

Bloomberg Businessweek

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◀ Aisha "Pinky" Cole, founder of the Slutty Vegan burger chain, raised \$25 million to expand her mini-empire

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■ COVER TRAIL

How the cover gets made

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"This week is our annual Bloomberg 50 issue."

"Am I on the list?"

"No, and please stop asking. You've literally asked six years in a row."

"Fine, fine. How do you put the issue together?"

"We survey Bloomberg reporters and editors around the world, do an unfathomable amount of emailing, and then narrow it down to the most noteworthy—"

"—icons and innovators shaping global business! Right?"

"Very good. But you're still not getting on the list."



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The New State of Cybersecurity

“We’ve developed physical instincts, like taking care of our wallets and purses, locking our doors and being cautious when walking down dark streets – but we haven’t fully honed our instincts for living in the new digital age.”

Around the world, the words of David Koh, Chief Executive of Singapore’s Cyber Security Agency (CSA), ring true. With around 60% of global GDP now digitized (World Bank), the digital opportunity has never been more central to global economic recovery – or more vulnerable to bad actors.

A Multi-Stakeholder Approach

So when more than 10,000 participants from 65 countries across six continents gathered at Singapore International Cyber Week (SICW) 2022, they were united under its theme, “Digital Security: A Shared Responsibility.”

As Teo Chee Hean, Singapore’s Senior Minister and Coordinating Minister on National Security, noted in his opening address, “there are no borders in the digital domain. This is

why at the global level, we need international cooperation to build a robust framework that can safeguard cybersecurity and promote confidence and trust in cyberspace.”

As Asia-Pacific’s most established cybersecurity event, SICW’s program and attendance sheet are uniquely global and cross-sectoral, and reflect Singapore’s belief that every link in the cybersecurity equation – whether governments, private enterprises, academia, non-governmental organizations or individuals – bears collective responsibility for our digital future.

Among the global leaders and ambassadors who spoke at SICW 2022 were Alejandro Mayorkas, the United States’ Secretary of the Department of Homeland Security; Izumi Nakamitsu, the United Nations’ Under-Secretary-General and High Representative for Disarmament Affairs; Lim Jock Hoi, ASEAN’s Secretary-General; Wang Lei, Coordinator for Cyber Affairs of the Ministry of Foreign Affairs of China; and Tim Watts, Australia’s Assistant Minister for Foreign Affairs.



From Norms to Implementation

Multistate participation is crucial in safeguarding systems that transcend national borders, like the SWIFT international payment network, air travel booking systems and maritime traffic routing systems. A failure of any of these would create chaos on a global level – yet their protection and supervision are currently not governed by formal international processes.

While developing the “rules of the road” for a largely uncharted cyberspace is not straightforward, ASEAN, which is surging to a \$1 trillion digital economy by 2030 (Google, Temasek, Bain & Company), has made a head start. SICW 2022’s ASEAN Ministerial Conference on Cybersecurity formally established the ASEAN Regional Computer Emergency Response Team (CERT), which will strengthen ASEAN’s operational readiness in dealing with fast-moving cyber threats.

“The next step is to operationalize the ASEAN Regional CERT,” explained Josephine Teo, Singapore’s Minister for Communications and Information. “We envision the regional CERT to be a virtual center comprising analysts and incident responders from across ASEAN. For example, if a supply-chain attack were to occur in any of our countries, regional CERT analysts would rapidly share information from their own countries and jointly develop advisories when needed. We are weaving a tighter net that will hopefully help to prevent cyber attackers from getting through.”

A Brighter Digital Future

Now in its seventh year, SICW has seen the rise of global interest – and institutional commitment – in tackling cyber challenges. In 2016, SICW’s organizer, the CSA of Singapore, was one of the few agencies dedicated to cybersecurity. Many more have been established since, and are now engaging in consensus-building at SICW 2022 – and taking up its very theme.

As Chief Executive David Koh summed up at SICW Sessions: The Future of International Cyber Discussions, “the digital future can be bright if we can manage the risks. I believe there’s a possibility to put aside our differences and build upon consensus for the collective good of our digital future.”

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● Globally, there have been 655 million cases of the coronavirus, and almost

6.7m

people have died. China confirmed on Dec. 20 that it's narrowed its definition of Covid-19 deaths to people who test positive and have respiratory failure, fueling speculation that a lower official tally may mask the chaos unleashed by its abrupt pandemic pivot.

● War in Ukraine

► In his first trip abroad since the Russian invasion began, Ukrainian President Volodymyr Zelenskiy met with President Joe Biden at the White House on Dec. 21. Zelenskiy was set to address Congress later that night.

► The same day, former Russian President Dmitry Medvedev visited Beijing, where Chinese President Xi Jinping told him that China wanted to see peace talks on Ukraine.



► At his meeting with Zelenskiy, Biden unveiled \$1.85 billion in new military aid for Ukraine, including a Patriot missile battery to bolster its air defenses amid Russia's continued attacks on the country's civilian infrastructure.

● “This was not about being malicious.... We adhered carefully to the law.”

Chairman Richard Neal, a Massachusetts Democrat, after the US House Ways and Means Committee voted on Dec. 20 to release Donald Trump's 2015-20 tax returns. He said the IRS had failed to annually audit the former president, despite its policy to do so. A day earlier, the House committee investigating the Jan. 6 Capitol riot referred Trump for criminal prosecution on four charges, including insurrection.

● Stubbornly high inflation, rising borrowing costs and global uncertainty curbed dealmaking in 2022. According to Bloomberg, companies announced deals worth

\$3.5t

about a third less from 2021.

● Gambian lawmakers say the country should sue Maiden Pharmaceuticals, whose cough syrup has been blamed for the deaths of 70 children there.

The parliament's health committee on Dec. 20 also suggested banning the Indian drugmaker's products. The WHO said in October that four of Maiden's cold and cough medicines contained "unacceptable amounts" of diethylene glycol and ethylene glycol that could have caused acute kidney injuries and deaths. The company hasn't responded to a request for comment.

● With mortgage rates climbing, existing US home sales fell in November from the preceding month by

7.7%

according to the National Association of Realtors. But falling gas prices and easing inflation have goosed US consumer confidence, with the Conference Board index jumping from 101.4 in November to 108.3 in December.

● Wells Fargo reached a

\$3.7b

settlement with the US Consumer Financial Protection Bureau, including a record \$1.7 billion fine to cover allegations that the bank mistreated millions of customers for years.

WELLS FARGO



● Sam Bankman-Fried arrived at the Magistrate's Court in the Bahamas to finalize his departure to the US on Dec. 21. The FTX co-founder faces a litany of criminal charges connected to the collapse of the crypto exchange.

● Elon finds it's lonely at the top.

Musk said on Dec. 21 that he'll step down as Twitter's CEO. On Dec. 18, he polled its users asking if he should go; 57.5% of respondents said yes. On Dec. 20, longtime Tesla investor Ross Gerber tweeted that it was "time for a shakeup" at the EV maker, too, saying its "stock price now reflects the value of having no CEO." Tesla's shares have fallen more than 60% this year.

● Walmart said on Dec. 20 that it now has enough agreements with the states and localities suing it to move ahead with the

\$3.1b

nationwide opioid settlement framework it announced on Nov. 15. The company said the settlements “do not include any admission of liability.”



● H&M halted sales of its Justin Bieber collection on Dec. 21. The singer told his Instagram followers two days earlier not to buy the T-shirts and hoodies, accusing the fast-fashion giant of selling the “trash” without his consent. H&M insisted it followed the proper approval procedures but said it was removing the garments “out of respect for the collaboration and Justin Bieber.”

● Broadcom’s proposed

\$61b

takeover of VMware, a cloud-computing company, faces an extended review in Europe, after Margrethe Vestager, the EU’s antitrust chief, said on Dec. 20 that an initial investigation posed the risk that Broadcom could prevent hardware rivals from smoothly operating VMware server software.

● Governments at the UN’s COP15 biodiversity conference in Montreal agreed to protect a third of Earth’s land and water by 2030.

Activists, environmental organizations and private-sector interests hailed the Kunming-Montreal Global Biodiversity Framework, signed after four years of talks, as a Paris Agreement for biodiversity.

■ BLOOMBERG OPINION

What If Financial Rules Are Unconstitutional?

Is regulation as we know it unconstitutional? It isn’t inconceivable that, sometime soon, the US Supreme Court could reach that conclusion, invalidating much of the vast administrative apparatus created to promote such public goods as clean air, workplace safety and financial stability. The court is right to worry about dozens of regulatory agencies abusing their power or becoming an unaccountable fourth branch of government. But if that’s the concern, there are better, more prudent and less disruptive ways to proceed.

Much of the administrative state rests on a time-honored convention: As long as Congress provides some “intelligible principle” to guide an agency, courts usually defer to its expertise in interpreting statutes and making rules. This deference allows the ambitious application of broad mandates. To promote public health, the Environmental Protection Agency imposes myriad emissions standards and extracts hundreds of millions of dollars in fines from violators. To protect investors, the Securities and Exchange Commission mandates extensive corporate disclosure, prosecutes financial fraud and more.

Now several members of the court—led by Justice Neil Gorsuch—are challenging this paradigm, arguing that the Constitution’s authors never intended Congress to delegate so much authority. This “nondelegation doctrine” has surfaced in cases that chip away at agency powers—notably, the EPA’s authority to shut down coal-fired power plants. It’s imaginable that the doctrine could soon inspire a much broader decision, striking down much of the administrative state.

This reading of the Constitution is questionable. Article I

states merely that “all legislative powers” are vested in Congress. Taken literally, à la Gorsuch, the phrase could mean that the legislature must write all the rules, leaving agencies only to find facts and fill in relatively minor details. Or, in the more common interpretation, it could grant Congress broad authority to design executive branch agencies as it sees fit.

But if not Article I, what will prevent an unelected administrative state from getting out of hand? Abuses, after all, do happen. The SEC and other agencies have acted as judge and jury in their own enforcement actions, imposing large monetary penalties on private parties without ever entering a federal court. The Centers for Disease Control and Prevention imposed a series of nationwide eviction moratoriums during the pandemic, citing a 1944 statute granting it the power to conduct “inspection, fumigation, disinfection...and other measures” in response to a public-health crisis. The CDC took a rather expansive view of “other measures.”

In some cases, other parts of the Constitution clearly apply. The Seventh Amendment, for example, establishes a right to jury trial in civil cases with significant monetary value—a right that a court has correctly invoked in striking down the SEC’s use of in-house judges. Beyond that, there’s the Administrative Procedure Act, under which courts can overturn agency actions they deem “arbitrary” or “capricious,” and the common sense reflected in almost a century of law and precedent. Last year justices struck down the CDC’s extended eviction moratorium, saying, “It strains credulity to believe that this statute grants the CDC the sweeping authority that it asserts.”

To be sure, America’s regulatory system is far from ideal. Who, for example, needs nine financial regulators, four of them devoted to banks? Congress should ensure that the administrative state remains fit for purpose, and the judiciary must keep it in check. But simply dismantling it is no solution at all. **B** For more commentary, go to [bloomberg.com/opinion](https://www.bloomberg.com/opinion)

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China's Not-So-Grand Reopening

● Officials will underplay deaths while they trumpet the strength of the country's rebound

● By John Liu

● Illustration by Mario Meneses

China is finally reopening. After three years of mass testing and harsh lockdowns that crippled the nation's economy and antagonized its citizens, President Xi Jinping's government has dismantled its absolutist approach to dealing with Covid-19 at an unexpectedly rapid pace.

Gone is the policy known as Covid Zero, which portrayed the novel coronavirus as a dangerous pathogen that had to be eliminated, even if that demanded coercive and intrusive methods. Now come public exhortations that the omicron variant spreading across China is no more dangerous than a cold.

The shift has sparked euphoria in financial markets. Chinese stocks traded in Hong Kong have surged more than 30% in the past eight weeks on anticipation that jumbled supply chains will untangle and families freed from lockdowns will reopen their wallets. Wall Street's biggest banks have scrambled to raise their 2023 growth forecasts for the world's second-biggest economy.

The mood on China's proverbial Main Street is markedly different. Yes, there was exuberance in early December when authorities first announced that there'd be no more mandatory testing, no more lockdowns and no more hauling those with Covid to spartan facilities for supervised quarantine. It seemed as if the thousands who took to the streets in November to protest against such measures had prevailed.

What followed was the realization that peeling away Covid Zero would also unleash the virus. In cities across China, shops have closed for lack of staff, factories have slowed because of outbreaks on production lines, medicines to treat fever have become difficult to find and long lines have appeared at hospitals.

More worrisome still is the low rate of vaccination among China's elderly. The latest available data shows that only 42% of those over 80 have had a booster shot. So while authorities have renewed efforts to vaccinate high-risk groups, there's a real possibility that China's reopening will bring with it a large number of deaths. Sam Fazeli, Bloomberg Intelligence's chief pharmaceutical analyst, projects that the death toll could hit 700,000. A study by an influential team of researchers in Hong Kong puts the figure at almost 1 million.

Given the stakes, most analysts had expected China's pivot from Covid Zero to be gradual. Why Xi would gamble on a far faster exit is something that we—because of the opacity of Communist Party decision-making—may never know.

What seems clear, though, is that for this bet to pay off, the outcome Xi wants to see is a rapid economic rebound combined with a relatively low number of deaths.

On the growth front, at least, acting quickly should help. A rapid pivot will pull forward, into the final weeks of this year and the first months of the next, disruptions such as absenteeism caused by widespread illness or consumers avoiding outings for fear of infection. The sooner these drags on growth are overcome, the sooner the dividends of reopening will start to become visible.

Acting quickly may also help appease critics of the government's handling of Covid. The demonstrations at the end of

November were initially set off by fury over a deadly fire at an apartment block in Xinjiang, a tragedy many blamed on firefighters being delayed by barriers installed to enforce a Covid lockdown. They quickly evolved to encompass grievances about the economic and social toll of Covid Zero, with protesters even chanting in a few instances for Xi to step down. Coming some six weeks after China's most powerful leader since Mao Zedong secured a precedent-busting third term in power, it was a stark reminder that no one is invincible.

"I don't see a strategy in place to let Covid rip through the population," says Steve Tsang, director of the China Institute at SOAS University in London. "I see Xi agreeing to ease off—but not remove—the Zero Covid approach in response to the protests at a time when the health establishment had already seen the unsustainability of Zero Covid."

In public health terms, the argument for moving quickly appears less sound. In addition to insufficient levels of vaccination among the elderly, China's exit from Covid Zero is coming just as the country enters the coldest months of the year—a time when respiratory diseases spread more easily because people spend more time indoors.

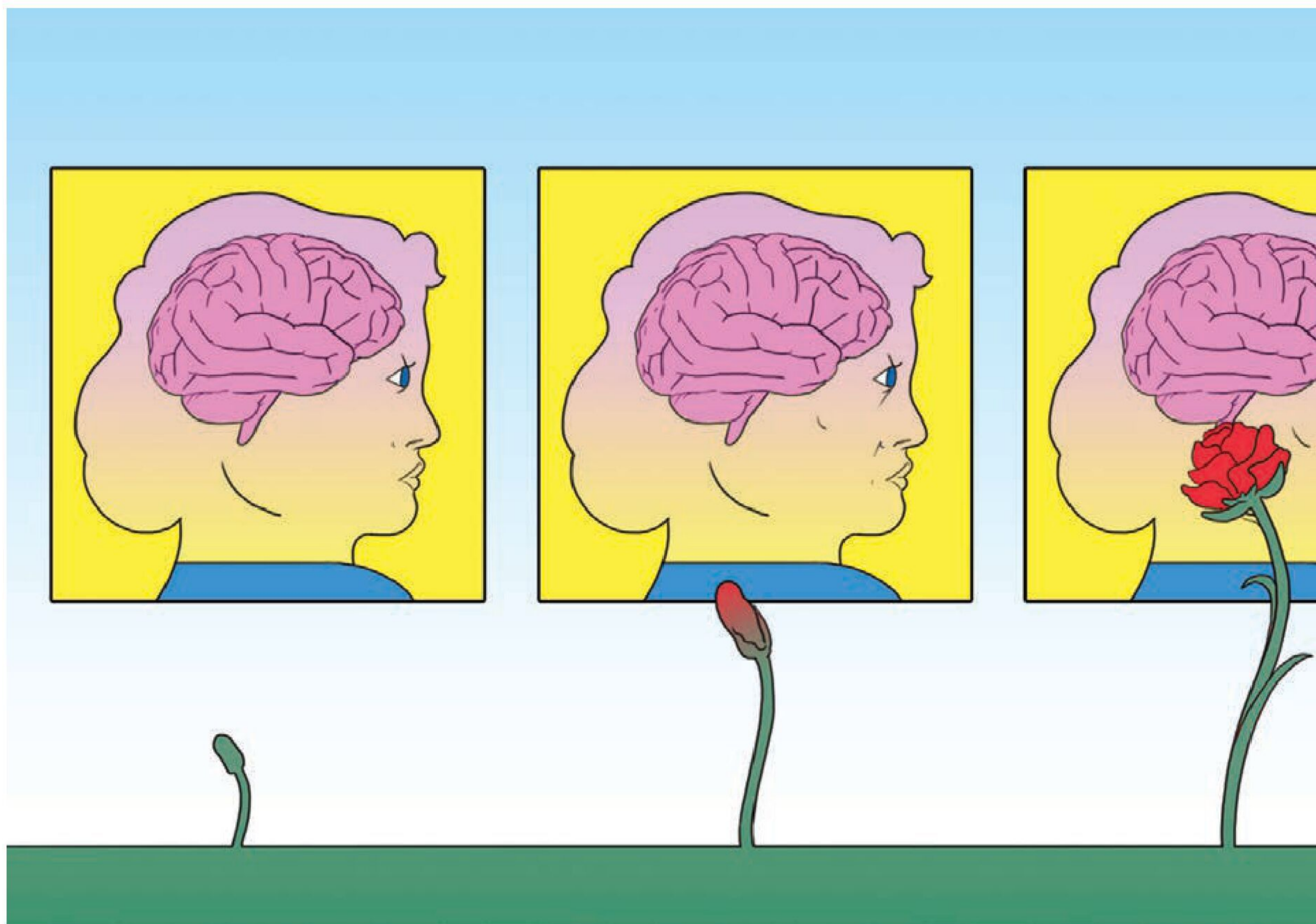
It also affords China's health-care system less time to prepare. Based on the pattern of omicron's spread in the US and Europe, Bloomberg's Fazeli estimates China could need to admit 32,000 patients a day to intensive care units during the first six months of reopening. That could quickly overwhelm the country's hospitals, which—based on a 2020 estimate by the Chinese Society of Critical Care Medicine—have only about 48,000 ICU beds.

Another reason for concern is that infections have so far been clustered in China's biggest cities, which also have its best hospitals. As omicron spreads to smaller cities and rural areas, "the big risks" will emerge, says Duncan Wrigley, chief China economist at Pantheon Macroeconomics. "Most likely we will see some regions impose broader restrictions again to curb case numbers and prevent hospitals from being overwhelmed."

A hasty retreat back to Covid Zero, foisted on the government by a surge in deaths, would be an unwelcome scenario for Xi. It also suggests a motivation for engineering a lower number of official Covid fatalities. At a briefing in Beijing on Dec. 20, Wang Guiqiang, a top infectious disease doctor, said the country will now count only people who tested positive for Covid and died of respiratory failure as an official virus death. That's a substantial narrowing of the previous definition of a Covid death, which was anyone who died while testing positive for the virus, even if death was triggered by an underlying condition or an event like a heart attack.

With reports already emerging of higher-than-normal activity at Beijing funeral homes and crematoriums, the risk is of a growing disparity between what officials say is happening and what people observe themselves. What Xi and other top policymakers may be counting on is that, by hastening an economic resurgence, they'll be able to explain away the differences. **B**

—With assistance from Rebecca Choong Wilkins



Stopping Alzheimer's Before It Starts

Rather than treating patients already stricken, new drugs from Eli Lilly and Eisai are being tried years earlier

When someone develops high cholesterol, doctors don't wait until the patient's arteries are clogged to start treatment. They prescribe cholesterol-lowering drugs while the person is still healthy to prevent plaque buildup and stop heart attacks.

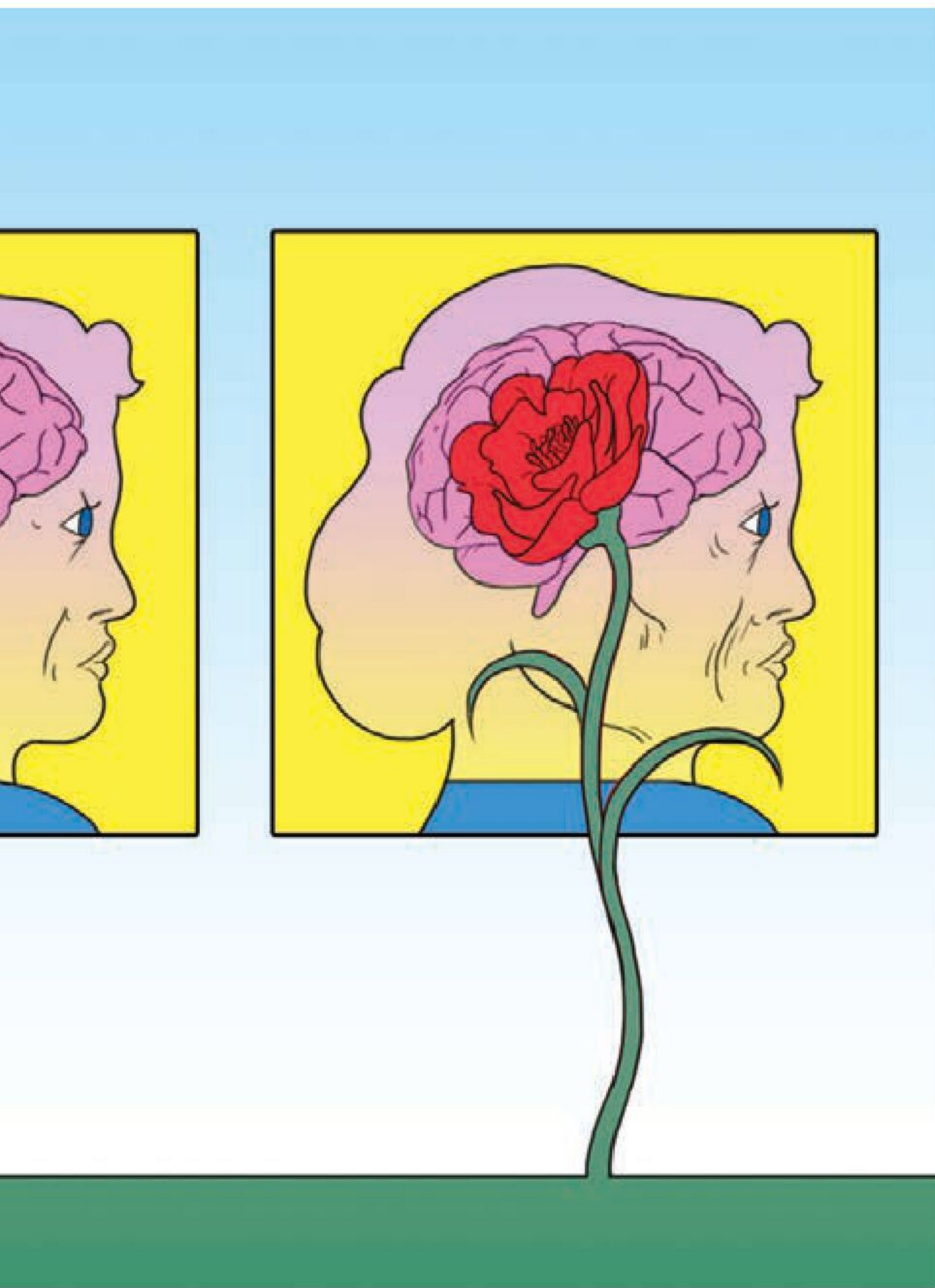
Now some of the world's biggest drug companies are trying to do something similar for millions of aging baby boomers at risk of Alzheimer's disease. In massive final-stage trials under way at Eli Lilly Co. and Eisai Co., researchers plan to test brain-plaque-removing drugs on thousands of healthy adults. The hope is to stave off cognitive decline before it begins, or at least delay it.

The quest for a treatment has been littered with one failure after another. Only in the past two years has a new generation of anti-Alzheimer's agents

started to show hints of slowing the disease's progress. But even the most promising drugs, including compounds from Eisai and Eli Lilly now under review by the US Food and Drug Administration, slow cognitive decline by only about 30% when given to people who already show symptoms.

That's because, by the time people develop obvious signs of Alzheimer's, damage to key brain areas may already be extensive. Recent brain-scan studies suggest toxic proteins, including one called amyloid that's the target of most of the new drugs, accumulate in the brain as long as two decades before they lead to dementia.

Neurologists hope that removing amyloid before it has time to cause damage will provide a greater impact for patients. If the concept pans out,



healthy adults in their late 50s or early 60s could routinely take blood tests or specialized brain scans that search for buildup of amyloid or tau, another aberrant protein. If positive, they'd then have to decide whether to go on amyloid-lowering drugs to reduce the odds of developing dementia in the distant future.

"If you wait until people have symptoms, you may not be able to fully prevent the complications," says Harvard Medical School neurologist Reisa Sperling, who's leading two of the biggest prevention trials. "Removing the amyloid before people are impaired is the key."

Sperling, 63, knows firsthand about Alzheimer's. She started noticing subtle symptoms in her late father, then a chemistry professor, around 2008. But when she brought him to a doctor for an evaluation, "they said, 'There is nothing wrong with you, don't worry,'" she recalls. About five years later he was diagnosed with Alzheimer's.

Sperling's first big trial, which started in 2014, could produce results next year. Co-sponsored by the National Institute on Aging and Eli Lilly, the almost 1,200-person trial involves testing an amyloid-reducing drug called solanezumab on healthy people age 65 and older with high levels of the brain protein. Because the drug failed in three unrelated trials by Eli Lilly for treatment of patients

who've already developed Alzheimer's, researchers are using a much higher dose in the prevention trial. While not as potent as more recent amyloid-lowering drugs, it largely avoids the brain swelling that's a side effect of the newer drugs—a potential advantage should it work, Sperling says.

Sperling's more recent trial, started in 2020 and sponsored by Tokyo-based drugmaker Eisai and the National Institute on Aging, is more ambitious. Over four years it's giving infusions of the company's lecanemab or a placebo to healthy people as young as 55 with moderate to high amyloid levels. The goal is to start even earlier in life to prevent damage. Eisai is developing lecanemab with partner Biogen Inc.

A third prevention trial involves Eli Lilly's newer amyloid-lowering drug, donanemab, which is under review at the FDA for accelerated approval as a treatment. The company is betting that just nine monthly doses may be needed to remove amyloid in healthy people, keeping cognitive impairment at bay for years.

In 1906 the German psychiatrist Alois Alzheimer first noticed what turned out to be deposits of amyloid and tau in the brain of a 51-year-old woman who'd died with severe memory loss. Although the causes of Alzheimer's remain hotly debated, the correlation between high levels of amyloid and cognitive decline has become increasingly clear in recent years as researchers developed brain-scan technologies that make it possible to measure amyloid levels in the brains of living people.

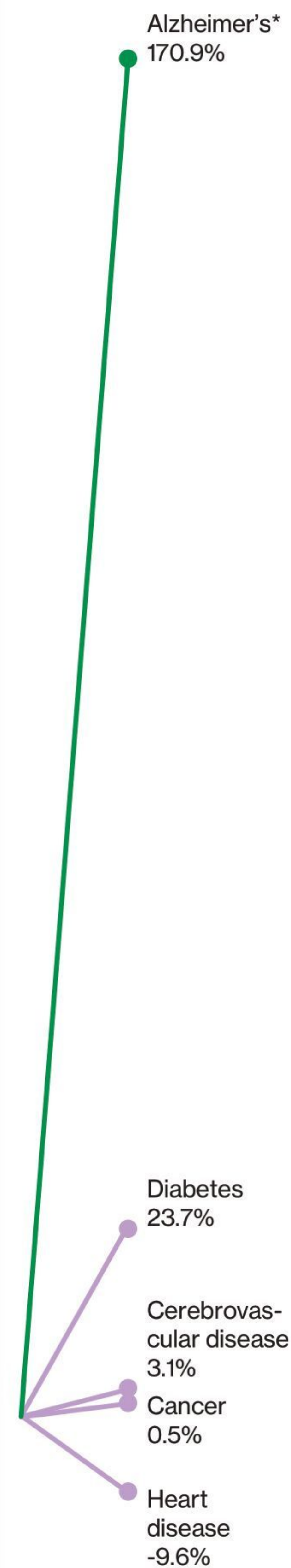
Astrida Schaeffer, a 59-year-old costume historian in southern Maine, joined the lecanemab prevention trial because she "is absolutely terrified" of getting Alzheimer's given her family's extensive history with the disease. Her grandmother, grandmother's sister, mother and an aunt all died from Alzheimer's. Her mother was a high school language teacher who was fluent in five languages before dementia struck, largely taking her ability to speak.

A year ago, after hearing about the lecanemab prevention trial, Schaeffer got an amyloid scan as part of the trial screening and learned she had high levels. Every two weeks she drives several hours round trip to Harvard's Brigham and Women's Hospital in Boston for trial-related infusions.

Being in the trial "makes me feel less helpless," Schaeffer says, even though she doesn't know whether she's getting the active drug. Despite the hassle of traveling for all the treatments, "if it prevents me from losing my brain, it would be totally worth it," she says.

Brain-scan studies suggest amyloid builds up slowly for years before symptoms develop, promoting brain inflammation as well as tau, which ►

▼ Change in US deaths by underlying cause, 2000-2020





◀ ultimately leads to cognitive decline. By the time symptoms are obvious, removing massive amounts of the protein does only so much. In its Phase III trial on 1,800 patients with early Alzheimer's, Eisai's lecanemab removed more than 70% of the brain amyloid but slowed the rate of cognitive decline by 27% over 18 months. Nonetheless, as the best amyloid-lowering treatment trial to date, it's expected to lead to US approvals for the drug next year—and eventually billions of dollars in sales for Eisai. How noticeable the difference will be for most individual patients is unclear.

With prevention trials, scientists are hoping for a more dramatic impact, says University of Southern California's Paul Aisen, a neurologist involved in the lecanemab and solanezumab prevention trials. A drug that removes amyloid in healthy people on the verge of cognitive decline might alter their trajectory enough to delay the onset of Alzheimer's by as much as six years, he estimates.

The lecanemab and solanezumab trials will examine whether the drugs stave off subtle pre-clinical cognitive changes in people with high amyloid. But Eli Lilly's donanemab trial aims to prove the drug can prevent disease. The company will wait until more than 400 of a planned 3,300 people progress to mild cognitive impairment or dementia. Then it will count the cases to see if fewer people who took its drug developed cognitive impairment.

While the company doesn't expect to be able to prevent symptoms in all cases, "we would hope people in [the] donanemab arm would have less progression to symptomatic stages," says Eli Lilly neurologist Roy Yaari.

For Big Pharma, Alzheimer's drug development amounts to a massive—but potentially extremely lucrative—bet. But it also raises thorny questions about what the US is able to afford and whether the benefit would be worth the risk. Some 25% of cognitively healthy older adults have amyloid lurking in their brains. But unlike cheap anti-cholesterol pills, the current amyloid-lowering

agents must be injected or infused and are expected to cost \$25,000 or more a year. Nobody really knows whether they'll prevent disease. And the more potent drugs risk triggering brain swelling and brain bleeding.

In a Phase II treatment trial, patients on Eli Lilly's donanemab saw cognitive decline at a 32% slower rate, but they had a 39% rate of brain swelling or brain bleeding, compared with 8% of those on a placebo. And while lecanemab showed a lower rate of brain swelling, in the "extension" portion of its Phase III treatment trial, two people who took blood thinners while on lecanemab died; Eisai says its drug didn't cause the deaths.

Given all the uncertainties, critics say the trials are too short and may detect subtle cognitive differences that aren't clearly meaningful. But the public's widespread fear of Alzheimer's devastating memory and cognition losses makes an abandonment of amyloid reduction research unlikely.

"You have potentially millions of people who could be converting into Alzheimer's" in the coming years, says Eliezer Masliah, director of the neuroscience division at the National Institute on Aging. So something that could delay that by several years "could have a tremendous impact."

—Robert Langreth

THE BOTTOM LINE By the time people are diagnosed with full-blown Alzheimer's, most of them have deposits of brain-wasting amyloid proteins. Drugs to stop that buildup could be worth billions.

◀ Schaeffer

How Taylor Swift Could Still Hurt Ticketmaster

● The ticketing fiasco over the singer's tour might help reopen an old antitrust case about its market power

When tens of thousands of Taylor Swift fans were unable to complete their orders for tickets in November for her coming New Eras tour, those legions of devastated Swifties were left with little recourse beyond denouncing Live Nation Entertainment Inc.'s botched online ticket sales process and making tearful TikTok videos. But the company could still suffer plenty of hurt from the fiasco, which has left the US Department of Justice under intense pressure to fix what many say was a mistake in allowing Live Nation and Ticketmaster to merge in 2010. The agency has opened a new antitrust probe into the

largest concert promotion and ticketing company, a move that could even be a prelude to a breakup if the company is found to have abused its market power.

“It would certainly be a very hard case,” says David Balto, an antitrust lawyer who testified against the merger before the Senate and has represented Ticketmaster complainants. But “here the facts are clear: Ticketmaster has increased prices and reduced service. Those are the landmarks of anticompetitive conduct by a monopolist.”

A Live Nation Entertainment spokesperson says the company cooperates with ongoing federal oversight of its ticketing business. The company has advocated for Congress to strengthen legislation banning bot purchases of tickets and has urged the Federal Trade Commission to require that ticket sellers display so-called all-in pricing—including the face value of a ticket plus a listing of any fees—as New York state did earlier this year.

Since the 1990s, Ticketmaster has been the subject of multiple federal investigations into its business practices, including one that led to \$10 million in fines for illegally spying on a rival and another the appointment of an outside monitor who reports to the Justice Department on the company every few months. In the first case, Ticketmaster agreed to a deferred prosecution agreement and admitted its employees engaged in illegal computer intrusion, wire fraud and conspiracy. Its past behavior will likely play a part in what the DOJ chooses to do next.

Live Nation Entertainment has “become too big to care,” US Federal Trade Commission Chair Lina Khan said at a Dec. 6 conference in Washington. “There is a certain amount of investment in their services and their products that we don’t see, because they’re not facing that type of robust competition,” said Khan, whose agency enforces consumer protection laws, including one that prohibits bots from buying up large amounts of tickets.

A House panel ordered Ticketmaster parent Live Nation Entertainment to provide details this month on the steps it’s taken to comply with that law, while the Senate is planning a hearing focused on Ticketmaster’s potential antitrust issues next year.

Live Nation Entertainment says the Swift sale problems resulted from unprecedented demand, not bots. The company says only a small fraction of Swift tickets are now being offered for resale.

“We always welcome the opportunity to discuss important issues facing the live entertainment industry,” a Live Nation Entertainment spokesperson says of the congressional inquiries. “The industry is more competitive than ever, but there are many industry reforms that would make the ticketing experience better for fans and artists.”

For almost three decades, Ticketmaster critics have blasted the company as a monopoly and urged intervention on antitrust grounds. Complaints by Seattle rock band Pearl Jam in 1994 sparked an antitrust probe by the Clinton administration, which ended with no action. Fifteen years later, Live Nation, the largest concert promoter, proposed buying Ticketmaster, the largest ticketing company, reviving antitrust scrutiny. In the time leading up to the deal, they were becoming rivals as Live Nation developed a ticketing service and Ticketmaster acquired a controlling interest in the entertainment promoter that represented Fleetwood Mac, Aerosmith and other acts. When the deal was announced in February 2009, it was viewed as a first test case for the new Obama administration’s approach to antitrust.

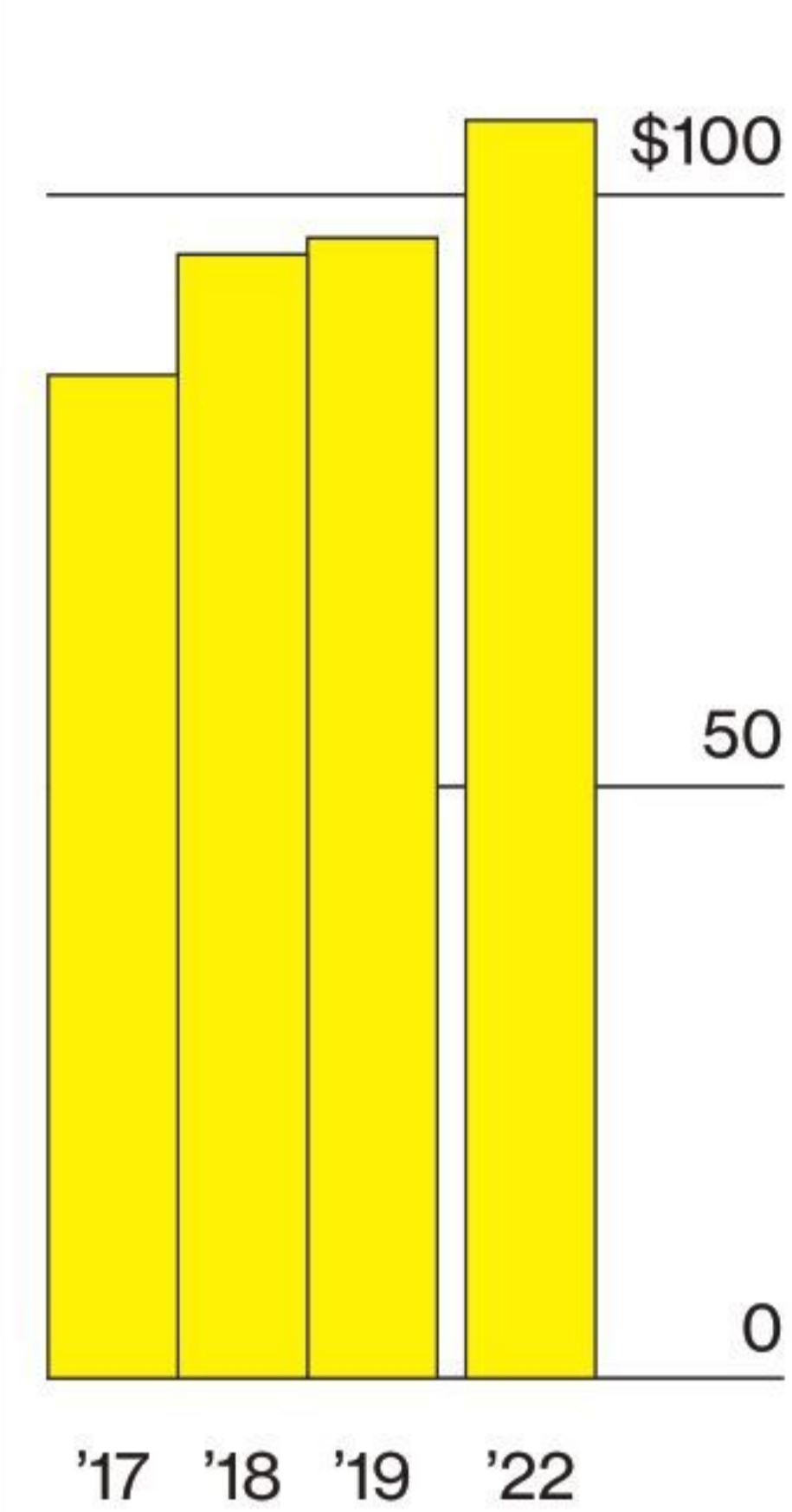
Obama’s top antitrust officials were initially eager to challenge the deal, according to three people involved in the probe, who spoke anonymously because they weren’t authorized to discuss internal deliberations. But a lawsuit would’ve been difficult to win. While Live Nation and Ticketmaster were beginning to tread into each other’s territory, they primarily competed in adjacent businesses. US antitrust law generally favors such vertical tieups.

Not wanting the first major case to be a loss, the DOJ’s antitrust leaders eventually agreed to a settlement, say the three people involved in the probe. The legally binding consent decree required the companies to divest some assets to Comcast Corp. and license software to rival Anschutz Entertainment Group Inc.—both moves that the DOJ hoped would help establish a rival to Ticketmaster. Live Nation and Ticketmaster agreed to be bound by the consent decree to resolve the antitrust complaint.

In a first, the agreement also sought to alleviate concerns that one half of the business might disadvantage rivals of the other half, for example, by leveraging Live Nation’s control over concerts to benefit Ticketmaster. The settlement also required the combined company—renamed Live Nation Entertainment—to pledge not to tie its services together or retaliate against venues that switched promoters or ticketing services.

Ticketmaster has also faced charges of corporate espionage against rivals. In August 2013 it hired Stephen Mead after he left a ticketing startup for artists to sell concert tickets directly to fans. For the next two years, Mead and other Ticketmaster employees illegally accessed the startup’s computer systems to collect confidential information, according to Justice Department prosecutors. The corporate spying scheme became public when the now-defunct startup, called Songkick.com Inc., sued Ticketmaster in 2015. ▶

▼ Average ticket price for the top 100 worldwide tours



● Khan

◀ Ticketmaster employees sought to “bring down the hammer” on its smaller rival, Songkick alleged, monitoring weekly which artists were using the startup for ticket sales so Ticketmaster could pressure them to use its service instead. Live Nation Entertainment terminated Mead and his supervisor, Zeeshan Zaidi, in October 2017—when Songkick went out of business—and paid \$110 million soon after to resolve the litigation. “Ticketmaster put them out of business,” says Adam Wolfson, a lawyer who represented Songkick. They “squashed the competition.”

Regarding the lawsuit’s resolution, Ticketmaster in a statement said it was “pleased that we were able to resolve this dispute and avoid protracted and costly legal proceedings.”

Federal prosecutors opened a cybercrime investigation following Songkick’s lawsuit. Zaidi, who headed Ticketmaster’s Artist Services division, pleaded guilty to computer fraud charges in October 2018. Lawyers for Zaidi, who’s yet to be sentenced after a series of requests for continuances by the government, didn’t respond to a request for comment. Mead, who was never publicly charged and now lives in London, also didn’t respond to a request sent via LinkedIn.

In the final days of the Trump administration, Ticketmaster paid a \$10 million fine and agreed to a settlement acknowledging the criminal activity and promising to improve compliance. That deferred prosecution deal will see Ticketmaster’s own computer fraud and conspiracy charges dismissed in December 2023 if the company doesn’t further violate the law.

“Two Ticketmaster employees violated company policy, for which they were fired and prosecuted. That has nothing to do with antitrust or competition in the ticketing industry,” says Dan Wall, an antitrust attorney at Live Nation Entertainment’s longtime law firm Latham & Watkins.

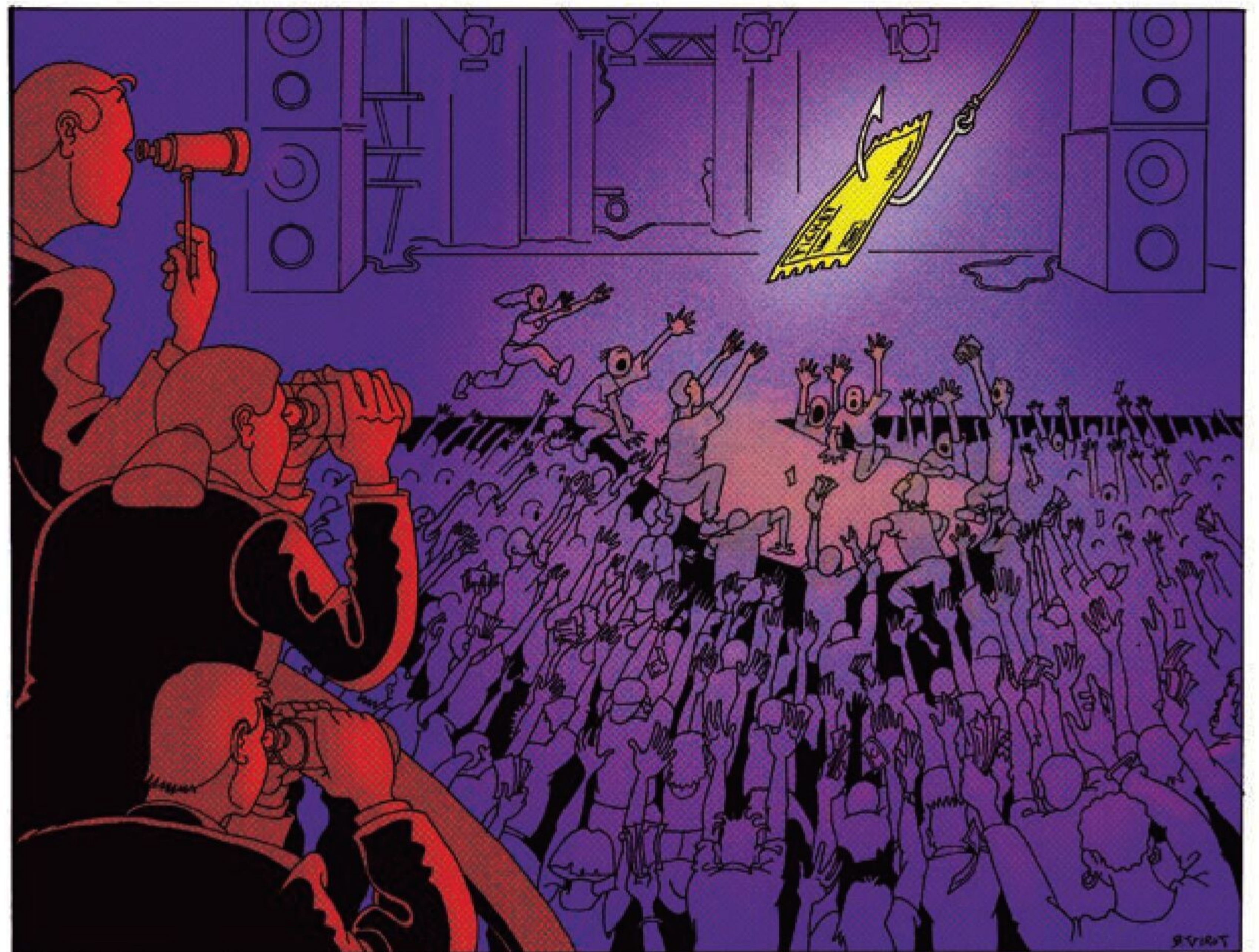
While the Justice Department’s cybercrime prosecutors were investigating Ticketmaster, the agency’s antitrust lawyers spent 15,000 hours probing competition complaints about the concert promotion and ticketing giant, according to another person familiar with the investigation. The probe initially focused on more than a dozen potentially problematic negotiations between Live Nation and venues, before zeroing in on six instances in which prosecutors said that from 2012 through March 2019 the company threatened to withhold concerts or blacklisted venues that considered switching from Ticketmaster.

The Justice Department’s top antitrust official at the time, Makan Delrahim, authorized suing the company over alleged violations of the 2010 settlement,

the person says. Faced with that looming complaint, Live Nation Entertainment agreed to a new settlement in 2019.

Since the 2010 merger, Live Nation Entertainment has developed a “well-earned reputation for threatening behavior and retaliation,” federal prosecutors said in court filings outlining the terms.

The agreement imposed an external monitor—Mark Filip, a former federal judge from the law firm Kirkland & Ellis. The monitor is charged with investigating further disputes and ensuring Live Nation Entertainment complies with the deal’s terms through December 2024. Under the new settlement, Live Nation Entertainment wasn’t required to admit liability for the six instances that DOJ lawyers alleged violated the 2010 consent decree.



The Justice Department declined to comment on either the cybercrime or antitrust case. Delrahim, now a partner at Latham & Watkins, also declined to comment aside from noting that he’s recused from doing work for Ticketmaster because of his involvement in the DOJ case.

Antitrust advocates and many music fans are hopeful the Justice Department will finally challenge the ticketing giant in the wake of the Taylor Swift debacle. The Justice Department made a “strategic choice” in 2019 to renegotiate the settlement instead of pursuing a bigger case against Ticketmaster, says Henry Hauser, a former DOJ antitrust lawyer. “DOJ got to say this is a win without going to trial,” says Hauser, now an antitrust counsel at the law firm Perkins Coie. “There’s still a lot on the table” they could pursue now. —Leah Nysten

THE BOTTOM LINE Ticketmaster’s botched handling of Taylor Swift’s tour sale has cast a spotlight on a deferred prosecution agreement involving the company that’s set to expire next December.



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The Chatbots Are Coming for Google



ChatGPT and a crop of startups run by Google alumni reimagine search for the AI era

In its early weeks, ChatGPT, the wildly popular artificial intelligence tool from OpenAI, has offered up a potential new model for online search. The chatbot responds to questions about topics such as political science and computer programming with detailed explanations, and its question-and-answer format means users can drill down until they fully understand. Users doing similar research on Google must typically scan search results and peruse various websites until they arrive at their own conclusions. ChatGPT, by contrast, delivers a decisive (or at least decisive-sounding) answer in seconds.

Alphabet Inc.'s Google has been essentially untouchable in search, but a handful of companies, some founded by former Googlers, think that's about to change. The entrepreneurs say a shift is under way from the prevailing model of keyword search, in which search engines comb the web for specific terms, to searches powered by large language models, which analyze enormous text databases to develop the ability to understand user questions and produce direct answers. This is the technology that ChatGPT uses to compose its rapid-fire responses. ▶

Edited by
Stacie Sherman and
Joshua Brustein

◀ Some of the technological breakthroughs underpinning large language models were forged in Google’s own research labs. But entrepreneurs who have left in recent years say the company may struggle to fully capitalize on the technology’s potential, in large part because its business model, in which ads are displayed alongside search results, is too lucrative to disrupt. Google raked in \$54.48 billion in advertising revenue in the most recent quarter, representing 78.9% of its gross sales. Search ads were the biggest driver by far.

“Google is just a victim of its own success,” says Sridhar Ramaswamy, once Google’s top ad executive, who’s now chief executive officer of Neeva Inc., a privacy-sensitive search engine. “They’re trapped to a certain extent in how that page looks and behaves.”

Google may have to hold itself to a higher bar when using emerging technology than startups do. ChatGPT and other large language models often deliver incorrect information in a convincing fashion, a phenomenon computer scientists sometimes refer to as “hallucinating.” Unlike a Google search, ChatGPT currently offers no clue about where it sourced the information it’s providing to users, and OpenAI has acknowledged it produces incorrect answers at times. Google may direct users to sites that promote misinformation, but delivering falsehoods in its own voice is a fundamentally different—and riskier—proposition.

Google declined to comment. OpenAI said in a statement that ChatGPT doesn’t incorporate data from the internet into its answers, adding that the current version is a research preview to help develop models that are “safer, more reliable, aligned and more useful” and is not intended to be used for advice.

Google introduced its search engine in 1998, powered by its signature PageRank algorithm, which measured each website’s importance by the ways other sites linked to it. It quickly became the dominant search tool. Google has spent decades indexing the web, and the breadth of queries it can field is unmatched. ChatGPT, by contrast, is trained on a dataset that contains only limited information after 2021, freezing its knowledge in time.

In recent years, Google has taken steps to help users conduct searches in new ways, including through the lens of their smartphone camera and with image and text combined. It uses large language models to understand users’ queries and has also incorporated the technology into its “featured snippets,” which spotlight key information on search results pages.

A company such as Google, with access to vast data and computing resources, would seem to be an ideal place to do advanced AI work. Yet engineers often want to move faster than they can at such a big company, and Google has seen a lot of departures, including some of its AI researchers. One of the tech giant’s most influential contributions to the field was the 2017 paper “Attention Is All You Need,” which introduced the concept of transformers, systems that help AI models zero in on the most important pieces of information in the data they’re analyzing. Of the paper’s eight authors, all but one have jumped to startups in recent years, a review of LinkedIn profiles shows; at least five have founded their own AI ventures. Asked why he embraced the chance for entrepreneurship, one author, Character.AI founder Noam Shazeer, puts it bluntly: “Startups can move faster and launch things.”

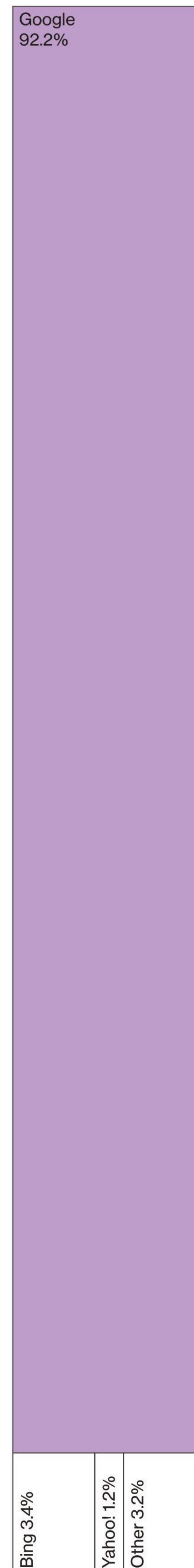
Industry watchers describe the threat to Google as anywhere from worrisome to existential. In a note to investors in December, Morgan Stanley acknowledged the possibility that users could use AI programs for queries such as product reviews and travel. Paul Buchheit, the former Google employee who created Gmail, wrote in a series of posts on Twitter that the company may be “only a year or two away from total disruption.”

Yet about two-thirds of Google searches end without users clicking on another site, according to market research company SparkToro and analytics firm Similarweb. This pattern suggests Google may simply need to tweak its user interface to highlight all that it’s already doing to head off users’ queries, says Mandeep Singh, an analyst with Bloomberg Intelligence. “Google has a very strong moat, and it’s unlikely to be disrupted in search,” he says.

That hasn’t stopped startups from trying. With many more open source and commercial AI tools available, the barriers to entry have fallen, says Edwin Chen, founder of Surge AI, a data labeling platform that works with search startups. His company has conducted consumer research that shows users often prefer search results from newer entrants such as Neeva, You.com and Kagi, particularly for queries such as recipes. “You don’t need hundreds of millions of dollars to beat Google now,” he says.

Search startups have adopted a variety of business models. Vectara, founded by former Google employees, is selling its software to businesses, enabling them to offer search powered by large language models on their websites. Such models require massive computing power, giving the advantage to large incumbents. But Vectara says it’s

▼ Global search engine market share, November 2022



found a way to make the economics work, in part because using large language models to process text is much cheaper than generating responses.

Kagi, Neeva and other consumer search engines are subscription-based, offering users unlimited searches for a monthly fee. Strategies such as distillation, in which the output from a large language model is run through a smaller model, have enabled Neeva to use its computing resources efficiently, says Ramaswamy, who spent 15 years at Google before co-founding the company in 2019. “I expect that usage of these models will essentially become table stakes,” he says, “and power and value will again shift back to the product creators.”

Ramaswamy says he still sees great value in the legacy model of search, noting that signals such as how websites link to one another can reveal much about the authority of a source. Neeva has already woven large language models into its search engine and is planning to release products in which the tools are more front and center soon. It also plans to use the models to draft “one-pagers” that disclose sources, so users can evaluate the credibility for themselves. “We are thinking a lot about how we can have the best of both worlds,” Ramaswamy says.

Shazeer’s Character.AI may offer another model of search. He founded the company with Daniel De Freitas, who led Google’s work on the pioneering LaMDA chatbot, which Google first announced in May 2021. In September, Character.AI introduced a site with a diverse cast of chatbot characters that users can converse with in real time, all powered by large language models. The site includes disclaimers—“Remember: Everything Characters say is made up!”—that offer some cover if the chatbots utter falsehoods. “Even now, we can do something extremely, extremely valuable, which is to bring people joy and fun and help people feel better,” Shazeer says. “But that’s really just the tip of the iceberg.”

Google continues to polish LaMDA and other large language models internally, and its dominant position gives it some luxury to be patient. But there’s at least one powerful argument for an introduction sooner: the data gleaned along the way.

“One should never underestimate Google,” says Oren Etzioni, an adviser and board member at the Allen Institute for Artificial Intelligence. “But the challenge they have is GPT is learning as it goes.” —*Julia Love*

THE BOTTOM LINE Google has helped push forward large language models, but startups with different views of risk and reward are the first ones taking them to market.

Thwarting Data Nightmares

● The finance industry has built a digital vault for sensitive data in case of a hack. So far, no one has had to tap into it

A group of financial firms has adopted the idea of a vault for the age of the cyberattack, building a tool to encrypt and lock away the most critical customer account data at the end of each workday. Now it’s being expanded to other financial sectors.

Participants in Sheltered Harbor, a nonprofit industry initiative, store key information in a vault that’s separate from the institution’s infrastructure. They also must devise a plan to restore operations and services as quickly as possible in the event of a cyberattack or other crippling event. This plan includes designating a restoration platform—which could be another financial institution or a service provider—that can recover data from the vault and quickly provide services to customers.

“Something we can all trust is better than nothing,” says Carlos Recalde, president and chief executive officer of Sheltered Harbor LLC. “Time is of the essence. We can only maintain public confidence if we react in a very short window.”

Sheltered Harbor is intended as a last resort if computer networks and backups are mostly wiped out—an increasingly real possibility in an era of so-called wiper malware and ransomware attacks



that have disrupted energy supplies, factories and health-care systems. Started in 2015 by 34 banks, it had an initial goal of finding a way to maintain public confidence by restoring balance information and access to cash within 48 hours in the event of a devastating event such as a cyberattack.

About 160 institutions now participate in the initiative. So far, none have had to tap their data vaults, Recalde says. He declined to ►

◀ identify the institutions involved, but, according to the group’s website, participants hold 72% of deposit accounts and 71% of brokerage client accounts in the US.

Now the program is adding insurance companies, asset managers, payment processors and others to the mix. Those institutions can define the data they consider critical that needs to go in the vault. The auditing and certification process is largely the same as for earlier participants. The annual cost to participate is roughly \$250 for small institutions and as much as \$50,000 for the biggest ones.

The idea of Sheltered Harbor came after a massive hack of Sony Pictures Entertainment Inc. in 2014. That attack, blamed on North Korea, resulted in unreleased movies and embarrassing information about Sony employees and movie stars being dumped onto the internet. At the same time, malware wiped out swaths of Sony’s digital network.

Industry analysts say Sheltered Harbor has its drawbacks. There’s still a chance of malware sneaking into the vault when data is transmitted to it. The system doesn’t address the threat of hackers stealing sensitive data from financial institutions and

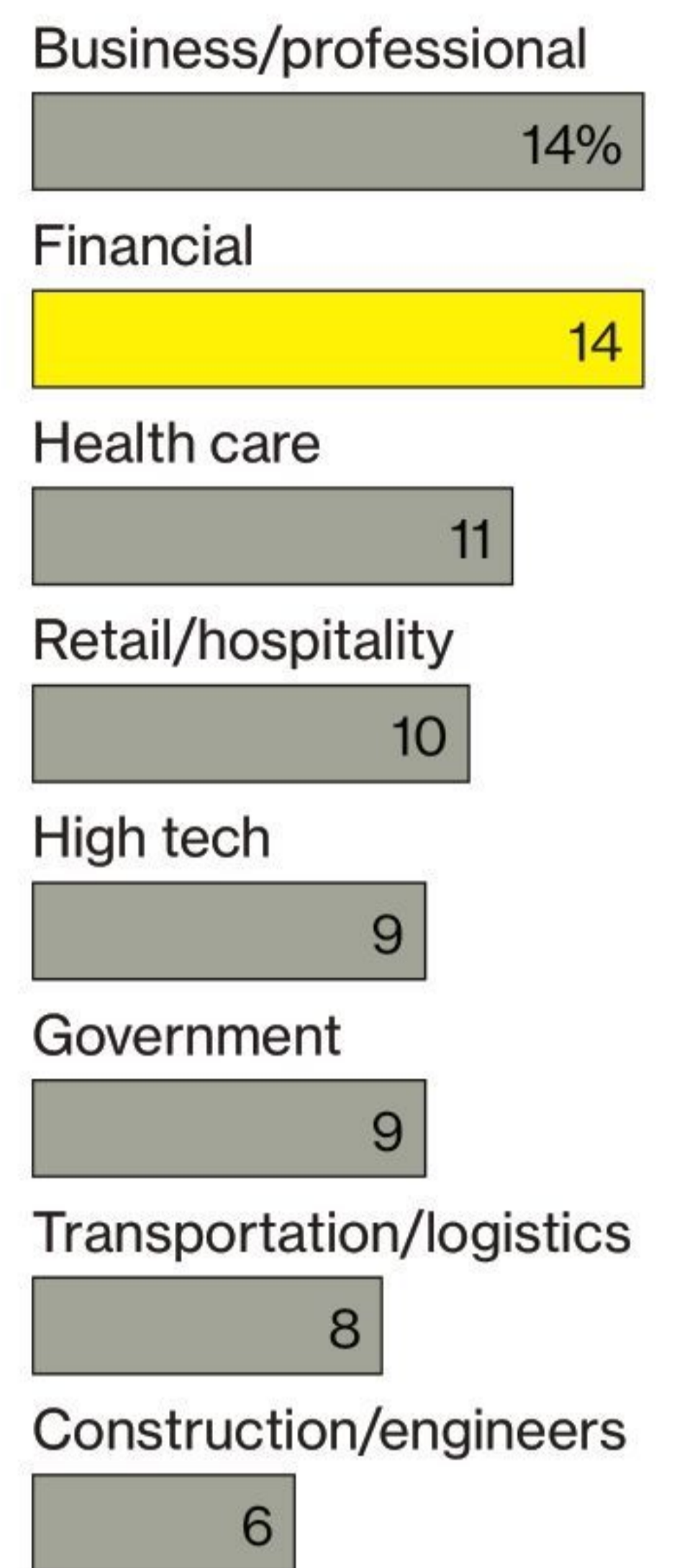
either selling or otherwise sharing it. And restoring data to what existed yesterday isn’t ideal in industries that back it up several times a day or even every few seconds.

“Sheltered Harbor is a bit behind the times for rapid ransomware response,” says Brent Ellis, a senior analyst at Forrester Research Inc. “For that kind of functionality, businesses are building rapid recovery systems that give more granularity than a once-a-day vault.” Recalde says multiple processes that validate the data before it goes into the vault ensure it’s not infected. As for the time element, he says, Sheltered Harbor is intended for worst-case scenarios, including when regular backups fail.

“Our industry runs on data,” said Katherine Wetmur, co-chief technology officer of Morgan Stanley, a co-founder and early adopter of Sheltered Harbor, in a statement. “Preserving and protecting sensitive client and business data is not only the right thing to do, it’s a business necessity.”
—Andrew Martin

THE BOTTOM LINE A popular US program aimed at protecting banking customer information against data hackers is expanding to other financial institutions.

▼ Top industries targeted for cyberattacks, based on Mandiant investigations from Oct. 1, 2020, to Dec. 31, 2021



Bosses Bite Back

● Unions had some key wins in tech in 2022, but so did their opponents

The largest US technology companies spent decades arguing that they were different from the corporate stalwarts that came before them: more productive, quicker to disregard convention, more focused on making their customers’ life better. Fixtures of the old economy—in particular, regulations and unions—were inappropriate for innovative companies such as theirs, built on speed and flexibility.

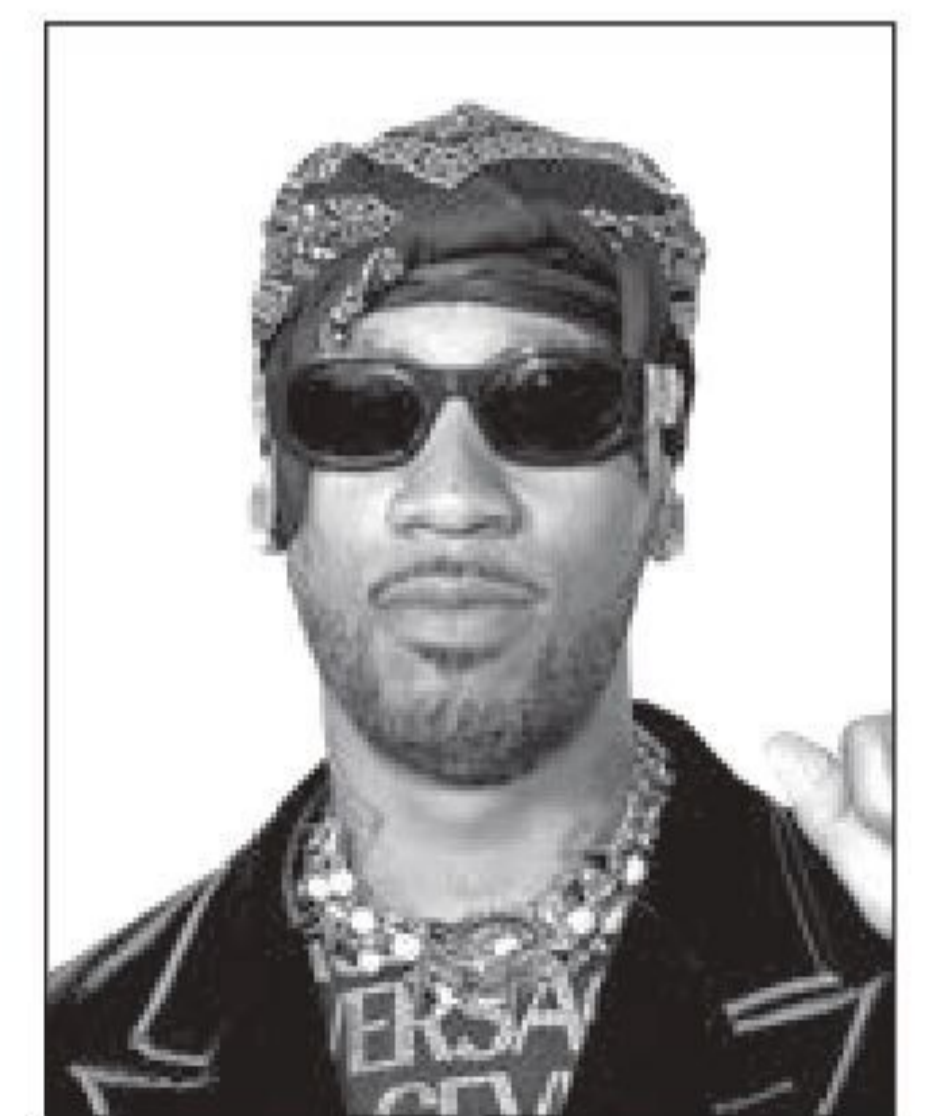
In 2022 labor unions came for Big Tech anyway and scored some surprising election wins. But as the year wore on, it became clear that those skirmishes, which have yet to yield a collective contract between management and workers, were simply the start of a long battle with the industry.

In April workers at a massive Amazon.com Inc. warehouse in New York City’s Staten Island voted to join the upstart Amazon Labor Union in the first successful union drive at one of the retailer’s US facilities. The win made Chris Smalls, a fired former employee and the group’s leader, an immediate folk hero, sending him on a one-man tour to speak before other labor groups and to meet with would-be organizers, as well as to appear on news

shows (page 38). Two months later, workers at an Apple Inc. retail store in Towson, Maryland, voted to join the International Association of Machinists, the first union win at the iPhone maker. A store in Oklahoma City did the same in October, with the Communications Workers of America.

Workers at the two companies had different grievances. Employees at Amazon’s highly automated facilities say they felt expendable and were sometimes pushed past their physical limits. In Apple’s case, staffers said retail stores that had served as repair and tech-support hubs were increasingly pushing sales, turning a workplace that used to bring technical skill and cultural cachet into just another retail job.

There was commonality, too: Hourly workers said they weren’t sharing the gains their employers made during the Covid-era boom. “The pandemic was a catalyst, because those people were on the front lines,” says Margaret O’Mara, a historian at the University of Washington who studies Silicon Valley. “It’s this big, invisible workforce. These very large companies became



● Smalls



◀ Communications Workers of America office in Washington, DC

so dominant, they became just so profitable.”

Boosters of the long-beleaguered US labor movement heralded the wins—along with the seemingly ever-expanding campaign of union drives at Starbucks Corp. stores—as a reawakening of organized labor, making glowing comparisons to the campaigns that overcame fierce opposition to organize the auto industry in the 1930s.

Amazon and Apple pushed back, drawing from a tried-and-true union avoidance playbook. They held mandatory anti-union meetings and dispatched managers and executives to dissuade workers from banding together, arguing that unions would insert an unnecessary participant in talks between workers and their bosses, according to organizers. For all the talk about innovation, the “vote no” campaigns sounded like ones companies have used for years to discourage organizing among their employees, whether they haul waste, move pallets in warehouses or tinker with code at keyboards. Union officials say Apple even created a management-controlled pseudo-union, a tactic commonly used a century ago to stifle union support. Apple didn’t respond to requests for comment. Amazon spokeswoman Mary Kate Paradis says, “We don’t think unions are the best answer for our employees.”

On Dec. 15, Starbucks employees at a New York store that uses Amazon’s cashierless shopping technology narrowly voted against unionizing. And Amazon is challenging the Amazon Labor Union’s victory in Staten Island rather than begin contract talks, with Chief Executive Officer Andy Jassy saying the company is likely to take its case to federal court, potentially kicking off a lengthy battle. Two elections the union called at other warehouses in New York ended with workers voting not to

join, and the ALU has paused plans for more votes.

Before the votes in Maryland and Oklahoma, Apple organizers had abandoned plans for a union vote at a store in Atlanta, saying the company’s coercion of employees had made a fair election impossible. The National Labor Relations Board ultimately agreed that Apple had violated workers’ rights. The company didn’t comment on the board’s finding at the time of the ruling. A separate effort to unionize at an Apple location in a St. Louis mall was abandoned in November.

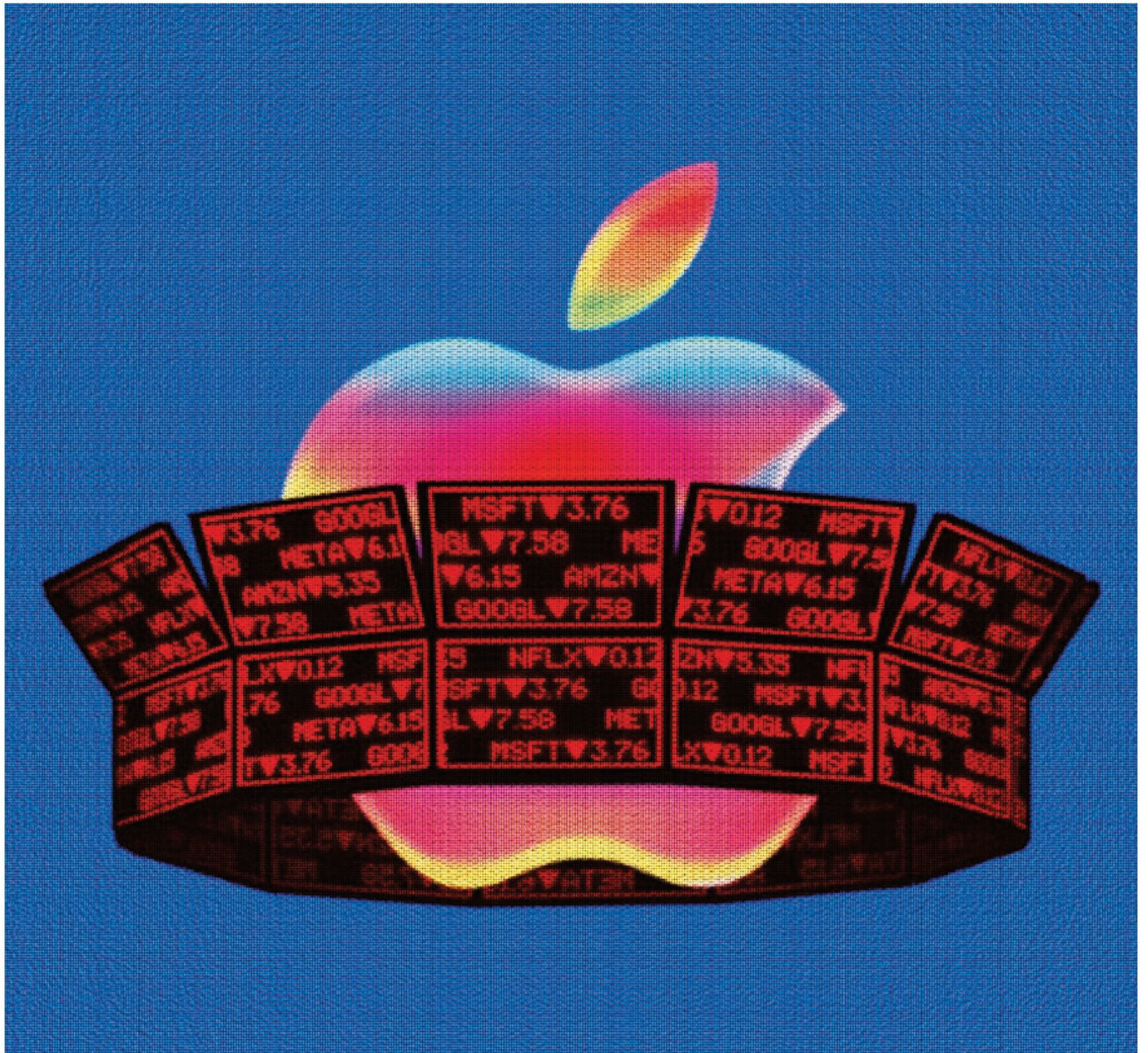
The NLRB has determined that Amazon also violated workers’ rights in its campaign to persuade employees to oppose the unions. But the agency’s power to punish such missteps is largely limited to trivial penalties and requests that employers negotiate in good faith. “All employers, whether they consider themselves good or bad, they have incentives to break the law and prevent workers from forming a union,” says David Madland, a senior fellow with the Center for American Progress, a liberal public policy research group. “In Apple and Amazon, workers have won a union in at least a couple of places, but they still have a really long way to go. They may not ever get a contract.”

Organizers are still seeking to hold more votes. They say they believe public pressure will eventually bring the companies to the negotiating table. “In some ways it’s a life-cycle thing,” O’Mara, the historian, says of the union fight. “It’s revealing how much these Big Tech platforms are indeed just like any other company. They’re not that special. It’s capitalism.” —*Matt Day*

THE BOTTOM LINE Labor unions gained momentum in 2022 at Big Tech companies including Amazon and Apple, but there are many obstacles before reaching any contract agreement.

3

FINANCE



Apple's Stock Has A Teflon Shield

The iPhone maker's shares, down for the year, are still doing far better than those of its tech peers

It's been one blow after another for Apple Inc. in recent months. Labor unrest and production halts at Foxconn Technology Group's massive iPhone plant in central China are expected to cause Apple to miss out on the sale of millions of the devices this holiday season, the company's most important time of the year.

Most economists predict that a global recession will take hold next year, reducing consumer appetite for the expensive devices Apple sells. As central banks rapidly raise interest rates to bring inflation to heel, technology stocks have fallen out of favor especially. Apple stock this year has lost more than \$800 billion, or about a fourth of its market value.

At the same time, Apple is under increasing antitrust scrutiny for its App Store practices. In the European Union, the company is preparing to allow apps from other sources on its iPhones and iPads to comply with strict EU requirements coming in 2024, Bloomberg News has reported. That could inspire the US and other countries to follow the EU's lead, threatening to take a bite out of the \$23 billion in revenue that analysts estimate the App Store will generate in the company's current fiscal year, which ends in September.

That's a lot of bad news. And yet in the stock market, as of Dec. 20, Apple is vastly outperforming other tech giants, whose shares have cratered this year. While Apple has declined 25%, Meta Platforms Inc. has lost 65% of its value, and Amazon.com Inc. is down 49%.

The explanation for Apple's performance begins with its immense profits. It's the world's most valuable company, sporting a \$2.1 trillion market value, so it's hardly a surprise that Apple churns out more profit than any other business in the S&P 500. Where it really distinguishes itself in the minds of investors is what it does with those earnings.

In the past five years, the company has generated \$454 billion in cash from operations. Rather than plow those profits into acquisitions of marquee companies, Apple has returned all that cash—and then some—to shareholders in the form of stock buybacks and dividends. That's more than the market value of Exxon Mobil Corp. or JPMorgan Chase & Co. Apple declined to comment.

The company “could have done all the things that the bankers wanted them to do—buy Netflix, buy Disney,” says Kimberly Forrest, founder and chief investment officer at Bokeh Capital Partners LLC, an asset management company that owns Apple shares. “Instead, they've been disciplined and returned shareholder capital, and they've been rewarded for it.”

Expectations for Apple's future profits also help explain its relatively strong stock. Although 2023 earnings estimates for the tech sector have been dropping, Wall Street analysts project a 2% increase in Apple's profit. Combined earnings for tech companies in the S&P 500 are expected to fall almost 2%, according to Bloomberg Intelligence.

Apple's loyal customer base is also a factor. There are more than a billion iPhone devices in use, with many customers owning other products in the Apple family including iPads, Mac computers and watches. When combined with an increasing number of services, such as cloud storage and apps tied to those devices, Apple has what's known as a “sticky” platform. “Once you've purchased a

number of Apple products and services, and they all work together, it's hard to unplug yourself,” says Jason Benowitz, senior portfolio manager at Roosevelt Investment Group LLC, which owns Apple shares. “People don't switch to Android because they can't get the iPhone this month. They'll wait a month. That behavior isn't going to change.” Apple has also benefited from expectations that its affluent customers are in a better position to continue paying for its products even during a recession, Benowitz says.

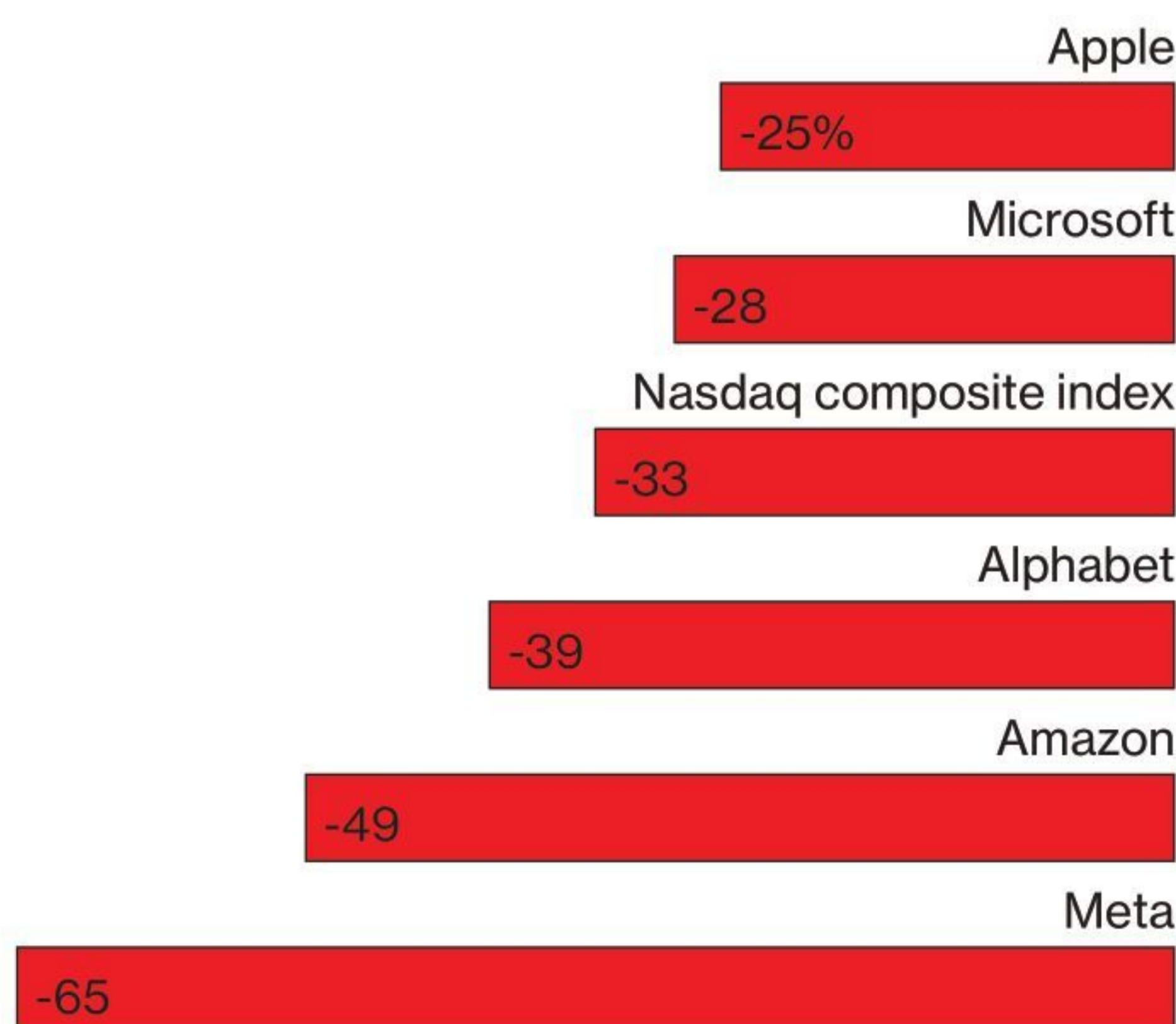
Those assumptions are being put to the test. Bloomberg News has reported that the labor unrest at Foxconn's assembly plant in Zhengzhou is likely to result in a production shortfall of almost 6 million iPhone Pro units this year. Others are even more pessimistic, with Ming-Chi Kuo, an influential analyst at TF International Securities Group Ltd., predicting that Apple could face a shortfall of as many as 20 million iPhone 14 Pro and Pro Max devices in the holiday quarter. He also warns that demand for the devices, which can cost as much as \$1,599, is at risk of disappearing in a slowing economy.

Foxconn said on Dec. 15 that it's easing most anti-Covid-19 restrictions at its Zhengzhou factory, where most iPhone Pro devices are assembled. To squelch a Covid outbreak and keep production going, the company had forced workers to spend weeks living in isolation with only meager food rations, causing violent protests. Labor disruptions have been “brought under control” and the plant is gradually moving toward restoring production capacity to normal, Foxconn has said. But the sudden reversal of China's Covid Zero policies could cause yet more interruptions, with the number of cases and hospitalizations surging. ▶

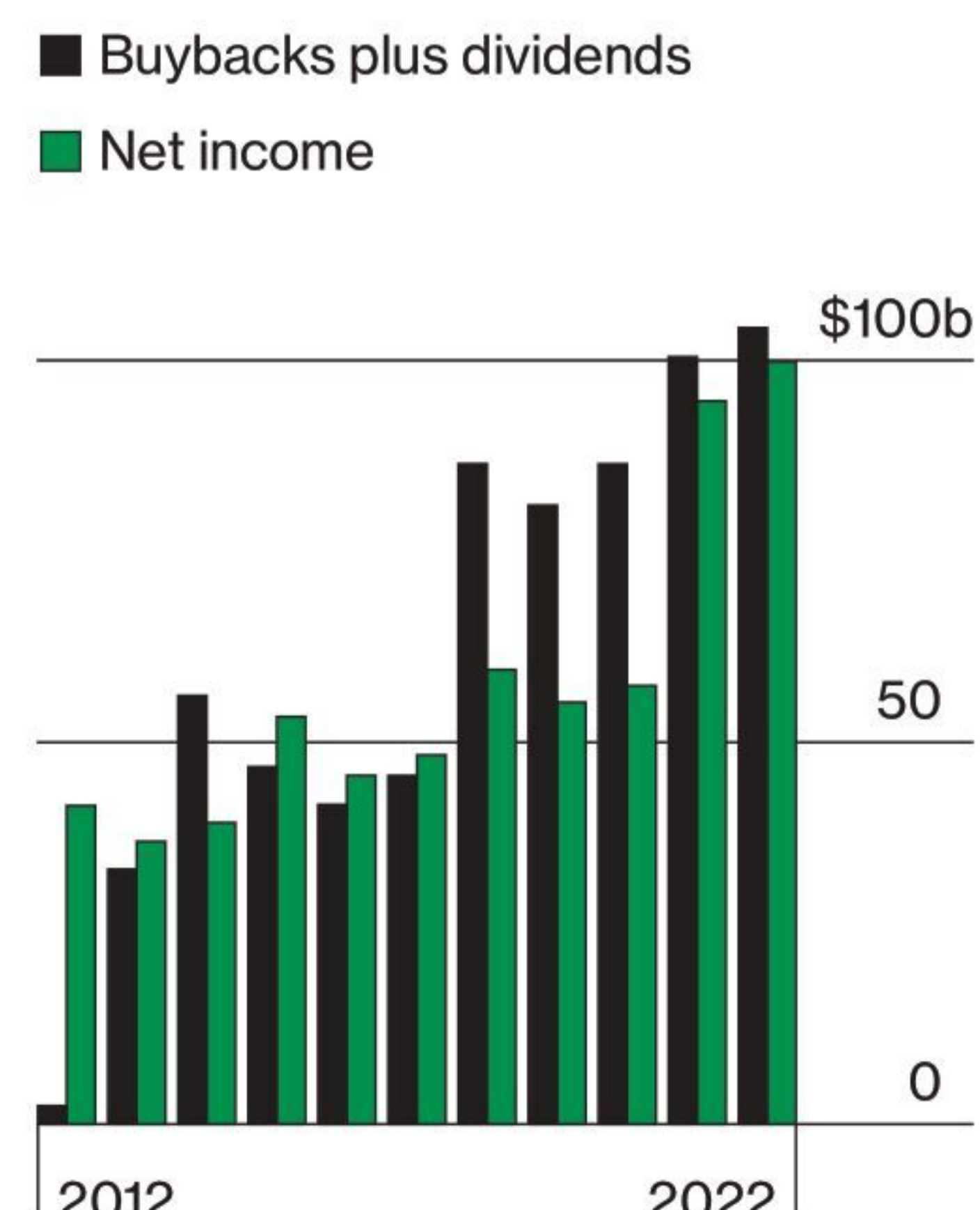
“People don't switch to Android because they can't get the iPhone this month. They'll wait a month”

Apple Rewards Its Shareholders

Change in stock price, Dec. 31, 2021, to Dec. 20, 2022



Apple's payouts and earnings



DATA: COMPILED BY BLOOMBERG

◀ Apple has its skeptics. Michael Lippert, vice president and portfolio manager at the Baron Opportunity Fund, sees an overvalued tech giant whose days of rapid growth and groundbreaking innovations are past. “When was the last time, seriously, they’ve made an amazing innovation since the iPhone?” Lippert asks. “It just gets slightly better” with each new release, he says.

Apple’s performance this year shows that many investors disagree. They’re willing to pay more for a massive company whose profits are expected

to be immune to an economic slowdown, says Sameer Bhasin, a principal at Value Point Capital. “They have a monopoly on 15% of the world’s richest population,” he says. “In this market where you have a lock on that customer base, I don’t know what other company has that.” —*Jeran Wittenstein, with Subrat Patnaik and Tom Contiliano*

THE BOTTOM LINE Apple’s customer and shareholder loyalty are legendary, but supply chain disruptions are testing how long that will last.

Brian Moynihan’s Low-Risk Mantra

● “Responsible growth” has helped Bank of America avoid some messes but also caused it to miss out on some deals

At the time, the two words seemed like a passing thought. Bank of America Corp. Chief Executive Officer Brian Moynihan uttered them seven years ago as he outlined plans for the bank after settling a slew of financial-crisis-era probes and lawsuits. But the words have come up again and again, including on 30 consecutive earnings calls. Moynihan repeated them 12 times in US Senate testimony in September, and his lieutenants invoke them whenever they address the public.

The mantra is “responsible growth.” It means that “market share is not the only thing,” says Moynihan. What’s more important is profitable market share and profitable customers, he says. “It’s customers that stick with you. That’s responsible growth.”

For a big-bank CEO, it’s pretty radical thinking. It’s not that the bank is blasé about competing. It’s just not keen to take the types of risks often needed to reach No. 1 in market share. To Moynihan, steady revenue that avoids blowups is far preferable.

If it’s possible for two words to change the culture of a Wall Street institution, that may be the case at Bank of America. They extend into almost every facet of the bank’s operations. They guide decisions on who gets loans and which clients are allowed to make big bets. Dealmakers must explain it to corporate clients. Senior executives drive the point home in town halls. And recruits say they have come to accept the responsible growth philosophy.

The approach has allowed Bank of America to avoid some expensive messes—political and



◀ Moynihan (center) at a September Senate hearing with Wells Fargo’s Charles Scharf and JPMorgan Chase’s Jamie Dimon

financial. After Russia invaded Ukraine in February, Goldman Sachs Group Inc. and JPMorgan Chase & Co. helped clients speculate on Russian debt. But Moynihan told senior credit-trading executives he didn’t want them engaging in activities that could entangle the bank in the crisis.

When Bill Hwang’s Archegos Capital Management—a family office little known outside financial circles before its 2021 blowup—approached Bank of America for financing, executives saw the concentration of risk in its investment portfolio and said no. Not long after, Archegos collapsed, and a number of big banks in Europe, Asia and the US lost more than \$10 billion.

But prudence also means missing out on some profitable deals. This year the bank’s shares are down about 28% as of Dec. 20, the worst performance among its big-bank peers, as investors chafe at all the proselytizing. Dozens of current and former executives, all of whom asked not to be named

discussing the bank, say the approach has frustrated some staff. One critique is that the bank is leaving money on the table—for competitors. “I ignore them,” Moynihan says of such critics. “I am not interested in having that dialogue.”

Such defiant pushback is out of character for the unassuming, Ohio-born Moynihan, who three years ago spent his 60th birthday curling at a country club in the Boston suburbs. Some residents in his hometown of Wellesley say they were aware that the man who showed up for his kids’ ballgames had a leadership role at the bank—they thought he ran the local branch.

One believer in the lawyer-turned-CEO’s subdued approach is Warren Buffett, whose Berkshire Hathaway Inc. is the bank’s largest shareholder. Buffett recently wrote a personal note to Moynihan, noting that he and his investing deputy, Charlie Munger, were both in their nineties. The message Moynihan took away: We stayed this long—so can you.

As Buffett knows, managing for breakneck growth can also lead to boom-and-bust cycles. “The holy grail is to have consistent returns over time,” says Betsy Graseck, an analyst at Morgan Stanley. “What they are trying to do is have a book of business that delivers solid growth during the good times and limits the losses during the bad times.”

If the economy continues to weaken, Moynihan’s profile could rise. He’s already known as President Joe Biden’s go-to banker when he wants to discuss the economy. His attendance at the Dec. 1 state dinner for French President Emmanuel Macron sparked talk that he’s on Biden’s short list to replace Treasury Secretary Janet Yellen if she decided to step down. Moynihan has said publicly that he has no intention of leaving his post.

Moynihan wasn’t an obvious choice for CEO, but as the head of the bank’s consumer banking unit, he landed on a list of candidates who might be able to lead Bank of America out of the 2008 financial crisis. After becoming CEO in 2010, he shrank businesses, cut jobs and repaid a government bailout. He spread out numerous legal settlements to resolve tens of billions of dollars in liabilities, largely stemming from the purchase of troubled subprime-mortgage lender Countrywide Financial by his predecessor, Kenneth Lewis.

Eventually, it was time to focus on generating more revenue and profit. “We basically said, we got to grow, no excuses,” Moynihan says. “And we got to do it for the right risk, across operational risk, trading risk, credit risk—all types of risk. We have to do it in the way that’s sustainable.”

The Moynihan mantra has meant that market share in trading stocks, bonds and other

instruments has held steady. Insiders say the bank is less obsessed than rivals at topping industry league tables. It has hovered in the top four slots in investment banking since 2012.

Through the first nine months of this year, market share in trading bonds, commodities and currencies has dropped 1.8% from 2012. By contrast, all of its US peers increased their shares, with the exception of Citigroup Inc., whose share declined by 0.9%, according to Bloomberg data. With equities trading revenue included, Bank of America holds an 11.3% market share, about the same as in 2012 and the lowest among its US peers. “The downside is Bank of America leaves revenue on the table that it otherwise could pursue,” says Wells Fargo & Co. bank analyst Mike Mayo. “It deliberately passes on opportunities to maintain a lower risk profile.”

That could help the bank weather a possible global recession, Mayo says. Since 2009 the bank has been curbing risk in its \$1 trillion loan book by dialing back on consumer credit cards and home-equity loans and shifting more toward commercial lending. That’s helped it chalk up the lowest loan-loss rate among its peers in 9 of the last 10 Federal Reserve stress tests.

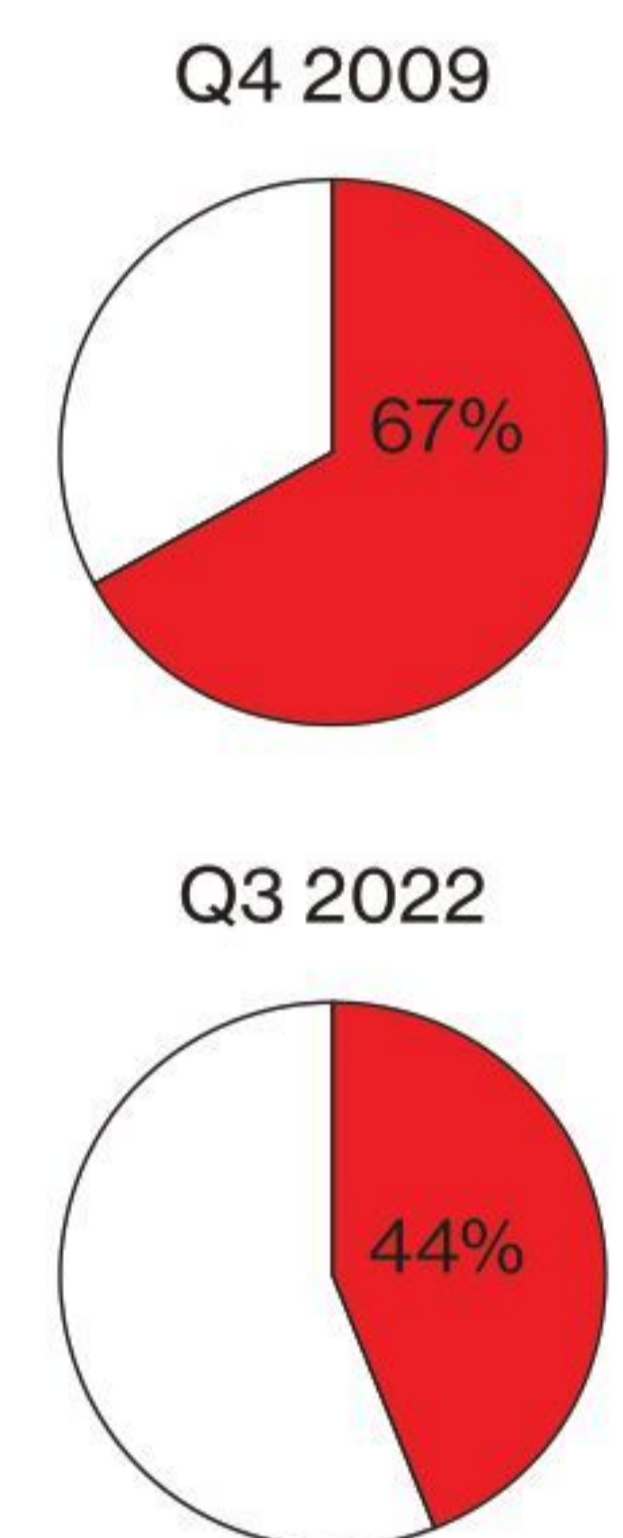
There have been missteps. In 2018, Bank of America reported hundreds of millions of dollars in losses linked to the collapse of South African retailer Steinhoff International Holdings NV following accounting irregularities. More recently, as big players in the high-yield debt market, the bank and its competitors have all faced losses on debt issued to finance corporate buyouts as rapid rate hikes crush investor demand and force banks to hold the loans and bonds on their balance sheets.

Moynihan says responsible growth is about more than risk. He points to the bank’s \$22-an-hour starting wage, its health-care benefits and efforts to curb customer overdraft fees. Sharply reducing such fees “was a watershed moment for the banking industry,” says Greg McBride, Bankrate’s chief financial analyst. It “put the spotlight on banks that hadn’t done so.” Alastair Borthwick, Bank of America’s chief financial officer, says, “We’ll be judged in 2023 by our results relative to others, and I really like our organic growth trajectory.”

So does Wells Fargo’s Mayo, who beat up on the bank for years. The analyst now predicts its shares will soar above the current \$55 record in the coming years. “Just like during the financial crisis, I was on top of the mountain yelling sell,” he says. “Now I’m yelling buy.” —*Katherine Doherty*

THE BOTTOM LINE Unlike most of its rivals, Bank of America doesn’t chase the No. 1 slot in league tables. Its CEO prefers slower, steadier growth, which has frustrated some staff.

▼ Consumer loans as share of Bank of America’s total loan mix





Missing Children

● Classrooms sit empty at day-care centers despite \$24 billion in federal grants

A crucial source of emergency funding for US child-care providers is starting to run out, threatening to hit an already overstretched industry at one of its biggest pain points: trying to hold on to low-paid staff in a tight job market.

Much of the \$24 billion handed out as part of the pandemic-era American Rescue Plan has been channeled into wage increases or bonuses for teachers, to discourage them from leaving for higher-paying jobs. With the supply of federal dollars coming to an end, providers say they'll likely have to roll back those raises or increase tuition, something that's already caused some parents to pull their kids out of care.

Although by law states have until the end of September to distribute the funds, many businesses say the money might run out much sooner: In a survey by the National Association for the Education of Young Children (NaeYC), about 22% said they expect their payments to end in January.

"If the stabilization grant goes away, I don't know what we're going to do," says Renae Loth-Birch, the owner and executive director of Discover

Magical Moments Daycare in Rochester, Minnesota. Teachers at the center have gotten a more than 40% pay bump over the past two years, from \$14 an hour before the pandemic to \$20 an hour now. Loth-Birch says the increase—funded by American Rescue Plan grants—was necessary to try to keep her staff from taking better-paid positions at places such as Target Corp. or a nearby internet provider, both of which also offer benefits.

Despite a waitlist of children that runs two pages long, four of the 14 classrooms at Discover Magical Moments sit empty. Because of a shortage of teachers, Loth-Birch can enroll only 126 students, well below the 184 that her license allows.

It's a widespread problem. Among the providers across the country that report they can't find enough staff, almost half say it's forced them to cut back the number of children they serve. The US child-care workforce is down 8% from pre-pandemic levels, with 84,400 employees still missing from the industry since February 2020, according to government data.

The industry's travails are weighing on the larger economy. "We need more child care if we're going to have people go back and forth into the labor force, and that's something we just don't have," said Federal Reserve Bank of San Francisco President Mary Daly on Dec. 16. "We had a shortage before the pandemic, and now we have a severe shortage."

Lesser availability of child care and its high costs are frequently cited as the reasons the US has a lower share of its working-age population employed than economic peers such as Germany, Japan and the UK.

The American Rescue Plan, signed into law in March 2021, included a total of \$39 billion to support the child-care industry. The \$24 billion that went to providers was given directly to individual states. The remaining \$15 billion was used in part to boost an existing program that helps low-income families defray tuition costs.

The economics of providing care without those funds simply don't work, laying bare cracks that existed well before the pandemic threw the industry into crisis. Salaries can account for about 70% of costs at both in-home and center-based child-care facilities, partly because regulations require a high ratio of staff to young children. But attracting and retaining employees has always been a struggle given the low pay—often just above minimum wage—and that most jobs come without benefits such as health insurance.

Climbing prices in the past few years have meant that the cost of utilities, food and classroom supplies have gone up too, further squeezing profits. And with the labor market at its tightest in decades, many providers can't compete with the \$18 to \$20 an hour that companies such as McDonald's Corp. and Amazon.com Inc. offer in some states. "We had a workforce shortage prior to the pandemic, and the pandemic just made the situation that was already desperate really critical," says Wanzi Muruvi, senior research and policy associate at the Center for the Study of Child Care Employment at the University of California at Berkeley. "With the drying up of these other funds, the question now

is, how are we going to really recover?"

K.T. Korngold, director of the Montessori Children's Center in West Harrison, New York, has already had to cut some wages, after her second grant from the state came in at only 20% of the first one. She's aggressively tried to hire but says it's been extremely difficult. While trying to fill four openings, Korngold says, 19 people she recruited last year either didn't show up on their first day or quit within two weeks. Her tally is similar this year, though she's managed to fill three of the open spots.

The end of the pandemic grants will force 43% of child-care centers to raise tuition, according to the Naeyc survey. The high cost of child care, which for some families rivals their monthly mortgage payment, is keeping many Americans out of the labor force. The share of those age 25 to 54 who are either working or looking for a job has declined for three straight months starting in September.

Jennifer Muschinske, who works in fundraising and marketing, moved from Jersey City, New Jersey, to Wellfleet, Massachusetts, with her husband at the start of the pandemic. Over the past couple of years, the couple has been trying to relocate to Boston, where job opportunities are more abundant. The one thing holding them back is a lack of child-care options for their 18-month-old son. Muschinske put him on waitlists at three day-care centers in Boston in April 2021, when she was six months pregnant. He still hasn't been offered a place at any of them.

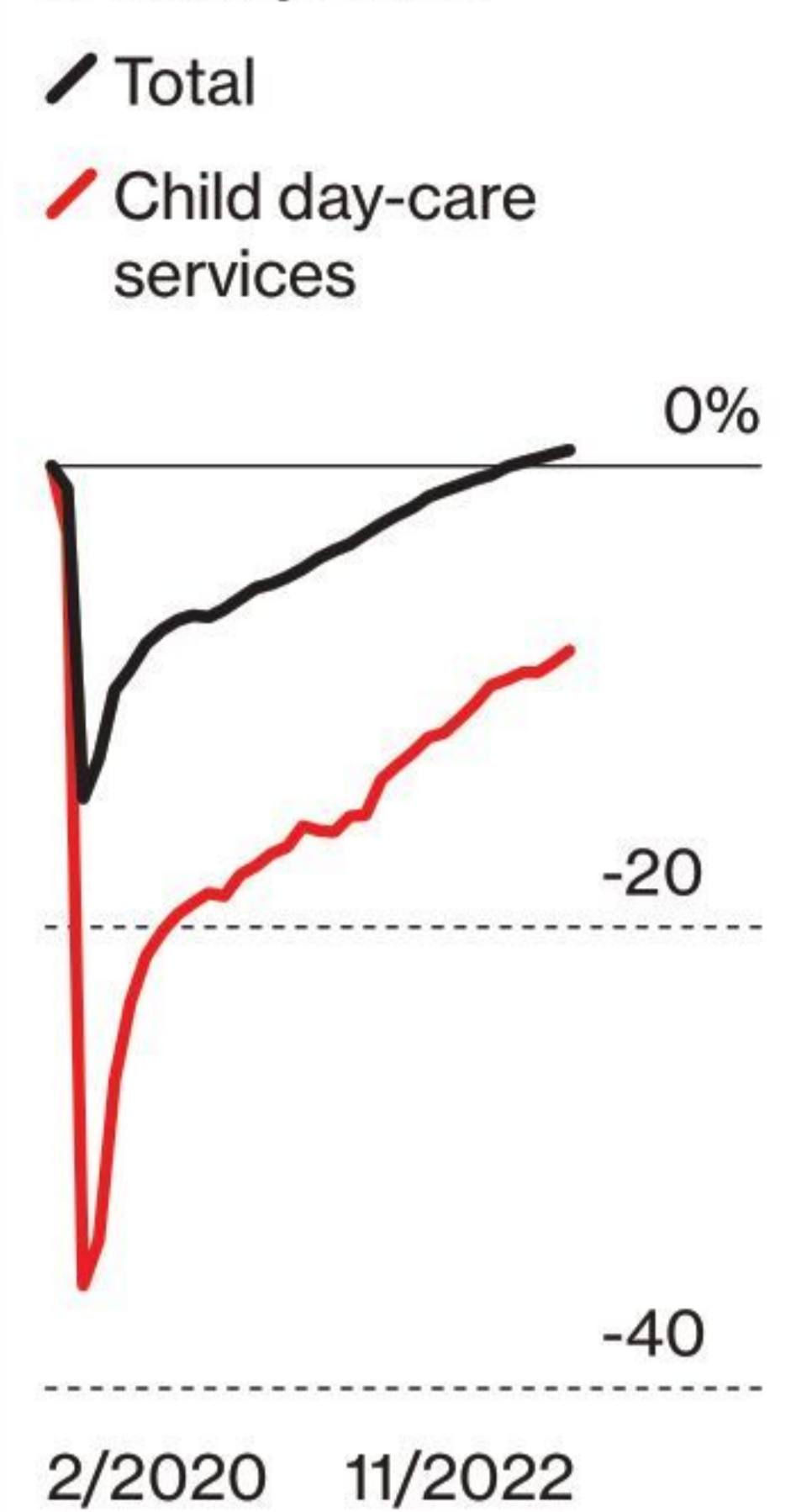
One of the organizations Muschinske has been freelancing for has a full-time role available that she'd like to apply for, if she could figure out child care. "I can't be good at both my job and parenting if I'm trying to work full-time with part-time child care," she says. "It's just not possible."

The American Rescue Plan offered child-care providers a glimpse into what more federal support could do for the industry. There's been bipartisan backing for increasing federal funds in the past, but the issue has failed time and again to garner enough support in Congress. Although it was included in the original Build Back Better legislative agenda, child care wasn't part of the final reconciliation package.

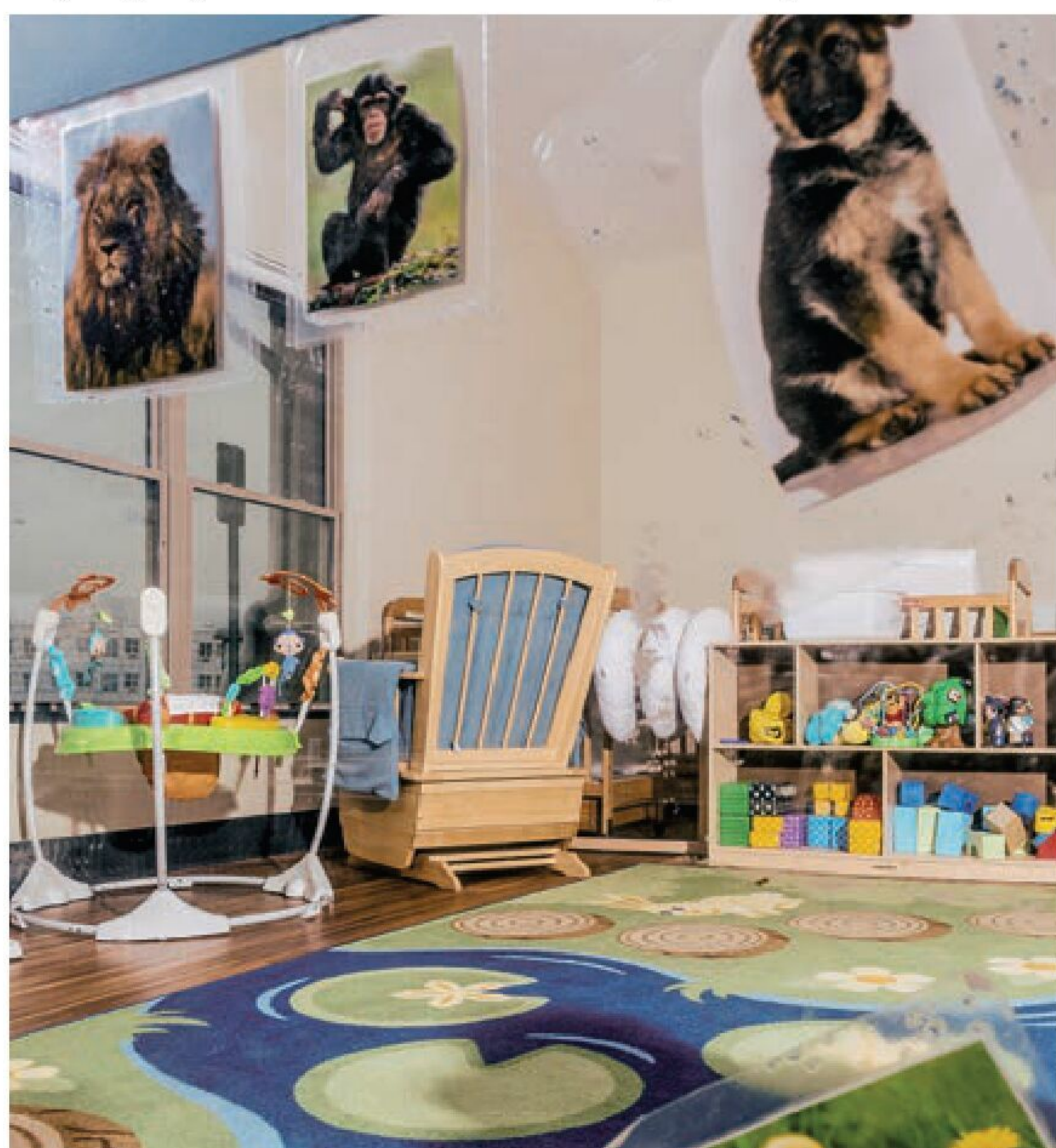
"I am blown away at what short memories people have," says Dawn Meyerski, executive director of Mount Kisco Child Care Center in Westchester County, New York, which has enrolled about 145 children of varying ages. "We were so essential, and now we're not even part of the discussion."

—Catarina Saraiva and Reade Pickert

▼ Change in US employees on nonfarm payrolls since February 2020



◀ Unused classrooms at Discover Magical Moments Daycare



THE BOTTOM LINE Child-care providers face some hard choices as pandemic support funds dry up: roll back wage increases or raise tuition and potentially cut into enrollment.

A Sanctions-Proof Trade Route

● Russia and Iran are spending billions to build an inland corridor stretching all the way to India

Russia and Iran are building a transcontinental trade route stretching from the eastern edge of Europe to the Indian Ocean, a 3,000-kilometer (1,860-mile) passage that's beyond the reach of any foreign intervention.

The two countries are spending billions of dollars to speed up delivery of cargoes along rivers and railways linked by the Caspian Sea. Ship-tracking data compiled by Bloomberg show dozens of Russian and Iranian vessels—including some that are subject to sanctions—already plying the route.

Russia and Iran, under tremendous pressure from sanctions, are turning toward each other—and they're looking eastward, too. The goal is to shield commercial links from Western interference and build new ones with the giant and fast-growing economies of Asia. "This is about establishing sanctions-proof supply chains all the way through," says Maria Shagina, a Russia expert at the International Institute for Strategic Studies in London.

The emerging trade corridor would allow Russia and Iran to shave thousands of kilometers off existing routes. At its northern end is the Sea of Azov, which is bracketed by the Crimean Peninsula, Ukraine's southeastern coast—including the Russian-occupied port of Mariupol—and the mouth of the River Don. From there river, sea and rail networks extend to Iranian hubs on the Caspian Sea and ultimately the Indian Ocean.

At an economic forum in September, Russian President Vladimir Putin underlined the need to develop infrastructure along the route, saying it "will provide Russian companies with new opportunities to enter the markets of Iran, India, the Middle East and Africa, and will facilitate supplies from these countries in return."

Shagina estimates Russia and Iran are investing as much as \$25 billion in the inland trade corridor, helping facilitate the flow of goods the West wants to stop, including weapons. That's a concern for the US and its allies, who seek to block transfers of Iranian drones and other military supplies they say are aiding the Kremlin's war in Ukraine. "It is an area we're watching carefully, both that route and more generally the Iranian-Russian

connection," said the Biden administration's top sanctions official, James O'Brien, on Dec. 15. "We are concerned with any effort to help Russia evade the sanctions."

Robert Malley, the US special envoy for Iran, says any new trade corridor needs scrutiny, as part of what's become his top priority: stopping arms shipments between the countries. "That's an extraordinarily damaging, reckless decision they've made," Malley says. "It's important to put the spotlight on it, to try to show the world that they can't hide."

Beyond any arms trade, there are compelling economic reasons for the transit route. Ships sailing the Don and Volga rivers have traditionally traded energy and agricultural commodities—Iran is the third-largest importer of Russian grain—but the range is set to widen. The two countries have announced a raft of business deals that cover goods including turbines, polymers and automotive parts. Russia also supplies nuclear fuel and components for Iran's reactor in Bushehr.

For Iran the pivot toward what officials are calling "the Eastern axis" has become more urgent amid faltering efforts to restore the 2015 deal with world powers, which lifted sanctions in exchange for restrictions on the country's nuclear program. Russia, for its part, needs to compensate for the sudden breakdown of its commercial ties with Europe, which before the war was its biggest trade partner. "With European transport networks getting closed off, they're focused on developing alternative trade corridors which support Russia's turn to the East," says Nikolay Kozhanov, who served as a Russian diplomat in Tehran from 2006 to 2009. "You can impose controls over sea routes, but land routes are difficult to watch."

Russia is planning to invest \$1 billion to improve navigability across the Azov as well as through the Volga-Don Canal, which is too shallow at several points to accommodate large cargo ships and ices up during the winter months.

Russia is finalizing rules that would give ships from Iran right of passage along inland waterways on the Volga and Don rivers, according to Iran's Maritime News Agency. A Bloomberg analysis of almost a year's worth of ship movement data show at least a dozen Iranian vessels, some operated by the US-sanctioned Islamic Republic of Iran Shipping Lines Group (IRISL), traveling regularly between the country's Caspian coast and Volga River ports.

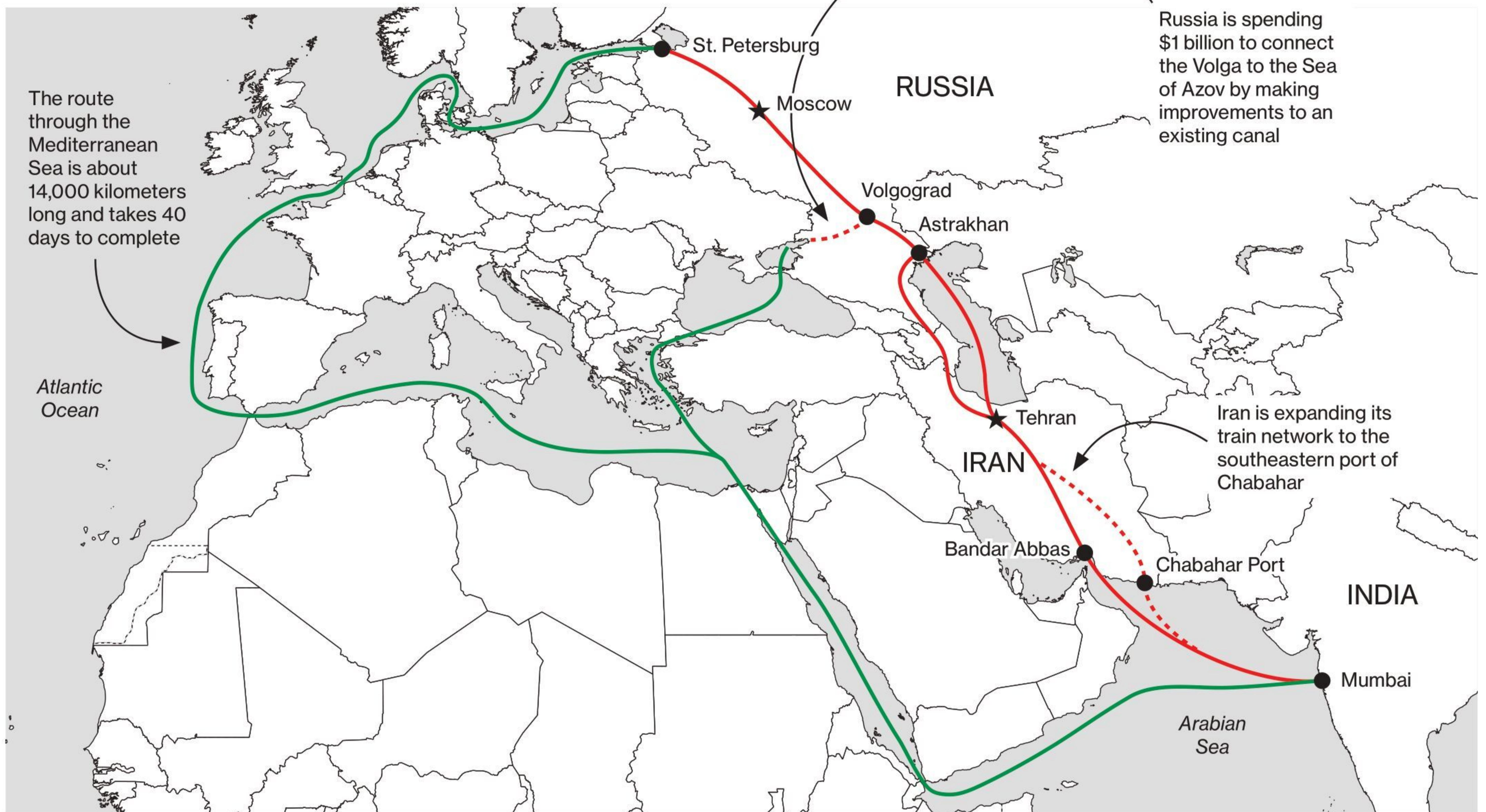
Tehran-based IRISL made a \$10 million investment at the Solyanka Port in the Russian city of Astrakhan, the semiofficial Iranian Labour News Agency reported in November. Inside its borders, Iran is pouring money into terminals where cargo

● Estimated investment by Russia and Iran in trade corridor

\$25b

Trade Routes From Russia to Asia

Existing route / International North-South Transport Corridor / INSTC extension



ROUTES ARE APPROXIMATE. DATA: BLOOMBERG REPORTING

can be rolled off ships and onto railroads that crisscross the country from the Caspian to the Persian Gulf. It's also expanding a rail network that already runs some 16,000 kilometers and is part of the Unesco World Heritage List.

Trade between Russia and Iran surged by almost half through August this year, according to official figures, and will likely exceed \$5 billion for all of 2022. There's a "clear path" to reaching \$40 billion once the countries wrap up negotiations on a free trade agreement, Sergey Katyrin, the head of Russia's Chamber of Commerce and Industry, told a conference in Tehran last month.

Largely beneath the radar of Western governments, a concerted effort has been underway for years to knit together that whole Eurasian territory. China and Russia are already part of the Shanghai Cooperation Organization, an economic-security body that's making Iran its ninth member. China and Iran are both close to gaining membership in the Eurasian Economic Union, which will make free trade across the countries possible.

For Russia and Iran, India is a crucial node in the networks they're trying to build. A first 12 million-ton shipment of Russian grain bound for India has already transited Iran, the Mehr News Agency reported last month. Trade flows could increase

if Iran manages to connect the much-delayed Chabahar Port complex on the Indian Ocean—a project that India has invested in—to its train network.

Chabahar has so far been exempt from US sanctions but may draw fresh scrutiny from Washington. "If any entity is involved in violation of our sanctions with regard to assistance to Russia, or any of the other areas in which Iran has been sanctioned, they too will be subject to sanction," says Malley.

That illustrates what's perhaps the biggest threat to the Russo-Iranian gambit, according to Bharath Gopalswamy, executive director at District Consultancy LLC, a Washington-based trade adviser. The trade corridor's success or failure will hinge on whether other countries, from India to the Middle East, cave in to pressure by the US and its allies to comply with sanctions. "For such an infrastructure to be built, used and sustained it would need not only the cooperation of both Russia and Iran but also all the other nations," Gopalswamy says. "Any change in geopolitical circumstances, or relations between these countries, will affect the trading corridor's outcome." —Jonathan Tirone and Golnar Motevalli, with Sam Dodge

THE BOTTOM LINE Russia and Iran have stepped up their efforts to improve transport infrastructure to support a big increase in trade among Eurasian countries. India is a crucial node.



HOW TO CLIMB HIGHER AS A CEO

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The Bloomberg

50

This is our sixth annual look at those in business, politics, science and technology, finance and entertainment whose accomplishments deserve recognition. There are familiar names doing new things (Serena Williams, page 40), new names doing historic things (Ketanji Brown Jackson, page 35) and inanimate objects doing mind-blowing things (the James Webb Space Telescope, page 45). One name, with the initials SBF, also did some mind-blowing things, which helped land his successor (John Ray III, page 35) on the list.

No one story dominates the Bloomberg 50 this year as does the war in Ukraine: Volodymyr Zelenskiy (page 33) is on the list, and so, among others, are Daleep Singh

(page 56), architect of the sanctions regime against Vladimir Putin, and Todd Boehly (page 65), who bought the Chelsea Football Club after Russian oligarch Roman Abramovich was pressured to sell it.

If you don't know why Bad Bunny (page 67), Scarlett Lewis (page 60) or Tom Oxley (page 58) are big deals, well, keep reading. Turn to page 64 for alums of our list whose 2022 contributions also merited a nod, and to see who might appear on next year's Bloomberg 50, go to page 68.

Business

Politics

Science & Technology

Finance

Entertainment

GAUTAM ADANI

ANTHONY ALBANESE

WYLIE ARONOW & GREG SOLANO

FRANCESCA BELLETTINI

NICHOLAS BLOOM

TODD BOEHLY

GABRIEL BORIC

QUINTA BRUNSON

BAD BUNNY

LIZ CHENEY & BENNIE THOMPSON

SHOU CHEW

YVON CHOUINARD

AISHA "PINKY" COLE

LISA COOK

TOM CRUISE

MICHELLE EISEN & CHRIS SMALLS

DYLAN FIELD

BRIAN FLORES

REBECCA GOMPERTS

KEN GRIFFIN

EILEEN GU

ROBERT HABECK

SAID HAIDAR

KATIE HAUN

NICK HAYEK

ROBIN HAYES

JENNIFER HUDSON

JEREMY HUNT

KETANJI BROWN JACKSON

JAMES WEBB SPACE TELESCOPE

AARON JUDGE

OLIVIA JULIANNA

KIM KARDASHIAN

SCARLETT LEWIS

SAULI NIINISTO

RANDY NONNENBERG

TOM OXLEY

PARK JI-HYUN

GUILLAUME POUZAZ

LIANE RANDOLPH

NAN RANSOHOFF

JOHN RAY III

DALEEP SINGH

PHIL SPENCER

BRET TAYLOR

KEVIN WARREN

C.C. WEI

SERENA WILLIAMS

LAWRENCE WONG

VOLODYMYR ZELENSKIY

Jeremy Hunt

CHANCELLOR OF THE EXCHEQUER, UK

After then-Prime Minister Liz Truss roiled markets with the biggest package of unfunded tax cuts in a half-century, the pound fell to a record low against the dollar and borrowing costs rose alarmingly. Hunt, one of the Conservative Party's most experienced ministers and a former secretary of state for health and social care, was brought in from Parliament's backbenches to repair the damage and restore the country's economic credibility. He junked Truss's plans and pivoted to a disciplined message of economic caution, saying that spending cuts and tax increases would be needed to stabilize the UK's finances. He also reviewed the generosity of the government program helping Britons with soaring energy bills. When Rishi Sunak succeeded Truss, he kept Hunt in the post as a reward for his calming influence.

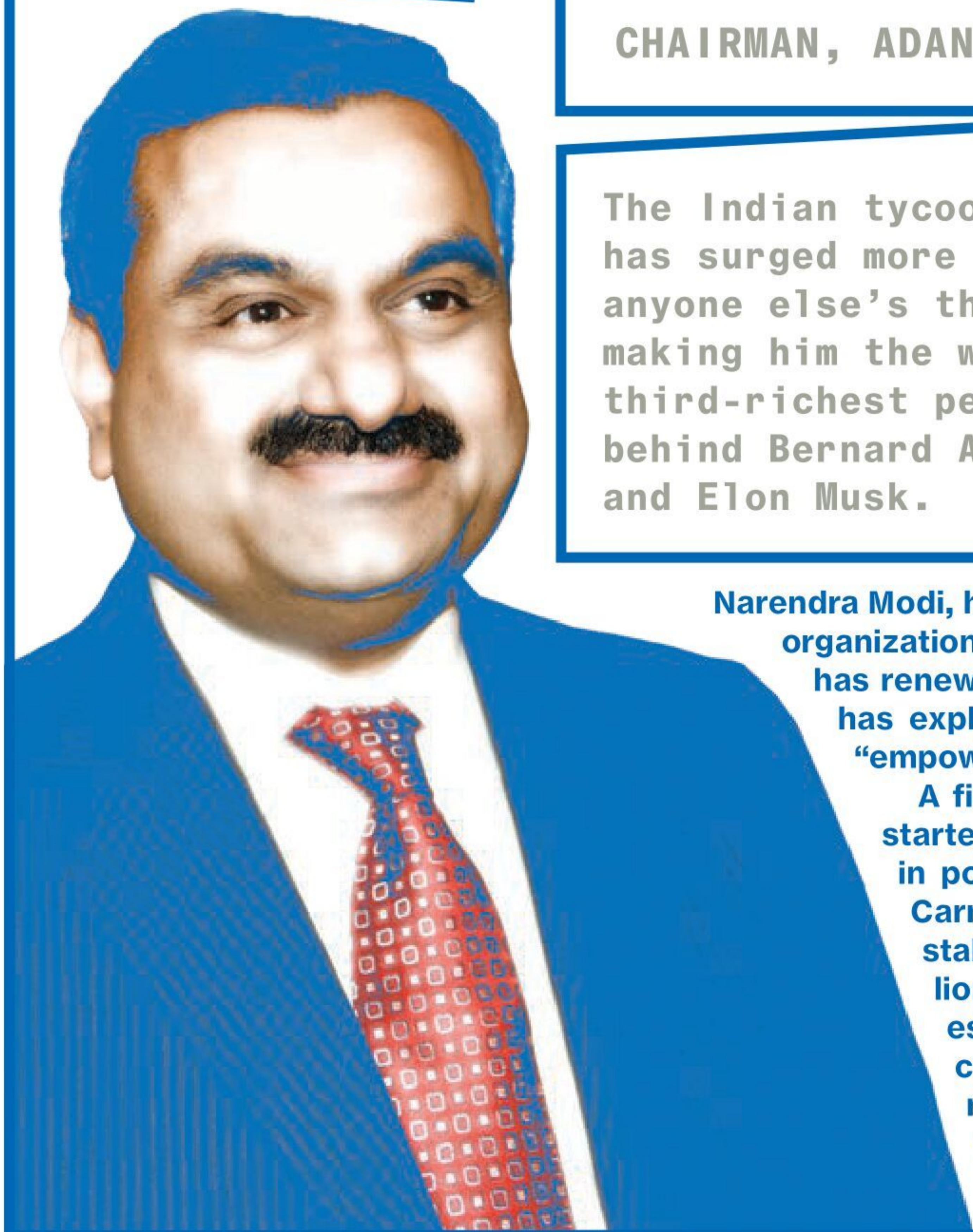
—Joe Mayes

Within a week of Hunt's appointment in October, his maneuvering brought the cost of long-term borrowing below 4%, from about 4.8%, halting a drop in the value of the pound and saving taxpayers from enormous interest payments in the coming years.



Gautam Adani

CHAIRMAN, ADANI GROUP, AHMEDABAD, INDIA



The Indian tycoon's wealth has surged more than anyone else's this year, making him the world's third-richest person behind Bernard Arnault and Elon Musk.

Adani overtook Indian compatriot Mukesh Ambani in February to become Asia's richest man, with the \$49 billion surge in his personal wealth putting him ahead of Bill Gates and Warren Buffett as well. Now with a net worth of \$125.8 billion—also surpassing Jeff Bezos—Adani is expanding his infrastructure conglomerate. He's been the busiest dealmaker in Asia this year, acquiring assets such as Swiss cement giant Holcim Ltd.'s India units for \$10 billion. Seen as close to Prime Minister

Narendra Modi, he made a hostile bid for broadcaster NDTV, one of the few media organizations in India willing to criticize the government. This association has renewed concerns over press freedoms there. Adani Enterprises Ltd. has explained in filings that it intends to bolster NDTV's business and "empower Indian citizens."

A first-generation entrepreneur who dropped out of college, Adani started as a diamond trader in Mumbai and made most of his fortune in ports and mines, with his controversial investment in Australia's Carmichael coal mine making him a target of environmentalists. The stake has also meant that his latest pivot, a pledge to plow \$70 billion into green energy, is being scrutinized just as Adani is trying to establish himself more firmly on the global stage. His big bets—in cement and renewable energy, as well as airports and an expanded mining operation—have been funded by huge levels of debt. A unit of rating company Fitch Group Inc. flagged the "elevated" leverage in Adani's business in a September report. —Chris Kay

Volodymyr Zelenskiy

PRESIDENT, UKRAINE

For 10 months, defiant in the face of what's seemed like overwhelming odds, Zelenskiy has led the resistance to Russia's invasion.

From his besieged capital, Kyiv, Zelenskiy rejected US offers to help him escape at the start of the war and used nightly speeches on social media to convince Ukrainians that they would prevail. Zelenskiy, who gained fame as an actor playing an accidental president on a popular TV show, adapted his talents as an entertainer to address parliaments around the world and get support for his nation's fight. It worked. Ukraine's initially outgunned forces pushed Russian troops out of the Kyiv area and then the northeast, aided by flows of weapons and financial support from the US, Europe and other allies. In November the Ukrainian military scored a major victory by taking back the southern city of Kherson, the only regional capital Russian forces had seized in the invasion.

The war is far from over. Russian President Vladimir Putin has hinted darkly that he may resort to nuclear weapons to try to force Ukraine—and the West—into a deal that lets him keep some of his gains. And the postwar challenge of reconstructing Ukraine's shattered economy is expected to cost more than \$340 billion.

—Daryna Krasnolutska and Aliaksandr Kudrytski



Randy Nonnenberg

CO-FOUNDER AND CEO,
BRING A TRAILER MEDIA
LLC, SAN FRANCISCO

PHOTOGRAPH BY
KELSEY McCLELLAN

His live online auction platform for classic and other collectible cars is expected to do \$1.3 billion in sales this year, up about 57% from 2021.

Nonnenberg started Bring a Trailer in 2007 so he and his friends could buy and sell vintage cars. Today it has more than 900,000 active users and 400,000-plus registered bidders. The site's fun live auctions are the draw. Bidding can get pretty heated: If a counteroffer comes in the last two minutes of a sale, two more minutes are put on the clock, with bidders going head-to-head while thousands of people look on and comment, often astutely, on the action. The format is so successful that established auctioneers such as Bonhams, Gooding & Co. and RM Sotheby's—whose online auctions haven't traditionally been live—have developed their own versions.

A Stanford University grad who held various jobs at BMW of North America LLC, Nonnenberg has made the buying and selling process more efficient, too. Buyers pay a 5% service fee, half of what the big auction houses typically require, and it's capped at \$5,000, whether the car sells for \$100,000 or \$1 million. Sellers pay a \$99 listing fee. In January a 2005 Porsche Carrera GT sold on the site for a little more than \$1.9 million, a world record for that model, and then two weeks later one with only 250 miles sold for \$2 million. —Hannah Elliott



Ketanji Brown Jackson

ASSOCIATE JUSTICE,
US SUPREME COURT

Sworn in as the 116th justice in June, Jackson became the first Black woman to serve on the high court.

Of the 115 justices who've served on the bench prior to Jackson, 108 have been White men. Her historic appointment to replace Associate Justice Stephen Breyer followed an explosive and sometimes emotional confirmation hearing. Jackson was grilled on her record on crime, especially her sentencing in child pornography cases (Senate Republicans said she was too lenient, though experts said she was in line with norms) and divisive issues such as race, gender identity and abortion. Ultimately, three Republicans—Susan Collins, Lisa Murkowski and Mitt Romney—joined the full Democratic caucus to confirm Jackson, 53-47, maintaining a 6-3 conservative majority.

Jackson, a mother of two girls, said during her hearing that she got “so many notes and letters and photos from little girls” who were inspired by her nomination. “We want, I think, as a country, for everyone to believe that they can do things like sit on the Supreme Court, and so having meaningful numbers of women and people of color I think matters.” —Kelsey Butler



John Ray III

CEO, FTX GROUP, NASSAU, BAHAMAS

Since taking over the job from disgraced cryptocurrency mogul Sam Bankman-Fried, Ray has helped locate almost \$2 billion of assets that will eventually be given back to customers of the bankrupt exchange.

The bankruptcy of FTX is one of the biggest corporate collapses since the Great Recession: The company owes at least \$10 billion to what may be more than a million people. FTX's founder, Bankman-Fried, ceded control after customers—spooked by unsettling comments about the company from the head of a rival exchange—raced to withdraw deposits and found FTX couldn't cover the withdrawals.

Ray, an executive best known for overseeing the liquidation of Enron Corp., stepped into the job in the early morning hours of Nov. 11. What he found would make even the most grizzled accountant queasy. “Never in my

career have I seen such a complete failure of corporate controls and such a complete absence of trustworthy financial information,” he said in court testimony. Still, he and his team tracked down \$740 million in cryptocurrency and \$1.2 billion in cash at various financial institutions shortly following the meltdown. (The source of these funds is unclear.) Ray's work is just beginning, but he's no stranger to drawn-out cleanup jobs. He returned more than \$20 billion to Enron creditors in the years after its accounting scandal was made public. —Jeremy Hill



Dylan Field

CO-FOUNDER AND CEO, FIGMA INC.,
SAN FRANCISCO

Adobe Inc. spent \$20 billion to buy design-tool maker Figma in September, the highest price tag for a private software company.

In recent years, some young designers have moved away from Photoshop and other complicated and expensive Adobe products and toward easier-to-use options from companies such as Canva Inc. for graphic design, Lightricks Ltd. for photo and video editing and Figma for crafting user interfaces. Software designers at Airbnb and

Google use Figma, as do individuals building games, maps and presentations. It also has a loyal student following.

Adobe, which has been struggling to keep up with this growing crowd, made the purchase to protect its relevance. Wall Street panned it as too expensive, but the price was good news for Field, who dropped out of Brown University in 2012 to start Figma with a fellowship grant from Peter Thiel. The sale, which regulators still need to approve, should make him a billionaire. Last year, when his company seemed destined for an IPO, Field tweeted, "Our goal is to be Figma, not Adobe." Now he says he's selling to enhance the tool's technical capabilities. The news disappointed the design community, which has expressed fears that a beloved underdog could become less innovative. Antitrust regulators are investigating the deal. —*Brody Ford*



Said Haidar

CHIEF INVESTMENT OFFICER, HAIDAR
CAPITAL MANAGEMENT, NEW YORK

Returns generated by the Haidar Jupiter hedge fund soared almost 267% through October, while peers averaged only 3% in the same period.

Haidar, who started his hedge fund business more than two decades ago, specializes in macro trades. He predicts economic trends, then makes leveraged bets on everything including interest rates, stocks and currencies. His success this year has been fueled mainly by shorting rates in the US, the UK and other Group of Seven countries. He bet that bond yields would soar as traders wagered on the pace and extent of rate hikes. Similar trades have led to triple-digit returns from other macro traders such as Crispin Odey and Michael Platt, and Rokos Capital Management and Brevan Howard Asset Management have seen double-digit gains.

Jupiter now has \$5 billion invested in it, up from \$1.2 billion at the end of 2021. This blockbuster performance has put Haidar in the limelight, but he's produced consistent returns for years. A client putting \$1 million in Haidar's fund at its inception would now have \$215 million, compared with \$4.1 million invested in the S&P 500 and \$3.7 million in the average hedge fund over the same period, according to Bloomberg News calculations. —*Nishant Kumar*



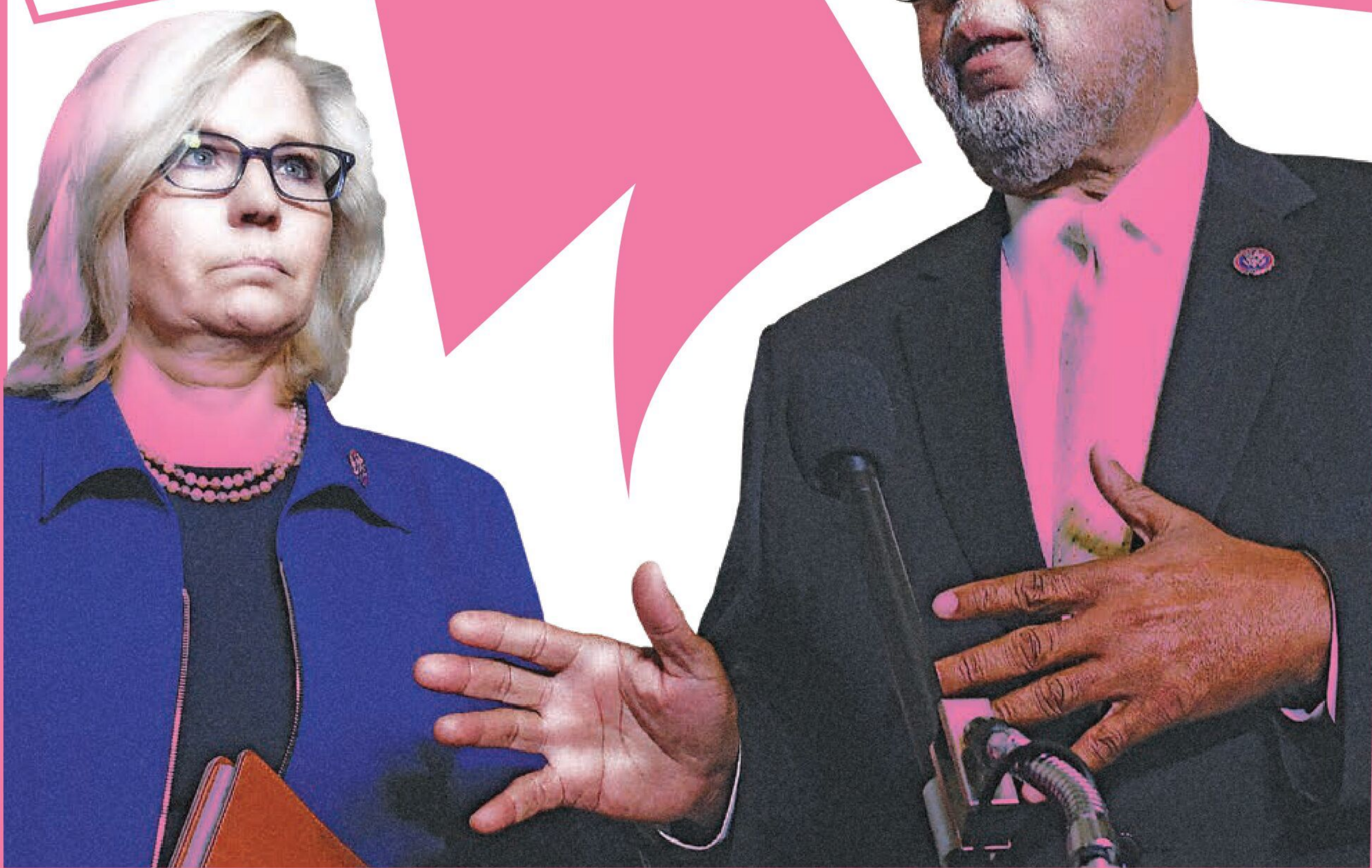
Cheney and Thompson were the unlikely co-stars of the most momentous congressional hearings in American politics in decades, leading a committee that interviewed more than 1,000 witnesses about the insurrection and Donald Trump's role in encouraging it.

Cheney, a Republican from Wyoming, and Thompson, a Democrat from Mississippi, held eight televised hearings this spring and summer, interviewing live witnesses and playing taped depositions from others. Some of the disclosures were explosive, with Trump's

advisers saying he was told again and again that the 2020 election wasn't stolen, that there was no legal basis to challenge the outcome and that the armed demonstrators at the Capitol needed to be called off. The hearings also showcased the extent to which Trump and his allies tried to keep their grip on power, pressuring officials, including Vice President Mike Pence, to intervene. (At a follow-up session in October, the panel voted to subpoena Trump. He filed a lawsuit

seeking to avoid testifying or providing documentation.)

Cheney, a stalwart conservative and once-rising star in the GOP, was a persistent critic of Trump following the attack. That and her vote to impeach him for his role made her a pariah in the party. The daughter of former Vice President Dick Cheney, she's been Wyoming's lone House member for three terms, but she lost her reelection primary in August to a Trump-backed challenger. Thompson is also chair of the Committee on Homeland Security but will lose that post in January when Republicans take over control of the House. The committee, whose charter expires at the end of the year, voted on Dec. 19 to recommend to the US Department of Justice that Trump be criminally prosecuted for his role in the assault. —*Billy House*



Liz Cheney & Bennie Thompson

US REPRESENTATIVES

Michelle Eisen

BARISTA AND ORGANIZING
COMMITTEE MEMBER,
STARBUCKS WORKERS
UNITED, BUFFALO

Eisen played a key role in unionizing about 200 stores across the US, while Smalls led the first successful unionization effort at Amazon.com Inc. in April, when he organized 8,000 employees at a warehouse in New York City.

PHOTOGRAPH BY
BRANDON WATSON

For decades it looked as if the US labor movement was dying a slow death. But Eisen and Smalls are the face of its resurgence. The barista and her fellow organizers have demanded better job protections, more staffing and higher pay that accounts for inflation. They've strengthened their cause by mentoring each other on tactics. "It's the ultimate group project," Eisen told *Bloomberg Businessweek* in May. No unionized store has won a new contract, but Starbucks Corp. has instituted pay raises and invested in training and equipment to help make jobs easier. In September the company announced new savings and student loan debt benefits, though it said the law prohibited it from extending them to unionized stores, a claim Starbucks Workers United disputes.

Smalls, who was fired by Amazon in March 2020, was subsequently joined by former co-workers in arguing for better pay, benefits and working conditions; they made their pitch as they offered hot meals at a bus stop near the warehouse. Amazon is seeking to overturn the election result and has refused to bargain with the Amazon Labor Union while its objections are pending. The union, which has struggled to expand its reach outside New York City, has sharpened its focus on improving conditions for workers at its home facility. Other organizers, meanwhile, are pursuing independent drives. The efforts at Starbucks and Amazon have also inspired employees at Chipotle, REI, Trader Joe's and other companies. —Matt Day and Dina Bass

& Chris Smalls

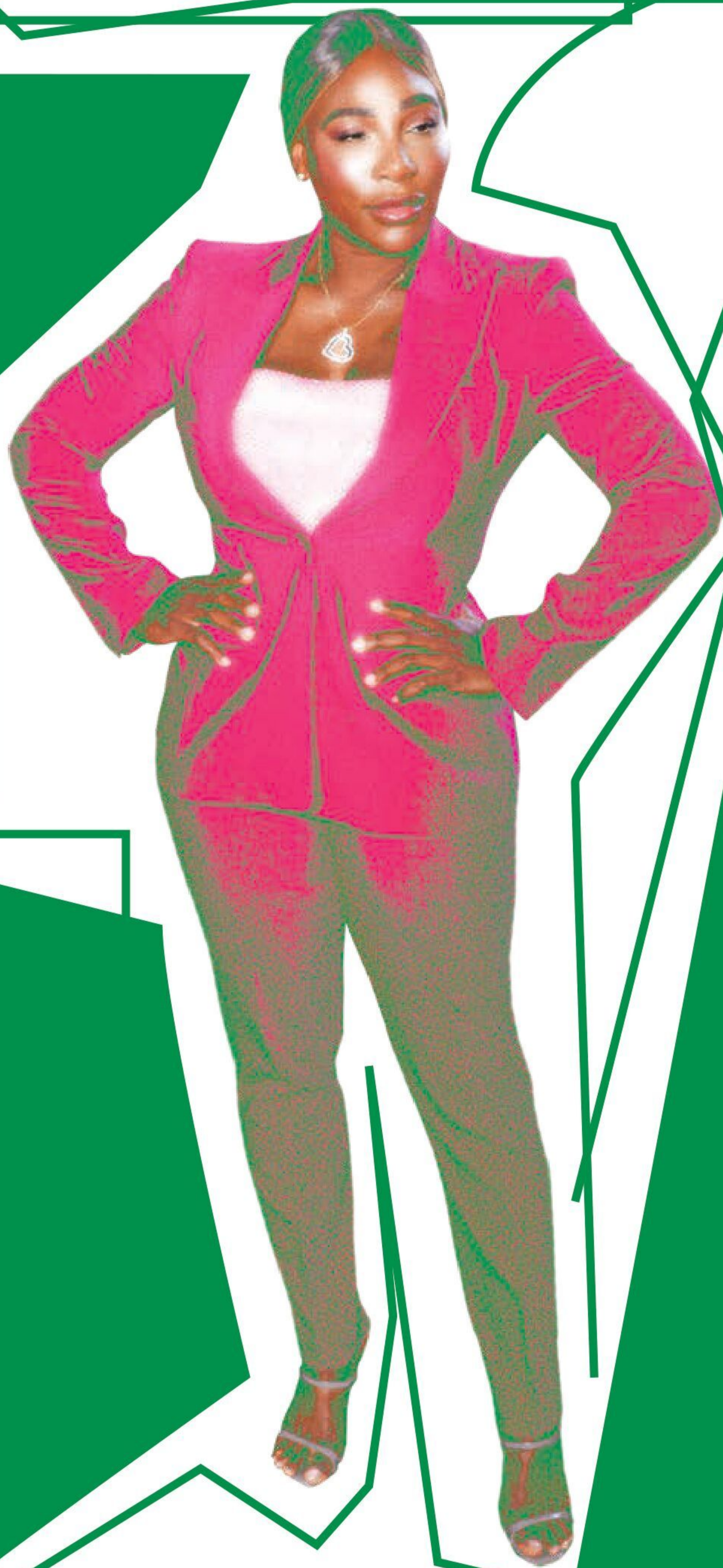
INTERIM
PRESIDENT,
AMAZON LABOR
UNION,
STATEN ISLAND,
NEW YORK



PHOTOGRAPH BY
MAX HEMPHILL

Serena

FOUNDER, SERENA VENTURES LLC,
SAN FRANCISCO



Serena Ventures raised \$111 million in March for an early-stage VC fund dedicated to backing diverse founders in technology.

When Williams announced her retirement from professional tennis in August, fans raced to buy tickets for the US Open so they could have one last chance to see her play. She lost in the third round, likely ending a 27-year career in which she won 23 Grand Slams and took her place as one of the greatest athletes ever.

Williams is searching for similar success off the court. She told Bloomberg News in an interview prior to her announcement that she wants to run a billion-dollar fund someday. Started in 2014, her company is focused on diversity; 75% of the businesses it backs, including weight-loss app Noom, are founded by people from underrepresented communities. In addition to high-profile startups (it also invests in the online education platform MasterClass), Serena Ventures has backed crypto companies including Nestcoin Holding Ltd., a Nigerian developer of crypto-investing products for frontier markets, and Lolli, an app that gives users shopping rewards in Bitcoin. Williams even spoke at the Bitcoin 2022 conference in Miami, announcing a marketing partnership with financial-services platform Cash App. “I like to be good at what I do,” she told Bloomberg. —*Hannah Miller*

Williams

Nick Hayek

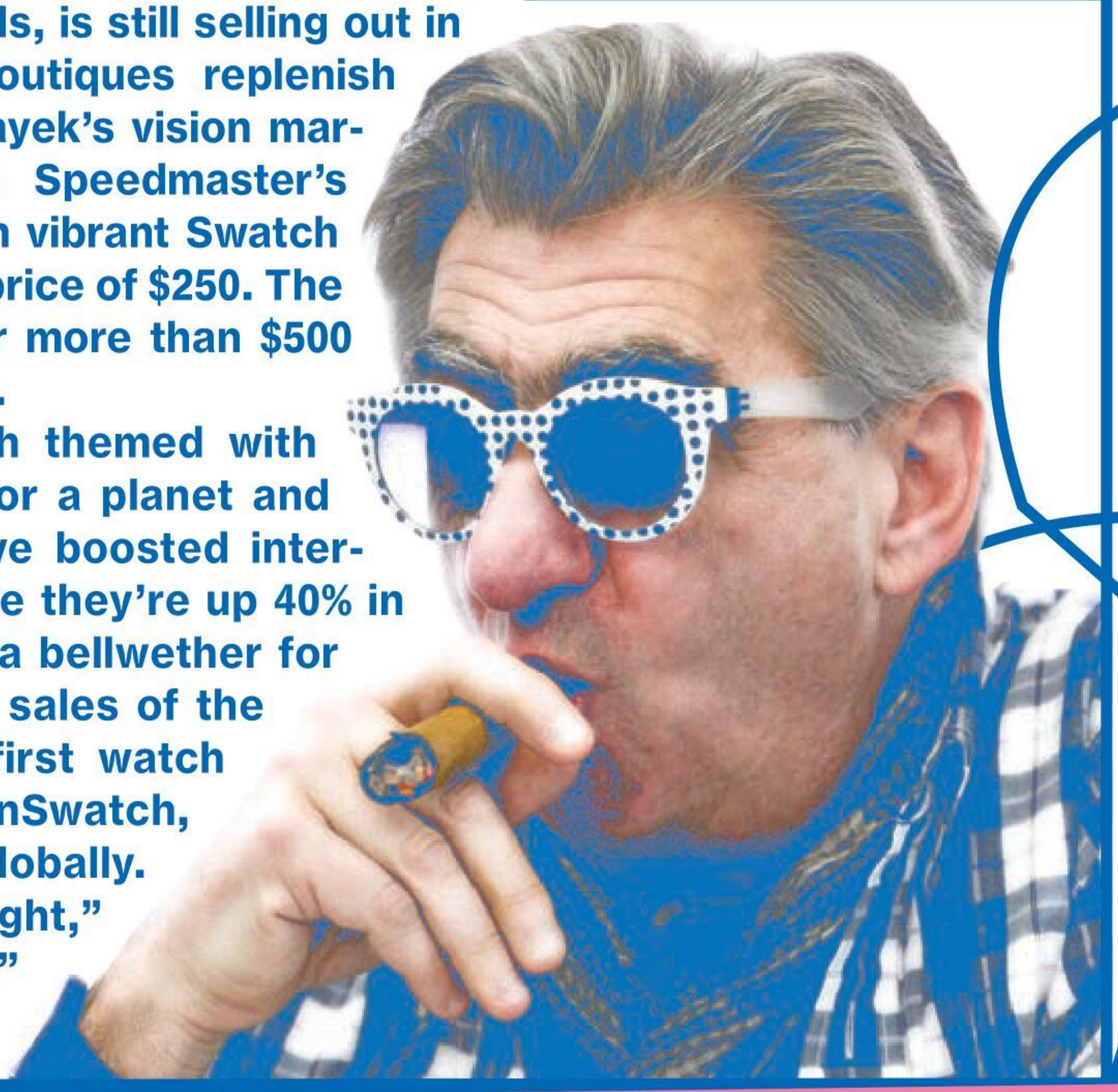
PRESIDENT AND CEO,
SWATCH GROUP AG,
BIEL/BIENNE,
SWITZERLAND

The company is expected to sell as many as half a million Omega MoonSwatches this year, according to industry analyst LuxeConsult, in a highly successful collaboration that made the moribund Swatch brand hot again.

There was bedlam at Swatch retailers when the MoonSwatch hit stores in March. And the obsession hasn't cooled: The timepiece, a joint effort by the company's Swatch and Omega brands, is still selling out in minutes when boutiques replenish their supplies. Hayek's vision married the Omega Speedmaster's classic design with vibrant Swatch colors, at a budget price of \$250. The watch now can go for more than \$500 on the secondary market.

Sales of the 11 versions, each themed with a "mission" to the sun, moon or a planet and made of a plastic-ceramic mix, have boosted interest in other Swatch models; since the release they're up 40% in Switzerland from 2021. (The country serves as a bellwether for other markets, the company says.) In addition, sales of the \$7,000 original Speedmaster, lionized as the first watch worn on the moon and the inspiration for the MoonSwatch, have surged more than 50% in Omega stores globally. The partnership put Swatch "back into the spotlight," Hayek said. Now "everybody's interested."

—Andy Hoffman



Liane Randolph

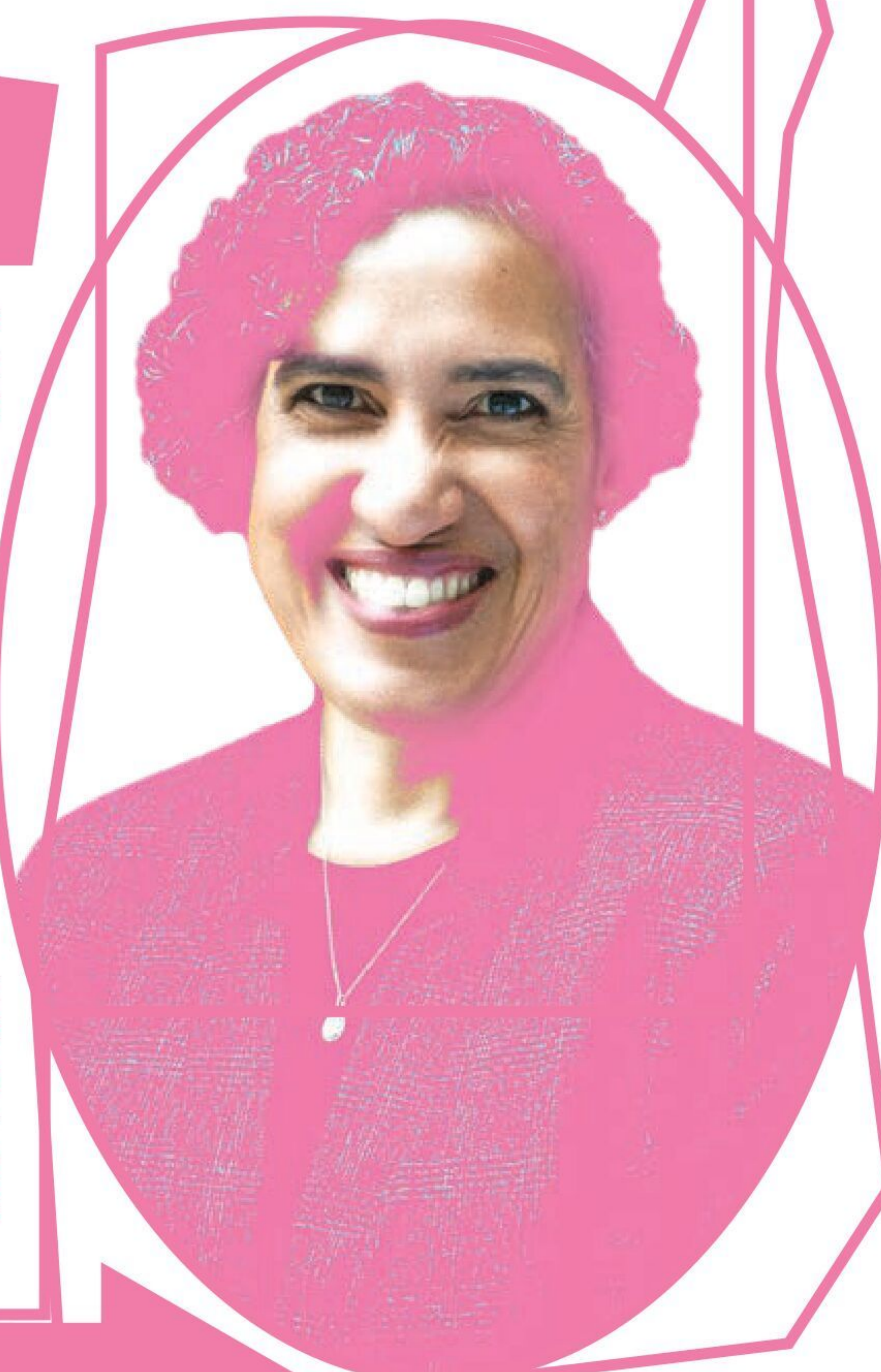
California mandated in August that 100% of new cars sold in the state must be emissions-free as of 2035.

CHAIR, CALIFORNIA AIR
RESOURCES BOARD, SACRAMENTO

The state became the first to set a deadline for phasing out the sale of new internal combustion cars. The number of EVs or other clean cars (plug-in hybrids, hydrogen fuel cell vehicles) sold must reach at least 35% in 2026 and 68% in 2030 before fulfilling CARB's final requirement.

Randolph took over at CARB, the agency that regulates air pollution and greenhouse gases, in early 2021—just as her new boss, Governor Gavin Newsom, issued an executive order to wind down the sale of new cars with gas engines. It was her job to make it happen. An environmental lawyer, Randolph rose through the state's Natural Resources Agency and Public Utilities Commission before taking on California's most ambitious car regulatory program in decades. The new mandate had to ensure that the transition is safe and equitable. More than 40 CARB staffers spent two years writing rules requiring, among other things, that electric-vehicle batteries be durable and recyclable, that these batteries offer a minimum range per charge and that disadvantaged communities have incentives to participate.

In September, New York Governor Kathy Hochul said her state would follow California's lead; the 16 other states that have adopted California's vehicle emissions standards, along with the District of Columbia, may also start phasing out gas-powered cars. This could have a huge impact: Transportation is responsible for 27% of US greenhouse gas pollution, more than any other sector. In California alone, CARB has said its rules could lead to a 50% drop in the state's emissions from cars and light trucks by 2040. —Eric Roston



COMMISSIONER, BIG TEN
CONFERENCE, ROSEMONT, ILLINOIS

In August the Big Ten reached a seven-year contract with CBS, Fox and NBC that will pay the conference about \$1.1 billion annually, the largest media deal for college athletics.

As it carried out talks for a new rights deal, the Big Ten was guaranteed a big payday. Television networks spend vast sums to air live sports, which are just about the only thing that keeps people glued to cable. The conference, home to famous programs such as the University of Michigan and Ohio State University, has been a huge ratings draw for Fox and ESPN, which hold its rights through the end of this season. Then, in late June, the University of Southern California and the University of California at Los Angeles strengthened the conference's hand further, announcing that they intended to leave the Pac-12 Conference to join the Big Ten as early as 2024. Adding two schools with massive fan bases puts the conference in a position to ask for even more money.

The agreement could pay each of the soon-to-be 16 schools in the even-more-completely-misnamed conference about \$70 million annually, higher than what schools in other elite conferences receive. It was a massive victory for Warren, a former executive for the NFL's Minnesota Vikings and the first Black commissioner of a major college conference. —Gerry Smith

PHOTOGRAPH
BY AKILAH
TOWNSEND



Lisa Cook

In May, Cook became the first Black woman on the Federal Reserve Board in its 108-year history.

MEMBER, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Her path to confirmation wasn't easy. A professor at Michigan State University, Cook endured backlash from Republican senators over her research into the historical effects of violence on Black innovation. After almost four months of debate, she was confirmed, 51-50, with Vice President Kamala Harris breaking the tie. Now, Cook is helping to shape central bank policy as it tackles the highest inflation in decades.

Cook is renowned for her research into economic inequality and its impact on growth. Specifically, she's looked at how lynchings affected the number of patents issued and the impact of those lost patents on American innovation. From 1870 to 1940, Black Americans filed 726 patents, but Cook's extrapolations suggest there would've been 1,100 more without lynchings.

She's also worked in international development, researching Russia's banking system after the fall of the Soviet Union and advising the central bank of Rwanda after its 1994 civil war. Cook was a senior economist on President Barack Obama's Council of Economic Advisers and has worked at the US Department of the Treasury's Office of International Affairs. —*Catarina Saraiva*

CEO, TIKTOK INC.

Shou Chew

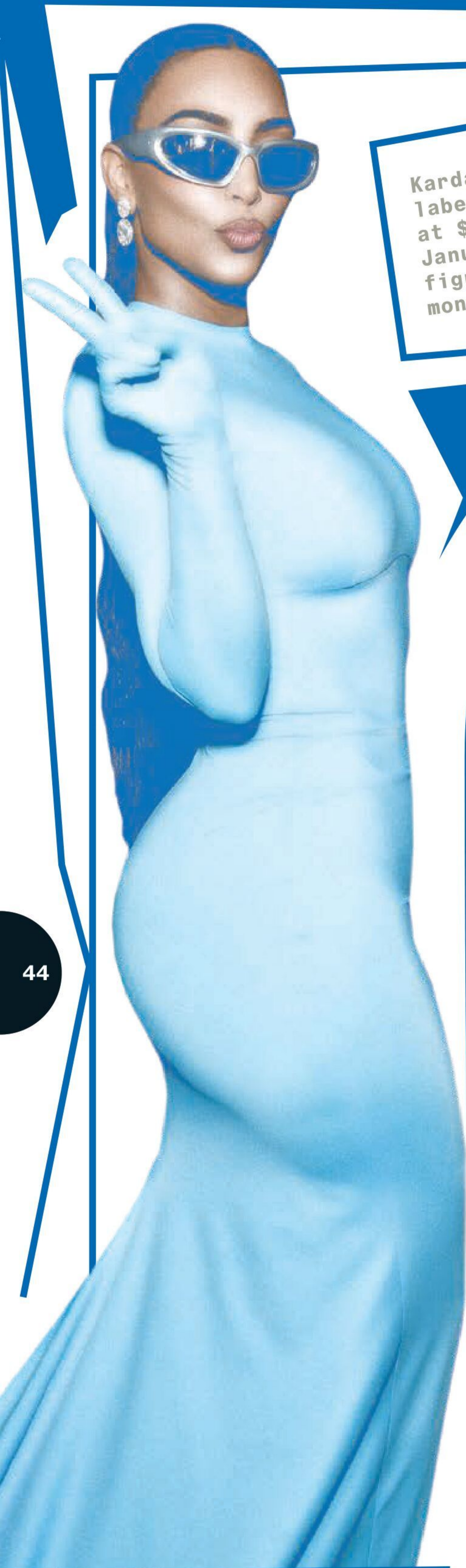
TikTok's annual revenue is expected to hit \$10 billion, according to Bloomberg reporting, more than twice what it was a year ago.

Chew runs the wildly popular social media app, which lets users scroll endlessly through short-form videos, from the US and Singapore, where he was born and raised. Analysts expect it to bring in more money than Twitter Inc. and Snap Inc. combined this

year, and it's likely to reach the \$10 billion-revenue figure two years faster than the decade it took Facebook. In April the average TikTok user spent 45.8 minutes a day on the app, edging out Alphabet Inc.'s YouTube for the first time, according to researcher Insider Intelligence. A Google senior vice president said in May that he's concerned about young people increasingly using TikTok for basic search. And in July, Meta Platforms Inc., the parent company of Facebook and Instagram, appeared to redesign the user experience on both platforms to be more like TikTok. YouTube and Snap have also seemed to be copycats.

Navigating TikTok through economic and political pressures in the US has dominated Chew's tenure. Tight marketing budgets during the downturn have squeezed the social media industry, but brands continue to direct dollars to his app. TikTok has faced scrutiny from the Biden and Trump administrations over worries that its ownership by Chinese tech company ByteDance Ltd. could pose a national security threat. (In November, FBI Director Christopher Wray said there was reason to be "extremely concerned." A growing list of states have banned TikTok from government-issued devices.) Chew has gone on a charm offensive, schmoozing congressional leaders and promoting a US-specific data security team that reports directly to him. —*Alex Barinka*





CO-FOUNDER, SKIMS BODY INC.,
LOS ANGELES

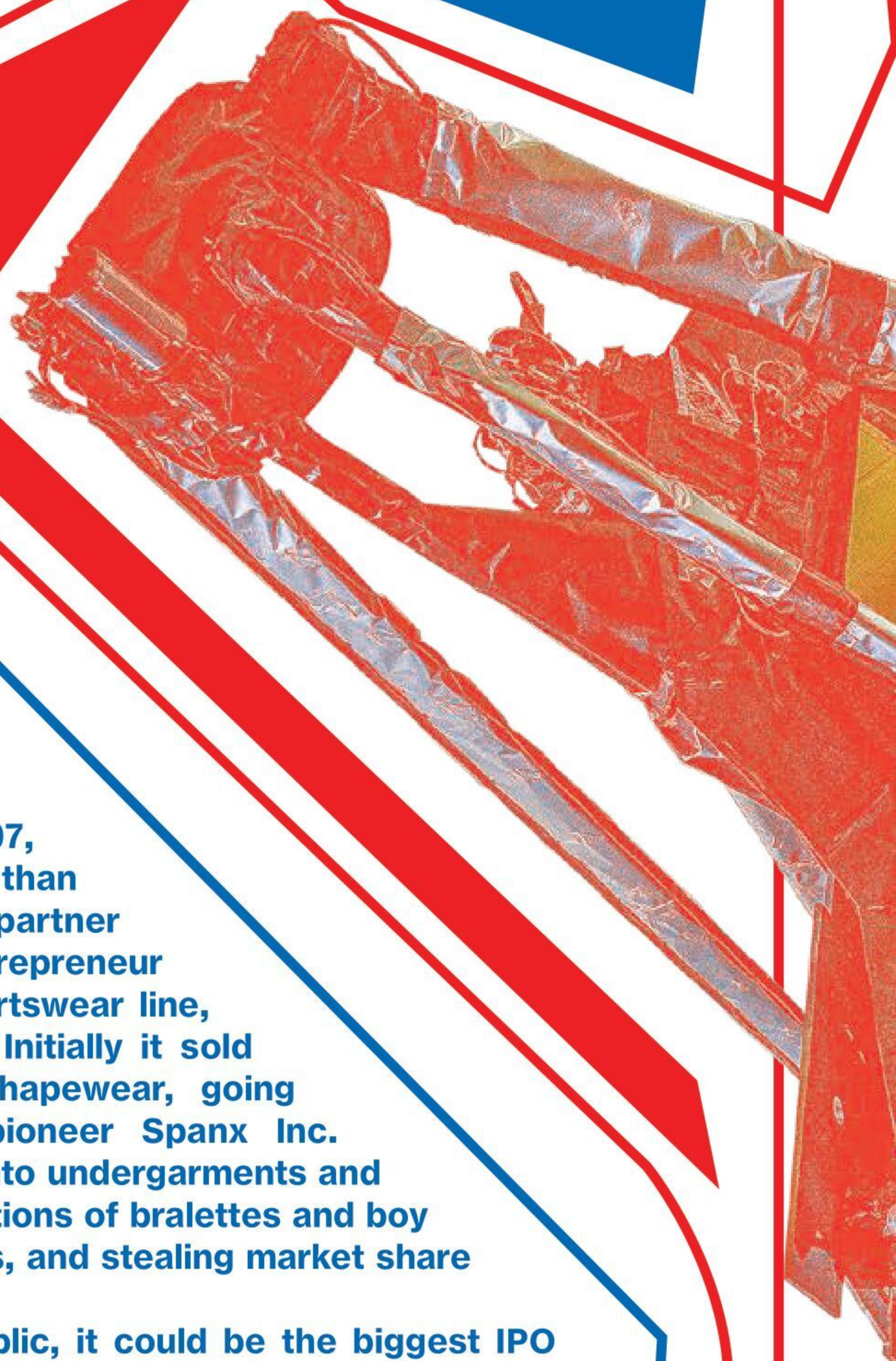
Kardashian's apparel label was valued at \$3.2 billion in January, double the figure from nine months earlier.

The reality-TV celebrity has started several businesses since *Keeping Up With the Kardashians* first aired in 2007, but none has been a bigger hit than Skims. Kardashian and business partner Jens Grede, the Swedish entrepreneur who also runs Tom Brady's sportswear line, founded the company in 2019. Initially it sold mainly bodysuits and other shapewear, going head-to-head with category pioneer Spanx Inc. Skims has since branched out into undergarments and loungewear, selling sleek collections of bralettes and boy shorts in many shapes and sizes, and stealing market share from Victoria's Secret & Co.

Were the company to go public, it could be the biggest IPO involving a celebrity, but first Kardashian and Grede are eyeing international growth. Sales are expected to surpass \$400 million this year as Skims expands into Australia, China, the Middle East and the UK. (In September, Kardashian and a former partner at Carlyle Group Inc. announced they were starting a private equity firm focused on investing in consumer and media companies.)

There was just one down note this fall: an announcement in October that Kardashian will pay \$1.26 million to settle Securities and Exchange Commission allegations that she broke US rules by promoting a crypto token without disclosing she'd been paid \$250,000 to do so.

—Kim Bhasin



Kim Kardashian

JAMES WEBB SPACE TELESCOPE

In July, NASA released the first images from the telescope, revealing nebulae and galaxies in unprecedented detail, including the deepest and sharpest infrared picture ever taken of the universe.

After two and a half decades of planning and construction, the JWST—the largest and most advanced space telescope in history—was launched from French Guiana on Christmas Day last year. It spent the winter and spring in its “commissioning” phase, a science-y way of saying it was being calibrated as it zoomed through space a

million miles from Earth. Originally, NASA was shooting for the telescope to be completed as early as 2007 with a price tag as low as \$1 billion, but it turned out to be more complex to build than anticipated, and it ended up costing almost \$10 billion.

The images the JWST sent back this summer weren't only breathtaking, even when compared with JWST's predecessor, Hubble; they also offered preliminary answers to heavy questions. John Mather, a Nobel Prize-winning cosmologist at NASA, asked some during a livestream of the photo reveal: “What happened after the Big Bang? How did the galaxies grow? How did the first black holes grow? What happened all the way from there to here?” The JWST, he said, “is our time machine.” Because the light from distant objects takes so long to reach the telescope, we're seeing some of them as they were when the universe, thought to be 13.8 billion years old, was younger than 1 billion.

The engineers at NASA and Northrop Grumman Corp. designed the JWST to last as many as 10 years in space. But the December launch put the telescope on such an efficient orbit that it didn't need to course-correct as much as anticipated, and now it looks as if it could last for 20. The photos shown in July were gathered during only five days of observation.

—Loren Grush



Sauli Niinistö

PRESIDENT, FINLAND

Niinistö was the architect behind Finland's and Sweden's applications to join NATO following Russia's invasion of Ukraine, putting the defense alliance on a path to welcoming its 31st and 32nd members.

When Europe woke up on Feb. 24 to the news that Russian tanks had rolled into Ukraine, the security landscape had shifted profoundly. For Niinistö, whose homeland shares a 1,343-kilometer (835-mile) border with Russia, the conclusion was that its leader, Vladimir Putin, was willing to attack a neighbor without provocation.

In the following weeks, Niinistö, a well-regarded former finance minister and speaker of Parliament who's known as a skillful diplomat, managed to convince Sweden of the necessity of both countries

joining NATO; the best way to secure the two nations, the thinking went, was for them to act together. A whirlwind tour of international diplomacy, buttressed by popular support, laid the groundwork for the applications. In May, Niinistö and Sweden's prime minister at the time, Magdalena Andersson, announced their intention to apply for membership.

The two countries were invited to join the alliance at its Madrid summit in June, and final ratification—which requires support from all existing member states—is expected either this year or next. (In the meantime, Finland and Sweden have security pledges from the US, the UK, Germany and others.) Of course, it's Ukraine's ambition to join NATO that Putin has cited as a threat—and the pretext for his invasion.

—Kati Pohjanpalo



46



Yvon Chouinard

FOUNDER, PATAGONIA, VENTURA, CALIFORNIA

In September, Chouinard donated almost all of his apparel and equipment company, taking a pioneering approach to megaphilanthropy that will pour about \$100 million annually into the fight against climate change.

Chouinard started climbing at age 14, learning how to rappel to cliffside aeries as a member of the Southern California Falconry Club in the early 1950s. He made his own equipment to scale the steep granite walls of Yosemite Valley, then sold it to friends. In 1973 he founded Patagonia, which soon branched into clothing and other outdoor gear.

Now 84, Chouinard set up his donation using an unusual structure that could serve as a model for other philanthropists. Rather than sell the company, valued at \$3 billion, he gave 98% of it to a new organization, Holdfast Collective, that he said will be “dedicated to fighting the environmental crisis and defending nature.” He won't get a tax deduction,

because Holdfast isn't a normal nonprofit charity. As a 501(c)(4) organization, though, it can take liberties that personal foundations and other 501(c)(3)s can't, including giving to political campaigns and engaging in unlimited lobbying. The move immediately makes Holdfast a major force in the battle against climate change.

The remaining 2% of Patagonia and all its voting shares went to a trust the Chouinard family and advisers control, a structure designed to maintain the company's environmental values and prevent it from being sold off to the highest bidder. By not selling the company, Chouinard avoids about \$700 million in capital-gains taxes. —Ben Steverman

Greg Solano & Wylie Aronow

CO-FOUNDERS, YUGA LABS INC., MIAMI

Each of the 10,000 Bored Ape tokens depicts a colorful cartoon primate with a unique look—sailor hat, 3D glasses, bunny ears, etc. Owning one has been a major crypto-universe status symbol, with people paying millions of dollars for access to the virtual club. Yuga's funding round, which included investors such as Andreessen Horowitz (Bloomberg LP, which owns *Bloomberg Businessweek*, has invested in Andreessen Horowitz), was more about Yuga's Bored Ape-themed metaverse, which is still under development. Yuga has deals with several brands, including Adidas AG for virtual and real-life Bored Ape gear.

In March the creators of the Bored Ape Yacht Club nonfungible tokens raised \$450 million for their startup, giving it a value of \$4 billion.

Aronow and Solano met as college students in Florida and bonded over a passion for creative writing. Following other pseudonymous crypto founders, such as Bitcoin inventor Satoshi Nakamoto, the two kept their identities secret—Aronow went by Gordon Goner,

and Solano by Gargamel—until *BuzzFeed News* revealed their real names in February.

In December, Yuga and celebrity promoters of its NFTs were sued by investors for allegedly not disclosing that the artists were paid to pump sales. The company said the claims were without merit. Separately, the US Securities and Exchange Commission is investigating whether certain sales of Yuga's digital assets violate federal law, though the company hasn't been accused of wrongdoing and said it would cooperate with any inquiry. —*Hannah Miller*



DON'T WORRY! WE'RE NOT AVOIDING...

The Usual Suspects

SOME PEOPLE ARE TOO OBVIOUS FOR THE BLOOMBERG 50. SO WE GIVE THEM THEIR OWN LIST.

BERNARD ARNAULT
Chairman and CEO,
LVMH Moët Hennessy
Louis Vuitton SE

JEFF BEZOS
Executive chair,
Amazon.com Inc.

JOE BIDEN
President, US

WARREN BUFFETT
Chairman and CEO,
Berkshire Hathaway Inc.

TIM COOK
CEO, Apple Inc.

**LUIZ INÁCIO LULA
DA SILVA**
President-elect, Brazil

POPE FRANCIS

EMMANUEL MACRON
President, France

NARENDRA MODI
Prime minister, India

ELON MUSK
CEO, Tesla, Twitter
and SpaceX

BENJAMIN NETANYAHU
Prime minister-designate,
Israel

**ALEXANDRIA
OCASIO-CORTEZ**
Member, US House of
Representatives

NANCY PELOSI
Speaker, US House
of Representatives

MASAYOSHI SON
CEO, SoftBank
Group Corp.

PETER THIEL
Founder, Thiel
Capital, and partner,
Founders Fund

DONALD TRUMP
Former president, US

TSAI ING-WEN
President, Taiwan

URSULA VON DER LEYEN
President, European
Commission

OPRAH WINFREY
Chairman and CEO, Oprah
Winfrey Network LLC

XI JINPING
President, People's
Republic of China

MARK ZUCKERBERG
Chairman and CEO,
Meta Platforms Inc.

WHAT IS AVAXHOME?

AVAXHOME-

the biggest Internet portal,
providing you various content:
brand new books, trending movies,
fresh magazines, hot games,
recent software, latest music releases.

Unlimited satisfaction one low price

Cheap constant access to piping hot media

Protect your downloadings from Big brother

Safer, than torrent-trackers

18 years of seamless operation and our users' satisfaction

All languages

Brand new content

One site



AVXLIVE **ICU**

AvaxHome - Your End Place

We have everything for all of your needs. Just open <https://avxlive.icu>

Olivia Julianna

The 20-year-old rallied her social media followers to raise more than \$2 million to defend abortion rights in one week this summer.

PHOTOGRAPH BY
JULIA JOHNSON

DIRECTOR OF POLITICS
AND GOVERNMENT AFFAIRS,
GEN-Z FOR CHANGE

At a conservative youth summit in July, US Representative Matt Gaetz, a Republican from Florida, body-shamed abortion-rights activists, saying, “They are like 5 foot 2, 350 pounds, and they’re like, ‘Give me my abortions, or I’ll get up and march and protest.’” In response, Julianna tweeted, “I’m actually 5’11. 6’4 in heels. I wear them so the small men like you are reminded of your place.” The post went viral, acting as a rallying cry for abortion-rights supporters in the wake of the Supreme Court’s decision to overturn *Roe v. Wade* in June. Julianna capitalized on the attention by starting a fundraising campaign through Gen-Z for Change, a nonprofit formerly known as TikTok for Biden. The donations were split among 50 abortion funds in states with bans.

Julianna has described herself as a “queer, plus-size, disabled Latina.” A fourth-generation Texan, she also uses social media to advocate for other causes affecting young people, such as fighting climate change.

She’s campaigned online against Texas Governor Greg Abbott—she promoted Beto O’Rourke’s candidacy on TikTok with the hashtag #bestiebet—and the state’s attorney general, Ken Paxton. Her followers on TikTok, Instagram and Twitter have reached about 1 million combined, and publications including *Teen Vogue* have written about her efforts to take on bullying politicians with savvy trolling techniques. In the wake of the dust-up with Gaetz, she offered to send him flowers for every \$100,000 she raised. He doesn’t seem to have replied. —Dina Bass

Nicholas Bloom

PROFESSOR OF ECONOMICS,
STANFORD UNIVERSITY, PALO ALTO

Bloom has emerged as a go-to academic for insight into remote work, meeting this year to share research with more than 100 institutions, including the International Monetary Fund, Wall Street banks and tech startups.

When he began studying remote work 20 years ago, there wasn't enough research to hold a conference and opinions were all over the map. In 2015, Bloom published a groundbreaking study of call center workers in China, showing that remote work

could improve job productivity and satisfaction. Two months into the pandemic, his research team started an online survey of thousands of workers' habits and desires around remote work, analyzing how they often contrasted with their employers' wishes. (Spoiler alert: People want more time at home than their bosses are willing to offer.)

Bloom first got interested in the topic while growing up in North London, where both of his parents were employed by the UK government and could work from home on occasion. Early in the pandemic, he had trouble convincing CEOs that remote work was here to stay. Now his tips on managing hybrid organizations—on giving teams autonomy over which days to

be in the office, for example—are being sought out by human resources professionals, policymakers and civic leaders. A July paper of his, showing that the option to work remotely makes people 35% less likely to quit, could help soothe the concerns of corporate leaders who remain uneasy about letting people Zoom from their kitchen. —*Matthew Boyle*



ACTOR AND SCREENWRITER

Quinta Brunson



The creator and star of *Abbott Elementary* is the first Black woman nominated for Emmys in acting, writing and outstanding comedy in the same year.

Brunson did the impossible: She made broadcast television cool again. In *Abbott Elementary*, a mockumentary about teachers in Philadelphia, Brunson plays Janine Teagues, a try-hard optimist eager to share her love of teaching despite budget limitations and cynical co-workers. The show delivered the best ratings for a comedy on ABC in three years. Episodes trended on Twitter after each weekly broadcast, even though most viewers caught them on demand. Critics loved the show, too.

Brunson, who started her career by posting funny videos to Instagram, is now a Hollywood star. ABC ordered a second season, which started airing in September. And Brunson, who won an Emmy for writing the show, signed a deal with Warner Bros. Television Group—the studio that makes *Abbott Elementary*—to create and develop more programming. —*Lucas Shaw*

Bret Taylor

CO-CEO, SALESFORCE
INC., SAN FRANCISCO

In April, Musk sent a letter to Taylor proposing to buy Twitter at a sizable premium above its recent share price. It was before the tech market downturn, and he had to make a compelling bid. "Twitter has extraordinary potential. I will unlock it," wrote Musk, a prolific tweeter who saw the company as an underachieving business that could be a haven for what he called "free speech." Eventually, Twitter said yes.

Taylor, who co-created Google Maps and invented the Facebook "like" button, was occupied with his primary job at Salesforce when he suddenly found himself at the center of one of the most contentious deals in history. Almost immediately after the agreement was signed, Musk started complaining about bots and spam on the site, claiming the company had lied to him about the size of its user base. He tried to walk away.



As Twitter Inc.'s board chair, Taylor led the effort to force Elon Musk to honor his agreement to buy the company for \$44 billion—first negotiating with him, then suing him, then pushing the deal across the finish line in October.

Twitter sued Musk, then the world's richest man, to make him pay the agreed-upon price. Taylor was the company's public face in the battle, quarterbacking a process that involved lawyers, bankers, executives and shareholders, all racing to meet a court-ordered deadline to complete the acquisition. As the new owner, Musk took Twitter private, dissolving the board of directors and Taylor's role in a process that helped preserve basic rules of governance around how companies are bought and sold. About a month later, Taylor announced he'd be stepping down from his role at Salesforce, too. —Kurt Wagner and Brody Ford

Tom Cruise

ACTOR

Top Gun: Maverick, the sequel to the 1986 fighter pilot saga, has taken in \$1.49 billion at the box office, making it the highest-grossing film of the year—and of Cruise's career.

Maverick was in the works for some time. The original release date of summer 2019 was pushed back so the cast could work on the complex aerial scenes, then delayed again because of the pandemic. Several streaming companies tried to buy the rights to the film from Paramount Pictures Corp., but Cruise insisted the movie be released only in theaters. "I make movies for the big screen," he told an audience before *Maverick's* premiere at the Cannes Film Festival in May.

It was the shot of jet fuel audiences wanted—and cinemas needed—after two years of movies premiering in homes, on small screens. In the film, Cruise reprises his role as Navy pilot Pete "Maverick" Mitchell, who returns to his former flight school to do one more mission and to reconcile with Bradley "Rooster" Bradshaw (Miles Teller), the son of Goose, *Maverick's* fallen best friend and wingman from the original. The sequel became available for streaming on Dec. 22, after spending months in theaters and pushing past 2018's *Black Panther* to become the No. 5 movie of all time by US box-office revenue. —Christopher Palmeri



Aisha 'Pinky' Cole

FOUNDER AND CEO,
SLUTTY VEGAN,
ATLANTA

Cole's irreverent vegan burger chain raised \$25 million in May in a funding round that valued the business at \$100 million.

Slutty Vegan is known for its overstuffed burgers with names like *Ménage à Trois*, *Hollywood Hooker* and *One Night Stand*. The enterprise has grown from a single food truck in 2018 to a mini-empire: Cole started this year with four locations, and by the end of 2023 she plans to have at least 20 more. (She's targeting the Southeast.) The outpost she opened in Brooklyn in September attracted hours-long waits, prompting *Eater New York* to declare, "Slutty Vegan's Brooklyn Opening Was Sexy Meatless Chaos."

The burgers take patties from Impossible Foods Inc. and Beyond Meat Inc. and dress them up with toppings such as vegan bacon and cheese, caramelized onions and a secret-recipe Slut Sauce. Celebrity fans include Snoop Dogg, Tyler Perry and Danny Meyer, the man behind Shake Shack, whose Enlightened Hospitality Investments led the funding round.

Cole, who formerly worked as an actor and in TV production, started the chain as a place for junk-food lovers such as herself. She named it Slutty Vegan to be provocative and help reimagine the cuisine beyond grain bowls. Her first cookbook, *Eat Plants, B*tch: 91 Vegan Recipes That Will Blow Your Meat-Loving Mind*, was released in November. —Kate Krader

PHOTOGRAPH
BY MELISSA
ALEXANDER

Nan

HEAD OF CLIMATE, STRIPE INC.,
SOUTH SAN FRANCISCO

Ransohoff

For years, Stripe has helped companies fight climate change, which the fabulously successful online-payments processor sees as one of the biggest threats to economic growth. It's put millions of dollars toward the permanent removal of carbon dioxide from the air and built tools into its payments systems that let businesses direct a portion of revenue to that end. But Stripe thought more could be done.

Ransohoff, who previously worked for Uber Technologies Inc. and autonomous-electric-vehicle startup Nuro Inc., wanted to establish reliable, advanced guarantees for businesses with technologies that can permanently remove carbon from the atmosphere, just as governments paid for coronavirus vaccines long before they were delivered. She reached out to other companies and, in addition to her own employer's commitment, got pledges from Alphabet, McKinsey, Meta Platforms and Shopify. (The donors haven't disclosed their individual contributions.) A unit within Stripe, named Frontier, will work with the carbon-removal businesses on behalf of the funders.

The almost billion-dollar sum is a minuscule fraction of the donors' combined revenue, but it still creates a market that's many factors larger than the existing one. In an April interview with *Climate Tech VC*, Ransohoff said the total spent globally thus far on permanent carbon removal was about \$30 million.

—Eric Roston

In April, Ransohoff and her team announced a \$925 million commitment from Big Tech and other companies to remove carbon dioxide from the atmosphere.



Robert Habeck

FEDERAL MINISTER FOR
ECONOMIC AFFAIRS AND
CLIMATE ACTION, GERMANY

Other big European Union economies were less dependent on Russia. France relies on home-generated nuclear power, for example; Spain, mainly on oil and gas from Algeria. Germany turned to Canada, Norway and Qatar for supplies, but Habeck has also advocated pragmatism at home. He's instituted a gas-rationing program (that risks shutting down some factories this winter), and he's jawboned companies and citizens into improving conservation. He's also helped the country advance its own liquefied natural gas infrastructure, with Germany's first offshore LNG terminal on track to open in December. Habeck has done all this even though he's a member of the Green Party, whose founding principles include weaning Germany off fossil fuels. (Natural gas imports stopped in September when Russian President Vladimir Putin switched off the pipeline, and oil imports will cease at the end of the year when an embargo against Russia goes into effect.)

Under Habeck's watch, Germany dramatically reduced its reliance on energy from Russia after the invasion of Ukraine: Through August, natural gas imports dropped to 25% from 55%, oil to 12% from 35%, and coal to zero from half.

Despite Habeck's failure to push through a gas levy—and grumbling from conservatives that a playwright-and-children's-book-author-turned-politician has no business overseeing Europe's largest economy—his open, frank style has made him a more trusted voice on handling the situation than Chancellor Olaf Scholz. In fact, Habeck has emerged as a strong rival to a fellow Green, Foreign Minister Annalena Baerbock, to be the party's next candidate to lead a government. —Arne Delfs



Francesca Bellettini

PRESIDENT AND CEO,
YVES SAINT LAURENT, PARIS

Bellettini and her team increased Saint Laurent's sales in the first nine months of the year by a third from 2021, a result of smart planning and the popularity of designer Anthony Vaccarello's collections.



One of the few female CEOs leading a fashion brand, Bellettini started her career as an investment banker before switching industries. She worked at Prada and Helmut Lang prior to joining French luxury group Kering—first at Gucci, then Bottega Veneta and finally Saint Laurent. She's led the label since 2013, working first with designer Hedi Slimane and, since 2016, Vaccarello, who's known for elegant rock 'n' roll looks. He has a penchant for stiletto heels and pairing iconic black smoking jackets with velvet leggings.

Bellettini's distribution strategy hasn't relied as much on China—a country that's dealt with severe lockdowns during the pandemic—as other rival luxury brands. Global sales growth through the end of September outpaced that at Gucci, Kering SA's biggest label. Her goal is for Saint Laurent to do €5 billion (\$5.3 billion) in annual sales in the medium term—which analysts say would be in five years, about a decade after the company crossed the €1 billion mark. She's looking to appeal more to men, who make up about a quarter of the brand's clientele, and she wants to sell more shoes to everyone. At 9% of revenue, the footwear business has room to grow, as does ready-to-wear at 12%. Leather goods such as bags, wallets and belts account for 72%. —Angelina Rascouet

CEO AND
FOUNDER, HAUN
VENTURES,
MENLO PARK,
CALIFORNIA

In March the former Andreessen Horowitz partner raised \$1.5 billion for investments in crypto startups, marking one of the biggest solo debuts for a venture capitalist.

Haun got exposed to cryptocurrencies as a federal prosecutor. She led the US Department of Justice's investigation into the hack of the Mt. Gox exchange and created the DOJ's first task force to investigate criminal uses of digital currencies. She was intrigued by how crypto enabled crime—but also by how it made criminals easier to trace, given that they create a record of their activities on the blockchain.

After leaving government, Haun joined the board of crypto exchange Coinbase Global Inc. In 2018, fellow board member Chris Dixon recruited her to Andreessen Horowitz, where she became the first female general partner. (Bloomberg LP, which owns *Bloomberg Businessweek*, has invested in Andreessen Horowitz.) Haun oversaw some of the company's most influential crypto investments, including in nonfungible token marketplace OpenSea. She also helped fashion Andreessen Horowitz into a crypto powerhouse.

Right before the onset of "crypto winter," Haun Ventures announced it had raised \$500 million for investing in early-stage startups and \$1 billion for funding more mature companies. It's already backed some big names, including Tom Brady's NFT startup, Autograph, and TaxBit Inc., which provides crypto accounting software. Even as crypto is trapped in a downturn, Haun remains bullish on the market; in August, Haun Ventures led a \$24 million investment in NFT platform Thirdweb.

—Hannah Miller

PHOTOGRAPH
BY CHRISTIE
HEMM KLOK

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Katie Haun

C.C. Wei

TSMC is spending about \$36 billion in 2022 to expand manufacturing, including investments in new international plants to mitigate concerns that chip production is too centralized on an island with an uncertain future.

The company has a good claim to being one of the world's most important. In addition to its standing as the largest manufacturer of semiconductors for other businesses, it has a substantial lead in the most advanced chips, which power the iPhone and other devices. Under Wei, TSMC has also bolstered its status as the go-to chipmaker for dozens of other key names in tech, including Advanced Micro Devices Inc. (AMD) and Tesla Inc.

Now the greatest challenge facing the Yale University-trained electrical engineer is alleviating fears in Washington and other capitals that TSMC's operations, critical to both civilian and military technologies, are too vulnerable to geopolitical tensions. Its fabrication

VICE CHAIRMAN AND CEO, TAIWAN SEMICONDUCTOR MANUFACTURING CO., HSINCHU, TAIWAN

plants are heavily concentrated in Taiwan, which China considers part of its territory and has never ruled out taking by force. In response, Wei is spending on major manufacturing sites in Japan and Arizona. (In August the Biden administration finalized plans to dedicate \$50 billion to revive the US chipmaking industry; TSMC is likely to receive billions in subsidies.) The plants will help unblock the supply chain bottlenecks that have bedeviled the global economy since the pandemic began and will bring production closer to customers such as Sony Group Corp. and Intel Corp. They'll also give the semiconductor supply chain a chance at surviving a conflict between great powers in the Pacific.

—Debby Wu



Robin Hayes

CEO, JETBLUE AIRWAYS CORP., LONG ISLAND CITY, NEW YORK

He disrupted the planned merger between deep discounters Spirit Airlines Inc. and Frontier Group Holdings Inc., wooing Spirit in a \$3.8 billion cash deal in July.

Hayes was determined not to miss what could be his best shot at moving JetBlue into a more competitive position. Two months after Frontier agreed to buy Spirit for \$2.9 billion, he announced a rival bid. It was repeatedly rebuffed—Spirit's board was worried about antitrust concerns—but Hayes persisted, offering sweeteners until the board could no longer rally sufficient shareholder support for the Frontier deal.

A London native who's been a JetBlue executive since 2008, Hayes is banking on the merger to give his company influence over pricing against the largest US airlines, which control about 80% of the market.

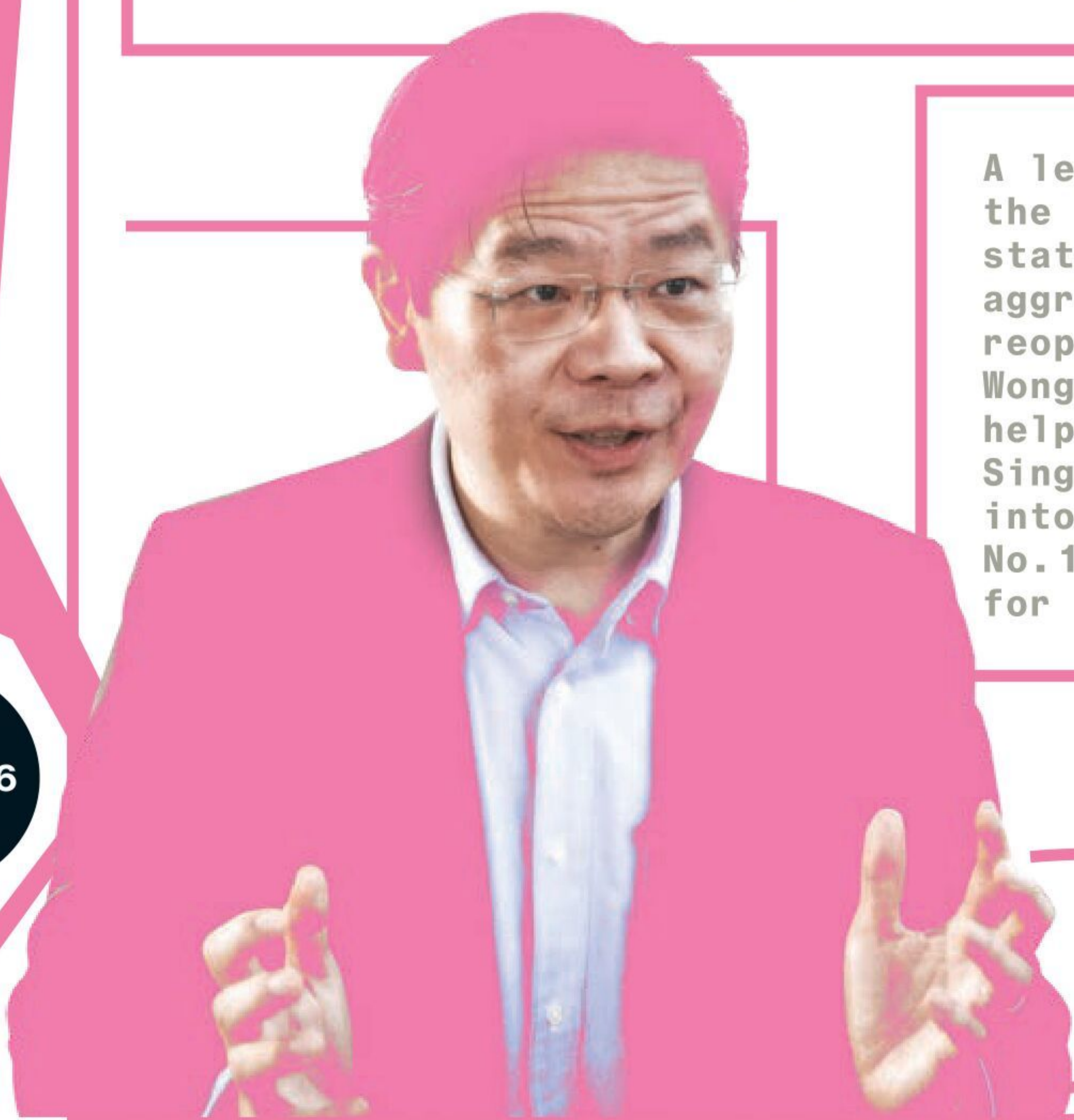
He's said he plans to lure passengers to the combined airline with lower fares and amenities including free Wi-Fi. The acquisition will also provide a ready source of aircraft and pilots, both of which are in short supply.

The deal faces hurdles. Antitrust enforcers have to approve it (a decision is expected no later than mid-2024), and airline mergers seldom go smoothly given the long and costly process of integrating operations. Still, if Hayes succeeds, JetBlue will become the fifth-largest US carrier in terms of domestic passenger traffic, up from its current sixth place—which, in the airline industry, is a major move. —Mary Schlangenstein

Lawrence

Wong

DEPUTY PRIME MINISTER AND
MINISTER FOR FINANCE, SINGAPORE



A leader of the city-state's aggressive reopening, Wong is helping turn Singapore into Asia's No. 1 hub for business.

Early in the pandemic, Wong was a voice of caution, using his position as co-chair of Singapore's virus response task force to advocate for strict measures to keep the pathogen out and clamp down on domestic cases. But in late 2021 his team pivoted, conscious that the tiny, trade-reliant country can prosper only if it's connected internationally. Wong helped oversee one of the world's most successful vaccination drives—more than 90% of the population has received at least two shots—and Singapore moved faster than most governments in the region to scrap border restrictions, social distancing rules and mask requirements. It's now reaping the benefits, attracting corporate offices and high-income earners including from Hong Kong and mainland China, where travel remains restricted. Singapore's primary airport, Changi, has become the busiest in Asia, with 7.3 million passengers in the second quarter, more than 10 times the figure in Hong Kong, the leader in normal times.

Wong's performance has helped propel him to the top of Singapore politics. In June, Lee Hsien Loong, the longtime prime minister and the son of founding leader Lee Kuan Yew, designated Wong as his successor, ending years of speculation over the position. It marks a stunning rise for a politician who grew up in a public housing estate on Singapore's East Coast and didn't attend one of the elite academies that produce most top officials. When he takes over at some point in the next few years, Wong will be running a nation that's closer than ever to the heart of the global economy. —Derek Wallbank

Daleep Singh

CHIEF GLOBAL ECONOMIST, PGIM
FIXED INCOME, NEWARK, NEW JERSEY



In February, as a top national security adviser to the White House, Singh was central to US and European efforts to cut off Russia from the global financial system after President Vladimir Putin invaded Ukraine, freezing more than half of his \$640 billion war chest.

Singh helped turn Russia into the most sanctioned nation on Earth. Among the biggest penalties: denying major Russian banks access to the Society for Worldwide Interbank Financial Telecommunication (SWIFT), the system institutions use to talk to one another. The move made it almost impossible for Putin to shift around money to finance the war, squeezed billionaire oligarchs close to the president and temporarily shuttered Russian markets. As a whole, the sanctions led to a 30% drop in the value of the ruble, forcing Russia to raise interest rates and impose capital controls to stanch an outflow of cash that threatened to collapse its economy. The moves also put out of reach stockpiles of foreign currency and gold that Putin had planned to use to pay for his war, leaving his army with dwindling supplies and technology.

Prior to his role as a security adviser, Singh worked at Goldman Sachs Group Inc., at the Federal Reserve Bank of New York and in the Obama administration as an expert on international affairs and domestic policy. He left the government in April and is now overseeing research at PGIM Fixed Income, which has \$759 billion in assets under management. —Saleha Mohsin

Jennifer Hudson

ENTERTAINER

In June, Hudson, then 40, became the youngest female performer to earn EGOT status—meaning she's won an Emmy, a Grammy, an Oscar and, now, a Tony.

She got her Tony as a producer of *A Strange Loop*—a Broadway musical about a Black, queer theater usher writing a musical—and joined stars such as Rita Moreno, Audrey Hepburn and Whoopi Goldberg in the EGOT club. The only two winners younger than Hudson at the completion of their cycles were singer John Legend and composer Robert Lopez, both 39.

Hudson's path to stardom began on the singing competition show *American Idol*, where she was a finalist. Three years later, in 2007, she won the Oscar for best supporting actress in the movie musical *Dreamgirls*. Her first Grammy, for best R&B album, came two years after that. In 2021 she snagged a Daytime Emmy Award for serving as an executive producer of an interactive animated short, *Baba Yaga*. Hudson now has a talk show featuring celebrity interviews and musical performances.

In a caption for a social media post in September displaying her awards on top of a piano, she highlighted how rare it is to be in the EGOT club: Hudson is only the 17th person to join. "In a few days I will be 41 but then again I will always be 17! #EGOT," she wrote. —Kelsey Butler



Tom Oxley

CO-FOUNDER AND
CEO, SYNCHRON,
BROOKLYN, NEW YORK

In July, Synchron put one of its brain-computer interface devices in a human after the US Food and Drug Administration granted its first approval for a trial of the potentially revolutionary surgery, which aims to help people communicate via their thoughts.

For decades, sci-fi writers have explored the potential and perils of combining man and machine. Now we're finding out what such a future truly holds. A team at Mount Sinai West medical center in New York placed a 1.5-inch-long device known as a stentrode into the brain of a patient who has amyotrophic lateral sclerosis, also known as Lou Gehrig's disease, and couldn't speak or move. Weeks after the surgery, the patient could communicate: The implant monitors neurons that are firing and translates that activity into commands sent to a smartphone via Bluetooth. The procedure built on previous efforts in Australia, where Synchron implanted four patients with devices they've used to send WhatsApp messages and make online purchases. Years later they report no ill effects.

Oxley, a physician with a doctorate in neuroscience, spent years developing the stentrode with his team, working to make the cylindrical web of wires relatively easy to implant. Surgeons needn't drill into a patient's skull; instead, they can make an incision in the neck and feed the stentrode via a catheter through the jugular vein into a blood vessel inside the motor cortex. The catheter is then removed, and the stentrode opens up and fuses with the outer edges of the vessel. Synchron intends to add 16 people to its trial and aims to eventually help those suffering from strokes, multiple sclerosis, spinal cord injuries and other conditions. —Ashlee Vance

PHOTOGRAPH BY
MAX HEMPHILL

Rebecca Gomperts

FOUNDER,
AID ACCESS,
VIENNA

Her telehealth service, which prescribes abortion pills, saw an almost 120% increase in online orders from overseas in the two months after the June ruling that ended *Roe v. Wade*, according to a November study in the medical journal *JAMA*.

Gomperts is a Netherlands-raised and -trained physician who's worked as an abortion doctor and activist for more than 20 years. She started Aid Access in 2018, after states began passing increasingly rigid abortion restrictions and the Supreme Court tilted to the right.

The service is geared toward Americans living in places where it's hard to get an abortion. The US Food and Drug Administration approved the abortion pill (aka mifepristone) to end first-trimester pregnancies two decades ago. But it's run up against onerous federal and state regulations, making it about as hard to get as a surgical procedure. Even before the end of *Roe*, many states didn't allow the pill to be prescribed via telemedicine. Until recently, the federal government wouldn't let pharmacies mail it.

After Gomperts and her team prescribe mifepristone (she has an Austrian medical license), it's mailed from pharmacies in India. The organization works in a legal gray area. In 2019 the FDA sent Gomperts a letter requesting she cease operations, but she's refused, and the government has been largely unable to stop her. And with about 20 million women of reproductive age now living in states with near-total abortion bans, Gomperts is helping meet demand. Prior to *Roe's* end, Aid Access was getting as many as 700 daily requests, Gomperts said. In the immediate aftermath of the ruling, that number jumped to 4,000. —Rebecca Greenfield



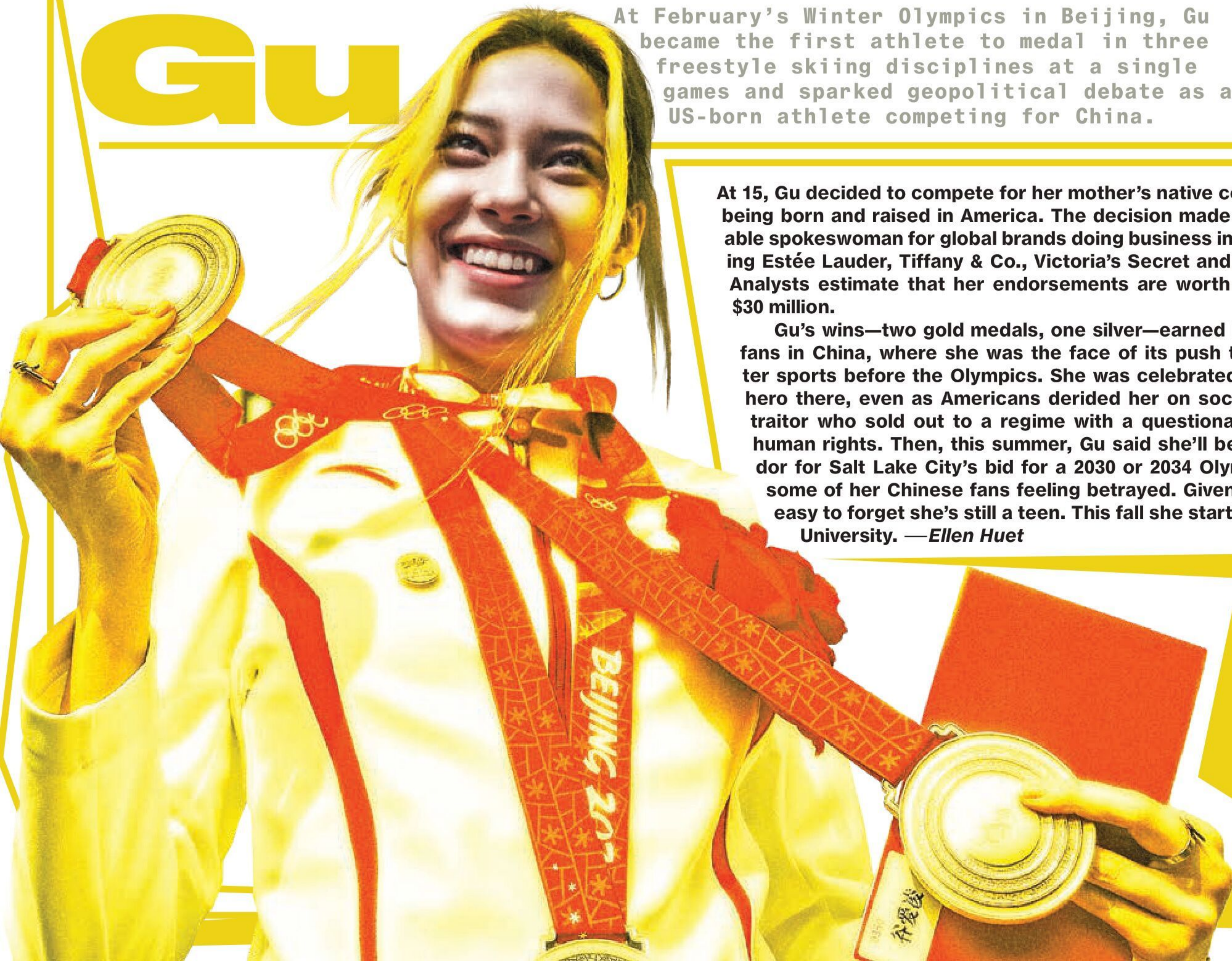
Eileen Gu

OLYMPIC SKIER AND
SPOKESWOMAN

At February's Winter Olympics in Beijing, Gu became the first athlete to medal in three freestyle skiing disciplines at a single games and sparked geopolitical debate as a US-born athlete competing for China.

At 15, Gu decided to compete for her mother's native country despite being born and raised in America. The decision made her a marketable spokeswoman for global brands doing business in China, including Estée Lauder, Tiffany & Co., Victoria's Secret and Louis Vuitton. Analysts estimate that her endorsements are worth \$10 million to \$30 million.

Gu's wins—two gold medals, one silver—earned her millions of fans in China, where she was the face of its push to inspire winter sports before the Olympics. She was celebrated as a national hero there, even as Americans derided her on social media as a traitor who sold out to a regime with a questionable record on human rights. Then, this summer, Gu said she'll be an ambassador for Salt Lake City's bid for a 2030 or 2034 Olympics, leaving some of her Chinese fans feeling betrayed. Given her fame, it's easy to forget she's still a teen. This fall she started at Stanford University. —Ellen Huet



FOUNDER, JESSE LEWIS
CHOOSE LOVE MOVEMENT,
NEWTOWN, CONNECTICUT

In August a Texas jury ordered Infowars.com host Alex Jones to pay Lewis and Neil Heslin, whose child was killed at Sandy Hook, almost \$50 million in damages for defamation.

Lewis's 6-year-old son, Jesse, was among the 20 first graders and six adults killed at Sandy Hook Elementary School in 2012. In the aftermath, Jones used his radio show to spread conspiracy theories, calling the massacre a hoax and a false-flag operation meant to help the government expand gun control. For years his followers have embraced his lies, harassing and threatening the parents of the slain children, as well as an FBI agent who responded to the shooting.

In a courtroom in Austin, where Jones and Infowars are based, Lewis addressed him from the witness stand in moving testimony. "Truth is so vital to our world," she said. "Truth is what we base our reality on, and we have to agree on that to have a civil society." On the stand, Jones admitted the massacre was "100% real," conceding that it was irresponsible of him to contend that the parents were actors. A jury in a separate defamation trial in Connecticut awarded multiple plaintiffs \$965 million in compensatory damages in October—Jones, unrepentant this time, livestreamed the verdict on his Infowars show—and a judge ordered Jones to pay \$472 million in punitive damages in November. It's unclear how much money Lewis or anyone else will see (Jones recently filed for bankruptcy), but the Texas verdict was the first time Jones had been held financially liable for his lies, and it could deter other fabulists from making similar claims.

Through her nonprofit, Lewis provides programming for kids and adults that aims to eliminate the root causes of violence. After the trial, she said she thought of her son when she was on the stand. Jesse is believed to have saved lives by yelling, "Run!" when the shooter at Sandy Hook paused. "He stood up to the bully," Lewis said. "I hope that I did that incredible courage justice when I was able to confront Alex Jones, who is also a bully. I hope that inspires other people to do the same." —Janet Miranda

PHOTOGRAPH BY
ADAM GOLFER

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Scarlett Lewis

Anthony Albanese

PRIME MINISTER, AUSTRALIA

Albanese has committed to Australia's first legally binding climate target, a 43% reduction in carbon emissions from 2005 levels by the end of the decade.

In May, Albanese's center-left Labor Party defeated the conservative coalition that had led Australia since 2013. Climate change—as well as wage growth and reconciliation with Indigenous Australians—was a major issue in the campaign, stoked by the country's wildfires, floods and other natural calamities, which scientists say are getting worse with rising temperatures. As prime minister, Albanese wants to transform the economy, at present heavily dependent on exports of coal and gas, by scaling up the mining of minerals such as lithium—vital for batteries—and turning the country into a hub of green

manufacturing. His new emissions target puts Australia roughly into line with plans from Canada and Japan, though it's still much less ambitious than the climate goals of the UK and the European Union.

Turning around a carbon-intensive economy will be a serious challenge for Albanese. He'll be up against many of Australia's largest companies that depend on fossil fuels. The country's federal system gives substantial power to state governments that are moving at their own speed on scaling back use of the fuels. At the same time, some freshly elected lawmakers are demanding even tougher action, calling for an immediate halt to new coal and gas projects. With only a razor-thin parliamentary majority, Albanese's government is vulnerable to any misstep. —Ben Westcott



Ken Griffin

FOUNDER, CITADEL AND
CITADEL SECURITIES, MIAMI

Griffin announced in June that he was moving his headquarters from Chicago to Florida, making Citadel, with \$60 billion under management, the largest hedge fund thus far to decamp to Wall Street South.

Griffin isn't the first billionaire investor to head to the Sunshine State, but he's the richest. And he may have the biggest role in fashioning Miami into a major financial hub, bringing hundreds of well-paid executives to the city and building a tower he estimates will cost \$1 billion. Griffin, who had a multiyear feud with Illinois governor and fellow billionaire J.B. Pritzker over taxes and crime, is one of Florida Governor Ron DeSantis's top donors. Florida has no state income tax and is generally friendlier to business owners.

Although the move to Miami attracted the headlines, Griffin's hedge fund, Citadel, is also the top performer among rival firms, returning almost 32% through November thanks in part to bets on commodities. (It's not clear which ones.) Citadel Securities, his electronic-trading business, got a \$1.15 billion investment in January from Sequoia Capital and Paradigm Capital Management Inc., sparking speculation that the unit may eventually be put up for an IPO. —Katherine Burton, with Amanda L. Gordon



Brian Flores

In January the Miami Dolphins fired Flores as head coach. He was one of just three Black head coaches in the league. Three days later, David Culley, one of the other two, was fired by the Houston Texans, leaving Mike Tomlin of the Steelers as the only Black head coach among 32 teams. On Feb. 1, Flores filed a class-action lawsuit against the NFL for discrimination in its hiring practices.

The league, Flores alleged, is “managed much like a plantation,” with a mostly Black labor force—about 70% of players—overseen by mostly White coaches, executives and owners. And, he said, the NFL’s primary attempt to fix the problem, known as the Rooney Rule, is a sham. Implemented in 2002, it required teams to interview at least one Black coach (since expanded to two) for a head coaching vacancy. Flores said he experienced an abuse of the rule firsthand: After the Dolphins fired him, the New York Giants scheduled an interview for their head coaching job, but three days beforehand, Flores learned that the team had already decided on a White candidate. Yet the interview went ahead as planned under false pretenses. (The NFL said the lawsuit was without merit; the Giants said the allegations were false.)

The suit, which is ongoing, shook the football world. It also rippled beyond the game: The Rooney Rule had become a template for other industries looking to diversify their leadership ranks, but its failure in the NFL demonstrates that progress requires more than perfunctory box-checking.

—Ira Boudway

SENIOR DEFENSIVE ASSISTANT
AND LINEBACKERS COACH,
PITTSBURGH STEELERS

In the wake of his discrimination lawsuit against the NFL, four teams hired Black or biracial head coaches at a time when the league was down to only one.

Gabriel Boric

PRESIDENT, CHILE

The 36-year-old is
the world’s youngest
national leader.



Boric was a long shot when he entered Chile’s crowded presidential race last year: He barely met the deadline to gather the signatures needed to register his candidacy. But he wound up getting the most votes for head of state in Chilean history, based on his appeal as a young outsider whose politics prioritize social justice, consensus and public service.

Born in the country’s far south, Boric was president of the student federation at the Universidad de Chile, where he helped lead protests for better-quality education before later ascending to Chile’s lower house of congress. Setbacks during Boric’s first months in office (his term started in March) have dented his approval levels. A new constitution he backed was rejected in a September referendum, after voters said it went too far in areas such as Indigenous community autonomy. In a speech later that month before the UN General Assembly, Boric said, to roaring applause, that he’d been humbled by the results and that the world needed to address social unrest. The current constitution is a remnant of the 1973-90 military dictatorship and is seen by many as illegitimate. Chileans want a charter conceived and implemented in a democracy—and to keep at bay the discontent that exploded into nationwide protests against inequality and poor government services in 2019. —Matthew Malinowski



WRITER AND ACTIVIST

An advocate for women's rights in South Korea, a nation rife with sexism and harassment, Park helped attract 11,000 new members—80% of them female—in Seoul alone to the center-left Democratic Party of Korea in the two days after the March presidential elections.

Park

Park was in journalism school when the #MeToo movement led women around the world to reveal their experiences of sexual abuse. In South Korea that included raising awareness of the pervasive use of “spycams,” recording devices placed in bathrooms and locker rooms to film women without their consent. Working with a classmate and writing under the pseudonym Flame, Park infiltrated and exposed a vicious online spycam ring, which had blackmailed girls as young as 12. The police eventually arrested the ringleaders, a pair of 26-year-old men, who were sentenced to more than 30 years in prison each.

By the time she published a widely read, anonymous memoir about unmasking the spycam operators, Park was a hero to many South Korean women. After revealing her identity, she agreed to advise Lee Jae-myung, the Democratic Party's presidential candidate, on women's issues. Lee lost narrowly to Yoon Suk Yeol of the People Power Party, whose campaign appealed to men angered by what they see as feminist overreach. In the aftermath, the Democratic Party named Park as its interim co-chair—an astounding achievement for an activist who's not yet 30 years old. In line with South Korean custom for leaders of a losing faction, she stepped down in June after the Democratic Party suffered a crushing defeat in local elections. She's currently working on her second book.

—*Bloomberg News*



Ji-hyun

Applause

for

The Alums

We don't put people on the Bloomberg 50 twice, but here are a few past entrants who did noteworthy things in 2022.

BYRON ALLEN
CEO, ENTERTAINMENT STUDIOS INC.

The media mogul, whose empire includes a free sports streaming service called HBCU GO, signed a nationwide licensing deal with CBS in August that expanded college football games played by historically Black colleges and universities to 60% of US television households and 70% of Black TV households for the 2022 season. In November, Bloomberg News reported that Allen was preparing a bid for the NFL's Washington Commanders.

JOSÉ ANDRÉS
FOUNDER, WORLD CENTRAL KITCHEN

Within hours of Russia's February invasion of Ukraine, World Central Kitchen, which provides meals in the wake of humanitarian and natural disasters, started feeding Ukrainians displaced by the fighting. Today, WCK has served Ukrainians affected by the war (and people helping them) more than 170 million meals inside the country, in those neighboring it and as far away as Spain.

VITALIK BUTERIN
CO-FOUNDER, ETHEREUM

In September, after years of delays, Ethereum completed a key revamp of its blockchain network, in the crypto world's most ambitious software upgrade to date. Known as the Merge, it aimed to make the network more energy-efficient and pave the way for it to be faster and cheaper to use.

MACKENZIE SCOTT
PHILANTHROPIST

Girl Scouts of the USA announced in October that Scott had gifted \$84.5 million to the organization and 29 local branches, the biggest donation from a single benefactor in its 110-year history. The money will help the Scouts recover from the impact of the pandemic, which caused a drop in membership. Scott, who's worth about \$20 billion according to the Bloomberg Billionaires Index, also gave \$275 million to Planned Parenthood Federation of America in March.

JON STEWART
ACTIVIST, COMEDIAN

On social media and the steps of the US Capitol, Stewart blasted Republican lawmakers who were blocking a bill that intended to give expanded health benefits to more than 3 million veterans exposed to toxic burn pits while serving overseas. The outcry from veterans and Stewart led the Senate to pass the bill, the Honoring Our Promise to Address Comprehensive Toxics Act, ultimately drawing support from 37 GOP senators.

RISHI SUNAK
PRIME MINISTER, UK

In October the 42-year-old Sunak—who was on our Ones to Watch list—became the UK's youngest prime minister in more than two centuries and the first person of color to hold the office.

EMMA WALMSLEY
CEO, GSK PLC

Walmsley weathered questions about the company's direction from activist shareholder Elliott Investment Management LP after producing few blockbuster drugs recently and being late to offer a Covid-19 vaccine. In July she completed the spinoff of GSK's consumer-health arm to focus on more profitable drugs—and in September she appointed Julie Brown as chief financial officer, the same position Brown held at Burberry Group Plc, making GSK the first major drug-maker to be run by two women.

CHANGPENG ZHAO
CEO, BINANCE HOLDINGS LTD.

Zhao, who runs the world's biggest cryptocurrency exchange, triggered the implosion of rival exchange FTX in November when a tweet of his helped start a bank run on FTX. The collapse is pushing regulators and legislators to reevaluate their views on crypto.

—Angela Moon, with Sophie Alexander, Deirdre Hipwell, Olga Kharif, Kate Krader, Kamaron Leach, David Rocks and Ben Sills

Todd Boehly



CEO, ELDRIDGE, GREENWICH, CONNECTICUT

In May, Boehly led a group that agreed to invest \$5.4 billion to buy the Chelsea Football Club, a record price for any team.

After Russian oligarch Roman Abramovich was pressured to sell Chelsea, Boehly swooped in. That he outbid billionaires on both sides of the Atlantic for one of the English Premier League's top teams surprised no one who knows his track record. Boehly was part of a group that

previously paid the highest price for a US sports franchise, in 2012, when it bought the Los Angeles Dodgers for \$2 billion. His portfolio also includes pieces of the LA Lakers and betting site DraftKings Inc.

Boehly, who started the credit-investing business at money manager Guggenheim Partners LLC before co-founding Eldridge in 2015, represents a new breed of owner. He sees sports teams more as an asset class than an expensive hobby, seeking to take advantage of rising prices for media rights and loosening regulations around gambling. At an investing conference in New York in September, Boehly talked about acquiring soccer clubs in other countries to serve as feeder teams for Chelsea, and he floated the idea of an all-star game in the top English league. "Ultimately, I hope the Premier League takes a little bit of a lesson from American sports," he said, adding, "I think everyone likes the idea of more revenue." —*Christopher Palmeri*

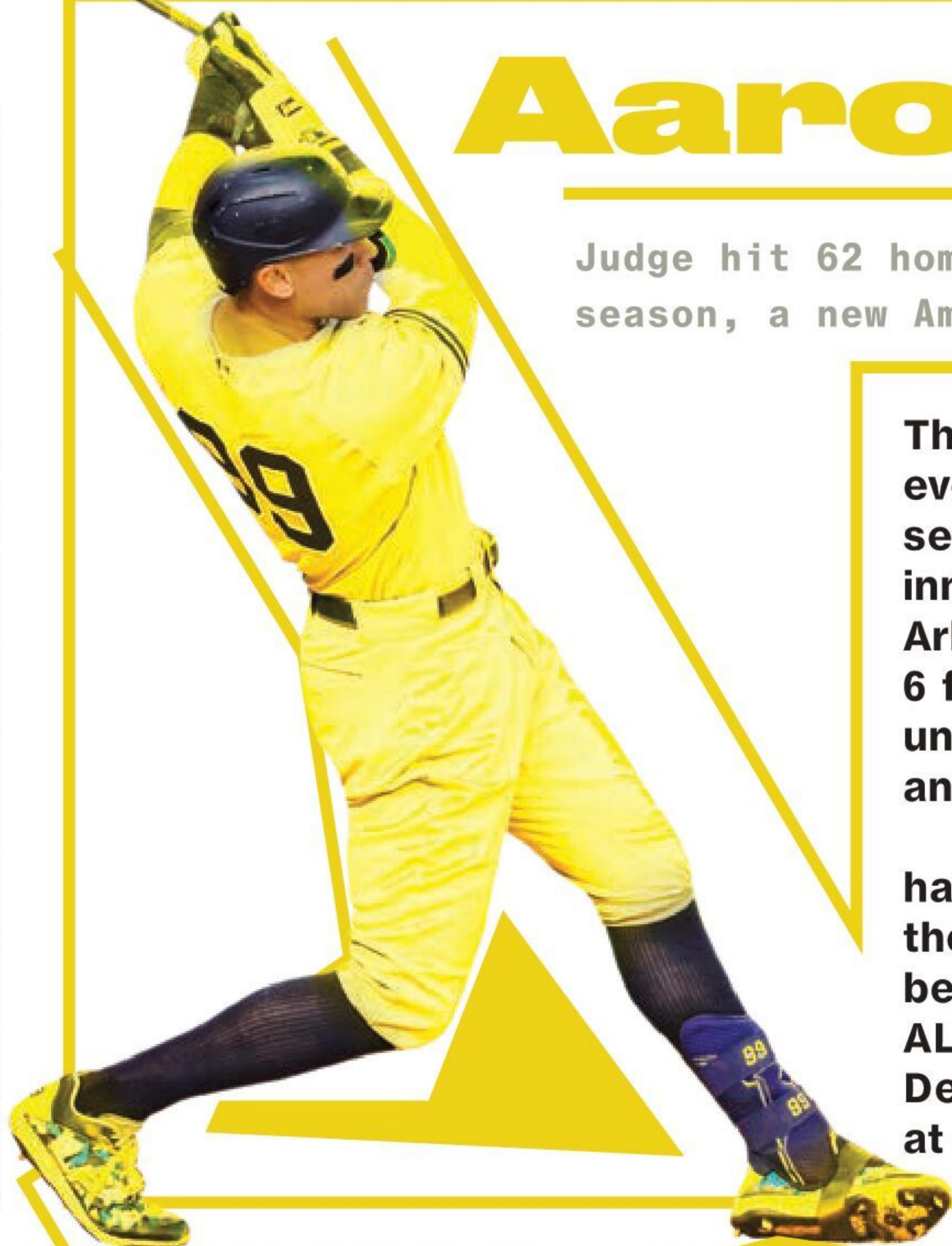
Aaron Judge

OUTFIELDER, NEW YORK YANKEES

Judge hit 62 home runs in the regular season, a new American League record.

The AL has been around for over a century, and in that time no player has ever hit more than 61 homers in a season. Judge overtook that mark—set in 1961 by another Yankee, Roger Maris—with his blast in the first inning of the second-to-last game of the season, against the Rangers in Arlington, Texas. Judge is a 2013 Yankees first-round draft pick, and at 6 feet 7 inches and 282 pounds, he's more NFL- or NBA-like. He'd been under enormous pressure for weeks as he inched closer to the milestone and pitchers nibbled around his strike zone.

The single-season home run record had been among the most hallowed in sports before Maris's 61 was eclipsed and then shattered in the late 1990s and early 2000s by three National League players who've been linked to steroids. Judge's accomplishment helped earn him the AL Most Valuable Player award and a \$360 million new contract. In December the historic ball, caught by a fan at Globe Life Field, was sold at auction for \$1.5 million. —*Bret Begun*



Phil Spencer

CEO, MICROSOFT GAMING,
REDMOND, WASHINGTON

Spencer started gaming in the era of cartridges and floppy disks; he even sold them at a place called Computer Mart before joining Microsoft Corp. as an intern in 1988, doing software development for Windows. Now he's in charge of the company's top consumer business, best known for franchises such as *Halo* and *Gears of War*.

Acquiring Activision, the maker of megahits *Call of Duty* and *Candy Crush*, catapults Microsoft to No.3 on the list of biggest global gaming companies, behind Tencent Holdings Ltd. and Sony Group Corp., according to the company. (The Federal Trade Commission is now

In January, Spencer negotiated the biggest deal in Microsoft and video game history, the \$69 billion takeover of Activision Blizzard Inc.

seeking to block the deal, and Microsoft declined to comment on a previous forecast that it would close by mid-2023.) The opportunity for Spencer—who previously acquired Mojang Studios, maker of *Minecraft*, and Bethesda Softworks LLC, the company behind *Elder Scrolls* and *Fallout*—came about after sexual harassment and discrimination claims against Activision sank the company's stock price and pushed the board to entertain offers. A lawsuit by the US Equal Employment Opportunity Commission over some of the claims was settled in March for \$18 million. The company denied any wrongdoing. —Dina Bass



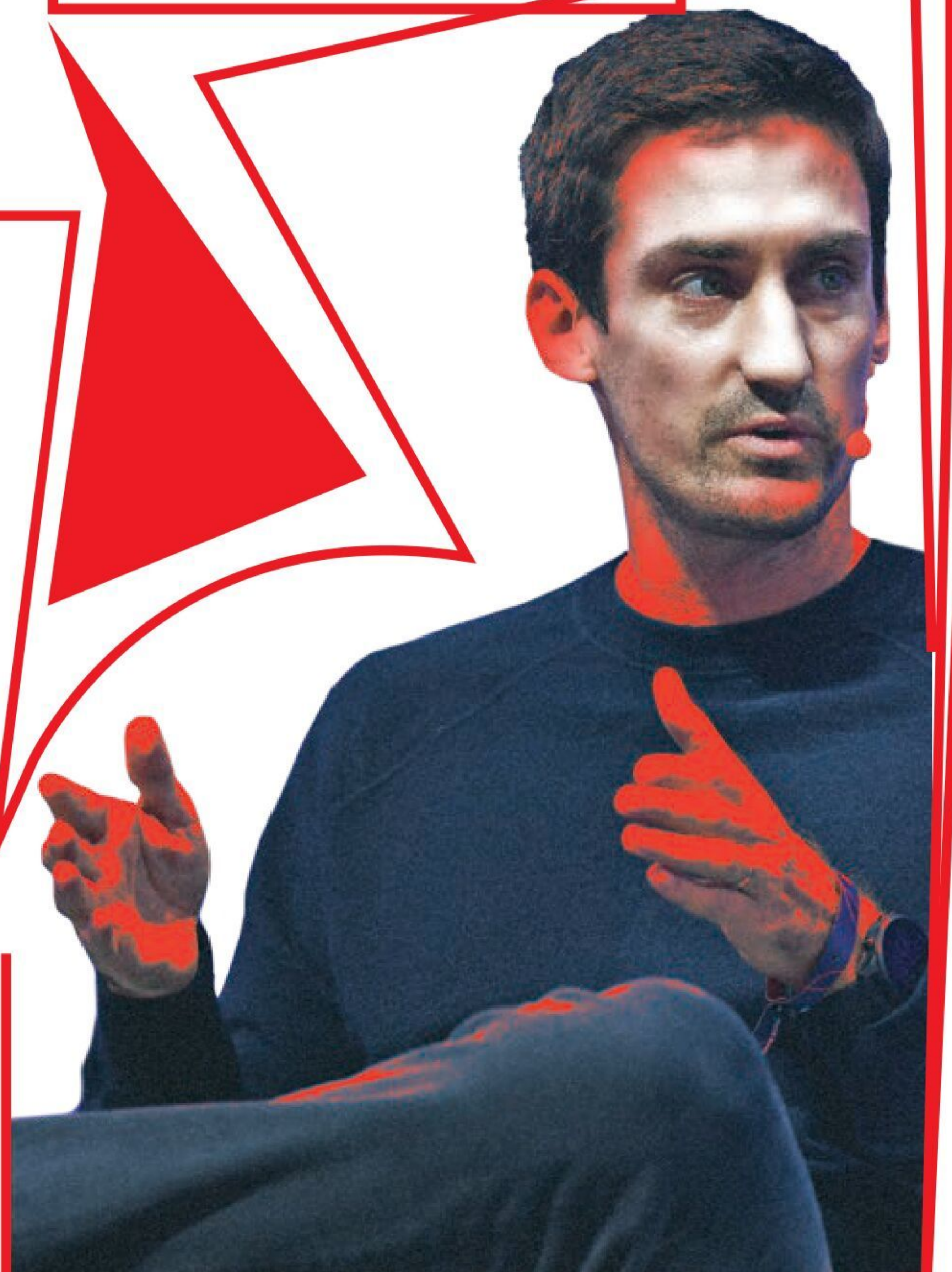
Guillaume Pousaz

CEO AND FOUNDER,
CHECKOUT.COM, LONDON

The electronic-payments company raised \$1 billion in January, giving it a \$40 billion valuation on paper and making it Europe's most valuable startup.

Raised in Geneva, Pousaz studied mathematical engineering at École Polytechnique Fédérale de Lausanne before finding his way to California. Checkout, which he started in 2012, works with the likes of Netflix, Pizza Hut and Sony. But its focus is on Europe and the Middle East and particularly on businesses with huge transactional volume. Checkout's lofty valuation reflected investor appetite for a business that collects fees for purchases made through its services, and e-commerce is booming.

Checkout hasn't been immune to the plunging tech markets, which have plagued other fintechs. The company cut its internal valuation to about \$11 billion to help ensure the equity awards of staff keep their value. It was also expanding in crypto before collapsing prices and multiple institutional failures slammed the industry. (Checkout worked with porn and gambling sites in its early days but has "exited adult content entirely," a spokesman said.) Still, Pousaz is now a major investor in fintech startups throughout Europe. —Bloomberg News, with Ivan Levingston





POP STAR

The reggaeton singer grossed more than \$230 million on tour in 2022, exceeding all other acts, and had the year's bestselling album despite competition from Beyoncé, BTS, Drake and Harry Styles.

Two years after the pandemic shut down touring, the biggest pop stars were ready to hit the road. Styles, Elton John, Dua Lipa, Paul McCartney, Ed Sheeran and the Weeknd played to sold-out venues. But none of them performed in front of more people than Benito Antonio Martínez Ocasio, aka Bad Bunny.

He first received acclaim for his music on SoundCloud as a teen growing up in a poor town in Puerto Rico. The 2018 release of his debut studio album, *X 100pre*, led to a performance at the 2020 Super Bowl. He released three albums that year, the third of which, *El Último Tour del Mundo* ("The Last Tour of the World"), became the first Spanish-language album to hit No.1 in the US.

Bad Bunny speaks to a new generation of music fans who grew up on global streaming services and reject cultural norms: He challenges gender stereotypes with his outfits and lyrics, loves professional wrestling and starred in a Brad Pitt movie as an assassin. When his agents were mapping out his 2022 tour schedule for his May release, *Un Verano Sin Ti* ("A Summer Without You"), they planned for him to play in arenas that seated 15,000. After hundreds of thousands of fans couldn't get tickets, a second leg of the tour was added. Bad Bunny has since played routinely to 50,000 people a night across the US and Latin America.

—Lucas Shaw

Ones to Watch

Keep an eye on these people. They could be on next year's Bloomberg 50.

JONATHON HEYWARD MUSIC DIRECTOR-DESIGNATE, BALTIMORE SYMPHONY ORCHESTRA

Heyward, 30, will be the first person of color to lead the orchestra in its 106-year history when he takes over for the 2023-24 season. The American-born Heyward has been serving as chief conductor of the Nordwestdeutsche Philharmonie in Herford, Germany, since January 2021.



RACHEL SWEET ABORTION-RIGHTS ORGANIZER

Sweet was the campaign manager for two successful efforts to protect women's reproductive rights: She helped defeat proposed anti-abortion amendments in Kansas in August and in Kentucky in November.



XINYI CHENG ARTIST

Her moody oil paintings of strangers and friends "are about different aspects of desire and human relationships," according to a biography from the Matthew Marks Gallery, which signed her. Cheng's first US solo show opened at the New York gallery in November, after high-profile exhibitions in Europe.



CAROLINA GELEN FOOD WRITER AND RECIPE DEVELOPER

Gelen immigrated from Romania to the US in 2021 to pursue a passion for food. She now has 1.3 million combined followers on Instagram and TikTok, where she displays creations such as crunchy maple feta sweet potatoes.



ISABELLA WEBER ECONOMICS PROFESSOR, UNIVERSITY OF MASSACHUSETTS AT AMHERST

Weber was among the first economists to call for government price controls on energy and other commodities as a more



effective way than raising interest rates to fight inflation. Many in her profession argued that these controls can lead to shortages, but the German government embraced some of her ideas, including a plan to cap natural gas prices after Russia cut supplies.

SHABAZZ STUART FOUNDER AND CEO, OONEE, BROOKLYN, NEW YORK

Oonee's pods are designed to store bicycles safely—some hold 8 bikes, others 80. Stuart helped start the company in 2017 to address bike theft; an original pod in downtown Manhattan has led to others in and around the city.



SHANI TRAN PSYCHOLOGIST AND INFLUENCER

Tran, whose Shani Project has more than 473,000 TikTok followers, talks about mental health and therapy and shares her experiences with suicidal ideation. She hosted a YouTube series, released in September, that explored the latest research into suicide crisis and prevention strategies.



FELIPE CHÁVEZ CORTÉS CEO AND CO-FOUNDER, KIWIBOT, MIAMI

Kiwibot's 600-plus four-wheeled robots have completed 200,000 deliveries of pizzas, burgers and other essential sustenance to college campuses across the US. The startup is on track to have 1,200 robots operating by the end of 2023, part of a \$20 million partnership with food-services giant Sodexo. Kiwibot also just struck a delivery deal with Grubhub.



AMIR NIZAR ZUABI PLAYWRIGHT AND ARTIST

Zuabi created *Little Amal*, a 12-foot-tall puppet depicting a 10-year-old Syrian refugee girl. In July 2021, Amal embarked on *The Walk*, a public art project meant to shed light on the challenges refugee children face. Since then she and her puppeteers have traveled 5,500 miles across 13 countries. (Amal's New York visit received backing from Bloomberg Philanthropies.)



ISABEL LEE & LUIS FERNANDEZ FOUNDERS, FORSYTH FIRE ESCAPE, NEW YORK

Their burrito, a scallion pancake wrapped around roast pork, might be the most buzzed-about delicacy in Manhattan. After lowering the burritos from their Chinatown fire escape to customers who ordered online during the first waves of Covid, the duo now cooks up batches at a local food hall. The menu will expand in the new year (with chicken and vegetarian options, plus tacos), and the food will be sold at a downtown bodega.



LEAH ELLIS CO-FOUNDER, SUBLIME SYSTEMS, SOMERVILLE, MASSACHUSETTS

Ellis is working on a way to manufacture cement that cuts carbon emissions by 50% to 100%. (The current method accounts for 8% of global CO₂ emissions.) Her idea is to break down limestone, or other calcium-bearing rocks, using electric current instead of heat.



ROHAN MURTY FOUNDER AND CHIEF TECHNOLOGY OFFICER, SOROCO INDIA PVT LTD., BOSTON AND BENGALURU, INDIA

Murty is trying to streamline office work via artificial intelligence. Soroco collects and analyzes data on how workers use software across teams and then suggests changes to boost productivity and reduce costs.



JIMMY O'BRIEN FOUNDER, JOMBOY MEDIA CORP., NEW YORK

Known for meticulous breakdowns of sports plays on social media, the company raised \$5 million in funding in 2022 and reached a content deal with the YES Network, which broadcasts the New York Yankees. Its YouTube channel has almost 1.7 million subscribers, and its podcasts rank among the top baseball shows on Apple's charts. —Mark Bergen, Ben Holland, Dimitra Kessenides, Saritha Rai, Gerry Smith and James Tarmy



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