese stocks are, an



After top Chinese policy makers talked the market back up, ecommerce company Alibaba Group Holding's ADRs leapt 37%.

issue that blew up last year when Beijing took down after-school tutoring companies.

Days earlier, Norway's \$1.4 trillion sovereign-wealth fund ditched a Chinese sportswear stock over forced-labor concerns. And Moscow had just been frozen out of global finance for its attack on Ukraine, with MSCI Inc. kicking the now “uninvestible” Russia out of its influential emerging-markets indexes.

“The fate of the MSCI Russia Index painted a vivid—and terrifying—picture for what could happen in the event of a diplomatic breakdown between U.S. and China,” Sanford C. Bernstein analyst Robin Zhu wrote to clients.

As the weekend arrived, Chinese technology stocks had shed almost \$2 trillion in value from a \$3 trillion peak in early 2021, Goldman analysts estimated.

The heavy selling continued into the following week, with news of rising Covid-19 infections and lockdowns in cities like Shenzhen adding to the gloom. Analysts at JPMorgan Chase & Co. downgraded doz-

ens of internet stocks, saying the market's focus had shifted to risk management “as global investors price in China's geopolitical risks.”

And regulators showed few signs of easing up on corporate China, with The Wall Street Journal reporting that Tencent Holdings Ltd. was facing a potential record fine from the central bank. By the end of Monday, March 14, U.S. ADRs dropped 29% in three sessions. The selling continued in Asia on Tuesday, though U.S.-listed stocks regained a little ground.

Then midweek, everything changed. Top Chinese policy makers stepped in on March 16 to talk the market back up, with officials led by Liu He, President Xi Jinping's top economic adviser, promising market-friendly policies and pledging to keep capital markets running smoothly.

“The Chinese government has never issued something as strong as this to support capital markets,” said Mr. Chin at Infini Capital.

The reaction was rapid and

fierce. U.S.-listed Chinese companies gained \$242 billion in a day, S&P Global Market Intelligence data shows, with a Nasdaq index jumping by an unprecedented 33%. Blue chips traded like penny stocks: Alibaba Group Holding Ltd.'s ADRs leapt a record 37%, in trading volumes only exceeded by the day of the e-commerce company's listing.

“The market is completely unstable,” said Alexandre Tavazzi, global strategist and chief investment officer for Asia at Pictet Wealth Management, speaking as stocks surged. “The pricing is very dependent on short-term supply-demand dynamics and less on fundamentals.”

The end result was something of a round trip: By the close on Friday, the Nasdaq Golden Dragon China Index stood about 3.4% higher than it did two weeks earlier, while Hong Kong's Hang Seng lost 2.3% over the same period, Refinitiv data shows.

The roller-coaster ride demonstrates how much Chinese shares remain at the

mercy of politics and headlines. While that is a familiar issue for emerging-market investors, it makes them less appealing than companies that can be valued largely on their underlying businesses.

After the convulsions, investors are trying to understand how much has changed.

Chinese authorities tried to soothe investors before, but the pressure wasn't off for long. While a top regulator moved in July 2021 to reassure global financial firms after the tutoring clampdown, it wasn't long before the property sector was engulfed in a crisis—and another tech giant, Meituan, found itself in officials' crosshairs repeatedly.

On delisting, there are reasons for optimism. Many companies have, or could get, second listings in Hong Kong as another way to access global capital markets, while some companies including big telecommunications operators were delisted with little practical effect. Chinese officials repeatedly said they want to resolve the issue.

Many investors argue there is no fundamental problem with investing in China and the long pullback has made some stocks attractive.

“We strongly refute the notion that ‘China is uninvestible,’” said Justin Thomson, chief investment officer and head of international equity at T. Rowe Price Group Inc. “It would appear that the market is pricing in extremely negative sentiment while ignoring potential positives such as extremely cheap valuations and the opportunity for further easing in the economy.”

Likewise, Conrad Saldanha, senior portfolio manager on the emerging-market equity team at Neuberger Berman Group LLC, said a broad-brushed dismissal of Chinese stocks would be wrong and he still saw investment opportunities in some internet companies, as well as hardware and consumer businesses.

However, other issues that pressed down on Chinese stocks appear more intractable. Markets world-wide remain jittery about inflation, interest rates and global growth.

And the advantage China once enjoyed as “first in, first out” of the pandemic has faded, as it targets a 5.5% growth rate for this year and experiments with adapting its zero-tolerance approach to Covid-19.

China's slowdown will affect consumption and profit growth, while its property sector has yet to show signs of recovery, said Mr. Tavazzi at Pictet, which hasn't held Chinese stocks in its discretionary portfolio for about a year.

Restoring investor confidence could take time. Mark Martyrossian is a director at Aubrey Capital Management Ltd., a boutique investment firm specializing in global growth stocks that manages a China-focused strategy. In late 2021, he met with some 30 institutional investors in the U.S. to pitch Aubrey. But most of those investors were worried about further business regulations and the sentiment hasn't shifted since then, he said.

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## BUSINESS &amp; FINANCE

# Schultz Seeks A New Start With Baristas

Longtime Starbucks leader faces a push by workers to unionize as he prepare to return

By HEATHER HADDON

Howard Schultz traveled to Buffalo, N.Y., last November with a message to workers considering forming a union: Starbucks would do the best job looking out for employees' interests.

During an hourlong speech delivered without notes, Mr. Schultz, Starbucks Corp.'s former leader, appealed to employees to work together with management. "Our core purpose and reason for being is to build the kind of company that creates a fragile balance between profit and doing the right thing," he said.

Many baristas in Buffalo didn't stand with Mr. Schultz; they voted to unionize instead. They have said they believe organizing is needed to push for better pay, adequate staffing and a louder voice in company affairs.

Now Mr. Schultz, 68 years old, will need to please shareholders while also trying to win over Starbucks employees—and those the chain still aims to hire. In April, Mr. Schultz will return for his third stint running Starbucks, taking on an interim chief executive role after the chain last week said current CEO Kevin Johnson would retire after five years atop the company. Part of Mr. Schultz's focus, he told employees this week, is establishing a new tone with the roughly 230,000 workers staffing its U.S. cafes.

"We have to take a hard look at how we are doing as a company, and as a community of partners," Mr. Schultz wrote in a message to Starbucks workers Wednesday. "These are the questions on my mind as we renew a journey to see beyond what Starbucks has been and what it is today to what it will become."

Across the U.S., restaurant operators are struggling to recruit and retain enough staff to fully staff locations, and quit rates among hospitality workers hit record highs last year, federal data showed. Starbucks, the world's biggest coffee chain in terms of sales, had to reduce hours and limit services earlier this year at some locations that were short-handed because of continuing worker shortages and rising Covid-19 cases.

Thinly staffed stores have left some baristas feeling overwhelmed, workers have said, while customers continue to order highly customized, labor-intensive drinks.

Starbucks needs more

workers to meet its growth goals. The company last week said it aims to open more than 20,000 cafes globally by the end of the decade. It also needs to improve investor sentiment toward the stock. Starbucks stock, which trailed other restaurant company shares in recent months, climbed roughly 8% since Mr. Schultz's return was announced on Wednesday.

After buying out the local Starbucks coffee outpost in 1987, Mr. Schultz molded Starbucks's image and customer experience, developing its cafes as a place to linger over espressos and lattes. He also helped design the company's offerings for its baristas and other workers, offering benefits that Mr. Schultz said went beyond most retailers—covering the cost of employee healthcare, time off and benefits for those working at least 20 hours a week at the chain. A year before the company went public in 1992, Starbucks started giving baristas stock, a practice the company has continued.

"I was convinced that under my leadership, employees would come to realize that I would listen to their concerns," Mr. Schultz wrote in "Pour Your Heart into It," his book about building Starbucks into a global coffee company. "If they had faith in me and my motives, they wouldn't need a union."

During his earlier stretches leading Starbucks, Mr. Schultz often held town hall-style forums to speak with workers and sometimes directly reached out to employees. In 2016, after a California barista named Jaime Prater wrote an online petition about working conditions at Starbucks that drew nearly 25,000 signatures, Mr. Schultz called the employee. The CEO later bumped up pay and company stock was issued to many U.S. cafe workers.

Mr. Prater recalled feeling thrilled when Mr. Schultz called him, feeling like his voice mattered. He said he appreciated the additional benefits, but said the overall working environment at his cafe didn't improve.

"It was the most demanding and hardest job I've ever worked," said Mr. Prater, who left Starbucks in 2018 and now works as a marketing manager.

The company is now dealing with the most concerted unionization campaign in its history. Pro-union workers said unionizing will help deliver better pay and working conditions, and representation among Starbucks's decision makers. Starbucks said it respects the unionization process, but wants to maintain



Thinly staffed stores have left some baristas feeling overwhelmed, workers said, while customers order customized, labor-intensive drinks.

its direct relationship with workers and has advised them against organizing.

Since the union drive began at Buffalo-area cafes last

year, around 140 U.S. Starbucks cafes petitioned to hold votes on whether their workers should be represented by Starbucks Workers United,

formed in the run-up to the Buffalo cafes' votes in late 2021. This week, the National Labor Relations Board is slated to count ballots in the

first union drive in Mr. Schultz's primary home of Seattle.

—Stephen Council  
contributed to this article.

## WHERE RISK MEETS OPPORTUNITY

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Howard Schultz, seen in 2019, will return in April to run Starbucks.

## Nielsen Spurs Takeover

Continued from page B1  
company's earnings report scheduled for April 21.

A deal was expected to be announced soon, according to people familiar with the matter. It is possible the talks could resume.

Nielsen had a market value of around \$6.2 billion before

the Journal's report, having fallen this year. That has since risen to around \$8.8 billion in anticipation of a deal. The shares closed Friday at \$24.44.

Nielsen measures U.S. TV ratings, which provide audience estimates that networks use to sell commercial time and reassure advertisers they got what they paid for. But its hold has been loosening as streaming gains steam and traditional broadcast and cable TV lose viewers. While the New York-based company has introduced metrics for streaming in recent years, it is one of many players in that field.

MARKETS DIGEST

New to the Market

Public Offerings of Stock

IPOs in the U.S. Market

None expected this week

Lockup Expirations

Below, companies whose officers and other insiders will become eligible to sell shares in their newly public companies for the first time. Such sales can move the stock's price.

Table with columns: Lockup expiration, Issue date, Issuer, Symbol, Offer price, Offer amt, Through Friday, Lockup provision. Lists companies like Movano, Brands Holding, EngageSmart, etc.

IPO Scorecard

Performance of IPOs, most-recent listed first

Table with columns: Company, SYMBOL, IPO date, Offer price, % Chg From Friday's close, Offer price, % Chg From Offer price, 1st-day close, % Chg From 1st-day close. Lists Goldenstone Acquisition, AKanda, Nubia Brand Int'l, etc.

Public and Private Borrowing

Treasuries

Table with columns: Day, Auction details, Thursday, March 24, Auction details. Lists Monday, Tuesday, Wednesday, Thursday auctions.

Currencies

U.S.-dollar foreign-exchange rates in late New York trading

Table with columns: Country/currency, Fri in US\$, YTD % chg, per US\$, Country/currency, Fri in US\$, YTD % chg, per US\$. Lists Americas, Europe, Asia-Pacific, Middle East/Africa, etc.

Closed-End Funds

Listed are the 300 largest closed-end funds as measured by assets. Closed-end funds sell a limited number of shares and invest the proceeds in securities.

Table with columns: Fund (SYM), NAV, Close, Prem, Disc, 52 wk Ret. Lists Adams Diversified Equity, Boulder Growth & Income, etc.

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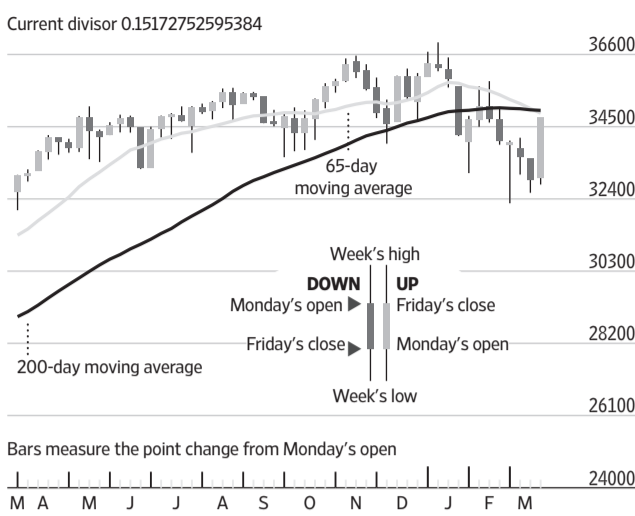
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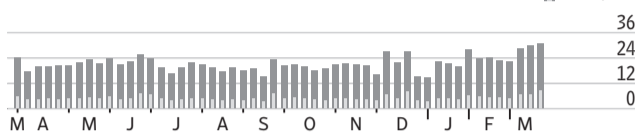
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Dow Jones Industrial Average

34754.93 ▲1810.74, or 5.50% last week. Last Year ago 19.30 33.12. High, low, open and close for each of the past 52 weeks.



NYSE weekly volume, in billions of shares



Major U.S. Stock-Market Indexes

Table with columns: Index, High, Low, Latest Week Close, Net chg, % chg, 52-Week Close, High, % chg, YTD % chg. Lists Dow Jones, Nasdaq Composite, S&P 500, etc.

Other Indexes

Table with columns: Index, Close, Latest Week % chg, Low, 52-Week Close, High, YTD % chg. Lists Russell 2000, NYSE Composite, Value Line, etc.

International Stock Indexes

Table with columns: Region/Country, Index, Close, Latest Week % chg, Low, 52-Week Close, High, YTD % chg. Lists MSCI ACWI, MSCI AC Asia Pacific, FTSE 100, etc.

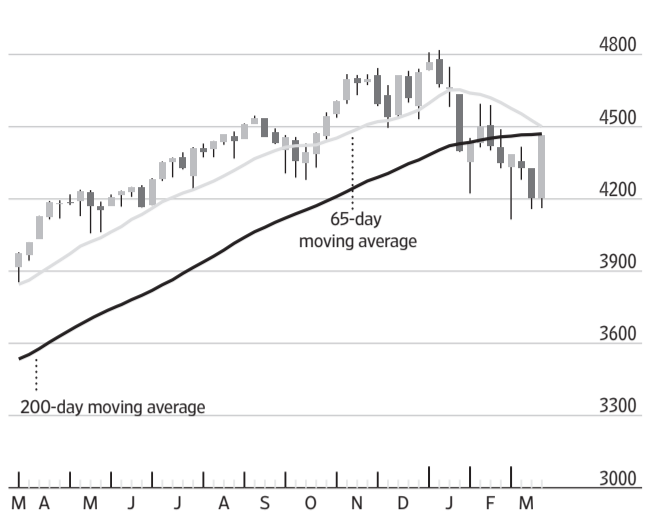
Consumer Rates and Returns to Investor

Table with columns: U.S. consumer rates, Selected rates, 5-year CDs, Bankrate.com avg, Presidential Bank, FSB, etc.

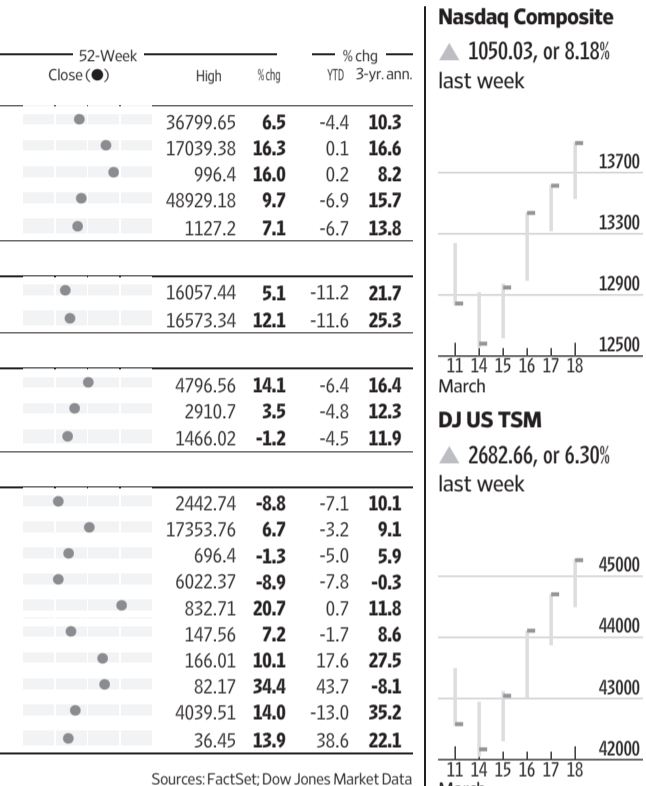
Table with columns: Interest rate, Yield/Rate (%), 52-Week Range (%), 3-yr chg. Lists Federal-funds rate target, Prime rate, etc.

S&P 500 Index

4463.12 ▲258.81, or 6.16% last week. Last Year ago 24.53 44.63. High, low, open and close for each of the past 52 weeks.



Track the Markets: Compare the performance of selected global stock indexes, bond ETFs, currencies and commodities at WSJ.com/TrackTheMarkets

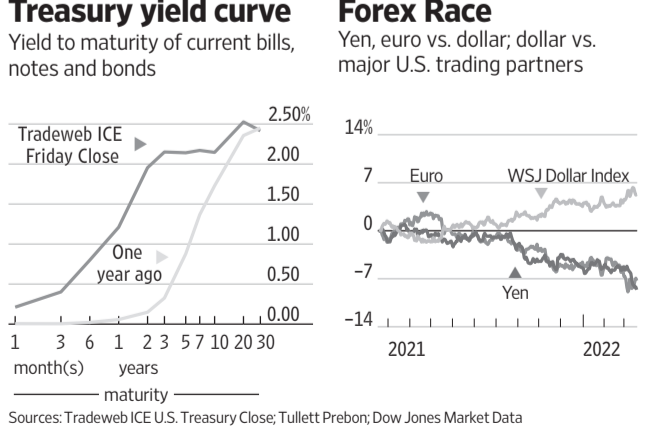


Commodities and Currencies

Table with columns: Commodity, Last Week Close, Net chg, % Chg, YTD % chg. Lists DJ Commodity, Crude oil, Natural gas, U.S. Dollar Index, etc.


QR code and text: Scan this code to get real-time U.S. stock quotes and track most-active stocks, new highs/lows, mutual funds and ETFs.

Benchmark Yields and Rates



Corporate Borrowing Rates and Yields

Table with columns: Bond total return index, Yield (%), Spread +/- Treasuries, Total Return. Lists U.S. Treasury, U.S. Treasury Long, etc.



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Now, as we face one of the worst humanitarian crises since WWII, we're on the ground — aiding Ukraine's 200,000 Jews, as well as helping all refugees fleeing the country, and the vast majority who remain and face unimaginable danger.

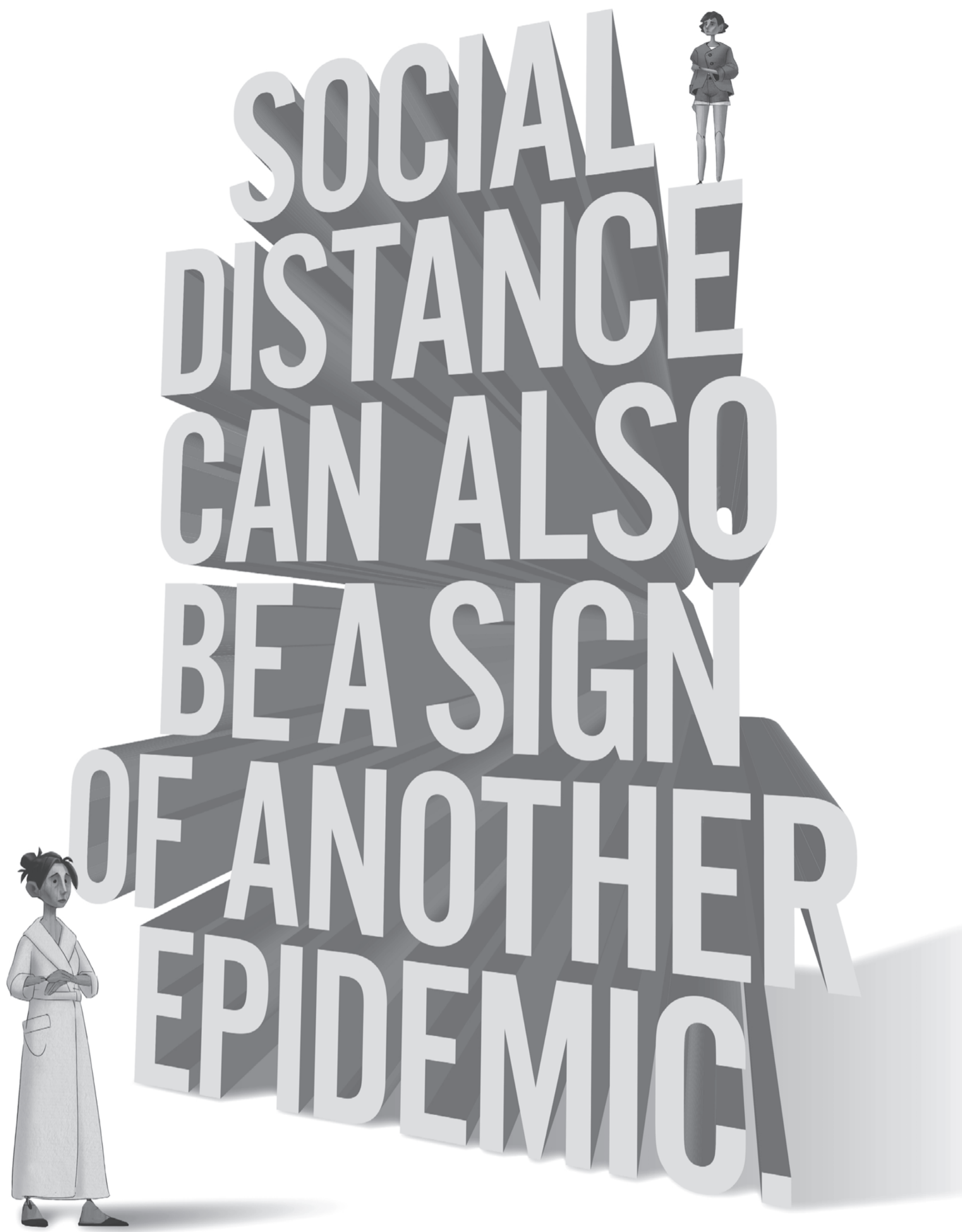
We've already committed millions of dollars to provide emergency food and medicine; immigration resettlement, including to Israel; home care to those under fire; refugee support at the border; temporary housing; and mental health counseling.

Let's come together to support the people of Ukraine.



[ujafedny.org/crisis-donate](https://ujafedny.org/crisis-donate)

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Get support to help your child at [DrugFree.org](https://www.drugfree.org)



STOCKS

A Week in the Life of the DJIA

A look at how the Dow Jones Industrial Average component stocks did in the past week and how much each moved the index. The DJIA gained 1,810.75 points, or 5.50%, on the week. A \$1 change in the price of any DJIA stock = 6.59-point change in the average. To date, a \$1,000 investment on Dec. 31 in each current DJIA stock component would have returned \$29,349, or a loss of 2.17%, on the \$30,000 investment, including reinvested dividends.

Table showing stock performance for the week of March 14-20, 2022. Columns include Pct change, Stock price, Point chg, Company, Symbol, Close, and \$1,000 Invested (year-end '21).

Cash Prices

Friday, March 18, 2022

These prices reflect buying and selling of a variety of actual or "physical" commodities in the marketplace—separate from the futures price on an exchange, which reflects what the commodity might be in future months.

Table of commodity prices for Friday, March 18, 2022. Categories include Energy, Metals, Gold, Silver, Grains and Feeds, and Food.

Table of commodity prices for Friday, March 18, 2022. Categories include Fibers and Textiles, and various other commodities.

KEY TO CODES: A=ask; B=bid; BP=country elevator bids to producers; C=corrected; D=CME; E=Manfra,Tordella & Brookes; H=American Commodities Brokerage Co; K=bi-weekly; M=monthly; N=nominal; n.a.=not quoted or not available; P=Posland Publishing; R=SNL Energy; S=Platts-TSI; T=Cotlook Limited; U=USDA; V=Benchmark Mineral Intelligence; W=weekly; Y=International Coffee Organization; Z=not quoted. \*Data as of 3/17

Source: Dow Jones Market Data

Borrowing Benchmarks

wsj.com/market-data/bonds/benchmarks

Money Rates

March 18, 2022

Key annual interest rates paid to borrow or lend money in U.S. and international markets. Rates below are a guide to general levels but don't always represent actual transactions.

Table of money rates including Inflation, U.S. consumer price index, International rates, Prime rates, Policy Rates, Overnight repurchase, U.S. government rates, Discount, Notes on data, U.S. prime rate, Other prime rates, Discount rate, Secured Overnight Financing Rate, and DTCC GCF Repo Index.

Table of money rates including Call money, Commercial paper (AA financial), Libor, and DTCC GCF Repo Index.

CLOSED-END FUNDS

Large table of closed-end funds with columns for Fund (SYM), NAV, Close/Discount, Yield, Prem12 Mo, and TTI Ret. Includes sub-sections for World Income Funds, National Muni Bond Funds, and Income & Preferred Stock Funds.



EXTRACT OF THE NOTICE OF CALL OF ORDINARY AND EXTRAORDINARY SHAREHOLDERS' MEETING

(pursuant to Article 125-bis, paragraph 1, of Legislative Decree no. 58/1998)

The Ordinary and Extraordinary Shareholders' Meeting of Intesa Sanpaolo S.p.A. is convened, on single call, at the New Headquarters in Torino, Corso Inghilterra no. 3, at 10:00 a.m. on 29 April 2022, to discuss and pass resolutions on the agenda as stated below.

In relation to the Covid-19 epidemiologic situation and in compliance with Article 106, paragraph 4, of Decree Law no. 18 dated 17 March 2020, converted by Law no. 27 dated 24 April 2020, as subsequently amended, participation in, and voting at, the Shareholders' Meeting shall only be allowed through the Appointed Representative pursuant to Article 135-undecies of Legislative Decree no. 58/1998, as per the indications provided in the specific paragraph of the notice of call available on the website group.intesasanpaolo.com ("Governance"/"Shareholders' Meeting").

Agenda:

- Ordinary part
1) 2021 financial statements:
a) Approval of the Parent Company's 2021 financial statements
b) Allocation of net income for the year and distribution to shareholders of dividend and part of the Share Premium Reserve;
2) Resolutions in respect of the Board of Directors pursuant to Articles 13 and 14 of the Articles of Association:
a) Determination of the number of Board Directors for the financial years 2022/2023/2024
b) Appointment of Board Directors and members of the Management Control Committee for the financial years 2022/2023/2024, on the basis of slates of candidates submitted by shareholders
c) Election of the Chairman and one or more Deputy Chairpersons of the Board of Directors for the financial years 2022/2023/2024;
3) Remuneration:
a) Remuneration policies in respect of Board Directors
b) Determination of the remuneration of Board Directors pursuant to Articles 16.2 and 16.3 of the Articles of Association
c) Report on remuneration policy and compensation paid: Section I - Remuneration and incentive policies of the Intesa Sanpaolo Group for 2022
d) Report on remuneration policy and compensation paid: non-binding resolution on Section II - Disclosure on compensation paid in the financial year 2021
e) Approval of the 2022 Annual Incentive Plan based on financial instruments
f) Approval of the 2022-2025 Performance Share Plan Long-term Incentive Plan reserved for the Management of the Intesa Sanpaolo Group
g) Approval of the 2022-2025 LECOIP 3.0 Long-term Incentive Plan reserved for the Professionals of the Intesa Sanpaolo Group;
4) Own shares:
a) Authorisation to purchase own shares for the annulment of a maximum number of 2,615,384,615 own shares
b) Authorisation to purchase and dispose of own shares to serve Incentive Plans
c) Authorisation to purchase and dispose of own shares for trading purposes.

- Extraordinary part
1) Annulment of own shares with no reduction of the share capital and consequent amendment to Article 5 (Share Capital) of the Articles of Association
2) Mandate to the Board of Directors, pursuant to Article 2443 of the Italian Civil Code, to approve a share capital increase without payment and with payment pursuant, respectively, to Article 2349, paragraph 1, and Article 2441, paragraph 8, of the Italian Civil Code for the purpose of implementing the 2022-2025 LECOIP 3.0 Long-term Incentive Plan based on financial instruments, referred to under item 3g) of the ordinary part, and consequent amendment to Article 5 (Share Capital) of the Articles of Association
3) Mandate to the Board of Directors, pursuant to Article 2443 of the Italian Civil Code, to approve a share capital increase without payment pursuant to Article 2349, paragraph 1, of the Italian Civil Code for the purpose of implementing the 2022-2025 Performance Share Plan Long-term Incentive Plan based on financial instruments, referred to under item 3f) of the ordinary part, and consequent amendment to Article 5 (Share Capital) of the Articles of Association.

Information on the share capital as well as on methods and terms applicable to:
• participating in, and casting votes at, the Shareholders' Meeting only through the Appointed Representative Computershare S.p.A.,
• communication of ownership of voting rights with record date on 20 April 2022,
• exercising the right to add items to the agenda, the right to submit new proposals for resolution and the right to ask questions on the items on the agenda,
• appointing Board Directors and members of the Management Control Committee on the basis of slates of candidates,
• the availability of the reports concerning the items on the agenda with the related documentation,
is set forth in the notice of call available on the website group.intesasanpaolo.com ("Governance"/"Shareholders' Meeting").

This extract is published in the daily newspapers "Il Sole 24 Ore", "La Stampa", "Corriere della Sera", "Financial Times" and "The Wall Street Journal".

for the Board of Directors
The Chairman - Gian Maria Gros-Pietro

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MARKETS

# Columbia Professor Is Latest Short Target

Investor Carson Block tries to discredit a legal expert helping guide a federal probe

By Liz Hoffman and Melissa Korn

A federal criminal investigation into short sellers spawned a behind-the-scenes feud between a law professor whose research is helping to guide prosecutors and one of the most prominent investors in their sights.

Carson Block, known for public broadsides against companies he suspects of fraud, has been waging a campaign to discredit Joshua Mitts, a Columbia University law professor who has been aiding the Justice Department in its investigation into whether short sellers use illegal trading tactics to drive stock prices down.

Prosecutors subpoenaed trading records and electronic communications of several hedge funds, and FBI agents seized Mr. Block's phone in October, The Wall Street Journal has reported.

Since then, Mr. Block, the founder of **Muddy Waters LLC**, publicly accused Mr. Mitts of academic shortcomings, privately urged Columbia to investigate him and challenged the professor's findings in a research paper of his own. It is a tactic from Mr. Block's investing playbook: Launch an attack highlighting alleged corporate wrongdoing, get regulators—in this case, Mr. Mitts's bosses at Columbia—to take notice, and see if any of the claims stick.

Mr. Block wrote last month to Columbia's head of human resources urging the school to investigate Mr. Mitts's research, as well as his paid consulting work for companies targeted by short sellers.

In the letter, viewed by the Journal, he attacked a paper Mr. Mitts wrote in 2018, which found bearish posts on the investor website Seeking Alpha were often accompanied by

unusual trading activity. The paper helped guide prosecutors in their investigation, the Journal has reported.

Mr. Mitts's research "lacks academic integrity and is wholly wrong," Mr. Block wrote. He said Mr. Mitts's consulting work may violate the university's ethics policies.

It is common for business and law faculty from prestigious universities to advise companies or government groups, often charging hundreds of dollars an hour for their expertise. Columbia allows faculty to spend up to one day a week on external consulting projects.

Messrs. Mitts and Block declined to comment.

A Columbia spokesman declined to comment on the matter. He said the school "recognizes the importance of relationships between researchers and external entities, and seeks to encourage such relationships, but also has rigorous standards and policies about conflicts of interest."

Mr. Block published his own analysis of the Seeking Alpha posts last month challenging Mr. Mitts's conclusions. He said most of the stock-price declines could be explained by bad earnings announcements; that Mr. Mitts engineered his result by focusing only on larger companies; and that the most of the posts' authors didn't say they were short the stock. The website requires commenters to declare if they are short a stock.

Disagreements over research aren't uncommon in academia and petty sniping can escalate to public rebukes, but behind-the-scenes lobbying by outsiders is unusual. Whether or not Columbia acts on his complaint, Mr. Block risks inflaming prosecutors by attacking their expert witness.

Mr. Mitts is up for tenure next month.

In addition to the formal request to Columbia, Mr. Block sent an email last month to John Coffee, a chaired professor who has taught at Columbia Law School since 1980. He

called Mr. Mitts's research "outright deceptive and misleading" and attacked his work for companies that have been targeted by short sellers.

"You have been bamboozled into assisting him in his campaign that serves his clients' interests," Mr. Block wrote in the email.

"I do not think you are a fraud and I like what you have done," Mr. Coffee replied, citing Mr. Block's work exposing accounting problems at a Chinese coffee chain. "I also do not think Joshua is a fraud. Maybe I am just soft-headed."

Mr. Coffee called Mr. Mitts "one of the best young scholars in the country" and his case for tenure was strong. He praised Mr. Block as "an entrepreneur par excellence."

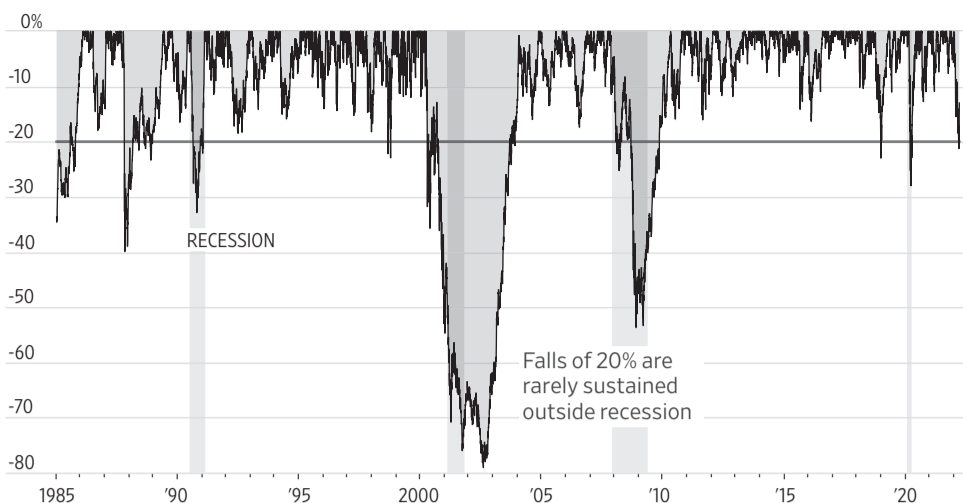
"They're both talented people," he said, "but now they're like the Capulets and the Montagues."

The two men were once friendly. In 2019, Mr. Block visited Mr. Mitts's class at Columbia, where he spoke admiringly of the professor's work, according to correspondence between the two viewed by the Journal. They discussed co-authoring an article about short selling, agreeing it was key to policing corporate fraud and raising concerns about the possibility of manipulative trading.

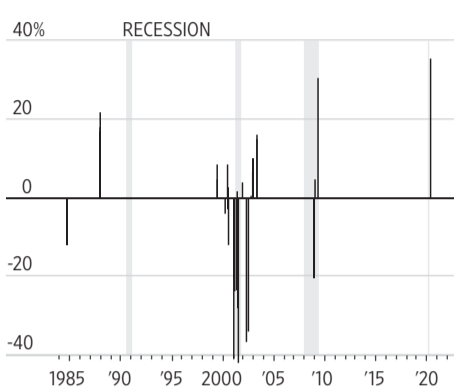
A few months later, Mr. Mitts was hired by a British asset manager, Burford Capital, after Mr. Block accused it of dodgy accounting. The matter ended up in a U.K. court, where a judge was unswayed by Mr. Mitts's claims that suspicious trading around the time of the report tanked the company's stock price.

Last week Eric Talley, another Columbia Law School professor specializing in corporate law and finance, waded into the spat by publishing a short paper concluding that Mr. Mitts's research on the price movements of shorted stocks was on sound theoretical footing. "My interest in this was kind of as a boring academic," said Mr. Talley.

Nasdaq-100 index fall from two-year high



Nasdaq-100 90-day change following four-day rises as big as this week's 10.53%



Change since Dec. 31, 2020



Sources: Refinitiv (Nasdaq-100 and 90-day); FactSet (price change)

## Investors Can't Buy On the Dip

Continued from page B1

lower than the seven-year, while the 30-year Treasury yield is smack on the 2.4% the Fed predicts.

But this is an altogether happy state of affairs: Bond yields retreat because inflation stops being a problem. Bond yields could fall because of a recession. The former is great for shareholders; recession not so much.

The historical record is mixed. There are plenty of recessions caused by the Fed. But in the mid-1960s, mid-1980s and mid-1990s, rate-increase cycles came to an end without recession—the economy had a soft landing. Had the pandemic not struck, the Fed might have engineered a soft landing with its rate cuts of 2019, too.

The bond market's best signal of imminent recession is the shape of the yield curve and it isn't—yet—flashing a warning. The three-month yield remains far below the 10-year yield, while typically before a recession it rises above the longer-dated yield.

It is true that there are

good reasons to worry about recession, with household spending power hit by inflation, sanctions creating financial stresses and geopolitics adding to the troubles for globalization.

But there are reasons to be sanguine, too, with post-pandemic savings able to absorb some of the hit to household spending power, European governments about to embark on a belated post-Covid-19 spending spree, banks strong and vast amounts of cash still sloshing around.

You could even argue that the Fed isn't cooling the economy that much: Consumer-price inflation rose by more than three times the Fed's quarter-point rate increase last week. If, as economists believe, it is after-inflation interest rates that matter to the economy, the Fed has actually eased monetary policy this year (though we shouldn't get too cute about this; talk of future rate rises matters to the economy, too).

Bottom line: There is a strong case both for and against a stagflationary recession ahead, and it is hard to disagree with either. That suggests to me more wild market swings ahead as data points to one outcome or the other becoming more likely.

The second reason you might buy the dip: The dip has been big.

The technology-dominated

Nasdaq-100 and Russell 1000 Growth indexes fell into a bear market last Monday, down more than 20% from last year's peaks.

But I remain doubtful that Monday's stock-market low marks the start of a bright new bull market. First, those who chose to buy tech stocks because the fall was a nice, round 20% are hardly making a considered judgment on the fundamental outlook for risk and reward.

Second, the biggest gainers have been the unprofitable tech beloved by Ms. Wood and meme stocks such as **GameStop** and cinema-chain-to-goldminer **AMC Entertainment**—hardly the foundation for a solid market.

And third, the Fed is less likely to ride to the rescue of the stock market if it does fall further, because of the importance of bringing down inflation. The lack of a Fed backstop makes stocks riskier than they were.

So dip buyers, beware. The 30-year mantra of buying because the Fed will intervene to help no longer applies, so you'd better be sure Ms. Wood has it right this time.

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## THE TICKER | MARKET EVENTS COMING THIS WEEK



General Mills is expected to report per-share earnings of 78 cents on Wednesday.

Monday	Tuesday	Wednesday	Thursday	Friday
<b>Earnings expected*</b> Estimate/Year Ago	<b>Earnings expected*</b> Estimate/Year Ago	<b>Earnings expected*</b> Estimate/Year Ago	<b>Short-selling reports</b> Ratio, days of trading volume of current position, at Feb 28	<b>Initial jobless claims</b> Previous 214,000 Expected 213,000
Nike 0.71/0.90	Adobe 3.34/3.14 HealthEquity 0.21/0.42	Cintas 2.44/2.37 General Mills 0.78/0.82	NYSE 3.0 Nasdaq 2.5	U.Mich. consumer index March, prelim. 59.7 March, final 59.6
Gasoline stocks down 3.6 Distillates up 0.3	<b>New-home sales</b> Jan., previous 801,000 Feb., expected 820,000	<b>Earnings expected*</b> Estimate/Year Ago	<b>EIA report: natural gas</b> Previous change in stocks in billions of cubic feet down 79	<b>U.S. consumer index</b> March, prelim. 59.7 March, final 59.6
<b>Mort. bankers indexes</b> Purch., prev. up 1.0% Refi., prev. down 3.0%	<b>Earnings expected*</b> Estimate/Year Ago	<b>EIA status report</b> Previous change in stocks in millions of barrels Crude-oil stocks up 4.3	<b>Earnings expected*</b> Estimate/Year Ago	

## Insider-Trading Spotlight

Trading by 'insiders' of a corporation, such as a company's CEO, vice president or director, potentially conveys new information about the prospects of a company. Insiders are required to report large trades to the SEC within two business days. Here's a look at the biggest individual trades by insiders, based on data received by Refinitiv on March 18, and year-to-date stock performance of the company

Key: B: beneficial owner of more than 10% of a security class CB: chairman CEO: chief executive officer CFO: chief financial officer CO: chief operating officer D: director DO: director and beneficial owner GC: general counsel H: officer, director and beneficial owner I: indirect transaction filed through a trust, insider spouse, minor child or other O: officer OD: officer and director P: president UT: unknown VP: vice president Excludes pure options transactions

## Biggest weekly individual trades

Based on reports filed with regulators this past week

Date(s)	Company	Symbol	Insider	Title	No. of shrs in trans (000s)	Price range (\$ in transaction)	\$ Value (000s)	Close (\$)	Ytd (%)
Mar. 14-15	Procore Technologies	PCOR	W. Griffith	DOI	1,174	49.22-52.16	59,730	61.57	-23.0
Mar. 15	DocuSign	DOCU	D. Springer	CEOI	67	73.63-76.45	5,000	95.51	-37.3
Mar. 15	TeraWulf	WULF	P. Prager	CEOI	396	7.76	3,076	7.48	-50.3
Mar. 11	Skywest	SKYW	J. Atkin	D	110*	25.33	2,786	28.07	-28.6
Mar. 10-11	Coty	COTY	S. Nabl	CEO	305	8.00-8.29	2,526	9.06	-13.7
Mar. 14	Shift4 Payments	FOUR	J. Isaacman	CEO	36	47.72-49.62	1,740	59.64	3.0
Mar. 15	Stem	STEM	M. Morgan	DI	150	7.62	1,143	10.77	-43.2
Mar. 9-10	Scientific Games	SGMS	H. McLennan	DI	18	57.42-60.14	1,055	62.16	-7.0
Mar. 7	Ambarella	AMBA	A. Verhalen	DI	11	88.60	1,015	99.38	-51.0
Mar. 14	DraftKings	DKNG	H. Nada	D	65	15.34	997	19.62	-28.6
Mar. 14	DraftKings	DKNG	H. Sloan	D	50	15.39	770		
Mar. 10-11	Revolution Medicines	RVMD	T. Schroeder	DI	44	20.57-21.23	898	20.48	-18.6
Mar. 10-11	First Internet Bancorp	INBK	D. Becker	CEO	20	44.50-45.00	892	46.63	-0.9
Mar. 15	Inotiv	NOTV	J. Harkness	O	39	18.84-19.74	766	23.76	-43.5
Mar. 14-15	American Assets Trust	AAT	E. Rady	CEOI	17	35.98-35.99	620	37.09	-1.2
Mar. 14	Wheels Up Experience	UP	D. Adelman	DI	200	3.10	620	3.33	-28.2
Mar. 10	Ball	BLL	D. Fisher	P	7	85.86	601	93.00	-3.4

## Sellers

Mar. 14	Magnolia Oil & Gas	MGY	J. Walker	DOI	7,500	21.72	162,900	23.21	23.0
Mar. 14	Airbnb	ABNB	J. Gebbia	HI	300	136.61-144.32	41,917	167.00	0.3
Mar. 11	Estee Lauder Companies	EL	F. Freda	CEO	128	264.37-271.10	34,134	276.87	-25.2
Mar. 15	Workday	WDAY	D. Duffield	BI	103	217.82-222.33	22,535	243.60	-10.8
Mar. 9	Alphabet	GOOG	B. Sergey	DO	8,260	33-2658.70	21,175	2736.03	-5.4
Mar. 9	Alphabet	GOOG	B. Sergey	DO	8,260	58-2642.38	21,144		
Mar. 16	Alphabet	GOOG	L. Page	DO	8,258	95-2650.95	20,434		
Mar. 16	Alphabet	GOOG	L. Page	DO	7,257	10-2636.29	19,165		
Mar. 16	Alphabet	GOOG	L. Page	DO	7,263	04-2665.97	17,389		
Mar. 16	Alphabet	GOOG	L. Page	DO	6,265	99-2673.75	16,272		
Mar. 9	Alphabet	GOOG	B. Sergey	DO	6,266	25-2680.49	15,578		
Mar. 9	Alphabet	GOOG	B. Sergey	DO	6,264	97-2673.32	15,503		
Mar. 11	Velodyne Lidar	VLDL	D. Hall	B	7,620	2.00	15,240	2.44	-47.4
Mar. 11	Southern Copper	SCCO	G. Larrea Mota-Velasco	CB	200	74.94	14,988	74.31	20.4
Mar. 10	Enphase Energy	ENPH	B. Kothandaraman	CEO	80	172.13-179.72	14,052	184.52	0.9
Mar. 9-11	Harmony Biosciences Holdings	HRMY	A. Wicki	DI	286	44.14-45.80	12,920	49.17	15.3
Mar. 15	Booking Holdings	BKNG	P. Millones	GC	6	2015.09-2053.26	12,392	2186.31	-8.9
Mar. 15-16	DraftKings	DKNG	J. Robins	CEO	658	15.54-17.75	10,833	19.62	-28.6

\* Half the transactions were indirect \*\* Two day transaction p = Pink Sheets

## Buying and selling by sector

Based on actual transaction dates in reports received this past week

Sector	Buying	Selling	Sector	Buying	Selling
Basic Industries	4,188,664	29,570,834	Health care	8,984,312	127,353,721
Business services	0	0	Industrial	0	0
Consumer durables	1,776,756	15,288,946	Media	0	0
Consumer nondurables	0	0	Technology	13,802,041	193,598,914
Consumer services	5,253,635	74,859,804	Transportation	3,585,450	1,148,149
Energy	289,300	116,908,936	Utilities	0	0
Finance	19,205,848	76,649,235			

Sources: Refinitiv, Dow Jones Market Data



HEARD ON THE STREET

FINANCIAL ANALYSIS &amp; COMMENTARY

## How Sensitive Your Stocks Are to Rates Will Soon Be Clear

There is a new urgency to the old question of how much credit falling interest rates should get for your stock portfolio's strong performance.

The Federal Reserve and Bank of England raised borrowing costs over the past week, confirming the end of near-zero rates and, analysts fear, of a decadeslong boost to stock valuations.

Higher share prices relative to earnings explain half the returns of the S&P 500 over 10 years. That proportion rises to 60% for the technology-heavy Nasdaq as **Alpha-bet**, **Meta Platforms** and **Amazon.com** left "old economy" banks and utilities in the dust.

The raft of profitless tech-focused startups that hit the market last year, such as electric-vehicle maker **Rivian Automotive**, fintech lender **SoFi Technologies** and various air-taxi ventures, seem particularly exposed to the turning tables. Otherwise, investors need to do some homework before rotating back to

old-economy sectors.

A bond with a 2% coupon becomes less attractive when the return investors get by leaving the money in the bank rises from 0% to 1%. And its resale value will fall a lot more if it matures in 10 years rather than in two, because investors are locked in for a decade of disappointing returns. In financial jargon, it has higher "duration," which is both a measure of sensitivity to rates and the weighted average time until all the cash flows are paid.

What about stocks? While they offer much more legroom to speculate because payments aren't fixed, their value is—usually—still tied to expectations of making a profit. Mature businesses with predictable dividend payments can be seen as having low duration, whereas growth-led firms have more of their value tied to earnings in the distant future. Startups have extra-long duration: They are akin to buying a lottery ticket with a payout in 10 years' time.

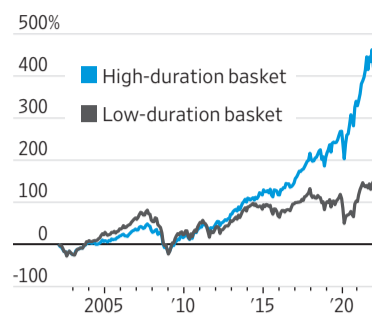
Most stocks, however, fall somewhere in between, which requires going beyond intuition or sector correlations with bond yields.

In a 2004 paper, University of Michigan researchers Patricia M. Dechow, Richard G. Sloan and Mark T. Soliman popularized a way to estimate a company's "implied equity duration" by predicting future cash flows based on the growth of sales, earnings and book value. Applying their math to S&P 500, Euro Stoxx 50 and FTSE 100 stocks puts the duration of blue-chip stocks at around 20 years. As expected, the consumer services, healthcare and tech sectors, which have done better in the period of rock-bottom borrowing costs, rank above average, while energy, finance and telecommunications are below.

Sector averages are misleading, however. Within tech, the implied duration of Amazon and Netflix is above 23 years, whereas **International Business Machines** and **Intel** are closer to the market average

High-duration stocks have done better when interest rates have been lower

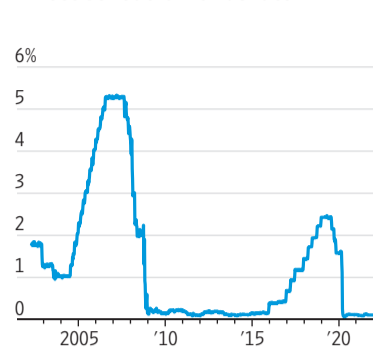
Cumulative change in stock prices from two decades ago



Notes: Five-year average through 2021. Includes stocks listed in the S&P 500, the Euro Stoxx 50 and the FTSE 100. Baskets are defined relative to the average stock implied duration.

Sources: WSJ calculations based on Dechow, Sloan, and Soliman (2004); FactSet (duration, performance); Federal Reserve (rate)

Effective federal-funds rate



and **Hewlett-Packard Enterprise**, a laptop and printer maker, ranks near the bottom at less than 14 years.

Meanwhile, electric-vehicle maker **Tesla** is an example of a long-duration disrupter in a mature industry. Cable operator **Charter Communications** and clothing giants **Inditex**, **Burberry** and **Under Armour** are less-obvious cases of old-economy but high-duration stocks.

Markets still predict that the Fed will keep rates below 3% this economic cycle, compared with more

than 5% pre-2008. So this past decade's trend may only be partially reversed, especially because much of the valuation premium fetched by the likes of Amazon and Alphabet reflects the growing dominance of these firms in the real world.

This is the moment for investors to take a closer look at the duration of their individual stockholdings. But they shouldn't forget that strong balance sheets and growing profits win the day, no matter where interest rates are.

—Jon Sindreu

## There Are Buried Treasures in Canadian Oil Sands

Dirty, expensive and trapped by a lack of pipelines, Canadian oil sands can be a tough investment proposition. Yet a year of elevated prices turned companies mining them into cash machines.

Soaring energy prices boost the industry: Major oil companies and U.S. shale producers reported record free cash flows in 2021 and should do even better this year. Analysts polled by FactSet predict that a subindex of U.S. oil and gas exploration companies in the S&P 500 will beat last year's bounty by 35%.

Impressive, that is, until compared with Canadian oil-sands producers: **Suncor Energy**, **Canadian Natural Resources**, **Imperial Oil**

and **Cenovus Energy** are set to increase their free cash flow by 60.5% this year, on average.

Oil sands require hefty investment upfront but output holds steady for decades with relatively modest maintenance capital expenditures. The opposite is true for shale deposits, which take less upfront spending but, due to quick decline rates, require continuous investment into drilling and well completion. Capital expenditures have stayed relatively consistent for Canadian oil producers over the years—through boom and bust cycles—compared with U.S. producers, whose spending fluctuated wildly. That frees up a lot of cash

for dividends and repurchases. Suncor doubled its dividend and bought back 6% of its shares in 2021.

But the task of separating extremely heavy crude oil from sand is energy intensive and leads to higher operating costs. That disadvantage creates more operating leverage: Each dollar increase in oil prices generates a higher boost in profits. Suncor's cash operating costs for its oil sands operations were roughly \$20 a barrel last year; for U.S. shale producer **EOG Resources**, that cost was closer to \$10.

Canadian royalty structures, which rise with oil prices, dent this advantage somewhat. U.S. royalty rates tend to be fixed as a percent-

age of revenue.

Royalty payments notwithstanding, Suncor, Canada's largest oil-sands producer, is expected to increase its free cash flow by more than 60% this year on just a 7.6% increase in capital expenditures, according to estimates polled by FactSet. EOG Resources, one of the largest independent U.S. exploration and production companies, is set to increase free cash flow by 21% but it will take 16% more in capital expenditures to get there. That isn't completely priced in—oil sands producers' free cash flow yield is higher than U.S. producers.

Longer term, the bull case for carbon-heavy Canadian oil is shak-

ier and will depend in part on a shift to a more nuanced view of environmental, social and governance concerns. Oil sands' carbon footprint is high, but Russia's invasion of Ukraine has brought social concerns to the forefront—Western major oil companies almost immediately pulled out of Russia—as well as the perils of relying on autocratic regimes for vital commodities.

Energy investors today are laser-focused on two things these days: Immediate cash returns and ESG alignment. At the moment, Canadian oil companies are ticking the first box. A paradigm shift in ESG could really supercharge their shares.

—Jinjo Lee

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