Bloomberg Businessweek

January 9, 2023

DONALD WHO?

Ron DeSantis keeps ignoring that other guy, attacking business and winning over Republicans 28


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◀ A robot aboard the Stellar Pizza truck assembles a pie

PHOTOGRAPH BY DAMIEN MALONEY FOR BLOOMBERG BUSINESSWEEK

FEATURES

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■ COVER TRAIL

How the cover gets made

❶

"This week's cover is all about a highly popular, fairly theatrical Republican presidential hopeful!"

"We're doing another Donald cover already?"

"Not exactly."

"Bummer, I've been waiting to make a play on his John Wayne-inspired border patrol NFT. So if it's not Trump, then who is it?"

"Ron DeSantis!"

"OK! I assume he's agreed to sit for a portrait over the coming holiday period, right?"

"Very funny. No."

"Well, I'm sure we'll find something."

❷

"Hmm.... Maybe less MAGA glee, more Trump threat?"

"Say no more."

Cover: Octavio Jones/Getty Images

ECONOMICS: PHOTOGRAPH BY PALOMA DOOLEY FOR BLOOMBERG BUSINESSWEEK. COVERTRAIL: GEORGIO VIERA/AFP/GETTY IMAGES

● Globally, there have been 662 million coronavirus cases, and almost

6.7m

people have died. The US, Japan and other countries are requiring travelers from China to show a negative test for entry as cases explode there. Health data researcher Airfinity estimates that 9,000 people are dying in the country every day from Covid-19.

● War in Ukraine

▶ With efforts to erect a security zone around Ukraine's biggest atomic plant failing, Kyiv's top nuclear official called for the site to be retaken by force.

▶ Ukraine's allies continue to increase their commitments: France said on Jan. 4 that it will provide armored vehicles; the US is looking into sending Bradley Fighting Vehicles.

▶ Germany said it's open to using billions of euros in frozen Russian assets to help Ukraine rebuild. The EU and partners from the G-7 have frozen about €300 billion ($311 billion) in Russian central bank reserves.

● Gas Infrastructure Europe says warm weather has left natural gas storage sites 84% full, far above the region's seasonal norm. This has eased fears of blackouts after Russia halted deliveries in response to sanctions, but ski resorts in the Alps—such as this one in Schruns, Austria—are less sanguine about the balmy days.

● Salesforce.com plans to cut 10% of its workforce, or about 8,000 employees.

The enterprise software company said it had expanded too rapidly ahead of the downturn, which has led its customers to defer spending.

● Aiming to bolster its status as a tourism and business hub, Dubai abolished its

30%

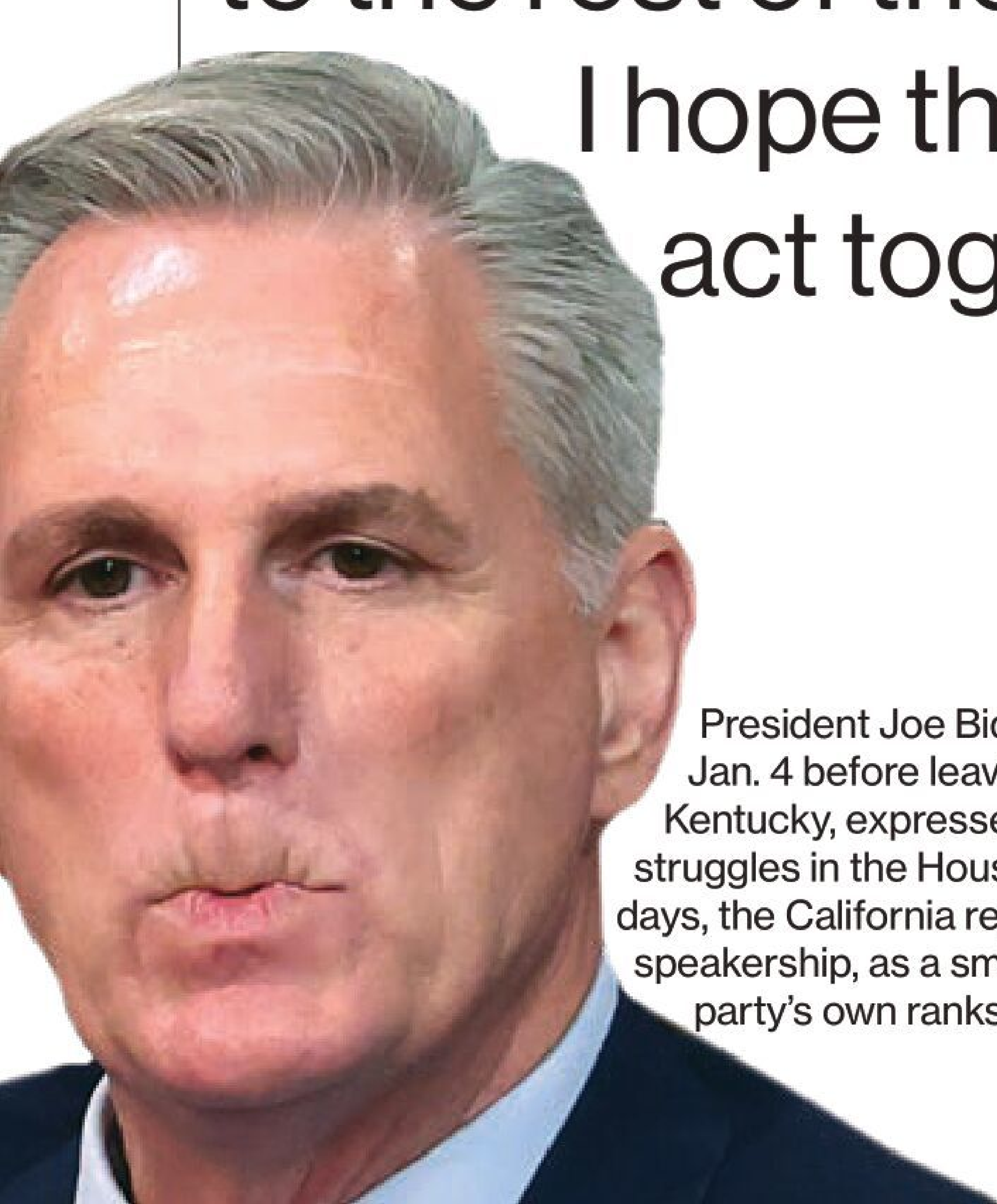
tax on alcohol sales. The move will set the Persian Gulf emirate apart from Saudi Arabia, Qatar, Oman and other neighbors, where alcohol is heavily taxed or completely banned.

● Bank robberies may be a thing of the past in Denmark, which recorded its first year of zero holdups in 2022. Thieves have little incentive: With consumers using cards and smartphones for most transactions, withdrawals have dropped and banks hold far less cash.

● The EU levied $414 million in fines on Meta.

The Irish Data Protection Commission, the bloc's main privacy watchdog, said a requirement for users to accept personalized ads when signing up for Facebook and Instagram violated EU rules. The company said it "strongly disagrees" with the authority's findings and will appeal.

● "How do you think it looks to the rest of the world? … I hope they get their act together."



President Joe Biden, speaking to reporters on Jan. 4 before leaving for an infrastructure event in Kentucky, expressed bewilderment at Kevin McCarthy's struggles in the House. After six ballots taken over two days, the California representative still hadn't secured the speakership, as a small group of conservatives from his party's own ranks continued to hold out.

● Honeybee Health—the first pharmacy to ship mifepristone, an abortion pill, after the US FDA relaxed restrictions during the pandemic—can dispense the drug permanently under a revised safety program. Prescribers now have a process by which they can get the drug to patients nationwide seeking to terminate an early pregnancy in the wake of *Roe v. Wade*'s overturn.

● Los Angeles County will pay a Black family almost $20 million to buy a prime oceanfront property.

The plot of land was forcibly taken from Willa and Charles Bruce, a Black couple, almost a century ago after racist complaints by White neighbors. Now a park, Bruce's Beach was recently returned to their descendants, who agreed to sell it back to the county.

ILLUSTRATION BY BAILEY CROUCH. ALPS: DIETMAR STIPLOVSEK/APA/AFP VIA GETTY IMAGES. ROBBER: GETTY IMAGES. MCCARTHY: WIN MCNAMEE/GETTY IMAGES

House Republicans Are Stuck in Power Without a Plan

Say this for the new Republicans in Congress: They made history. Now they need to start making an agenda, rather than stumbling onward in discord and disarray.

For the first time in a century, members of the House of Representatives failed to elect a speaker on the first ballot. Nineteen Republicans voted against their party's leading candidate, California Representative Kevin McCarthy, on Jan. 3, leaving him 15 votes shy of victory. The Democratic Party's unanimous choice for the job, New York's Hakeem Jeffries, secured more votes than McCarthy. The following two rounds of votes went no better for the Republicans. Nor did the rounds that followed.

There's nothing wrong with multiple ballots to elect a speaker, per se. If a party is torn between competing leadership factions, a speaker's race provides a good forum for debate. In this case, however, all of Congress was held hostage by a small group of right-wing extremists who have spent weeks extracting concessions from McCarthy that will make his governing a closely divided House almost impossible.

A more prudent leader in such a situation might have asked moderate Democratic lawmakers for their votes, thus avoiding this mess and laying the groundwork for a productively bipartisan session. McCarthy ruled that out early on. So he needed almost every Republican vote to win the job, which explains his solicitous attitude toward the extremists.

It also explains why McCarthy has had so little to say about a freshman GOP representative named George Santos. Politicians are known for stretching the truth. Santos was elected on a résumé that was a lie from top to bottom, one of the most brazen cons ever put over on the voting public. He simply made up his family heritage, educational background, career achievements and just about everything else. Credit Long Island's previously obscure *North Shore Leader* for digging up a scandal that the rest of the news media missed. Federal prosecutors are now investigating whether Santos's deceptions included campaign finance violations. (Santos denies wrongdoing.)

These kinds of distractions are what happens when a political party effectively ignores public policy. After a campaign in which culture war issues took the place of an actual governing agenda (and in which the GOP nominated numerous on-message candidates who were clearly unfit for office), House Republicans find themselves in power without a plan. Rather than looking to solve real problems, their top priority seems to be a scheme to kneecap the Office of Congressional Ethics—which is as bad as it sounds.

The ethics office is meant to review outside complaints about congressional wrongdoing and to pass on serious accusations to the House Committee on Ethics. Republicans want to block the office from hiring staff, impose term limits that would remove several Democratic board members, and otherwise prevent it from doing useful work.

These changes would severely undermine the office's nonpartisan mandate. Without a strong and independent ethics office, both parties in the House will be even more inclined to ignore wrongdoing.

Agree or disagree with House Democrats: At least they knew what they wanted to accomplish while in office. There's no shortage of pressing issues facing the country and no shortage of good ideas for addressing them. No matter who is elected speaker, Americans need Republicans in Congress to come up with an agenda that doesn't look as if it was drawn up to protect scoundrels and swindlers. Ⓑ *For more commentary, go to bloomberg.com/opinion*

■ AGENDA

► Three Amigos

US President Joe Biden plans to meet Mexican President Andrés Manuel López Obrador and Canadian Prime Minister Justin Trudeau Jan. 9-10 in Mexico City for the North American Leaders' Summit.

► President Emmanuel Macron's government will unveil details of its retirement reform on Jan. 10. It's a testy subject in France, with unions warning of protests and strikes.

► The two main companies of the Trump Organization face a New York state judge on Jan. 13 for sentencing after being convicted of 17 counts, including tax fraud.

► The 23rd UBS Greater China Conference, taking place virtually Jan. 9-12, will explore the major themes shaping China's future, from post-Covid reopening to climate protection.

► Bank of America, Citigroup, JPMorgan and Wells Fargo report fourth-quarter earnings on Jan. 13. Volatile markets and a yearend dealmaking rush likely lifted profits.

► The Bank of Korea sets interest rates on Jan. 13. Governor Rhee Chang-yong has signaled a return to smaller hikes amid concern about economic growth.

► Billionaire money manager Jeffrey Gundlach of DoubleLine Capital will give his outlook for 2023 in his closely watched annual *Just Markets* webcast on Jan 10.

The Great Comeuppance

For some billionaires used to having their own way, 2022 was a reckoning

By Max Chafkin

In late May, Elon Musk took a break from trying to get out of his purchase of Twitter Inc. to offer his view of the nation's economic health. He predicted that the US was careening toward a recession. No worries for him, though. "This is actually a good thing," he tweeted. "It has been raining money on fools for too long. Some bankruptcies need to happen."

Musk is, somewhat infamously, frequently off-target when it comes to predictions, as anyone waiting for his years-late electric pickup truck or a ride in one of his nonexistent 600-miles-per-hour trains knows well. He's also missed on topics such as epidemiology (in March 2020, Musk declared that Covid-19 cases were heading "close to zero"), personal finance (he embraced cryptocurrencies just before they crashed) and politics (he predicted a "massive red wave" for the midterm elections).

But Musk's economic forecast turned out to be pretty solid. While there's no recession, a slowdown has indeed exposed a number of entrepreneurs who, for the past decade, took advantage of low interest rates, bubbles in tech and finance and a self-reinforcing media environment to convince themselves of their genius and then to profit from their hucksterism.

Now tech stocks have nose-dived, crypto fortunes are crumbling, and criminal investigations are pending. Call it the Great Comeuppance—a sudden and historic opportunity for billionaire schadenfreude. The period began in late 2021 and has been defined by persistent inflation, rising interest rates and a return to certain pre-Covid norms—among them, the belief that made-up currencies might be worthless and that there's more to life than interacting as a digital floating torso. The problem with Musk's prediction was his failure to realize that these shifts could make him look like a fool, too.

Over the course of the year, Musk's net worth fell by 49%, or $133 billion—the biggest loss ever, in dollar terms, on the Bloomberg Billionaires Index. At exactly the time that irrational gambling on the stonk market was falling out of fashion and demand for Tesla Inc.'s electric vehicles was fading, he loaded up on debt and doubled down on his own status as the meme-stock master of ceremonies by agreeing to a hastily conceived buyout of Twitter for an inflated price. It's been basically downhill ever since, with Twitter appearing to teeter on the verge of collapse and Musk warning of its possible bankruptcy. Tesla's stock price is down 70% over the past 12 months.

Musk wasn't the only overreaching titan taken down a few pegs. Mark Zuckerberg saw his net worth drop last year by 64%, or $80 billion—itself an historic figure that's substantially more than what had been regarded as the previous record wealth loss, Masayoshi Son's $70 billion drop in 2000. (Son had a pretty terrible year, too, if not a record-setting one.)

Zuckerberg's fall, like Musk's, involved a combination of macroeconomic bad luck and an almost inexplicable flourish of self-destructive hubris. Seeing Facebook's growth prospects diminished, Zuckerberg fixated on a novel, money-losing communication medium that for some reason involves virtual conference rooms full of cartoon avatars without legs. Jeff Bezos experienced a similarly epic net worth drop of 43%, or $85 billion, as the wild expansion of Amazon.com Inc. into all manner of businesses—voice assistants, delivery robots, self-driving cars, urgent care, retail stores, etc.—gave way to mass layoffs.

And then there's crypto, perhaps the flimflammiest investment category in an age of extreme flimflammery. Changpeng Zhao, chief executive officer of Binance Holdings Ltd., saw his net worth decline by 87%, or $83 billion. That doesn't mean he couldn't experience an even greater comeuppance. The US Department of Justice has been investigating Binance for possible money laundering, and the accounting firm Zhao hired to verify his company's assets recently suspended its crypto-related work and pulled its report on Binance from its website. Zhao has denied the money laundering allegation and said his exchange is fine. The problem, he's said, is the accountants.

Other digital currency promoters have fared even worse. These include Alex Mashinsky (founder of Celsius, the bankrupt crypto lender), Do Kwon (creator of the failed currency Luna who's now an international fugitive) and Sam Bankman-Fried (recently extradited to the US on fraud charges related to the collapse of his crypto exchange, FTX). Kwon has denied wrongdoing. Bankman-Fried pleaded not guilty.

Even as tech's elite loses money by the billions, the Great Comeuppance has been much kinder to average people than 2008's Great Recession. After the financial crisis, unemployment soared, the stock market tanked and millions of Americans lost their homes. In 2022, Americans had to cope with rising prices, lots of tech workers were laid off and the price of a Dogecoin fell. But gross domestic product has continued to grow, and unemployment is near historic lows.

It's a testament to the flimsiness of their success that Musk, Zuckerberg and others have responded to interest rates that aren't even especially high by historical standards with something close to panic. "Fed needs to cut rates immediately," Musk raged on Nov. 30. "Beware of debt in turbulent macroeconomic conditions, especially when Fed keeps raising rates," he tweeted on Dec. 13, seemingly forgetting the debt he'd piled onto Twitter's balance sheet.

The same forces that humbled Musk and his peers have helped erode the cultural and moral authority of the venture capitalists who financed their success. Marc Andreessen, co-founder of the venture capital firm Andreessen Horowitz, went all in on crypto several years ago, investing in companies that have seen the value of their tokens collapse or that have come under investigation by US authorities. Andreessen, once admired as one of the industry's futurists, is now the industry's get-off-my-lawn guy, raging constantly on social media about all things woke. (Bloomberg LP, which owns *Bloomberg Businessweek*, is an investor in Andreessen Horowitz.) Sequoia Capital Ltd., another leading VC, has become infamous for giving $150 million to Bankman-Fried even though he was playing video games during his pitch. And Chamath Palihapitiya, once seen as the Valley's social conscience, is now better known for promoting a collection of controversial and lightly regulated public offerings known as SPACs to retail investors. His SPAC deals lost more than half their value last year. Like Musk, Palihapitiya has blamed the Fed for his troubles.

The Great Comeuppance also came for American politics. Bankman-Fried, who was a major donor, has been charged with campaign finance violations in addition to wire fraud and money laundering, which threatens to destabilize candidates who benefited from his largesse. Peter Thiel, who rode high during the tech boom, watched as his protégé, Blake Masters, lost a Senate election and became a punchline for the failures of candidates who'd aligned themselves with former President Donald Trump. Early polls of the 2024 Republican presidential primary suggest that Trump's own political future may be yet another casualty of the 2022 comeuppance. His Twitter competitor Truth Social repeatedly had to delay its SPAC merger to shore up investor support.

It's possible, of course, that the current sense of populist vindication will prove fleeting. Musk is still worth more than $130 billion and may eventually figure out how to extricate himself from Twitter and stabilize Tesla. Trump looks like he's fighting for relevance today, but his $99 crypto trading cards—known as NFTs and featuring the former president posing as a hunky cowboy, among other hunky characters—shot up in value even as they were mocked by late-night comedians.

There's also the likelihood that the Great Comeuppance could at some point widen its reach. Most of us haven't trolled our way into the purchase of a flailing social media company or pivoted a trillion-dollar public company into the metaverse, but many of us did waste too much time on social media, perhaps taking some unnecessary financial risks along the way (by gambling on sports or stocks or real estate).

For now, the Great Comeuppance may feel satisfying. But most of us owe at least some moral debt to reality. At some point, reality will collect. Ⓑ

ILLUSTRATION BY BRANDON CELI

Japan's Carmakers Are EV Laggards

● Not one of them is among the world's top 20 electric-vehicle makers, risking their futures

Fans at the Nascar Cup Series race in Arizona on Nov. 6 had front-row seats for a debate over the auto industry's future. A plane sponsored by nonprofit consumer group Public Citizen flew past the Phoenix Raceway carrying a banner: "Want exciting? Drive electric. Want boring? Drive Toyota."

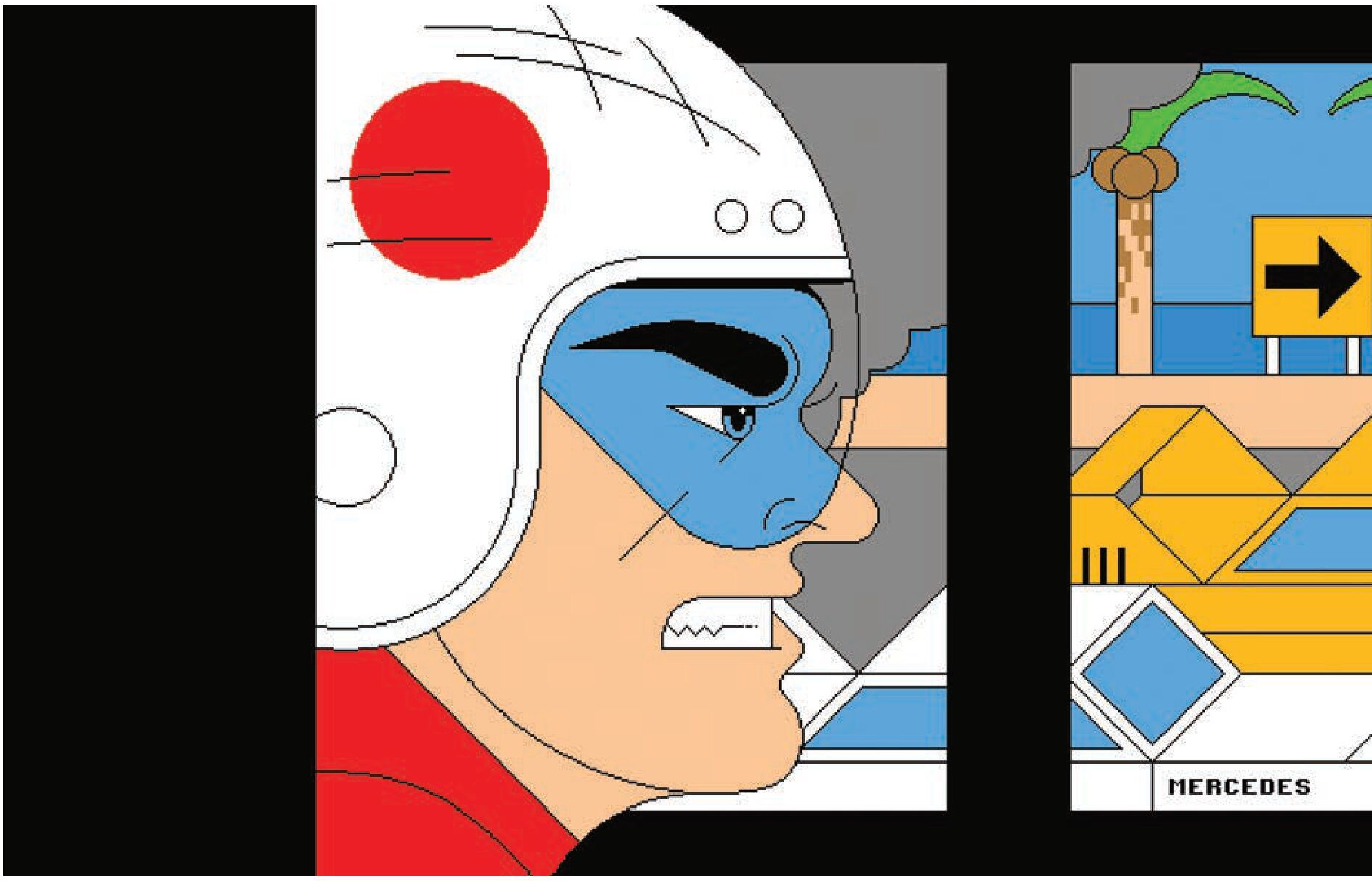
The flyby followed an open letter from Public Citizen and 16 other advocacy groups to Akio Toyoda, chief executive officer at the world's largest carmaker, criticizing its strategy regarding electric vehicles. "No automaker has been able to keep up with the surging consumer demand for battery electric vehicles, but Toyota has not even attempted to meet it," the groups wrote. "Toyota can and must shift swiftly to EVs or risk obsolescence."

Toyota says it's working aggressively on clean car technologies. "It is our hope and mission to reduce CO_2 emissions as much as we can and as quickly as possible," the company said in a statement. "In this diversified world, in an age where we do not know what the correct answer is, it is difficult to make everyone happy with only one option. That is why Toyota will continue to make every effort possible to offer as many options of BEVs and other multi-powertrains to our customers around the world." In September, CEO Toyoda said battery-electric vehicles "are just going to take longer than the media would like us to believe."

The environmentalists are motivated by climate issues, but more broadly, former executives and industry analysts are concerned that Japan's carmakers aren't keeping pace with rivals as the $2.25 trillion global auto industry undergoes its biggest transformation in generations. Tesla is the world's top EV maker by vehicles sold, followed by China's BYD, SAIC-GM-Wuling Automobile (General Motors' joint venture with Chinese partners) and Germany's Volkswagen.

No Japanese carmaker makes the top 20, according to Bloomberg Intelligence.

ILLUSTRATION BY NICK LITTLE. DATA: COMPILED BY BLOOMBERG



Edited by James E. Ellis

Accounting for 12% of all sales worldwide in the third quarter, EVs are no longer a niche product. For the first three quarters of 2022, sales of battery-powered vehicles grew about 80% from a year earlier, according to Bloomberg data, while total vehicle sales fell around 4%. "It's becoming a material part of the industry, and so far the Japanese are missing out on that," says Colin McKerracher, an analyst with BloombergNEF.

The history of EVs shows a series of missed opportunities for Japanese companies. In the 1990s, Honda Motor Co. had a battery-powered car. In 2009, Nissan Motor Co. and Mitsubishi Motors Corp. each launched EVs aimed at the mass market. The following year, Toyota Motor Corp. invested in Tesla Inc. (but sold out by 2017). Convinced the battery revolution would happen slowly, Japanese companies went on to emphasize gasoline-electric hybrids and developed hydrogen fuel cells, a technology with the potential to be even greener than battery-powered vehicles.

Now Japan's automakers have little to offer consumers who want to buy an EV. Toyota in May launched the bZ4X electric SUV but soon halted sales because a defect could cause its wheels to fall off. It said in October it would resume sales of the EV in Japan, and a spokesperson for its US operations said it had restarted sales there in November. "The Japanese car industry needs to catch up," says former Nissan executive Masato Inoue, chief product designer of its first EV, the Nissan Leaf, who now teaches at IED Istituto Europeo di Design in Turin, Italy. "It already could be too late."

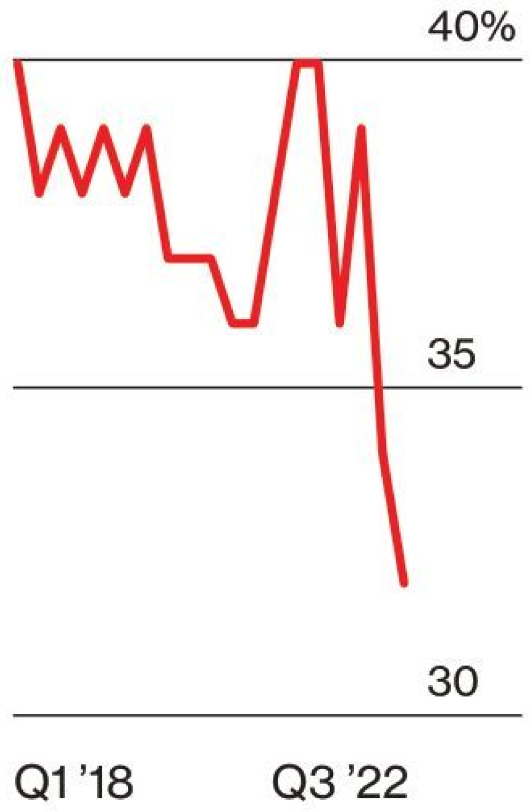
His former boss, ex-Nissan Chairman Carlos Ghosn, was the Leaf's biggest fan before his arrest in 2018 on charges of financial misconduct. Ghosn, who denied wrongdoing, escaped in 2019 and lives in Lebanon, where he's watched Leaf sales stagnate. Although Japanese companies have pledged to plow more than 12 trillion yen ($90.5 billion) into EVs, Ghosn says they'll struggle to catch Chinese rivals such as BYD Co., which will begin selling an electric SUV in Japan this month. Japanese investment announcements "are too little, too late," he says.

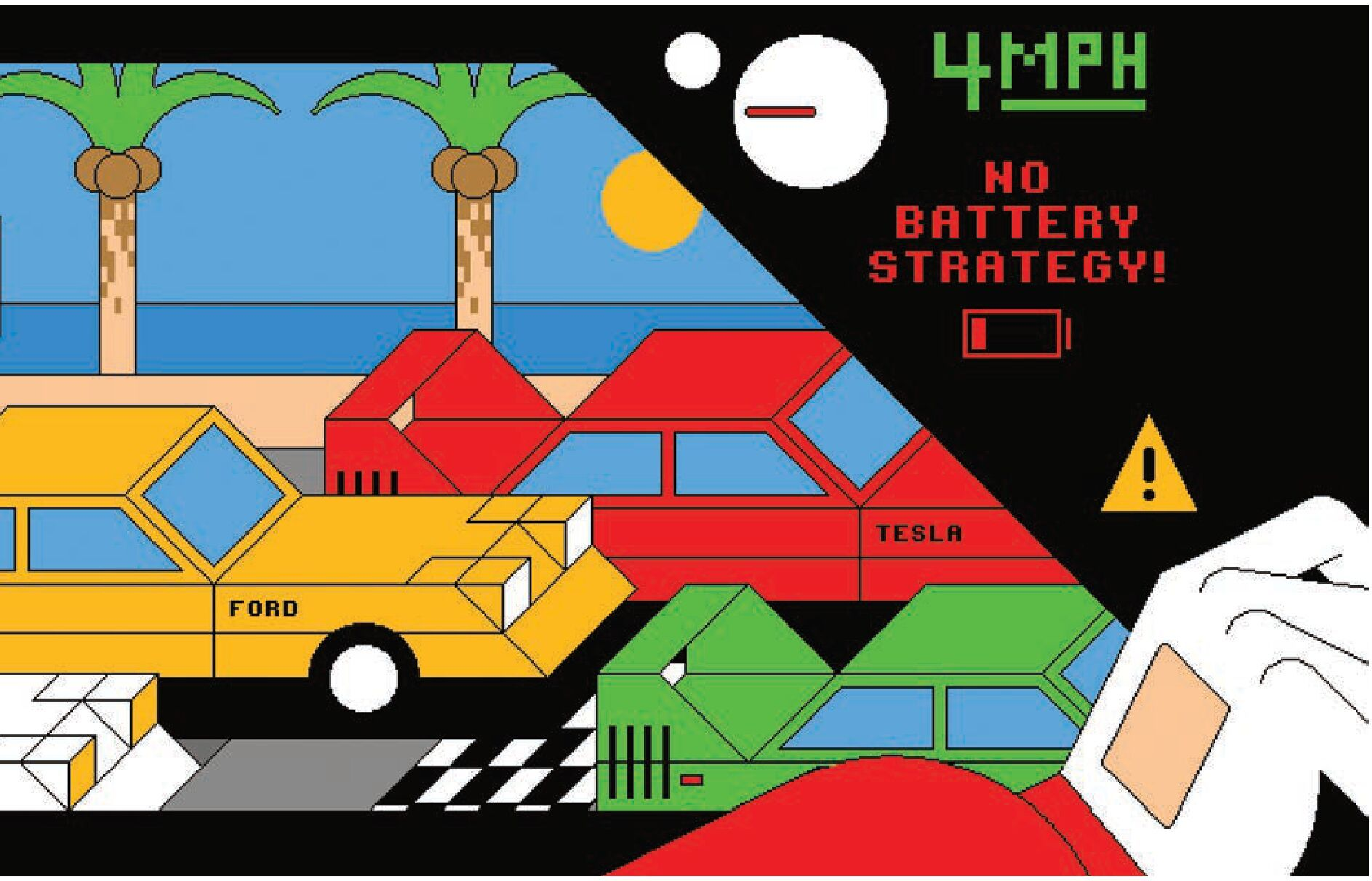
Critics worry the automakers are replicating the decline of Japan's semiconductor and consumer electronics industries, which once reigned supreme with products including NEC's memory chips and Sony's Walkman, but failed to innovate their way out of commoditization. "Japanese automakers look already lapsed and incapable of taking a leading position," says Shingo Ide, chief equity strategist at Nippon Life Insurance's NLI Research Institute.

Six major Japanese automakers had about 40% of the US market for passenger vehicles in 2021, roughly the same as before the pandemic. But in the second quarter of 2022, their share fell to 34%, and by the third quarter it was 32%.

As more Americans choose EVs, the Japanese are taking the biggest hit. "Consumers moving to electric vehicles in 2022 are largely doing so from Toyota and Honda—brands which have been ▶

▼ Japanese automakers' share of US sales





◀ unable to keep their internal combustion owners loyal until their own brands begin to participate more significantly in the EV transition," S&P Global Mobility wrote in a report published on Nov. 29. Those Japanese automakers, it said, "have been caught flat-footed in the context of 2022."

About 15% of new cars sold in Germany and the UK and more than 20% in China were electric in the first three quarters of 2022, according to Bloomberg data. While EVs accounted for about 5% of US sales during that period, demand will likely jump thanks to tax breaks in the Inflation Reduction Act, signed into law in August. By mid-December, companies announced almost $28 billion in investment in EV-related manufacturing in North America.

Toyota "has substantially miscalculated" in its EV strategy for North America, wrote Jefferies analysts Takaki Nakanishi and Jingfei Deng in a report published on Nov. 2. It "needs to quickly review its measures and offer an explanation at an early stage."

Carmaking is one of Japan's most important industries, accounting for almost 20% of manufacturing and 8% of employment, according to the Climate Group, an environmental nonprofit. Electrification puts many of those jobs at risk, because EVs need fewer components, says Jesper Koll, expert director of financial services company Monex Group. While China supported its battery and EV makers, Japan's government promoted hydrogen fuel cells, hoping the nascent technology could preserve more jobs. Toyota released the Mirai, the world's first mass-produced hydrogen car, in 2014 but has sold only about 21,500 of them worldwide. As EVs gain in popularity, Japan's parts suppliers seem destined to play a smaller role. "The growth potential of the Japanese economy is definitely shrinking," Koll says, adding that he's still optimistic about Toyota's chances following its announcement in 2021 of a 4 trillion yen plan to launch 30 EVs by 2030.

Other Japanese companies are also spending big to catch up. Honda has formed joint ventures with Sony Group Corp. and LG Energy Solution Ltd. to make cars and batteries. On Oct. 6 it announced details of an electric SUV it's developing with General Motors Co. Nissan in May announced the launch of electric minicars developed with Mitsubishi; in December it started delivery to US customers of the Ariya electric SUV. By 2030, Nissan aims to sell six EVs, says CEO Makoto Uchida. That's much slower than rivals such as GM, however, which wants to build 30 EVs by 2025.

Having spent decades catering to mass-market consumers, Japanese carmakers boast powerful brands and distribution and service networks that EV newcomers cannot match. "I would never count them out," says Michelle Krebs, executive analyst with Cox Automotive. "They'll still be in the game."

For now, though, those companies are bystanders, on not just sales but also the opportunity to gain experience with EV suppliers and customers, says Karl Brauer, executive analyst at ISeeCars.com, a website that ranks cars and dealers. "Even if you have all the resources and capability of Toyota to produce an EV when you're ready, you still have to go through a learning curve," he says. "And the other automakers are ahead of you, because they're doing it now." —*Bruce Einhorn and Nao Sano, with Reed Stevenson and Chester Dawson*

THE BOTTOM LINE Six Japanese carmakers account for a third of the US market, yet they offer almost no EVs to keep their current customers from jumping to manufacturers with more electric models.

"The growth potential of the Japanese economy is definitely shrinking" as EVs gain popularity

At This CES, Pragmatism Reigns

● After years of focusing on nascent technologies, interest shifts to areas with near-term profit

For years the transportation displays at the annual Consumer Electronics Show in Las Vegas have been dominated by flights of fancy—think self-driving cars and flying robotaxis—that promised a *Jetsons* lifestyle was just around the corner. But this year's CES, which opened on Jan. 5, is spotlighting less-sexy technologies that are here and now, such as autonomous tractors and electric cars. After the high-profile October collapse of Argo AI, the former self-driving unit of Ford Motor Co. and Volkswagen AG, the coin of the realm at this year's CES is profit, not potential. Car companies and startups alike are showing products and services they expect to provide a return on investment in the near term rather than some hazy tomorrow that may never come.

PATRICK T. FALLON/GETTY IMAGES

"There's no question that there's been a shift," says Gary Shapiro, president of the Consumer Technology Association, which puts on the show. "The Biden administration has focused more on electric vehicles than they have on autonomous."

Exhibitors at CES are doing the same. An electric Ram pickup concept from Stellantis presages a model to take on Ford Motor's F-150 Lightning, Rivian's R1T and Tesla's coming CyberTruck. Startup Lordstown Motors Corp. is showing its Endurance plug-in pickup. And General Motors, Mercedes-Benz and Volvo are all touting new EVs.

As for autonomy, instead of robot rides aimed at taking us anywhere, the star of the show is likely to be John Deere's self-driving tractor that promises to lighten the load on farmers by tilling the fields until the cows come home. "It's sexy realism," says Gary Silberg, a partner and head of the automotive practice for consultant KPMG. "There are great toys out there, and it's going to be awesome, but we've got to be real about how we're going to use them."

Pushing the pragmatism is the mountain of cash committed to take on Tesla Inc. KPMG estimates global automakers are making a half-trillion-dollar bet on EVs. But there's not much appetite for pouring billions into autonomous vehicles every year with little hope of a return anytime soon. "People are realizing that the market for large-scale adoption of AVs is still quite a few years away, because the technology is just not mature enough," says Sam Abuelsamid, principal analyst of e-mobility at consultant Guidehouse Insights. "The profits are almost certainly not going to be there in this decade."

Auto executives are even paring back expectations on electric vehicles after confronting the reality of battery shortages and soaring raw material costs. A new KPMG survey of 900 global auto execs found they expect just over one-third of auto sales to be electric by 2030, down from nearly two-thirds in another survey from a year earlier. And one-third of automotive leaders don't see autonomous vehicles being commercially available this decade.

Given limited resources, auto executives are investing in EVs at the expense of AVs. Some 64% in the US said they're very or extremely likely to sell off nonstrategic parts of their business over the next few years to help pay for EV development. "When we asked these same questions last year, it was all rainbows and butterflies," says KPMG's Silberg. "But now it's no longer theoretical, and you see this realism."

Private capital is also getting real. The days of dazzling deep-pocketed venture capitalists with your whiz-bang display at CES are over, Abuelsamid says. "We're beyond the stage where there's easy VC money to be had," he says. "The investment community has decided 'we're not going to put any more money into AVs because we don't see it as a near-term growth business.'" Carmakers have begun redeploying the capital they spent on self-driving research into automated features. After taking a $2.7 billion writedown on the shuttering of Argo, Ford is shifting its focus to add-ons, such as its Blue Cruise hands-free driving system, that car buyers are willing to pay for right now.

Automakers "are asking: 'Where can we make profits?'" Abuelsamid says. With systems that allow drivers to take their hands off the wheel on the highway, "they know they can sell that, and the cost to develop it is much more modest" than the expense of producing fully self-driving cars.

▲ John Deere's 8R fully autonomous tractor

Carmakers are trying to revolutionize the cockpit with technology drivers can download to their vehicle. They say features such as horsepower upgrades and dashboard gaming systems could generate double-digit margins. Many of the changes coming to car interiors started as technology tested on fully self-driving car prototypes, including sensors that detect occupants in a vehicle. "The big step," Abuelsamid says, "is that a lot of the technologies we've been seeing at the show over the years are now migrating into areas that are becoming actual products that will launch over the next couple years." *—Keith Naughton, with Gabrielle Coppola*

THE BOTTOM LINE Now that a third of automotive executives don't see driverless cars being commercially available this decade, automakers are touting technologies that can make money sooner.

China's Tech T

The country's technology giants are finding out how to operate within Xi's tacit rules

In China, 2022 was the year Big Tech changed. Succumbing to a government crackdown and a pandemic that refused to go away, the country's leading internet conglomerates, Alibaba Group Holding Ltd. and Tencent Holdings Ltd., experienced their first-ever quarterly revenue drops and cut jobs by the thousands.

The humbling turn resulted from an explicit strategy by the Chinese government and marked the start of a new era in the way China's tech industry operates. President Xi Jinping has proved willing to sacrifice economic growth and other priorities in exchange for control. For two years, his government squeezed tech giants it once celebrated, while leaving them uncertain about what to expect next.

Now Xi and China's huge tech sector seem to have struck an uncomfortable truce. The Communist Party has let go of its campaign of sudden, severe crackdowns in favor of an effort to inject more clarity about what it considers to be good corporate citizenship. In exchange for this predictability, Alibaba, Tencent and other companies have made peace with sedate growth, aligning themselves with Xi's agenda to curtail tech monopolies and promote what he describes as common prosperity. The decade-long internet gold rush is over.

"Xi Jinping has tamed the wild horses of the private sector," says Ming Xia, a political science professor at the City University of New York. "But the problem is that he did such big damage with his policy that the confidence of some entrepreneurs and foreign investors is already destroyed."

China's largest internet companies once looked like analogues of such US heavyweights as Amazon.com Inc. and Apple Inc. Much of their mojo came from their ability to outspend, copy or acquire rivals to gain supremacy in every digital sphere, whether e-commerce, car-sharing or gaming.

In the US, government officials could never quite agree on how to rein in such giants. But China

Edited by Joshua Brustein and Anne VanderMey

ILLUSTRATION BY LUCIA PHAM. DATA: COMPILED BY BLOOMBERG

snapped into action when the products its biggest tech companies offered became pervasive in every aspect of the country's online life. The first and most visible subject of the crackdown was Jack Ma, the billionaire behind Alibaba and Ant Group Co., who wasn't shy about blasting the government. In November 2020 that government quashed Ma's plan to take Ant public; the next spring it fined Alibaba a record $2.8 billion for monopolistic behaviors. It later ordered a security review of ride-hailing giant Didi Global Inc. after its US-based initial public offering culminated last year in a $1.2 billion fine. Beijing also stopped approving video game releases and forced a large portion of the $100 billion private education sector to convert to nonprofit status.

As these measures kicked in, a range of difficult economic conditions weighed on tech companies large and small, in China and elsewhere. China-focused venture fundraising fell 81% in the first 11 months of 2022, contributing to the biggest global drop in investment in startups in two decades, according to data company Preqin Ltd. Investors ditched once high-flying consumer internet businesses for companies in areas that were more in line with Xi's policy priorities, such as artificial intelligence and semiconductors. "The game plan in China has always been very straightforward," says Chibo Tang, managing partner of Gobi Partners. "Put your money where the government is pointing."

Ma's successor at Alibaba, Daniel Zhang, has appeared to signal that he'll follow that direction, too. "We believe in the prospects of China's economic and social development," he said in a post-earnings call with investors in November. "We believe Alibaba's development goals are highly aligned with China's long-term goals." Alibaba and Tencent didn't respond to requests for comment.

China has responded to such signs of submission, which have also included billions of dollars of corporate donations to social causes, by loosening up. Authorities are nearing the final stages of issuing Ant the long-awaited license it needs to clear a path for an IPO, while regulating the company more like a bank. After industry observers speculated that Didi's top executives could end up in prison for breaching data security rules, they got off with fines.

A little more than a year ago, the state press accused such companies as Tencent and NetEase Inc. of peddling "spiritual opium." But in April, censors began approving video game releases after an eight-month halt. The latest batch of major approvals in late December included foreign blockbusters such as Riot Games' *Valorant* and *Pokémon Unite*, both slated to be published by Tencent.

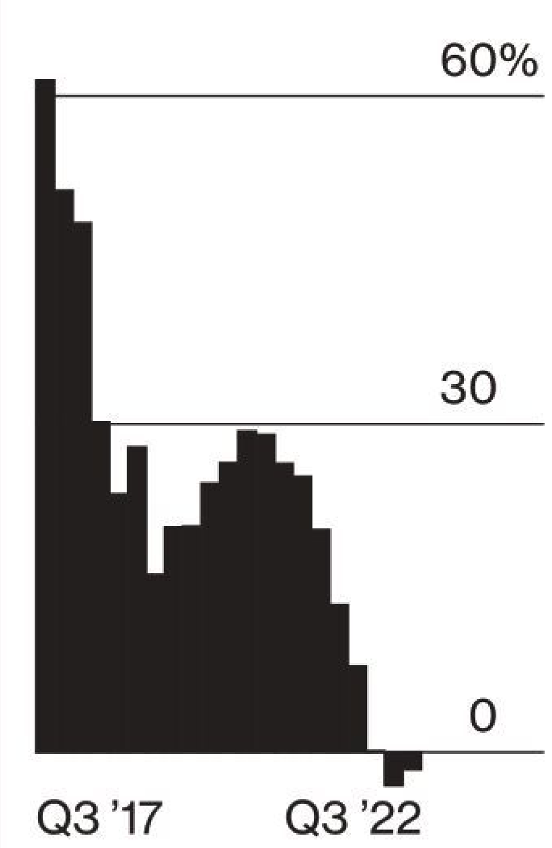
The same month, in his first economy-planning meeting after securing an historic third term, Xi vowed to support platform companies—such as Alibaba, Tencent and food delivery giant Meituan—in playing leading roles in "development, job creation and international competition." Two days later the local party boss of Zhejiang, Alibaba's hometown province, paid a visit to the company's headquarters to give Xi's spiel. It was a clear sign of a change of fortune for the Chinese company hardest hit by its government's tough policies.

Adjusting to the government's wishes has made Chinese tech companies more risk-averse and less ambitious, even as the pandemic keeps hammering growth.

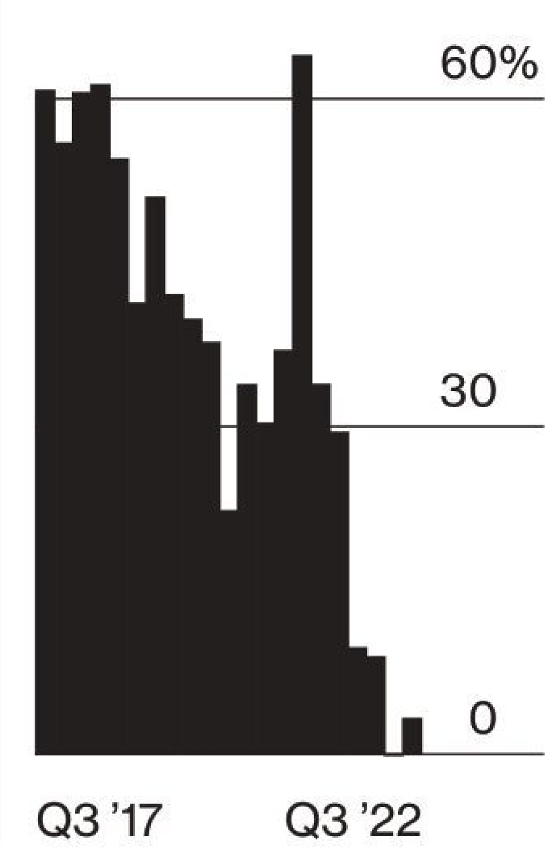
For now, tech executives and investors are focusing on cost-cutting. The big spenders of past years, including the Netflix-style IQiyi Inc. and TikTok rival Kuaishou Technology, are trying to remain profitable by resisting the temptation to splurge on new content or users. Powerhouses Alibaba ▶

▼ Year-over-year change in revenue

Tencent



Alibaba



◀ and ByteDance Ltd. are shutting down businesses that can hurt the bottom line while forgoing venture investments that don't promise an immediate payoff. "We need to spend money where it's the most worthwhile and avoid squandering it," ByteDance Chief Executive Officer Rubo Liang told employees at a December town hall, according to a transcript that Bloomberg News viewed. Revenue growth at TikTok's Chinese owner has slowed, and user growth has also been less than expected, he says. A company spokesperson declined to comment.

Chinese tech companies are increasingly turning outward for growth. Foremost among them are TikTok and fast-fashion retailer Shein, both of which specialize in a speedy, cookie-cutter approach to delivering viral goods and content to global Gen Z customers. Having established themselves as formidable threats to US companies such as Amazon and Meta Platforms Inc., they're also lightning rods for criticism as tensions rise between the US and China. TikTok is seeking a security agreement with the Biden administration to spare itself from a US ban floated by the previous president, Donald Trump, and Shein is reworking its image as an unsustainable business. Neither of their IPOs will likely come through until these issues are resolved.

For Chinese companies, long-term financial success "will require them to build trust with regulators and government officials, which will not be easy given the fraught US-China relationship," says Caitlin Chin, a tech research fellow at the Center for Strategic and International Studies in Washington.

Also on the line are workers who are still trying to adjust to the tech slump. Almost 11 million college graduates are estimated to have flooded the labor market in 2022, a record number. Many had been preparing to enter a booming tech industry, only to find that the sector was no longer offering the big payouts they had expected.

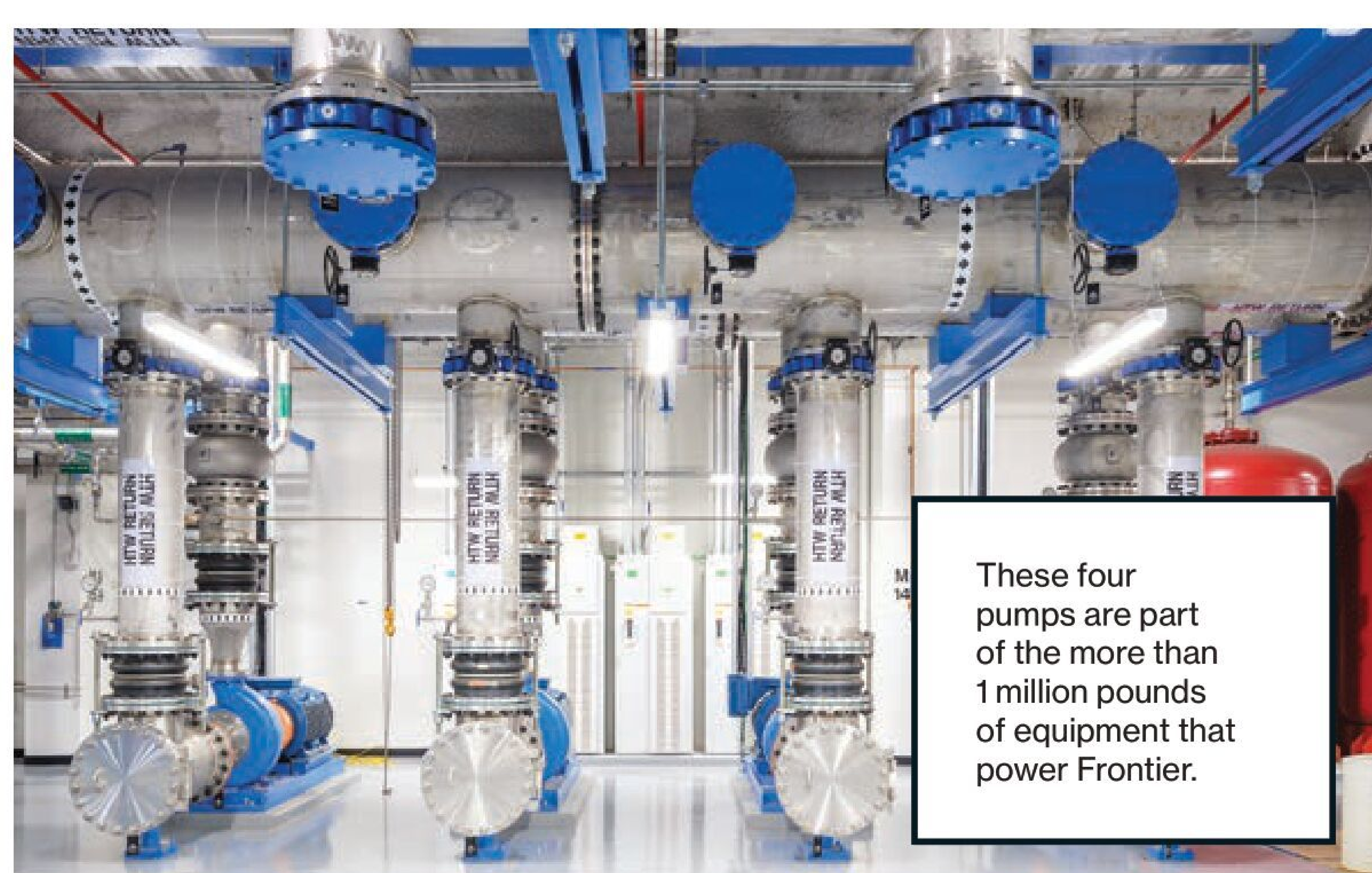
Zhang Hao, a 22-year-old who studied automotive technology in college, applied for more than 100 tech jobs last summer. He got only one interview, with a Shein-inspired e-commerce startup. The founder asked him if he could accept frequent overtime, which had been a norm in tech. But the country's young people are embracing the "lying flat" lifestyle as a response to a worsening economy and Covid-19 restrictions. Zhang ended up becoming an instructor in car maintenance, earning half what the startup would have paid. "This is more stable," he says. "I don't want to be burnt out for just a job."
—Zheping Huang and Jane Zhang, with Sarah Zheng

THE BOTTOM LINE Beijing has eased its crackdown on tech in favor of a policy approach to its biggest companies that sacrifices maximal growth for tighter governmental control.

Exascale

Scientists in Tennessee in May unveiled a supercomputer that cracked the threshold of a quintillion calculations per second. The system, called Frontier—officially the world's fastest—requires many gallons of water (for cooling), highly trained staff and massive physical infrastructure to operate. —*Story and photographs by Alastair Philip Wiper*

Lab director Thomas Zacharia, who retired late last year after 35 years at Oak Ridge, oversaw Frontier's construction.

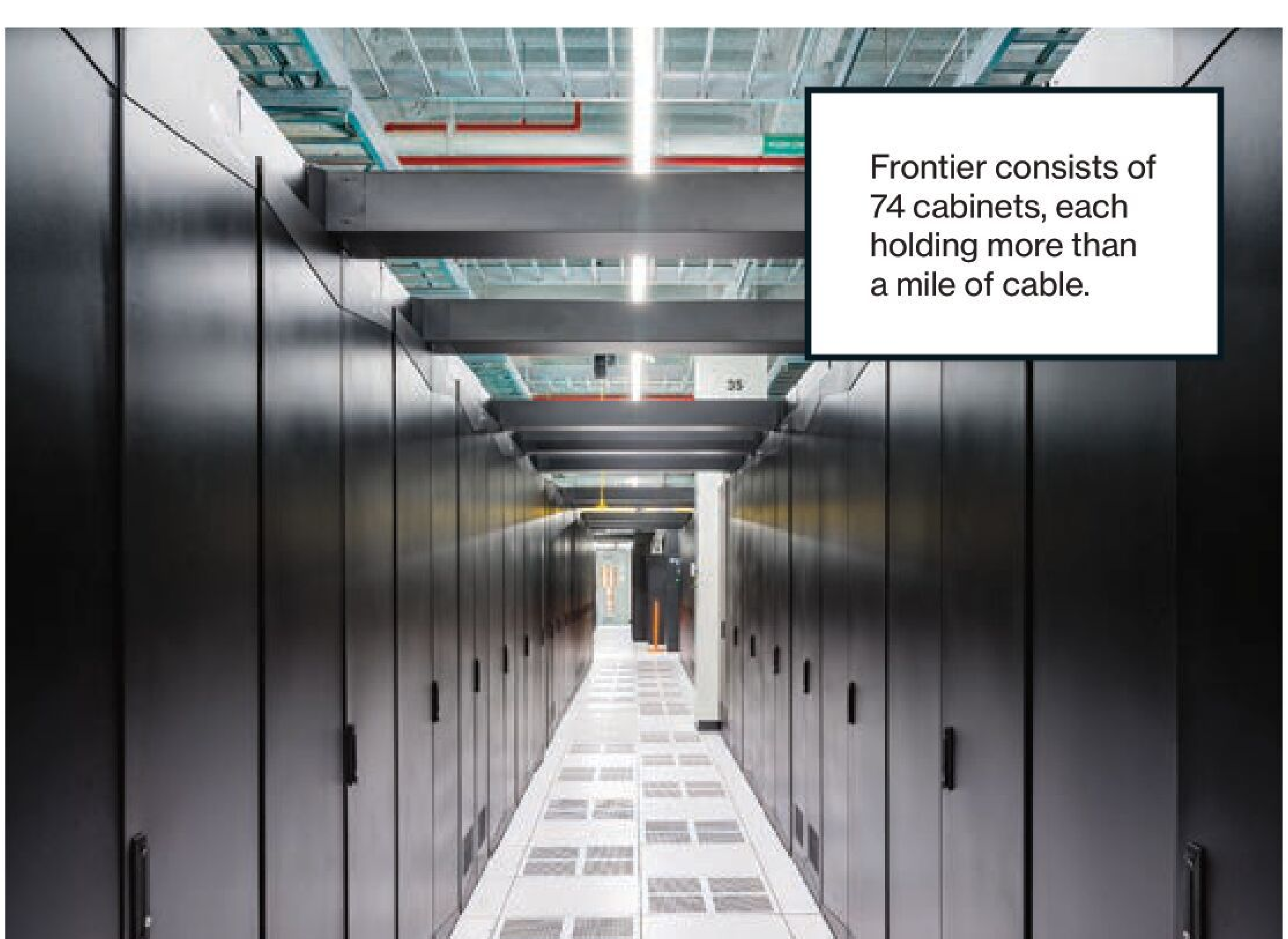


These four pumps are part of the more than 1 million pounds of equipment that power Frontier.

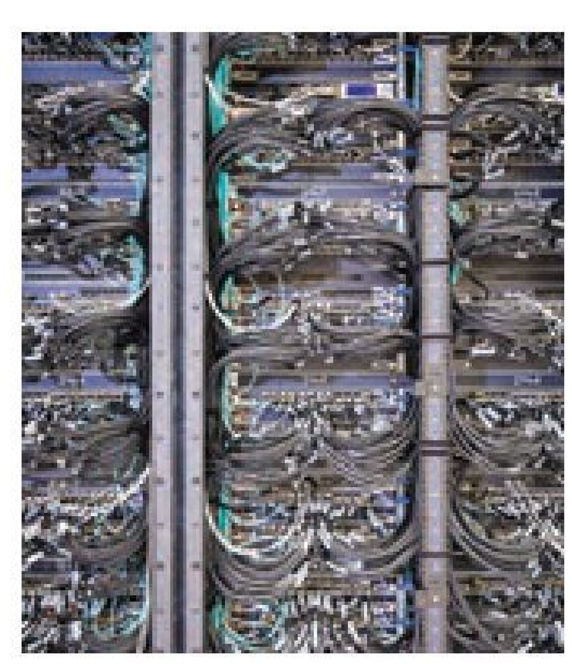
A Supercomputer Needs More Than Chips

Frontier's cooling system uses 350-horsepower pumps with the capacity to fill an Olympic-size pool in less than an hour.

Supercomputers run hot. Keeping Frontier from melting down requires infrastructure that sprawls over 7,300 square feet. Powered by enormous pumps, about 6,000 gallons of water per minute flow through the system and across the computer's more than 9,000 nodes. The water is not pre-chilled, making the program unusually energy-efficient.



Frontier consists of 74 cabinets, each holding more than a mile of cable.



In Oak Ridge, Tennessee, a cluster of low-slung red buildings is the home of the Oak Ridge National Laboratory, one of the US's largest research and development facilities, and the birthplace of the Frontier supercomputer.

Soon after starting operations in 2022, Frontier took the title of the world's fastest computer, as judged by publicly available data. It broke the so-called exascale barrier—meaning it's able to complete more than 1 quintillion calculations in one second. That's equivalent to each person on Earth completing 60 calculations per minute, with no breaks, over the span of four years.

The system is comprised of Hewlett Packard Enterprise Co.'s HPE Cray EX system, with chips from Advanced Micro Devices Inc.

Researchers plan to use Frontier, funded by the US Department of Energy, to tackle problems that are beyond the reach of ordinary computers, such as modeling climate change outcomes, investigating disease origins and discovering patterns in medical data.

3

FINANCE

Tesla's $860 Billion Reversal

Investors in Elon Musk's day job are feeling a lot less excited about the future

Until fairly recently, higher-end Tesla cars had a setting called "ludicrous mode," which used their high-torque electric engines to achieve superfast acceleration. In the past year, ludicrous mode has also been an apt description of Tesla Inc.'s share price—except it's been running in reverse.

From about $1.2 trillion at the start of 2022, the company's market value has fallen more than 70%, to $340 billion. That still makes it by far the most valuable automaker in the world. Ford Motor, General Motors, Stellantis and Toyota Motor are worth about the same amount combined. But another way to put it is that Tesla's fall has wiped out the equivalent of the value of four major car companies, more than twice over. And Chief Executive Officer Elon Musk has made history by losing more money in his personal fortune than anyone ever.

The most obvious explanation is that Tesla is an especially high-growth, high-speculation stock in a market that pumped up such companies in 2020 and 2021 before abruptly turning on them in 2022 as interest rates rose and the stock market fell overall. Musk pointed to this dynamic in a mid-December Twitter post. (More on the tweets in a moment.) He said that when people can earn higher rates without risk, they tend to move money "out of stocks into cash."

Yet, Tesla's decline is conspicuous even among once-frothy tech stocks. In 2022 the stock was the worst performer in the NYSE FANG+ Index—a gauge of 10 large technology companies that includes Amazon.com, Apple and Meta Platforms. That index is down about 40% over the past year, which is still much less than Tesla's drop. The carmaker's shares had largely traded in line with other major technology stocks last year until around September, then they diverged sharply. In the past three months, Tesla fell 59%, compared with a 6.7% loss for the FANG+ and a 6.7% rise for the S&P 500.

The rest of the explanation is what Mark Stoeckle, CEO of Adams Funds, which holds Tesla shares, calls "a cocktail of misery." As a leader, Musk has given any investor nervous about Tesla's lofty valuation plenty of headlines to justify selling, while the company itself deals with new challenges.

Start with Musk's Twitter adventures—both as a heavy user of the social media platform and now as the owner. The first blow came in November 2021, when he conducted a Twitter poll asking whether he should sell 10% of his stake in Tesla. Respondents said yes. Within two months,

Edited by Pat Regnier

COURTESY TESLA

Musk had sold $16 billion of Tesla shares. Things escalated quickly in 2022 after he announced his intention to acquire Twitter Inc.

After trying to wriggle out of the deal, Musk finally had to go through with it. All along, Tesla investors worried about his needing to sell even more of his stake in the car company to pay for Twitter. Another concern was that his obvious preoccupation with the platform was distracting him from Tesla.

Musk has now sold almost $40 billion of Tesla shares since late 2021. And though he recently said he has no plans to sell more stock anytime soon, the market almost always dislikes the idea of a company insider selling, taking it as a sign of low confidence.

At the same time, Musk has stirred the pot of countless social and political controversies since taking over Twitter, with his own trolling tweets and sudden changes to moderation policies. The chaotic Twitter sideshow matters because Musk's persona is so closely associated with Tesla. "A lot of damage has been done to the brand and the story, and the news flow may stay negative on Elon Musk for a while," says Catherine Faddis, senior portfolio manager at Fernwood Investment Management LLC.

Still, most Tesla investors are probably more focused on the electric vehicle business—and the company has simply faced a high bar of expectations. After all, this is a stock that rose more than 1,100% over 2020 and 2021. Whereas analysts on average expect GM's or Ford's revenue to expand at a pace of low- to mid-single-digit percentages over the next five years, for Tesla they model an average 25% jump every year.

That thesis has started to show some cracks, after the company's vehicle deliveries failed to meet analysts' expectations for three straight quarters. The latest miss was reported on Jan. 2, sending the stock to its lowest since August 2020. Tesla still delivered a 40% annual increase while setting a quarterly record, but to many it was a relative disappointment that augurs a new reality for the EV industry as well as for Tesla.

Economists are warning of a possible global recession in 2023. Meanwhile, high inflation over the past year and the increased cost of financing for a car are pushing consumers to delay plans for purchasing expensive vehicles, and electric cars are typically pricier than gas-fueled ones.

Tesla rarely discounts, but it recently offered customers in the US a $7,500 yearend deal to boost deliveries. It's also cut prices and production in China. "Our base case assumption is that year-over-year growth (while remaining impressive overall) is likely to decline each year from here on out," JPMorgan Chase & Co. analyst Ryan Brinkman wrote in a note to clients after the release of Tesla's latest quarterly delivery numbers.

An economic slowdown will be responsible for some of that, but Brinkman also points to the rising threat from competition. Older carmakers may have been late to the electric game, but they're planning to flood the market with a slew of EVs over the next few years. A report from S&P Global Mobility in November found that Tesla's share in EV sales was set to drop to below 20% by 2025, from a dominant 79% in 2020.

Bulls can point to how the EV market is still growing fast enough for Tesla to sell more cars even if its share drops. For now the company is still synonymous with EVs for vast groups of potential electric car buyers who haven't made the switch. And the colossal Japanese auto industry has been slow to move on EVs.

"The current growth story for Tesla is positive, and while we've seen a large drop in the price of Tesla's stock, we haven't seen any material decline in the operations of the company," says Brian Mulberry, client portfolio manager at Zacks Investment Management. "Sales estimates are still stable, margins are improving, and earnings are growing."

As Tesla's history in the bull market shows, the stock is sensitive to market psychology. Among big tech-related stocks, it's most similar to Meta, which fell 64% last year. Both companies face specific issues—with Meta they include slipping social media revenue and CEO Mark Zuckerberg's focus on the metaverse—but also a fierce, general mood of skepticism among investors. They're less willing to cut managers slack today based on hopes for growth in the farther-off future. That might shift quickly again should economic data and Tesla's results improve.

Adams Funds' Stoeckle says Tesla stock still isn't cheap, even at these prices. It remains an optimist's bet. "It's important not to simply expect that a significant drop in the price of a stock means it's therefore attractive—so many stocks in 2022 were rerated and deserved to be," he says. "There are enough questions about the operations of Tesla—China demand, price cuts, good competition—that makes it hard to declare the current valuation is correct." *—Esha Dey*

THE BOTTOM LINE Tesla remains the most valuable car company on the planet, but it's sharing the EV market with more competitors even as Musk spends time with Twitter.

Jan. 3, 2023: $340 billion market value

FTX Was Targeting Main Street

● Before it collapsed, the crypto exchange saw novice small investors as its future

Early last year, cryptocurrency exchange FTX US was setting its sights on a vast pool of money: individual retirement accounts. "We have IRAs trading on FTX today, and are making a push to serve this segment," Nate Clancy, FTX US's vice president for business development, wrote in an email in March to a New Jersey-based investment adviser, a copy of which was seen by Bloomberg News.

The outreach, part of a multifaceted effort by the wider FTX Group to expand its base of everyday retail customers, casts light on the exchange's sprawling ambitions in the months leading up to its implosion. It also gives a glimpse into how the damage might've been even worse had the plans been given longer to gestate.

FTX and former Chief Executive Officer Sam Bankman-Fried's broader crypto empire collapsed in November. US authorities allege he fraudulently used customer money to prop up his trading firm, Alameda Research, leaving legions of clients high and dry when FTX went bankrupt. The charges center on the group's global trading platform FTX.com, but FTX US—its smaller unit for US investors—was part of the bankruptcy.

Every young company prioritizes growth, and prosecutors haven't publicly assigned any sinister motives to the retail push, which seemed like a logical enough way for FTX to capture market share. But the allegations against Bankman-Fried underscore the perils of luring unsophisticated savers into a loosely regulated industry pushing highly volatile and opaque instruments, with often scant customer protections.

"It's quite clear that FTX relied on continuous flows of new capital entering the platform, much like many other financial schemes, and marketing to retail was the most expedient way to attract those flows," says Cory Klippsten, CEO of crypto startup Swan Bitcoin. "It's better that it blew up before it got bigger."

Representatives for FTX didn't respond to requests for comment. Mark Botnick, a representative for Bankman-Fried, declined to comment. Bankman-Fried, who was released on bail, has pleaded not guilty to the charges against him. Clancy, who hasn't been accused of any wrongdoing, declined to comment.

FTX, which amassed a loyal base of more experienced crypto investors, had made no secret of its desire to vie with Binance and Coinbase Global Inc. for retail customers, spending millions of dollars on Super Bowl ads, sponsorships and partnerships with celebrities such as Gisele Bündchen.

The company hasn't provided a public breakdown of how many retail clients it had or given growth targets for the segment. In March, FTX said institutional investors such as hedge funds accounted for about two-thirds of trading on both the global and US platforms. The bankruptcy filings for more than 130 entities in FTX Group listed more than a million creditors.

"It's better that it blew up before it got bigger"

In an annual report for 2021, which Bankman-Fried tweeted in January of last year, the company said attracting individual investors was a key part of its growth strategy. The effort hinged on offering an easy-to-use app tailored to inexperienced traders. "Our goal is to create a retail-friendly app that allows for anyone to get involved, whether that's through education, making their first crypto purchase, or exploring the burgeoning NFT ecosystem," the FTX report said, using the acronym for nonfungible tokens.

FTX's outreach also included an initiative to accelerate its expansion through tieups with third-party apps. Financial technology companies including PayPal Holdings Inc. and Revolut Ltd. use similar agreements with other companies to allow users to buy and sell crypto on their apps, with the transactions executed on a digital-asset exchange. PayPal, for

example, uses a company called Paxos.

When Dave Inc., an online-only bank founded in 2015 and based in Los Angeles, looked for a partner to expand into crypto, more than 10 companies submitted proposals, according to a person with knowledge who asked for anonymity discussing internal deliberations. But FTX—through its FTX Ventures investment arm—stood out by offering to invest $100 million in the startup through a convertible note.

FTX US and Dave unveiled their partnership and the investment in March but never launched any joint crypto services. Dave "is monitoring developments and will review how these impact its relationship with FTX going forward," a spokesperson says.

FTX US continued to pursue partnerships, culminating in a deal with GameStop Corp. announced in early September, two months before the exchange spiraled into bankruptcy. In a press release that was light on details, the companies said FTX US would "collaborate with GameStop to introduce its customer base to the digital asset ecosystem."

On the day FTX Group filed for protection from creditors, GameStop tweeted that it was winding down the partnership. Representatives for GameStop didn't respond to requests for comment.

FTX also held discussions about buying stock-trading app Webull as recently as this summer, according to a person familiar with the matter, who asked not be named because the discussions were private. Talks advanced as far as price negotiations, the person says, but the companies never reached an agreement. Earlier in the year, Bankman-Fried purchased a 7.6% stake in Robinhood Markets Inc.

Another way to reach individual investors was through sports marketing. FTX spent almost $100 million on sponsorships in 2021, according to consulting company GlobalData Plc. It also linked up with stars including basketball player Steph Curry and quarterback Tom Brady. The two athletes haven't publicly commented on their relationship with FTX after its implosion.

Samuel Taylor, a 24-year-old accountant in Arizona and an avid sports fan, says he came across FTX "literally everywhere" and became a client in July. Taylor says he and his wife had about $12,500—the bulk of their savings—on FTX US when it went bankrupt. He managed to withdraw about $1,000 worth of Bitcoin as FTX teetered, but he hasn't recovered the cash he'd parked on the exchange. "First, I was devastated," Taylor says. "Second, I was just so surprised." —*Annie Massa and Anna Irrera*

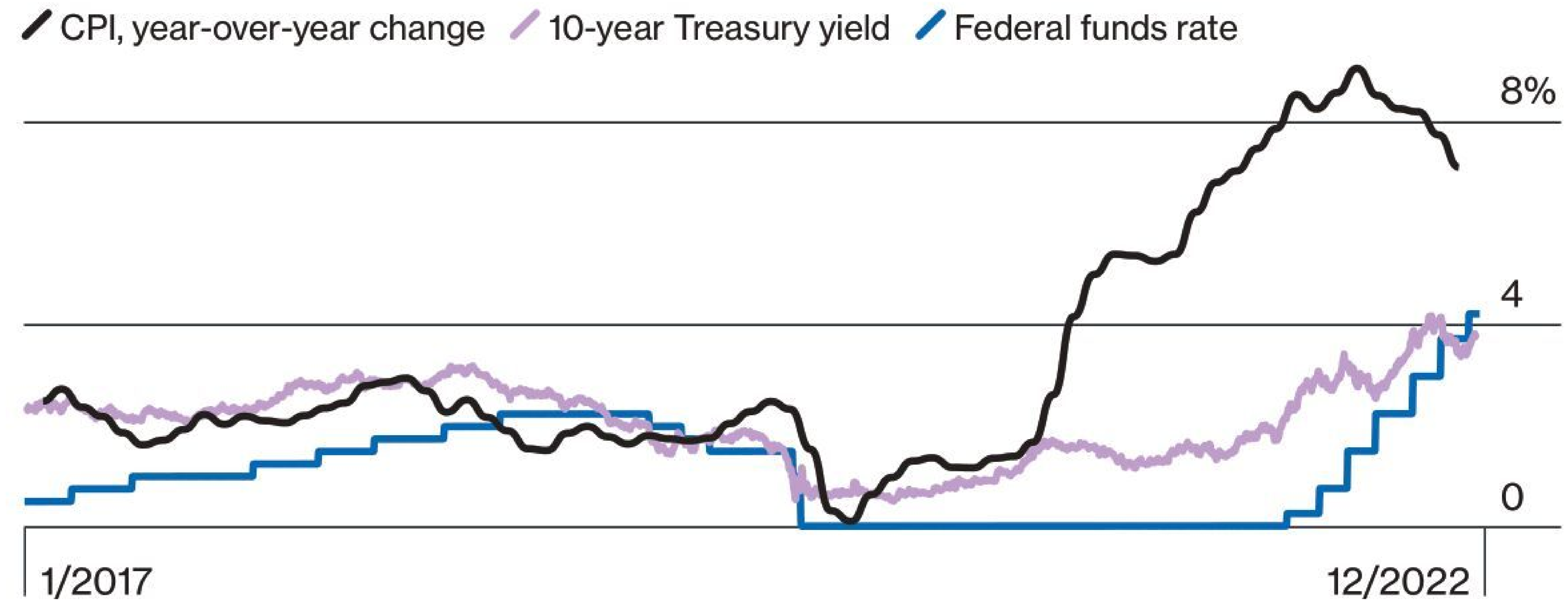
THE BOTTOM LINE FTX was trying to lure new customers with ubiquitous sports marketing, celebrity ties and partnerships with outside companies.

Markets Don't Look Back

As Covid-19 loosened its grip in the US, many hoped 2022 would bring a return to normal. But for investors it was a bumpy year.

Investors lost their taste for risk as inflation rose faster than most expected and the Federal Reserve hiked rates to fight it.

CPI, year-over-year change / 10-year Treasury yield / Federal funds rate



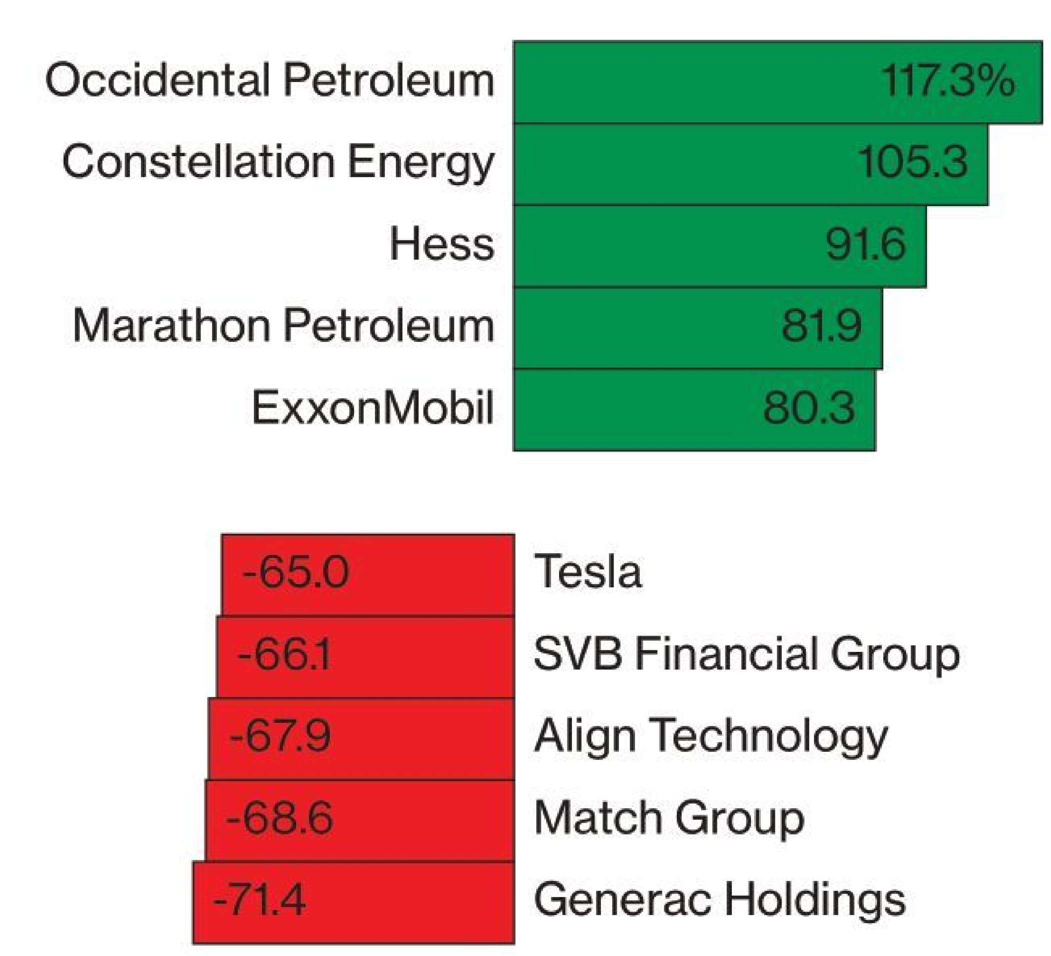
It was a rough time for stocks but an epic loss for bonds.

Worst years for US stocks since 1989*	
1 2008	-37.0%
2 2002	-22.1%
3 2022	-18.1%

Worst years for US bonds since 1989	
1 2022	-13.0%
2 1994	-2.9%
3 2013	-2.0%

Happy stock investors were all alike: They bought energy companies.

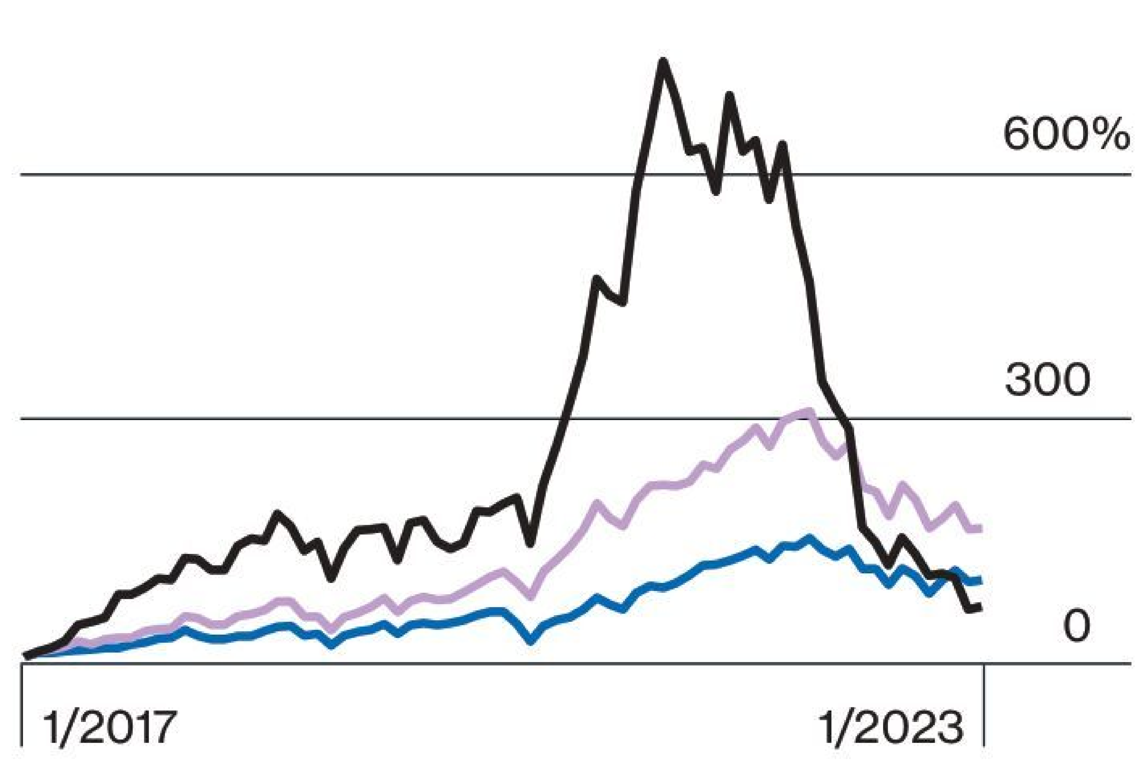
Best and worst S&P 500 stock of 2022



Star money manager Cathie Wood, whose aggressive tech bets paid off big in 2020, now trails the market over the long run.

Total return

ARK Innovation ETF / Nasdaq 100 / S&P 500



Rising US rates pushed down other currencies versus the dollar in 2022.

-12.2%
Japanese yen

-10.7%
British pound

-5.8%
Euro

LEON NEAL/GETTY IMAGES. *TOTAL RETURNS FOR THE S&P 500 (STOCKS) AND THE BLOOMBERG US AGGREGATE (BONDS). DATA: COMPILED BY BLOOMBERG

The End of ‘Made in the USA’?

● Los Angeles’s fashion industry is feeling the effects of a workers’-rights push

Edited by
Cristina Lindblad

Los Angeles has long been the country’s premier hub for garment manufacturing, churning out T-shirts, swimwear and dresses for fashion brands around the world. But a combination of new labor legislation and rising costs is threatening the future of “Made in the USA” clothing.

California’s Garment Worker Protection Act is a year-old law that takes aim at the industry practice of paying workers a piece rate, rather than an hourly wage, which often results in them earning less than the minimum wage. It also renders fashion brands liable for labor abuses across their supply chains. Similar bills are under consideration in New York state and in the US Congress.

Fashion’s race to produce clothes faster and cheaper means brands are ultrasensitive to costs, making overseas manufacturing all the more attractive when expenses rise even incrementally. Companies interviewed for this story said making clothing in Los Angeles has become more costly as a result of the state act, cutting into margins and forcing some to raise prices, which puts them at risk of losing business. Those that can’t make the math work are seeking out new locales, accelerating an exodus that’s hollowing out the city’s once-vibrant Fashion District.

“If you’re making a commitment to fair labor, there will be a higher cost, period,” says Kathleen Talbot, chief sustainability officer of Reformation,

SPREAD: PHOTOGRAPH BY PALOMA DOOLEY FOR BLOOMBERG BUSINESSWEEK; USC DIGITAL LIBRARY (4); LA TIMES/UCLA LIBRARY SPECIAL COLLECTIONS (3); GETTY IMAGES (2); POLARIS (3)

◀ A photo history of the Los Angeles Fashion District, going back to 1928

a women's fashion brand that produces about 30% of its clothing in Los Angeles and has no plans to move. Reformation, which charges $100 to $400 for dresses, bills itself as a company that "pioneers sustainable practices, focusing on people and progress each step of the way." Says Talbot: "You need to either find a way to build that into your business model or into your margin. And then in some cases, you will need to translate that to the customer."

Los Angeles County is home to more than 25% of all apparel manufacturing businesses in the US, the largest share in the country, according to data from the Bureau of Labor Statistics. These businesses, along with textile mills, employ 23,800 people. Matthew DeCarolis, an employee-rights attorney at Bet Tzedek, a nonprofit law firm that handles wage claims, says the California law represents a major advance for garment workers, some of whom have been in the industry for decades and are for the first time getting fair pay and overtime. The law is so new that many claims are still being investigated, he says, with payouts expected as the year progresses.

The Garment Worker Protection Act extends the liability for unpaid wages or compensation all the way up to the brand level, including companies that aren't based in the state. If a Los Angeles zipper maker, for example, is found to be avoiding overtime pay rules, a fashion label selling a pair of pants with that company's zippers could be liable for paying out wages owed to the supplier's workers.

Supporters say this shifts responsibility to the companies that are profiting from underpaid labor. Critics argue that it puts too much pressure on brands and simply leads them to move production elsewhere. "You don't want to be a small brand that finds out you're liable for wage claims because the dye house you found to dye your fabric didn't follow all the rules and you had no way of knowing," says Marta Miller, co-founder of Lefty Production Co., a Los Angeles-based clothing and accessories manufacturer that's worked with more than 150 brands, including Urban Outfitters Inc. and Walmart Inc. "Brands are pulling out of domestic manufacturing. They're just not going to take the risk." ▶

◀ After the legislation went into effect last January, Miller hired an auditor to ensure that her subcontractors are following the new laws, and in some cases had to find new partners. Most have increased prices to keep up with the rising cost of compliance, she says. That's on top of the broader economic strains of rising rents, higher prices for raw materials and labor shortages.

Miller began shifting some production out of Los Angeles even before the advent of the law and in 2021 acquired a fashion development company in Austin, where she moved with her family. She's now sending more work overseas to help clients contain costs.

US apparel manufacturing has been shrinking for decades largely because of globalization. In Los Angeles County, employment has declined by 77% since 2000. Still, the impact of the Garment Worker Protection Act was evident immediately in Los Angeles's Fashion District, according to real estate owners and developers in the area. Several producers have departed and spaces are getting harder to fill, especially because many of the buildings are zoned specifically for manufacturing, says one property manager whose family has owned buildings used for garment production for six decades.

Apparel makers that depart typically go abroad. "Other parts of the world definitely have a competitive advantage in labor costs," says Ezra Pugh, an adjunct instructor of economics at California's Glendale Community College who once worked in the industry. Pugh named China and Bangladesh as preferred destinations. "Those workers are at least as productive, probably more productive, than domestic workers. It just makes financial sense to go to these other countries."

California's law has inspired similar bills–the Fashion Act in New York state and the Fashioning Accountability and Building Real Institutional Change Act at the federal level–that seek to hold brands liable for wage theft. The national bill, known as the Fabric Act, was introduced in May and awaits a vote in the Senate Finance Committee. Although it may pass the Democratic-controlled Senate, its fate in the House of Representatives, which now has a Republican majority, is more uncertain.

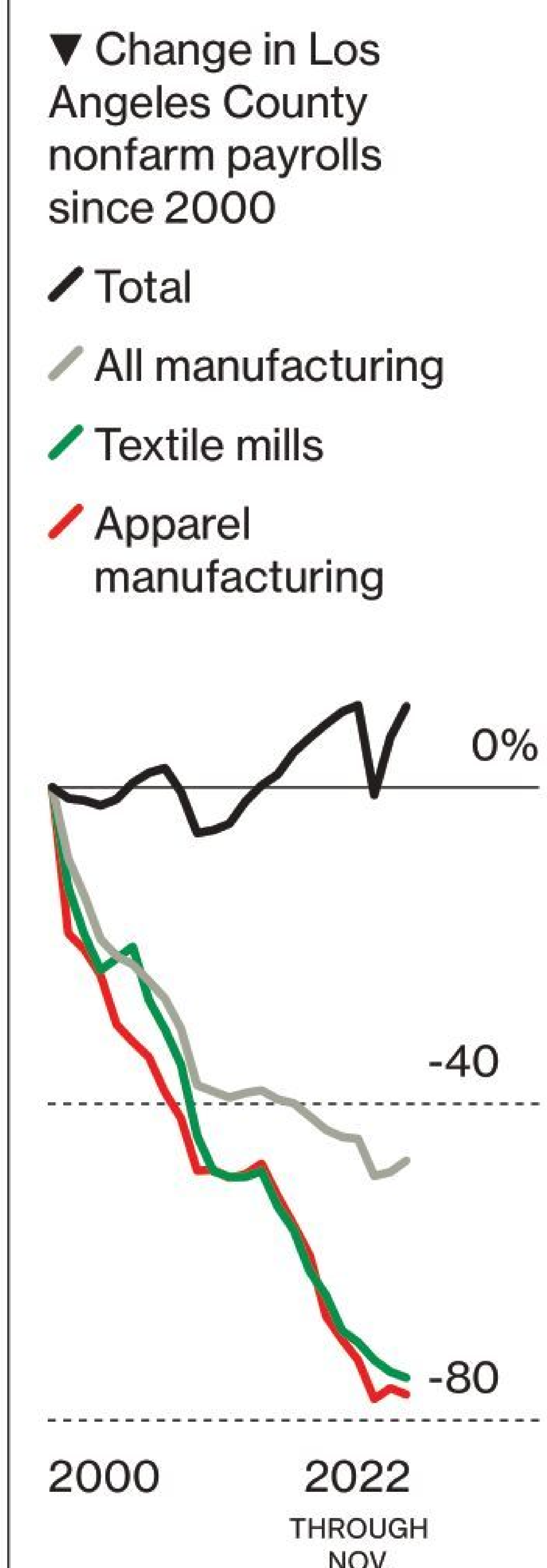
Industry groups including the American Apparel and Footwear Association, which counts Gap Inc. and Target Corp. among its members, and the Council of Fashion Designers of America have come out against aspects of the joint liability provisions in the Fabric Act. But the bill has been endorsed by almost 200 organizations, unions and brands including Reformation, Everlane and Mara Hoffman.

The California law has fueled a debate over whether it's governments or brands that should be responsible for auditing contractors' labor practices. "Making us and every fashion brand and retailer the police of other companies' practices and wage records isn't appropriate," Miller says. Government agencies including California's Labor Commissioner's Office are short-staffed and struggle to enforce labor laws across industries. The state has partnered with labor advocates, including the Los Angeles-based Garment Worker Center, to educate companies and employees about how to comply with the provisions of the act.

"Every time there's an attempt to do something to enforce those labor laws, they find another loophole or another way of bypassing the spirit of the law," says California State Senator María Elena Durazo, the lead author of the legislation. "We really have to focus our resources, energy, innovation, outreach. It has to be constant."

One thing that may help keep US apparel makers from migrating abroad is growing consumer demand for so-called ethical fashion. Also, keeping some manufacturing at home guards against production being shut down or delayed when other countries are confronting geopolitical conflict, climate events or disease outbreaks–all of which have contributed to supply chain crunches in recent years. "We saw the importance of domestic manufacturing during the pandemic, when our industry pumped out face masks and hospital gowns when they were in short supply," Miller says. "Now we're seeing the production base shrink instead of grow." —*Olivia Rockeman*

THE BOTTOM LINE A California labor law that makes fashion brands liable for labor abuses in their supply chain is causing some businesses to move—as well as inspiring similar bills elsewhere.



VANESSA LEROY/BLOOMBERG. PAYROLL FIGURES AT YEAREND, EXCEPT 2022. DATA: CALIFORNIA EMPLOYMENT DEVELOPMENT DEPARTMENT

The Education of Susan Collins

● For the Boston Fed's new president, the study of economics began during family vacations

Susan Collins, who made history in July when she became the first Black woman to lead a regional Federal Reserve bank, was a kid visiting family in Jamaica when she got some introductory lessons in topics that would reappear throughout her professional career: inequality, foreign exchange crises and the real-life effects of monetary policy.

Watching Jamaicans struggle after the country introduced a new currency in 1969, and recognizing that even those with means still had to cope with power outages and water shutoffs, she started to understand that intelligence and resources aren't always enough to help people overcome circumstances beyond their control. "Seeing the impact that that had on families, on communities, the impact that had on the economy," said the Boston Fed president about the currency overhaul during an interview with Bloomberg News in November. "That was something that I had a lot of questions about growing up."

Collins got to delve deeper into the subject while studying toward her Ph.D. at Massachusetts Institute of Technology: Her doctoral dissertation was about currency crises and exchange rate management.

The differentiated impact of policies affecting the economy is once again top of mind for the 63-year-old Collins. Just weeks into her new job, she cast her first vote at the Fed, backing a 75-basis-point increase in the target range for the benchmark interest rate, and supported three more rate hikes afterward. Collins is well aware that traditionally marginalized workers, including Black and Hispanic people, could face the brunt of the economic pain from the most aggressive monetary tightening in decades, aimed at subduing inflation. "That's something that I absolutely take seriously," she told reporters during a recent conference held at the Boston Fed.

Although she won't sit on the committee that sets rates in 2023, Collins will take part in policy discussions, where differences in perspective may become clearer as the Fed approaches the expected end to its tightening drive.

With the exception of a stint as a senior staff economist on the White House's Council of Economic Advisers under President George H.W. Bush, Collins has spent her entire career in academia. After graduating from MIT, she served on the faculties of Harvard, her alma mater, and Georgetown universities and worked as a senior fellow at the Brookings Institution in Washington. Her research has explored a range of domestic and international topics, including the drivers of economic growth in Asia, how the US economy emerged from the Great Recession and the lack of diversity in the economics profession.

Collins was most recently provost of the University of Michigan and prior to that spent a decade as dean of its Gerald R. Ford School of Public Policy, where she developed a reputation as a leader who seeks input from stakeholders before making major decisions. A self-described data nerd, she would often seek answers in numbers and valued pairing data with real-life examples, colleagues say. "Susan always made sure that she talked to a large number of people, got multiple perspectives," says Paula Lantz, who was an associate dean at the Ford School. "She's not a unilateral decision-maker."

▲ Collins

Collins was well known in the Fed community long before arriving in Boston. She's been a regular attendee at the Kansas City Fed's annual symposium in Jackson Hole, Wyoming, a premier gathering of central bankers. Between her roles at the conference and the university, she's moderated discussions with Powell, as well as former Fed Chairs Janet Yellen and Ben Bernanke. And she was on the board of the Chicago Fed for nine years.

She's now one of several new policymakers changing the face of the world's most powerful central bank. Lisa Cook last year became the first Black woman on the Fed board and, along with Philip Jefferson, is one of two Black governors.

With Fed leadership now the most diverse it's ever been—though the absence of a high-level official who is Latino remains a point of tension—Collins says she hopes her appointment lays the groundwork for more inclusive policy. "We do need the range of perspectives around the table, and we need to understand what's working and what's not in the economy," she said during the interview in November. "And the only way to do that is by hearing voices that can really share those perspectives." —*Jonnelle Marte*

THE BOTTOM LINE Collins, the first Black woman to head a regional Federal Reserve bank, is focused on how monetary policy affects less advantaged workers.

Cities

Muffling Mumbai

Activists battling the cacophony say they can show the way for other noisy places

Living in Mumbai requires an inexhaustible tolerance for noise. There's the ceaseless revving of autorickshaw engines and the clamor of car horns as drivers edge through traffic. There's pounding and buzzing from the construction of office towers, apartment blocks and a new metro. Drumbeats and trumpet melodies spill out from weddings and countless festivals. And it's all topped off by bellowing street vendors and garbage trucks blasting Bollywood songs.

So when Sumaira Abdulali began campaigning against noise pollution in India's financial capital two decades ago, friends, acquaintances and even her attorneys insisted it was a fool's errand. "People told me it's ridiculous to even try, because Indians love noise," she says. "We're a noisy country."

But in 2003, Abdulali won a lawsuit seeking to roll back changes to environmental rules that had allowed blaring music late into the night during a festival each autumn. The ruling led to a blanket ban on loudspeakers within 100 meters (328 feet) of schools, hospitals, courts and places of worship. And she has since won more than a dozen other actions both on her own and via the Awaaz Foundation (*awaaz* means "noise" in Hindi), which she launched in 2006.

The World Health Organization warns that noise is a top threat to human wellness, affecting not only hearing but also sleep, brain development and cardiovascular health. With increasing urbanization, ever more people are exposed to unrelenting noise. And Mumbai may be the epicenter of this emerging global crisis.

Abdulali claims the city is the world's loudest, though that's a tough statistic to nail down. A study by India's National Environmental Engineering Research Institute in 2020 did find that noise levels in Mumbai and surrounding areas dramatically exceed legal limits. "Air pollution we can see, water pollution we can see, but noise pollution we can only feel and sense," says Ritesh Vijay, the lead author of the report. "It is a slow poison."

The battle against noise has become increasingly fraught in recent years, with Abdulali often confronting powerful interests who consider it an inevitable byproduct of growth. In a rapidly expanding city such as Mumbai, with a population topping 12 million, demand for housing puts noise rules in conflict with development plans.

Abdulali at home in Mumbai, with a decibel meter

FROM LEFT: CATHERINE DAVISON; MAURICE SAVAGE/ALAMY

January 9, 2023

Edited by
David Rocks

Penelope Tong knows that firsthand. She awoke one morning two years ago to ceaseless thrumming from a construction project next to her apartment at the city's crowded southern tip. "Every time that noise started, I would feel so agitated," says the Mumbai native, who works as a teacher. Tong had heard about Awaaz from her mother, so she rang Abdulali for advice. Abdulali helped her contact police, file legal complaints and document noise of almost 100 decibels—which can harm hearing over a prolonged period. Although sound barriers are required for construction projects, they're expensive, so developers resist installing them. But after four months, the contractor on the project near Tong's flat reluctantly installed a temporary fence to absorb noise.

Traffic is a more difficult problem. The loudest place Awaaz has found is the JJ Flyover, an elevated highway leading to the main railway station. Noise on the road reached 110 decibels—a level that can lead to permanent hearing damage after just 15 minutes of exposure, according to the US Centers for Disease Control and Prevention. In 2011, Mumbai installed a 2-mile fence along a similar stretch of highway, which cut noise in a nearby residential area by 16 decibels. That spurred the city to require barriers for new overpasses, though the rules don't affect older ones such as the JJ Flyover.

Technology can also help in the fight, Vijay says. "The worst part—it's the honking," he says. He suggests devices that measure horn use, which would let officials offer quieter drivers incentives like deductions on car insurance. Dynamic signaling, where sensors linked to stoplights detect traffic density, would improve vehicle flow and reduce the urge to resort to horns, he says.

Abdulali has recruited local officials in her fight, and Mumbai decreed India's first "No-Honking" day in 2008, with cops handing out pamphlets to raise awareness about traffic noise and imposing fines up to 1,000 rupees ($12) on offending motorists. The city's police now restrict honking every Wednesday, and many traffic constables carry decibel meters. But powerful officials ignore the rules when it suits them. Rival factions use festivals to win supporters, Abdulali says, so their leaders often endorse raucous celebrations. As a result, decibel levels during last year's holiday honoring the elephant-headed god Ganesh were the highest on record. But Vijay says festivals are only a temporary problem. Far more important is the longer-term impact of the day-to-day cacophony, so that's where he believes activists should focus their energy. "In India we celebrate festivals with lots of noise," he says. "But our background noise itself is beyond the permissible limit." —*Catherine Davison*

THE BOTTOM LINE Noise in India's financial capital dramatically exceeds legal limits, but activists say sound barriers, devices to monitor car horn use, and no-honking days can help mitigate the problem.

New York, Decarbonized

A 2019 city law threatens big fines for landlords who don't clean up their buildings

The Grand Tier, a 30-story high-rise at Broadway and 64th Street in Manhattan, features trappings typical of posh digs on the Upper West Side, including Central Park views and a lobby ornamented in French tapestry, silver travertine and Italian ironwork. The 20-year-old tower also boasts a singular feature: In the basement, an array of pipes and compressors the size of six parking spaces scrubs exhaust from the building's two natural gas boilers, separating carbon dioxide from nitrogen and oxygen, liquefying it and storing it in metal tanks.

The city's only residential carbon-capture rig, installed last year, reflects a citywide environmental challenge. Local Law 97, a pioneering climate mandate passed in 2019, aims to cut emissions from New York's largest buildings 40% by 2030 and 80% by 2050. Next year the city will begin penalizing owners of inefficient properties, with fines growing considerably in 2030.

New York's density makes it an outlier among US cities: The largest share of its greenhouse emissions comes from buildings, not cars or power plants. The big bet behind the law, which inspired similar legislation in Boston and Washington, DC, is that New York's wealth and entrepreneurial energy will turn the city into a proving ground for climate tech. "In New York City, 17 million tons of CO_2 is emitted from boilers and heaters annually," says Brian Asparro, chief operating officer of CarbonQuest, a startup that worked on the Grand Tier system with owner Glenwood Management. "Why shouldn't every boiler system have technology like this?"

Asparro says the carbon-scrubbing equipment represents 20% of the capital investment to fully electrify systems currently powered by fossil fuels, such as gas stoves and boilers. They're flexible enough to fit into ▶

CarbonQuest's system installed at the Grand Tier

◀ just about any building, he says, and the equipment will help the Grand Tier avoid about $100,000 a year in LL97 fines starting in 2024, penalties that would quadruple in 2030.

The law could trigger a $20 billion market for retrofits in the city over the next decade as owners seek to slash emissions in about 50,000 buildings, according to the Urban Green Council. The bulk of the investment will go to "low-hanging energy efficiency work," says Zachary Steinberg, senior vice president of policy at the Real Estate Board of New York City (Rebny), a trade association representing big landlords. That includes adding LED light bulbs, triple-pane windows and updated heating and cooling equipment such as heat pumps.

But the city's myriad building types and budgets will also demand unorthodox solutions. "Everyone has done pretty sophisticated models of their building to understand where the energy consumption and carbon emissions are coming from," Steinberg says. According to Rebny, 3,786 buildings will face LL97 fines in 2024, a figure that will grow to 13,544 in 2030. "Whatever compliance looks like, we're going to need a lot of tools," he says.

Although LL97 doesn't explicitly mention carbon capture, industry insiders say it has provisions that might make the technology count toward emissions reduction mandates. To date, most carbon capture has focused on large-scale plants meant to vacuum the gas from flue emissions at power plants or from the atmosphere itself, but these use so much energy that they blunt any gains from removing carbon. CarbonQuest says its system is more efficient because it operates on a smaller scale at the source.

Glenwood, which is planning to expand the carbon-capture pilot to five additional locations, has been tackling emissions on multiple fronts: swapping out electric motors, installing steam system traps, and updating boilers, roofs and insulation. Ultimately, full building electrification—backed by a grid powered with renewable energy—is the solution, says Joshua Landon, Glenwood's vice president of management. But he's looking for technology that can come on line quicker. The situation, he says, is akin to a firetruck approaching a blaze with less than a full tank of water; would you turn it away? "This CarbonQuest system cuts 25% of emissions," Landon says. "We've made a lot of big investments that don't give us 25%."

In downtown Brooklyn, Alloy Development is taking a different approach at 100 Flatbush Avenue. The tower, with 441 mixed-income residences and 30,000 square feet of retail, will be fully electrified, powered by community solar panels and batteries to store their intermittent output. "The way we get to a better future is to electrify everything and make the grid renewable," says AJ Pires, Alloy's president.

The project will need 7 megawatts of solar generation, which would require perhaps 25 to 30 acres of panels—not easy to build in New York. In a typical community solar project, there may be hundreds of individual households promising to buy electricity from panels on nearby rooftops, facades and parking lot canopies. Such installations can be tough to fund, but having a creditworthy property owner sign on should make it easier to raise money for them, according to Noah Ginsburg, director of Solar One, which is partnering with Alloy on the 100 Flatbush community solar project. "The economics work," he says.

A 2011 study found building-mounted solar could meet only about half the city's daytime peak consumption and 14% of total annual electricity demand. But the city aims to add 1,000 megawatts of solar generating capacity by 2030, and renewables on rooftops are key to a "fast, low-cost, high-value grid decarbonization strategy," the study found. Updates to the regulations announced in October clarified that solar and battery storage investments can count toward LL97 requirements.

Even as deadlines for compliance approach, questions about LL97 remain. It's unclear, for instance, whether the law will embrace credits that owners can buy as an alternative to upgrades. A market for trading credits could give large property owners a way to offset fines by investing in solar and battery storage in others' buildings, says Robyn Beavers, CEO of Blueprint Power, a company that helps businesses decarbonize. "That would capture the attention of and motivate real estate investors," she says.

Rebny, which has been critical of aspects of the law, argues there must be more support for owners seeking to decarbonize. The group backs a proposed state bill to provide property tax exemptions for such spending. "Reducing carbon emissions is a public good," says Rebny's Steinberg. "But we believe this law has lots of sticks and no carrots. And we need carrots." —*Patrick Sisson*

THE BOTTOM LINE Local Law 97 could trigger $20 billion in upgrades ranging from LED light bulbs to solar installations and carbon-capture gear over 10 years as owners work to slash emissions from 50,000 properties.

FROM LEFT: CARBON QUEST; CITIES4FORESTS

Trees for the Concrete Jungle

Alliances between cities and the stewards of faraway forests can pay dividends for both

Amsterdam uses a lot of wood—for public-housing construction, bridge repair, street furniture and more. But it's tough to be sure the lumber doesn't come from fragile ecosystems. Last summer, Amsterdam started working with the stewards of a managed forest in Suriname to buy traceable hardwoods for use in projects across the city. The alliance is the brainchild of Cities4Forests, a group that promotes sustainable building materials, aiming to make the construction industry greener and more equitable. We spoke with its co-founder, Canadian architect and lifelong wood obsessive Scott Francisco, about why tropical forests are vital to cities and why sustainability strategies frequently don't work. The interview has been edited for clarity and length.

You've criticized many cities' plans for reaching zero carbon output. Why?

They're too limited in their understanding of a city's true carbon footprint. We only really count emissions created within a city, plus those from generating its power. But another huge category is the services and products consumed in the city but produced halfway around the world. They're a key part of the emissions footprint but aren't presently counted rigorously. This overly local focus doesn't go far enough.

Don't local actions such as urban tree planting have value even if they aren't global in scope?

Tree planting in and near cities delivers great benefits, notably to public well-being and to reducing pollution and extreme heat. But if we want to think about carbon sequestration and biodiversity, we need to focus on the tropical and boreal forests that form the largest carbon sinks. If cities import unsustainable materials from these places, they are essentially importing deforestation.

What role does sustainably sourced wood play in cities far from these forests?

The world will add built-up floor space equal to the size of Paris every week between now and 2060. If we follow our current path, that will still mostly require steel and concrete, a planet-frying trajectory. Bio-based materials aren't the only solution—there's innovation on everything from low-carbon concrete to recycled steel. But they're a big part of the puzzle.

What are some examples?

Wood and bamboo sequester carbon until they burn or decompose, and they can be grown again. Using them for construction displaces higher-emitting materials, and carefully managed forestry can be part of landscape restoration and conservation.

Given their value as carbon sinks, should we be touching these forests at all?

A very significant part of the world's tropical forests fall under local and Indigenous rights, and the people living on and near those lands need income. By necessity, they look at that forest as a way to pay to send their kids to school—or buy an iPhone, or eat.

Surely we can't source all of our wood from pristine tropical forests?

The proportion we can get from those kinds of settings is limited, but there are plenty of degraded lands across the tropics that were once forested. Those areas might be suitable for plantation wood that sequesters carbon and provides building materials quickly. That doesn't necessarily mean timber. We're collaborating on a project in Bali for fast-growing bamboo that can be turned into units strong enough for structural beams.

Isn't transporting goods across continents inherently unsustainable?

There's a difference between, say, a melon that's been shipped around the world for just two minutes' enjoyment and building materials intended to be in place for 50 to 100 years. When you do the math on moving a containerful of bamboo or timber 5,000 miles, its overall footprint is actually not that much. The impact of production on the landscape is far more significant.

Do you have other projects like the Amsterdam initiative in the pipeline?

In 2020 we won the Reimagining Brooklyn Bridge design competition, a proposal to replace the boardwalk with planks from Guatemala while planting each end of the bridge with a small biodiverse forest. We're seeking crowdfunding for that. ——*Feargus O'Sullivan*

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Can Ron DeSantis Ride ‘Woke’ To the White House?

The Florida governor's attacks on business leaders who promote progressive values are finding traction with the Republican grassroots

By Joshua Green

Two days before the midterm elections, Florida Governor Ron DeSantis sauntered onstage at a boisterous rally in an airplane hangar in Sarasota and, as Donald Trump likes to do, began tossing baseball caps to the crowd. The similarities with the 45th president didn't end there. DeSantis mimicked Trump's braggadocio, touting his own 2018 victory as "probably the most consequential governor's election in the history of the state of Florida." He even channeled Trump's predilection for claiming that unnamed supporters routinely approach him weeping with gratitude for the unswerving strength of his leadership in the face of elite liberal hostility. As usual, it involved his skeptical response to the Covid-19 pandemic. "Sometimes," DeSantis told the crowd, "people will just start crying, saying, 'My business would just have gone under if you had not stood up for me.'"

Trump famously reoriented Republican politics away from Reaganesque optimism and toward a fed-up populist aggrievance that had far more power than anyone realized until his run for president. DeSantis may be his best student. His public persona is built on projecting truculent contempt toward the people the MAGA masses despise most, including former House Speaker Nancy Pelosi and Dr. Anthony Fauci. And like Trump, he has a gift for sensing what people are primed to get mad about. In Sarasota and other stops along his Don't Tread on Florida Tour the weekend before the midterms, he rattled off a lengthy list of oppressors: liberal politicians who refuse to enforce immigration laws, school boards "teaching kids to hate our country," government bureaucrats demanding mask and vaccine mandates and job-killing shutdowns, and "woke" ideologues instituting radical ideas about gender and sexuality. DeSantis said he was striking back against the last group when he signed a controversial law in March restricting public school teachers from discussing gender identity and sexual orientation in the classroom. Critics dubbed it the "Don't Say Gay" law.

But the enemy that drew the loudest applause in Sarasota was one that, until very recently, ranked as perhaps the GOP's greatest ally: corporate America. DeSantis is at the fore of a growing crowd of conservatives who insist that big business has fallen under the sway of perfidious liberal social reformers. He recounted how he went after Walt Disney Co., one of Florida's largest employers, when it criticized the Don't Say Gay law. DeSantis didn't just strip Disney of its special tax status. He also publicly demonized the company, claiming it had aligned itself with left-wing politicians bent on "teaching a first grader that they could change their gender." He added, "Sexualizing these young kids is wrong."

The lusty booing this remark elicited testified to DeSantis's skill at inciting new grievances. Disney's firing of Chief Executive Officer Bob Chapek two weeks later only enhanced DeSantis's aura in conservative circles. "He's made business and the financial markets into the new playing field in the culture wars," says Andy Puzder, who was briefly Trump's nominee for secretary of labor and has ▶

GIORGIO VIERA/AFP/GETTY IMAGES

DeSantis campaigning in November

◀ advised the DeSantis administration in his current job leading an investment firm.

But though DeSantis's pugilistic style and even his mannerisms owe an obvious debt to Trump, and he probably wouldn't be governor if Trump hadn't endorsed him in 2018, DeSantis rarely mentions the man. After months of stewing over this perceived ingratitude, Trump finally attacked him as "Ron DeSanctimonious" at a rally right before the midterms—not his best effort, but not entirely off the mark. DeSantis ignored him.

As his national profile has risen, DeSantis has been described by mainstream media outlets as "Trump with discipline" and "Trump with a brain." But what really distinguishes him is his judgment. Even as he whipped up populist furor in Sarasota, he avoided the issues Trump harps on most: He didn't question the 2020 election results, or suggest that voting machines were hacked or spout QAnon conspiracy theories. It took another 48 hours for the importance of this distinction to fully register.

On election night, the Republican "red wave" never materialized. Candidates Trump had backed fared especially poorly. In the 13 races in battleground states where an election denier ran for governor, secretary of state or attorney general, every one of them lost. DeSantis, on the other hand, won reelection in a landslide. And he didn't merely crush his Democratic opponent—he won voters Republicans weren't seriously expected to compete for, carrying a majority of Hispanic votes and winning in places such as deep-blue Miami-Dade County, which Hillary Clinton took by 30 points in the 2016 presidential election. In the process, he swept the GOP to supermajorities in both houses of the Florida legislature, ensuring that he'll be one of the most powerful governors in the country in 2023. When DeSantis called the results "the greatest Republican victory in the history of the state of Florida," it wasn't just Trump-style hyperbole.

To pretty much everyone's surprise, the midterm election results showed Trump's solipsistic brand of politics to be a much diminished force. For the third cycle in a row, Republicans underperformed in an election that revolved heavily around him. No one was more enhanced by the latest drubbing than DeSantis, who polls show has emerged as Trump's main rival for the 2024 GOP nomination—if, as expected, he opts to run.

Experience has taught that writing off Trump is unwise, and governors who seem headed for the White House on a rocket ship often blow up on the launchpad. Even so, DeSantis's showing offers a glimpse of what successful post-Trump Republican politics might look like: still combative and polarizing, still consumed with grievances, but less centered on Trump and more animated by issues and enemies that resonate beyond the MAGA base. What DeSantis has done as governor, and what he's aiming to do in Florida's upcoming legislative session, could have a lot more influence on Republican politics than Trump's next controversy or legal travail.

As DeSantis moves toward a possible presidential bid, he's expanding his fight against corporate America, this time going after big asset managers and Wall Street banks. In an attack over the summer he declared, "Masters of the Universe are using their economic power to impose policies on the country that they could not do at the ballot box." He returned to the theme in his swaggering victory speech on election night. "We will fight the woke in corporate America," he said. "Florida is where woke goes to die." Conjuring up a distant, shadowy financial elite and vowing to fight it on behalf of the little guy is textbook populist politics—and another move borrowed from Trump, who made big banks and famous financiers into useful villains in his 2016 presidential campaign. DeSantis is betting he can generate enough resentment about "woke capital" to keep his momentum going. If he's right, he may go from emulating Trump to succeeding him.

Even before his midterm triumph, DeSantis had pulled ahead of other Republican White House aspirants by figuring out how to build an independent profile in a party that centers almost entirely on Trump. During his presidency, Trump redefined what constitutes being a Republican in good standing. Where it once meant embracing certain policy commitments, Trump changed the definition to whether or not one supported him personally and fed his alpha male self-image. Because his popularity with Republican voters was almost absolute, most lawmakers complied.

But this created a problem for politicians hoping one day to replace him. Every Republican presidential hopeful understood that the quickest way to gain attention and build a national following was to jump into the big, loud, messy culture fights that constitute most Fox News programming and excite grassroots conservatives. The problem: Most of these fights revolved around Trump. That forced ambitious Republicans fearful of him to spend their airtime vigorously defending Trump against whatever outrage was driving the news cycle, while simultaneously fluffing his ego. And doing *that* consigned them to the dreaded role of "betas," neutering the credibility of any future break with Trump that might prove politically advantageous.

The Republican landscape is littered with casualties of this dynamic. Mike Pence's book tour, clearly meant to reintroduce him before 2024, has been a succession of cringeworthy interviews in which the former vice president tries to project an image of strength and fortitude while ducking questions about the pro-Trump mob that almost

DESANTIS: OCTAVIO JONES/GETTY IMAGES. TRUMP: JOE RAEDLE/GETTY IMAGES killed him on Jan. 6, 2021. Former Secretary of State Mike Pompeo is campaigning by subtweet, issuing cryptic pronouncements that appear intended to distance him from Trump without risking blowback by mentioning his name. (After Trump dined with notorious antisemite and White supremacist Nick Fuentes in November, Pompeo tweeted, "Anti-Semitism is a cancer. As Secretary, I fought to ban funding for anti-Semitic groups." There was no mention of the evening's host.) Rather than attempt this awkward straddle, Senator Tom Cotton of Arkansas, a tireless Trump booster, announced he would forgo a run entirely.

Back in 2018, when DeSantis was still just a gubernatorial candidate, he, too, frequently defended Trump on Fox, usually against special counsel Robert Mueller's Russia investigation. Trump rewarded him with a coveted endorsement, vaulting DeSantis past the front-runner in the Republican primary, Agriculture Commissioner Adam Putnam, and landing him in Tallahassee. Then DeSantis did something radical: He quit defending Trump. Yet he still managed to get plenty of TV time. "Ron is very good, and has always been very good, at knowing the things that are going to trigger the media," Brad Herold, a former DeSantis campaign manager, said in a recent podcast interview. "He knows what is going to push people's buttons." (DeSantis declined to be interviewed for this article.)

Covid was early proof of this. DeSantis cast himself as the scourge of liberal do-gooders and government health-care bureaucrats, juxtaposing what he called the "Free State of Florida" with the strictures in place almost everywhere else. In April 2020, only weeks into the crisis, he began lifting the statewide lockdown. By September he'd eliminated many state restrictions and issued an executive order prohibiting local governments from enforcing mask mandates. No Republican besides Trump was more prominent during the pandemic.

A more recent example is a DeSantis-orchestrated stunt in which 48 asylum seekers from Venezuela were promised jobs and tricked into boarding a state-contracted charter flight to Martha's Vineyard in Massachusetts, where they were then abandoned. A study conducted by Media Matters for America for *Bloomberg Businessweek* found that over the next month, Fox News ran at least 148 segments that mentioned DeSantis's nasty trick. Here was the DeSantis formula in a nutshell: create a cultural imbroglio that outrages liberals and that is Trump-adjacent but features himself, not Trump, in the role of alpha male.

As DeSantis looks ahead to a possible White House run, there are growing signs his fights with business could give him the most traction. The idea has caught fire with congressional Republicans, who plan to haul "woke" chief executives to Capitol Hill for grillings during the new session of Congress. It was hardly an obvious turn for a Yale University-educated Republican with political roots in the libertarian House Freedom Caucus.


Trump in 2019

Born to a working-class family in Jacksonville in 1978, DeSantis was a star athlete and student at Dunedin High School and became captain of the Yale baseball team. He went on to earn a law degree at Harvard University and served in Iraq with the US Navy Judge Advocate General's Corps. In 2012 he won an open congressional seat in Florida's sixth district, running as a doctrinaire small-government conservative, though one plainly bursting with ambition. (To launch his bid, he wrote a book, *Dreams From Our Founding Fathers: First Principles in the Age of Obama*.) When he got to Congress, DeSantis co-founded the Freedom Caucus. But his sights were set elsewhere. "You could tell from the moment he got here that he had his eye on bigger things," a former Freedom Caucus colleague recalls.

In 2018, DeSantis entered Florida's Republican gubernatorial primary, and his charmed career smacked into a big obstacle: sugar. "The sugar industry was probably more in for Adam Putnam than they'd ever been for any politician," says Peter Schorsch, publisher of the newsletter *Florida Politics*. "He was their golden child." DeSantis, on the other hand, had voted against sugar subsidies as a congressman. As one of the state's most powerful industries pounded him with millions of dollars in negative ads, many funded by dark-money groups, DeSantis struck back, branding Big Sugar as a major polluter and aligning himself with the Everglades Foundation, a conservation group co-founded by the billionaire hedge fund manager Paul Tudor Jones, who became a major campaign donor. DeSantis won plaudits for standing up to sugar—the *Tampa Bay Times* dubbed him "the green governor," despite his 2% rating from the League of Conservation Voters—and after dispatching Putnam, he narrowly won the governor's race. Then he exacted revenge by forcing everyone on the South Florida water board, which was known for doing the industry's bidding, to resign.

His battles with business didn't end there. DeSantis's feel for the Trump gestalt had made him a vocal proponent of measures to curb illegal immigration, and he moved to follow through on a campaign pledge to require all public and private employers to screen workers' legal status through the federal E-Verify program. This move threatened not only sugar but also two other major Florida industries that rely on immigrant labor: tourism and construction. The state Chamber of Commerce complained that employers would be "unduly burdened" by the new requirement, but DeSantis plowed ahead anyway, condemning the use of "cheap foreign labor." Although he won accolades on Fox, his victory was limited. The collective forces of the corporate opposition watered down the legislation so only public employers and their contractors, but not private employers, were required to use E-Verify.

DeSantis seemed to take this opposition personally. His grudge intensified after the pandemic struck and many Florida corporations refused to endorse his controversial ▶

“Everybody’s operating theme is ‘Keep your head down and don’t be the next Disney’ ”

◀ Covid policies. In October 2021, without notifying his own party, he held a press conference to announce a special session of the legislature devoted to penalizing companies that required their workers to be vaccinated. This only deepened the rift. “We’ve always been against government mandating what business can do and can’t do,” complained the executive director of the Florida Chamber of Commerce.

DeSantis was once against mandates like this, too. “The bullying of private industry,” he wrote in *Dreams From Our Founding Fathers*, “was part and parcel of the modus operandi of the Obama administration. Under Obama, the federal government exercised a roving review authority over the business decisions of a number of large companies.”

A few days later, DeSantis was the keynote speaker at the chamber’s annual meeting in Orlando. In a remarkably obstreperous speech that was met mostly with silence, he blasted “the rise of woke capitalism” and issued an unvarnished threat to the state’s business elite. “If you’re using your power as a corporation and you’re leveraging that to try to advance an ideology,” he warned, “I think it’s very dangerous for this country—and I’m not just gonna sit idly by.”

Former aides and allied strategists say DeSantis was driven by more than personal pique. His popularity in Florida, particularly among independents, was steadily rising. And nationally, Republican voters were becoming more attuned to corporate behavior. “Like Democrats, they’ve begun choosing brands that align with their values and morals,” says Matt Oczkowski, a former Trump campaign strategist and co-founder of Hum_n Behavior, a consumer intelligence company.

A conservative backlash against corporate America had been brewing since at least 2019. That summer the Business Roundtable, the national association for CEOs of major corporations, issued a statement signed by the chief executives of Apple, BlackRock, Disney and dozens of other big companies declaring that the purpose of the corporation was no longer simply to generate returns but also to “respect the people in our communities and protect the environment by embracing sustainable practices across our businesses.” Many conservatives were aghast at what they saw as the nation’s top business leaders abdicating the single-minded pursuit of profit, which they believe is the basis of US capitalism.

But what really seemed to supercharge Republican animosity toward CEOs and businesses was the corporate response to the murder of George Floyd a year later. The public expressions of solidarity with protesters and support for Black Lives Matter, along with Trump’s condemnation of these moves, dramatically altered Republican attitudes toward corporate America. Last year a Gallup Inc. tracking poll found that Republicans’ unhappiness with the influence of major corporations almost doubled in the year and a half after Floyd’s killing, from 36% to 68%, while Democrats’ views remained largely unchanged.

So when DeSantis went after Disney a few months following his chamber speech, he wasn’t simply striking back at an employer critical of his administration; he was seizing a leading role in a national drama that’s become increasingly central to Republican politics.

By normal political standards, a governor attacking his state’s marquee employer would be an act of unimaginable recklessness. But DeSantis had read the landscape correctly. “As corporations have gotten bigger and bigger, their local ties have weakened,” says Brad Coker, a pollster in Florida. “It used to be if you were a corporation based in Pittsburgh, even if you weren’t a steel company, you had your finger on the pulse of what Pittsburgh voters cared about. Now that’s gone. The big secret about Disney is that Floridians don’t go to Disney World. They see Disney as a California corporation.” When Coker went into the field with his survey team, he found no drop in DeSantis’s poll numbers: “It hasn’t hurt him at all.”

Quite the contrary. In late October, the Florida Chamber of Commerce gathered once more for its annual meeting in Orlando—held this year, by awkward coincidence, at Disney’s Coronado Springs Resort. This time, DeSantis didn’t show up. He didn’t have to. “Everybody here is talking about him,” Schorsch said at the event, pausing between panel discussions. “They’re all scared s---less. Everybody’s operating theme is ‘Keep your head down and don’t be the next Disney.’”

DeSantis’s attacks on business didn’t dent his ability to raise enormous sums of money, either. His reelection campaign and its aligned political action committee generated more than $200 million. Donors included at least 42 billionaires or members of billionaire families, including titans of finance such as Ken Griffin and Thomas Peterffy. One Republican strategist describes the core of DeSantis’s donor network as “financial guys who don’t like the cultural direction America is going in.”

His landslide victory two weeks later only substantiated this state of affairs. The contrast with Republicans’ woeful performance elsewhere, and the sense that DeSantis’s arrival on the national stage could mean Trump’s star is finally beginning to fade, shifted attention to the other topic that had been on everyone’s mind at Coronado Springs: what DeSantis will do next.

Unlike Trump, DeSantis is deliberate about how he picks his fights. When he vowed to go after “woke capital,” he wasn’t making an abstract threat—he had something specific in mind. In late July, flanked by Florida’s Republican leaders, DeSantis introduced proposed legislation beneath a banner emblazoned with the slogan “GOVERNMENT OF LAWS NOT WOKE CEOs.” He laid out how his initiative would “protect” Floridians from Wall Street’s “perversion of financial investment priorities under the euphemistic banners of environmental, social, and corporate governance and diversity, inclusion, and equity." ESG, as it's known, refers to a set of standards that measure a company's adherence to socially conscious investing goals and encompasses a product market worth at least $8 trillion in the US alone.

Formally, the legislation amends Florida's Deceptive and Unfair Trade Practices statute to prohibit what DeSantis says is discrimination against conservatives by big financial institutions through the use of "ESG social credit score metrics." Colloquially, as Florida's new House Speaker Paul Renner put it at the rollout, it places the force of law behind DeSantis's threat "to stop woke financial titans who seek to dictate policy to Floridians" by classifying ESG scores as deceptive trade practices.

People in Tallahassee expect the bill to be the central drama in this year's legislative session. Politically, it will give DeSantis a new platform from which to attack a fresh lineup of villains who inflame Republican passions: ESG boosters such as BlackRock Inc. CEO Larry Fink and groups such as the Business Roundtable that have fallen out of favor because of their perceived liberal sympathies. It will also create a big new tempest over "corporate wokeness" that's sure to keep DeSantis in the national spotlight. At particular issue will be who should manage Florida's $240 billion portfolio of pension and disaster funds. Many of the firms currently handling it are also big investors in ESG, led by CEOs who think of themselves as enlightened stewards of corporate social responsibility. In the past, managing the fund wouldn't have conflicted with espousing concern for the environment. Florida, like most states, has generally treated its pension fund as an inviolable sanctuary, sealed off from partisan politics.

Now, DeSantis is making it the subject of a national political drama that lets him once again be the aggressor against prominent companies that he alleges have succumbed to liberal social concerns. "Florida has a long history of keeping politics out of its pension fund," says Brian Ballard, a top Florida lobbyist with ties to DeSantis. "But I think those days are over. And I think the pension fund will become fertile ground for the conservatives' stance against corporate wokeness."

DeSantis isn't waiting around for lawmakers to act. On Dec. 1, Florida's chief financial officer, Jimmy Patronis, announced that the state was pulling $2 billion of investments managed by BlackRock because of the company's use of ESG principles. Patronis called out Fink in his statement. "If Larry, or his friends on Wall Street, want to change the world, run for office," he said. "Start a nonprofit. Donate to the causes you care about. Using our cash, however, to fund BlackRock's social-engineering project isn't something Florida ever signed up for."

The past few years have demonstrated how nimbly DeSantis can revise his own narrative to suit his political needs. He's gone from running TV ads in 2018 that featured his baby son in a Trump onesie, to ignoring Trump, to beating Trump in a handful of early (too early!) polls for the GOP's 2024 presidential nomination. The

DeSantis supporters after his win on Nov. 8

SCOTT MCINTYRE/THE NEW YORK TIMES/REDUX

question now is whether DeSantis can revise the party's narrative to allow for a possibility it hasn't seen for many years: a leader other than the former president.

Presidential hopefuls such as Pence and Pompeo are trapped in the old narrative; they're programmed for caution, and their Trump credentials would be the basis of their campaign. But Trump himself already fills that lane. DeSantis has set himself apart by choosing targets wisely and baring his teeth, carving out a distinct political identity that doesn't depend on Trump's past or future.

His fortunes could ultimately hinge on whether his war against corporate wokeness excites the Republican masses the way Trump once did. "He's pushed this issue of wokeness to the point where it's now orthodoxy among Republicans," Matt Schlapp, the chairman of the American Conservative Union, says approvingly. But can Larry Fink eclipse "Crooked Hillary" and "Lyin' Ted" in the pantheon of MAGA villains?

DeSantis will soon find out. He won't encounter much opposition at home. "The business community, at least in Florida, is no longer the Republican Party's ally," says Mac Stipanovich, a veteran Florida lobbyist who quit the party when Trump took over. "They are its servants." The real challenge, then, will be persuading Republican voters to transfer their loyalty to another prickly, hyperaggressive alpha male who doesn't apologize for his zealotry and drives liberals to distraction. If DeSantis pulls it off, it would represent yet another unlikely turn in Republican politics—a libertarian congressman who railed against government interference in private business turning around and winning the nomination by using his own governmental powers to bully corporate giants.

But before that can happen, one big obstacle looms: Trump. The next 18 months will show whether DeSantis can make himself into a national figure who inspires the kind of fear and adulation that Trump does (or once did). Eventually he'll have to stare down the dragon, something that, for all his success, he's thus far avoided doing. But when he's ready to make the jump from understudy to leading man, he can point voters to Florida, where his conquest of the Republican Party is now absolute. "All he has to do," Stipanovich says, "is cock an eyebrow at you and your bowels get loose." Ⓑ

Customer at McDonald's Moscow flagship restaurant in 1992

I'm Lea

Before the invasion of Ukraine forced McDonald's to exit Russia, the company won millions of people over to American fast food, revolutionized the country's supply chain and changed Russian enterprise for good

By Clint Rainey

avin' It

Not long ago, McDonald's flagship restaurant in Moscow completed a truly ill-timed remodeling. A powerful brand symbol and tourist draw, Russia's first location and for many years the world's busiest, the store opened in busy Pushkin Square in 1990, when the plaza was still Soviet. The flagship stayed resolutely Golden Arch-y for decades, until the company announced in 2020 that it would be modernized to commemorate its 30th anniversary.

The new look was supposed to evince "recognizable neutrality," according to the designers. The red and yellow interior accents came down; in their place appeared earth-toned concrete, stainless steel and wood. The *pièce de résistance* was the new facade, intended to blend McDonald's and Moscow into "a single space" visually, with a two-story wall of mirrored glass that reflected the square's activity back to passersby.

Outside the new Vkusno—i Tochka in Pushkin Square

Thanks to Covid-19, construction dragged into 2022, finishing in February—just in time for Russia to invade Ukraine. The following month, McDonald's suspended operations in Russia, and by May it had exited the market entirely, selling all of its assets there to Alexander Govor, a mining oligarch. The Pushkin Square restaurant is now a gleaming new Vkusno—i Tochka ("Tasty—Period") that slings Big Specials under a vaguely familiar orangy M.

McDonald's strategy in foreign markets has long been to go native, hewing to the tastes and cultural predilections of local customers. When it arrived in Russia, it did the opposite, pitching itself as something entirely new for people living under communism. Ads on Soviet Central Television teased, "If you can't go to America, come to McDonald's." Over the next decades, McDonald's expanded rapidly in Russia, navigating economic crises, kleptocratic officials, opportunistic competitors and international sanctions without appreciably altering its approach. But when nationalism surged under President Vladimir Putin in the mid-2010s, the company became a target, forcing it to adopt a grand strategy to subtly yet convincingly Russify.

The move paid off, for a time. From 2015 to 2022, McDonald's grew from around 500 stores to 853 stores. Even during the pandemic, it added 55 new restaurants, including its first in eastern Siberia. Drive-thru outlets, dubbed McAutos, set traffic-flow records. In March 2020 the Kremlin classified McDonald's as a "backbone enterprise," a status qualifying it for government aid once reserved for state-operated enterprises such as Gazprom, Aeroflot and Rostelecom. A study published that year by the country's Higher School of Economics in partnership with McDonald's showed that in 2018 the chain purchased about 4% of Russia's potatoes and 2% of its cheese. It also paid about $1 billion in taxes during the years studied—0.1% of all Russian tax revenue from 2014 to 2018, give or take. By 2022, MakDak, as Russians call it, accounted for 7% of all Russian restaurant sales, and Russia accounted for the same share of McDonald's global revenue.

Then, Ukraine. Russian Apple Stores went dark. Nike Inc., Hermès International, and Levi Strauss & Co. stopped sales. Malls sat half-abandoned, and security gates were pulled down at storefront after storefront. On March 8, McDonald's announced that it was temporarily pausing operations. It called the situation "extraordinarily challenging" and said it raised "many considerations." Russians were told they had one more week of Big Macs. Lines stretched to lengths unseen since the early 1990s. Customers started hoarding burgers, with one person posting a photo showing a refrigerator stuffed with at least 50. Luka Safronov-Zatravkin, a bear-sized pianist and social-media provocateur, handcuffed himself to the Pushkin Square flagship's doors and yelled, "Closing down is an act of hostility!" as five policemen worked to detach him.

Back in the US, #BoycottMcDonalds started trending on Twitter, and shareholders began pressuring the company to pull out for good. Finally, on May 16, Chief Executive Officer Chris Kempczinski released a letter in which he noted that his predecessor, Fred Turner, had espoused one value above others: Do the right thing. "For the first time in our history," Kempczinski wrote, "we are 'de-Arching' a major market and selling our portfolio. They will no longer carry the McDonald's name or serve our menu. The Golden Arches will shine no more in Russia."

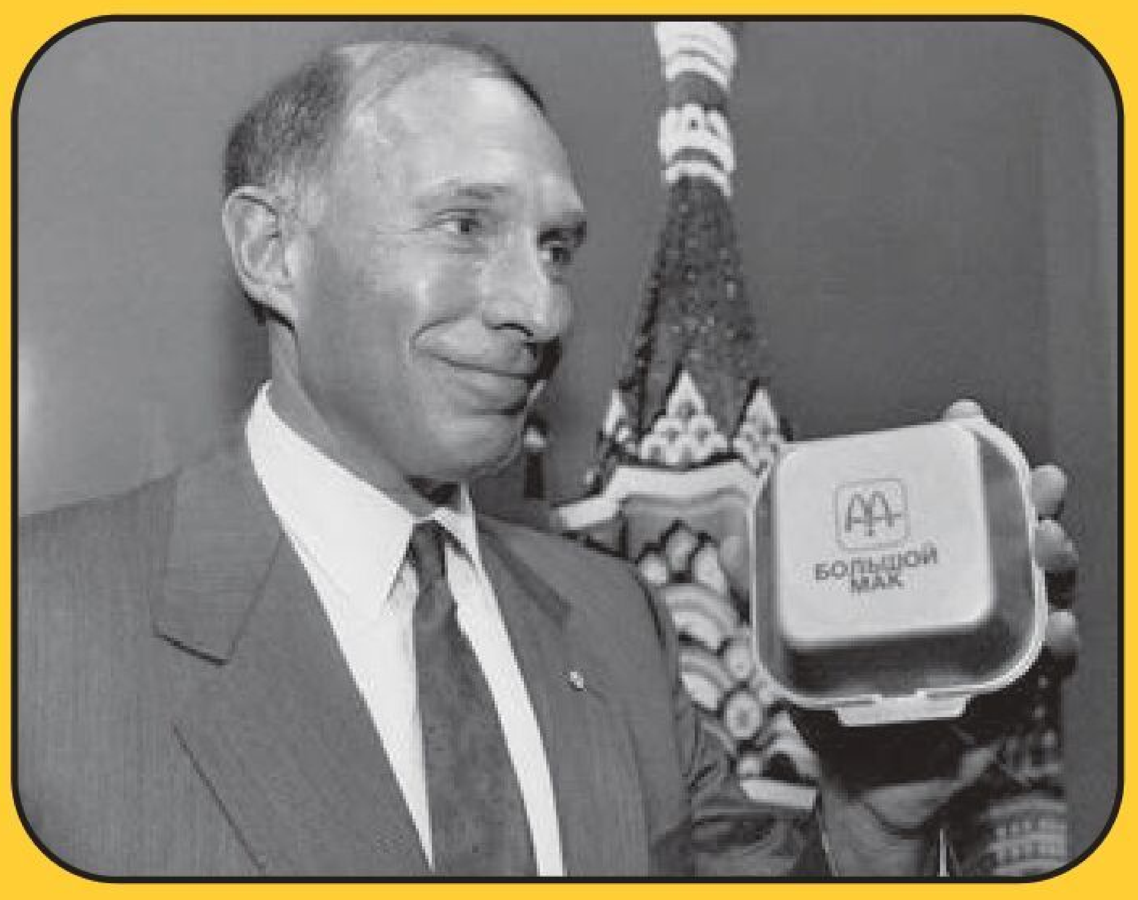
Discarded McDonald's "M"s

If the decision seemed to many to have come inexplicably late, it may simply have reflected McDonald's struggle to accept the end of an era. The company's 32 years in Russia didn't just symbolize the values it professed to stand for around the world. They represented a remarkable success story in the history of capitalism.

Back in 2019, I visited the Pushkin Square McDonald's to meet Khamzat Khasbulatov. He'd been the store's first manager,

PREVIOUS SPREAD: MARTIN PARR/MAGNUM PHOTOS. THIS SPREAD, CLOCKWISE FROM TOP LEFT: SERGEI BOBYLEV/TASS; DOUG GRIFFIN/TORONTO STAR/GETTY IMAGES; YURI LIZUNOV/TASS; MAX4EPHOTO/SHUTTERSTOCK before rising to become CEO of McDonald's Russia. The restaurant is colossal, with four entrances. I apparently picked the wrong one, requiring me to traverse the full restaurant in reverse to find Khasbulatov, past a McCafé, six dining areas with 900 seats in total, a wall featuring Alexander Pushkin's poetry and a pack of Yandex delivery people queuing with their massive yellow backpacks.

The Big Mac had earned Russians' respect, Khasbulatov explained once we sat down, because "they love the message that it is served by Russians and is Russian." I admitted that mine tasted fresher than its American counterpart. Almost on cue, Khasbulatov gloated that it was because "the lettuce, the beef, and the bread are all Russian." But it wasn't always so, he pointed out, taking me back to Jan. 31, 1990, when the store first opened.



Cohon holding a burger box in 1988

McDonald's predicted an opening-day turnout of 5,000 visitors. Six times that showed up. People inched along under ominous winter skies, with armed militia standing by in case of riots, to buy a Big Mac for 3.75 rubles (about $6.25), the price of 10 loaves of bread. Some were unsure how to eat one, flattening it and rolling it into a blini-like tube. The night before, Communist Party officials and George Cohon, founder of McDonald's Canada and now McDonald's Russia, popped champagne in a Grand Kremlin Palace ballroom, the first time representatives of a Western company had been allowed in. But Fred Turner, then McDonald's chairman, stayed at the restaurant as it was being prepped. "He sat at a table in the back," Khasbulatov said, "smoking cigarettes."

A bear-sized pianist handcuffed himself to the flagship's doors and yelled, "Closing down is an act of hostility!"

On opening morning it was Khasbulatov, the son of two grocers and a fresh graduate of Toronto's Institute of Hamburgerology, who gave reporters their quote for posterity: "Many people talk about perestroika, but for them perestroika is an abstraction. Now, me—I can touch my perestroika. I can taste my perestroika. Big Mac is perestroika."

From there, Khasbulatov told me, a culture shift began. McDonald's arrival heralded an immersion in sensual joys such as friendly service and hot, high-quality food. "Soviets were not used to workers smiling," he explained. McDonald's became an after-school hangout, a date spot, even a wedding venue. Many of Pushkin Square's original team members, who'd been chosen from among 27,000 applicants, became Golden Arches lifers.

It all began with Cohon. A charismatic, Chicago-born lawyer, he'd run McDonald's Canada since the 1960s. His grandparents had escaped the 1906 pogroms in Ukraine, and he became obsessed with the Soviet Union's potential as a market. "They eat meat, bread, potatoes, and milk," he explained in his memoir, *To Russia With Fries*. "Well, as it happened, we were in the business of selling meat, bread, potatoes, and milk of the highest standards."

In 1976 officials at the Summer Olympics in Montreal asked McDonald's, a major sponsor, to loan a bus to the Soviet group. Cohon agreed but took his captive passengers to a nearby franchise, where he began angling for the food-service contract for the next Summer Games, in Moscow. "I thought, Why couldn't it be McDonald's?" Cohon says in an interview.

The company eventually spent millions on a formal proposal. The Communist Party professed interest and invited Cohon to come to Moscow a half-year before the 1980 Games to sign a contract. After arriving he was shown to a hotel room overlooking KGB headquarters, where he waited for 17 days. At last, the Central Committee came back to him and said, "Sorry, no deal."

Cohon says he learned years later that the view "at a very high level" had been that signing that contract would have broadcast to the world that the Soviet Union couldn't provide its own food services. But, he adds, the later decision by many nations to boycott the Games following the Soviet invasion of Afghanistan may have made it "the best deal I never made." McDonald's would have felt "intense pressure from Western countries" to join the boycott, Cohon says.

For the next decade, as the Soviet Union cycled through four separate leaders, McDonald's kept negotiating to introduce Big Macs to burger-less Soviets. Cohon says it wasn't unusual to be summoned to Moscow for an "urgent meeting." Executives would hop on a plane, only to be informed upon arrival that discussions would resume at a future date. They'd do a vodka toast—"To General Secretary Brezhnev!" "To East-West cooperation!"—and return to the airport.


Cohon and Gorbachev meeting in 1991

In 1987, Mikhail Gorbachev finally made McDonald's a real, albeit very Soviet, offer: A joint venture with the state, with the USSR taking 51% of the profits. The company accepted. ▶

◀ The deal was for a single restaurant, to be situated in a decrepit former food hall on Pushkin Square. Sales would be in rubles, which weren't then convertible to US dollars. The Soviet government was on the brink of collapse, and tensions were high. "The simplest things," Cohon says, "became logistical headaches." Take French fries. Russia had been the world's leading potato producer for most of the 20th century, but the Russian varieties were considered too small and waxy to produce fries of the proper McDonald's texture and length. So potatoes became among the 80% of ingredients the company had to import.

A McDonald's food-prep worker handles mounds of bread dough

It also had to build its production chain from the ground up. Before a single burger was flipped, it spent $50 million erecting a sprawling plant, dubbed the McComplex, on the outskirts of Moscow. Workers there could bake sesame buns, grind hamburger beef, churn ice cream, dispense apple filling into pies and mix ketchup by the vatful. Over time, the McComplex became so proficient that embassies, hotels and other restaurants started purchasing its products.

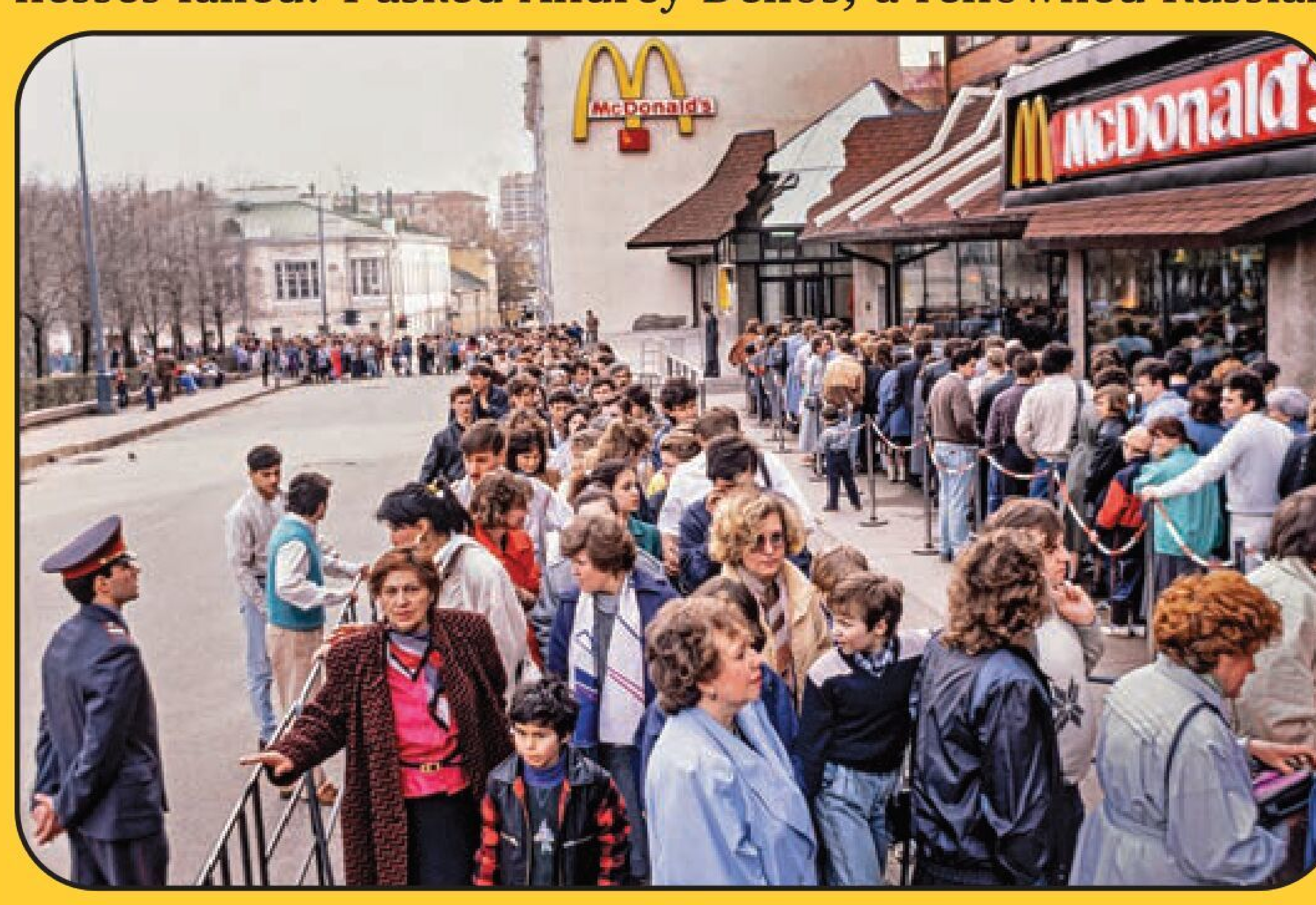
The Pushkin Square location was so popular in its early years that the Associated Press wrote that the wait dwarfed the line for Lenin's Tomb by as much as 4 to 1. When a second McDonald's opened in 1993, Boris Yeltsin took a tour and sampled his first Big Mac, which began with him separating the bun from the meat. "I said, 'No, you eat the whole thing,' " Khasbulatov told me, forming a circle shape with both hands. Yeltsin urged McDonald's to open more stores. "Go to the Urals," where his hometown of Yekaterinburg was, he urged. "Go to Siberia."

But the plan was to expand strategically, not all at once, Khasbulatov said: "First, St. Petersburg and Kazan, then the Urals. The logistics of shipping products had to make economic sense." By 1996, when Khasbulatov was serving as deputy director of Moscow operations, the first McDonald's outside the city had opened in St. Petersburg. Before the turn of the millennium, the chain was operating 50 outlets in a half-dozen cities, including Nizhny Novgorod and Kazan, in Tatarstan. Three years later, Russia got its 100th location, and in 2006 the first opened in Yeltsin's Yekaterinburg.

As McDonald's got off and running, its competitors were being crushed. Pizza Hut had started negotiating with the Soviets in the mid-1980s to open as many as 100 locations, but by 1998, it was operating a total of four stores, two of which closed during that year's ruble crisis. Taco Bell opened in 1993 and failed within months; Russians found the fare unpalatably spicy. Subway experienced fleeting success after opening a store in 1994 that soon had its highest sales by volume in the world, but the business was quickly seized by armed members of Russia's Tambov Gang. KFC set forth in 1995 at a combination Pizza Hut-KFC location that became one of Pizza Hut's ruble-crisis closures. Dunkin' Donuts entered in 1996 but left in 1999, after fights with rogue franchisees who sold liquor and off-menu meat pies. KFC failed again in 2003 before finally buying a more established local competitor and slapping Colonel Sanders on the signs.

Domestic competitors fared no better. In 1995, Yuri Luzhkov, the mayor of Moscow, opened a rival, Russian Bistro, in conjunction with the Russian government, with a flagship also on Pushkin Square. It lasted until 2001, when the Ministry of Internal Affairs accused it of misappropriating $1.3 million and its assets went up for auction.

Why did McDonald's thrive where other fast-food businesses failed? I asked Andrey Dellos, a renowned Russian



Lineup outside the Moscow flagship in 1990

Rising and Falling Arches

1988
Following 12 years of negotiations, McDonald's Russia is born under a joint venture between McDonald's Canada and state-run Mosrestoranservis. Within months, ground breaks on the first-of-its-kind McComplex.

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1990
The Pushkin Square flagship's opening-day queue smashes records, disappointing hardliners who'd predicted that managers would be "lifted out by helicopter straight from the roof ... just as American diplomats were airlifted out of the US Embassy in Saigon."

→

1993
McDonald's uses customers' near-worthless rubles to open a 12-story office tower by Red Square. As the owner, it rents floorspace to Coca-Cola, Upjohn and other Western companies in US dollars.

→

1993
The second McDonald's opens a block from the Kremlin. President Boris Yeltsin visits and stays for two hours.

→

1995
Ronald McDonald House Charities launches a chapter to help Russian children with special needs.

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CLOCKWISE FROM TOP LEFT: SERGEI GUNEYEV/GETTY IMAGES; CHRIS STEELE-PERKINS/MAGNUM PHOTOS; ROBERT WALLIS/PANOS/REDUX restaurateur whose holdings include Mu-Mu, a downscale Russo-centric chain, and Café Pushkin, located in a Baroque-style mansion across from the flagship Golden Arches. “McDonald’s success in 1990 was not a question of taste. It was not a question even of food,” he said over espresso at his cafe. “Communists made a fantastic mistake when they closed the doors. They made the United States a dream. For practically all the Soviet people, the United States was a real paradise.” Dellos gestured out the window across Pushkin Square. “And now, can you imagine—a piece, a sample, of that paradise appears just over there?”

At the Moscow McDonald’s in 1991

The Wild Nineties came to an emphatic end in Russia with the 1998 ruble crisis, which saw the near-collapse of its banking system and an exodus of foreign capital from its markets. With imports now a major financial gamble, McDonald’s began what would become a multidecade push to increase its share of locally sourced ingredients from just a quarter.

The Russian economy eventually rebounded, and by the late aughts, other chains’ boards were dusting off their strategic plans. Burger King arrived in 2010. Dunkin’ Donuts returned the same year. Cinnabon International Inc. and Wendy’s Co. entered, too.

All the while, Russia’s oligarchs looked on with frustration and a desire to domesticate fast food—so the experience would be *nash* (“ours”), according to Melissa Caldwell, a professor at the University of California at Santa Cruz, who studies food in post-Soviet Russia. They spent fortunes attempting to siphon away customers by shamelessly emulating McDonald’s, echoing a dubious Russian tradition. (Caldwell notes that the Kremlin under Nikita Khrushchev marketed kvass, a fermented-bread drink, as Communist Coca-Cola.) One, Blin! Donalt’s, opened in 2002, attempting to turn Russia’s blini pancake into a Big Mac-killer. Owned by Yevgeny Prigozhin, the billionaire food baron who later became notorious for controlling the Internet Research Agency troll factory, it had red and yellow colors as well. Blin! Donalt’s dissolved in 2012.

Far more successful was Mikhail Goncharov. After going bankrupt during the 1998 ruble crisis, he took his mother’s blini recipes and started a street stall in St. Petersburg that became the ubiquitous chain Teremok. Goncharov told me that the banks would loan McDonald’s money, but not Teremok at first. He’s complained to Russian media that this shortage of funds forced him to learn which authorities to pay off and which oligarchs to offer stakes in the company.

Seeking to grow, Goncharov conducted a hypertargeted competitor analysis. “At the beginning, I went and found a McDonald’s training manual,” he said as I tried the cheese blini, chicken noodle soup and Teremok-brand kvass that he ordered for me at a north Moscow outlet, pre-pandemic. These manuals were near-encyclopedic restaurant management guides, a 3-inch binder filled with strategy that had been translated into Russian. Goncharov said Teremok followed their instructions carefully. Workers learned to prep toppings in advance and to deploy what he called the “psychological tactic” of smiling to disarm upset customers.

Goncharov also became a public thorn in McDonald’s side, seeking to appeal to Russian patriotism. Even as he was expanding his chain to 100 locations by 2010 and more than 300 today, he blasted the rival’s executives as a bunch of “bastards,” demanded regulations that benefited smaller domestic competitors such as Teremok and released a blini that he said “tastes like a Big Mac” on McDonald’s 30th anniversary. ▶

2002
The first McCafé starts slinging coffee in Moscow on the Arbat, beating Starbucks to the market by five years.

→

2009
Becoming ever more redundant, the McComplex is sold to a bun and pie manufacturer that wants to expand in Russia.

→

2012
McDonald’s approves a franchise agreement granting Rosinter, local operator of the TGI Friday’s and Costa Coffee chains, exclusive rights to open locations in Moscow and St. Petersburg airports and train stations.

→

2014
McDonald’s abandons war-torn Crimea, stressing that the move is “strictly a business decision which has nothing to do with politics.”

→

2018
A potato contract with Belaya Dacha means McDonald’s locations in Russia use 98% local ingredients. The CEO of McDonald’s Russia says the only imports are “a couple desserts and some juices.”

→

2022
Due to “safety concerns,” McDonald’s closes its Ukrainian locations on Feb. 24, the day Russia invades. It halts Russian operations two weeks later, citing “the needless human suffering unfolding.”

◀ For a time, McDonald's could mostly shrug at the competition. In 2010 it had hundreds of locations spanning from the Baltic Sea to southwest Siberia. Per-store traffic was two times greater than its next-busiest international market's. It had bought out the Russian government's half of the joint venture and ranked among the country's largest corporate landowners. It also boasted of selling the most ice cream there and pouring 1 in every 3 cups of coffee.

In 2014, Russia annexed the Crimean peninsula from Ukraine. The US responded to the incursion with severe economic sanctions, and Western businesses started to flee. General Motors Co. wound down operations. ExxonMobil Corp. dropped a promising oil deal north of Siberia. Microsoft Corp. curbed software sales to Russian clients.

Support for Putin and distrust of the West surged. The Kremlin passed draconian countersanctions, banning Western food imports including meat, seafood, fruits, vegetables, nuts, salt and some packaged goods. The move was in line with a long-standing goal to boost the country's domestic agricultural sector, which had been in steep decline as per capita income increased and drove up imports. Russian authorities dramatically bulldozed wheels of French cheese into the ground for reporters and incinerated hundreds of tons of contraband food.

With their supply chains threatened, foreign restaurant brands started to panic. Wendy's closed all eight of its locations. Carl's Jr. abandoned 31. But the real trophy for hardliners was McDonald's. Lawmakers threatened fines on Big Mac purchases. Protesters shouted "Down with American fast food!" outside its restaurants. Records from the national consumer protection agency, Rospotrebnadzor, show that roughly half of McDonald's 433 stores received visits from its inspectors in 2014. Agents would show up unannounced and issue fines of as much as $12,000 for violations such as improper ingredient storage, selling fish sandwiches tainted with *E. coli* and violating Article 4 of the Technical Regulations of the Customs Union ("On the Safety of Toys"). Separately, Ronald McDonald House Charities was accused of laundering money. (The company denied any wrongdoing, and a probe by Moscow prosecutors went nowhere.) Eleven stores closed temporarily, including Pushkin Square's.

At the end of 2014, McDonald's posted its worst monthly profit decline globally in a decade. It also announced the closure of all locations in the Crimea and east Ukraine, prompting ultranationalist politician Vladimir Zhirinovsky to vow, "Very well—we'll close the rest." A new, cutthroat breed of copycats filled the void in the vacated regions. A deserted McDonald's in separatist Luhansk was seized, its sign doctored to read just "Mc." Another empty location, rechristened "Burger," started serving Big Mags. Elsewhere across the region there were McDaks, DonMaks, and AutoCafe drive-thrus, which had cribbed its menu wordings wholesale from the McDonald's website. AutoCafe's owners, two McDonald's ex-managers, contended in the media that subtle recipe changes made the practice legal.

In 2017, after a political skirmish that saw Russia warn the US it might designate McDonald's as a foreign agent, the company finally pushed back. Making a rare public statement, it noted that 50,000 Russians were employed at its restaurants, 100,000 Russian jobs were supported by its localized supply chain and more than 1 million Russians ate there every day. "We're one of the most Russian companies there is," the chain told reporters. The ever-quotable Khasbulatov told media that the Golden Arches weren't American, they were actually "the Russian arches."

Putin and the Kremlin had long pushed Russian self-sufficiency, but import substitution in industries as wide-ranging as auto manufacturing, software development and agriculture hadn't generally been successful. McDonald's, by contrast, had managed the feat almost flawlessly in the years leading up to the annexation of the Crimea. The share of its ingredients sourced locally had climbed from 25% in 1998 to 90% by 2015. In 2018, McDonald's embraced a local potato supplier, bringing the overall ingredients share to 98% Russian. It had that percentage stenciled onto the sides of delivery trucks and began airing TV ads showing farmers harvesting crops while a voiceover said, "When it's about food, you choose what's close, what's native." Stores received cardboard cutouts of farmers holding produce to reinforce the point. "We have by far the highest percentage of localization of any competitor in the market," Marc Carena, McDonald's Russia's CEO until this February, told me not long after the potato switch. Russia had become its most localized market in the world, and Carena said it was aiming for 100%.

At night the self-serve kiosks would sometimes light up, their haunted startup screens flickering with the Golden Arches

I asked Carena why McDonald's was so focused on Russia when other markets, such as Australia, Germany and Japan, were bigger and offered less political risk. "The Russian spends only 4% of his household income eating out," compared with as much as 15% in Europe, he explained. Real disposable income in Russia was growing, average household debt was low, health care was socialized, drive-thrus were still relatively novel and the market was 11 time zones wide. A more tantalizing fast-food market didn't exist.

There was a certain danger in overcommitting, sure. "But we're so locally entrenched that we've mitigated the risk," Carena said. "Russians see us as part of their daily life."

It made sense at the time.

FROM TOP: KIRILL KUDRYAVTSEV/AFP/GETTY IMAGES; NIKOLAY VINOKUROV/ALAMY

In announcing McDonald's departure from Russia last year, Kempczinski, the company's CEO, wrote, "For three decades, McDonald's in Russia embodied the very notion of glasnost." The brand and the country had become "so intertwined that it seems impossible to imagine one without the other. And yet, unfortunately," he added, "that is where we are today."

Within a month and a half of the invasion, McDonald's had opened channels with Russian entrepreneurs. Govor told media he first met with company representatives in April, then again in May in Dubai. He said he ultimately acquired McDonald's assets for a "token fee" that was "well below market price." The exact number hasn't been disclosed, but McDonald's had previously said Russia accounted for 2% of sales corporatewide, which should have put the market's annual sales at north of $2 billion. Corporate filings also show that 84% of restaurants in Russia were company-owned. As part of the deal, Govor vowed to keep McDonald's workers employed for at least two years, executives included.

With the McDonald's sale, Russian media was quick to assert that Mikhail Goncharov's dream had finally come true. He'd started an attack on his archnemesis just the October before, with Moscow on pandemic lockdown, releasing footage of a sting operation during which he said Teremok employees had secretly filmed McDonald's welcoming customers inside stores. Goncharov claimed 10 locations had violated the city's takeaway-only decree. When McDonald's suspended operations post-Ukraine, Goncharov celebrated Russia's entry to "a new stage of life and new opportunities!" But two days later he was grumbling on Facebook: "I never had such a dream. I only said that competition should be fair." He almost sounded wistful. "No one will take McDonald's place in Russia," he wrote, "since no one in Russia has a similar business system."

David Szakonyi, co-founder of the Anti-Corruption Data Collective, a group in Washington that has investigated Russia's influence on Western companies, says McDonald's has reason to be proud of its accomplishments in Russia. Even if it "couldn't restrain the government from its worst impulses," he argues, it still "provided a lot of good directly to the Russian people in a way that many multinational companies weren't." In that sense, Szakonyi says, it may have been "a better company for Russia than it has been for the United States." He points to Apple Inc. and Google removing an app created by allies of Putin critic Alexei Navalny the day before Russia's election; Ikea executives signing off on a bribe to gain access to a St. Petersburg power grid; Siemens AG paying fines for engaging in fraudulent and corrupt practices; and HP creating a secret multimillion-dollar slush fund that it used to bribe government officials. "Russia's still transitioning to capitalism, and McDonald's had a big impact on the way restaurants and other consumer-oriented businesses operate," Szakonyi says.

The Pushkin Square flagship sat empty for about 90 days after McDonald's withdrew, a shiny shell reflecting the humming plaza back to itself. Vloggers would occasionally capture a glimmer of activity inside. At night the self-serve kiosks would sometimes light up, their haunted startup screens flickering with the

Wrapped double cheeseburgers from Vkusno—i Tochka

Inside the Vkusno—i Tochka in Moscow

Golden Arches. By early June, crews were deep into the process of "de-Arching" the place, removing or reinterpreting the final traces of McDonald's. Workers sanded logos off trays and scribbled them off ketchup packets with black marker.

The scene on June 12, Vkusno—i Tochka's grand opening, was 1990 redux. A long line snaked in front. News crews were on hand, alongside influencers with VK, Yandex Zen and RuTube accounts. Tochka claims a record 120,000 burgers were sold—four times McDonald's opening-day number. One guest proposed to his girlfriend. Another hoisted a "Bring back the Big Mac" sign before security whisked him away. The mayor of Moscow appeared to congratulate Tochka's top brass, many of whom had started their careers at the McDonald's flagship in 1990.

Tochka also started running ads around the same time. The first was filmed inside the flagship. It showed young patrons laughing at tables over food, while the narrator explained that, sometimes, people seek out familiar places so they can have familiar experiences. Viewers see a Tochka worker flashing a friendly smile and a couple on an exciting first date. The ad closed with a slogan: "The name is changing. The taste remains." Ⓑ

—This article was reported with support from the UC Berkeley-11th Hour Food and Farming Journalism Fellowship.

THIS

A group of former SpaceX engineers is building a pizza-m

By Sarah McBride Photograph

ROCKET

January 9, 2023

ISN'T

making robot and taking the project very seriously

s by Damien Maloney

SCIENCE

The Stellar Pizza truck with its onboard robot

The robot claw picks up dough

Nineteen pepperoni logs ready for slicing

Early in the pandemic, Jaya Iyer began seriously considering a career change. By that point, she had two degrees in mechanical engineering and eight years of experience working in aerospace. Iyer, the lead spacecraft structures engineer at a subsidiary of Boeing Co., consulted with someone she had worked with at SpaceX, Elon Musk's rocket company. Her friend suggested she get in touch with their former colleague Benson Tsai, who'd been tapping some of the bright minds from the company and other aerospace firms around Los Angeles to solve a novel technical challenge.

When Iyer was at Space Exploration Technologies Corp., Tsai was developing battery technology for the company's satellites and spacecraft. Now he makes pizza. Perplexed and a little intrigued, Iyer agreed to a meeting. "It was outlandish to the point where, 'Please, tell me more,'" she says. Tsai regaled her with his vision of a robot on wheels capable of making a pizza from scratch. Someone would drive the truck to an office park, shopping center or residential area; customers would order through an app; and the robot would do the rest. Tsai had already persuaded venture capitalists—a group that would soon include a firm run by Jay-Z—to invest millions of dollars. He'd assembled a team of 40 or so rocket scientists and other technologists to, as Tsai describes it, "solve pizza."

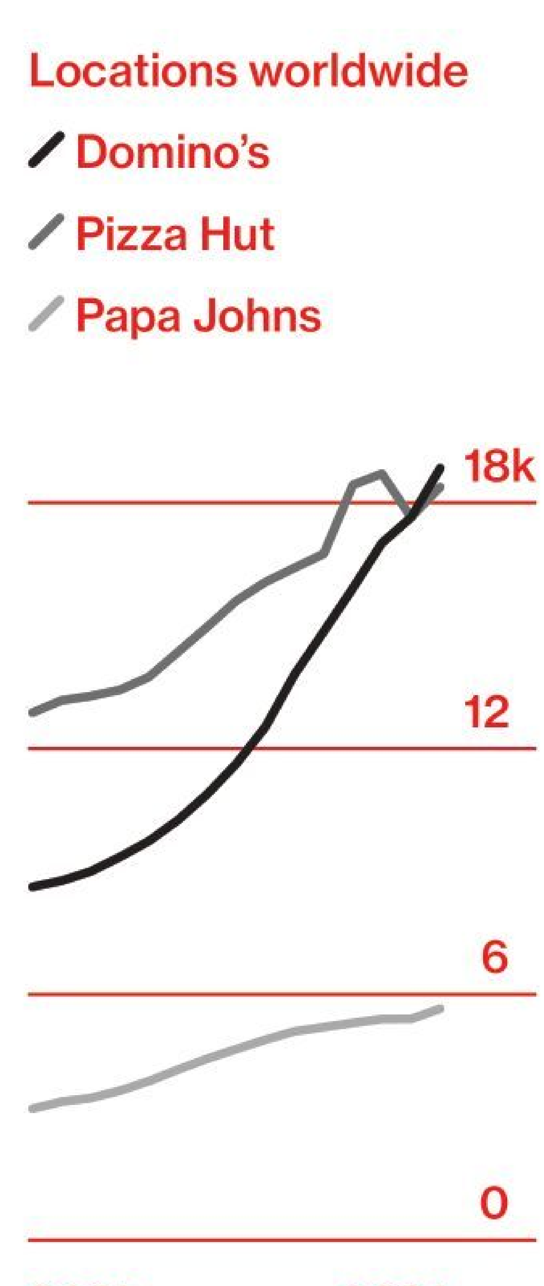
But first they needed to solve mushrooms. By 2020, when Iyer first visited the headquarters of Stellar Pizza Inc. in Hawthorne, California, the team had already figured out how to knead dough, spread tomato sauce and scatter green peppers. Mushrooms were proving extremely annoying. The machine's design called for them to be pre-sliced and loaded into a chute. But mushrooms, more than diced mozzarella or pepperoni, are fleshy and moist. When cut and packed into the machine, the pieces clumped together and clung to the sides. Tsai compares them to wet paper towels sticking to a wall.

Mushrooms notwithstanding, Iyer was impressed by Stellar's progress on its robot. She'd spent her entire career on spacecraft, but the prospect of working on something more whimsical captivated her. "It seemed like a really cool place to come and just pick up new things from an engineering perspective—um, and have pizza," she says. Iyer joined as a mechanical engineer overseeing configurable toppings, meaning anything that goes on a pizza that's not sauce or cheese.

To the untrained eye, the so-called robot doesn't look much like a robot at all. It's more of a food truck with a miniaturized assembly line inside. For the purposes of recruiting talent, investors and customers, the idea of building a robot sounds a lot cooler than replicating something Henry Ford did but for pizza. With all the intricacies of the machine and the possible messes that can result from a misfire, Tsai says it's almost like trying to get into orbit. "If you look at it hard enough," he says, "it's not easier than rockets."

At SpaceX the ultimate mission was to colonize Mars. Tsai's conquest at Stellar is a little more local: "Our competition is Domino's." Stellar's machine doesn't produce the world's best-tasting pizza. That's by design. "We're not trying to be the Italian, fresh-out-of-the-oven, Neapolitan pizza," he says, between bites of a sausage slice and cheesy bread ball, both made by his robot. Domino's Pizza Inc. generates more than $4 billion a year in revenue. Stellar can outdo Domino's, Tsai says, by trading the costs of physical real estate for mobile pizzerias and by employing fewer humans.

For now, most of those humans are in the lab. Iyer spent her first year at Stellar building prototype chutes, testing fans and blades and experimenting with different cuts of vegetables. All the while, the mushroom issue was lingering. Mushrooms aren't a problem in a frozen pizza factory, because frozen mushroom slices don't stick together the way fresh ones do. Stellar is determined to use unfrozen ingredients. Mushrooms, Iyer learned, are a must. They outrank onions, green peppers and black olives as the top-requested veggie topping, according to the research firm NPD Group. "It is unfortunate that mushrooms are most popular," she says in a moment of wry frustration.



DATA: COMPANY REPORTS

On numerous occasions, Iyer consulted with a colleague who overcame similar problems with cheese gunking up the machinery. But the solutions for dairy didn't translate to mushrooms. Reversing the direction of a paddle in the chute did nothing. At one point, they


A pie moves down the assembly line


Stellar workers box a finished pie


A stack of pizzas ready to be served

considered adding a light greasing to the sides of the chute, but she abandoned that after trying various products, including canola and olive oils, because they left an undesirable residue on the fungi.

The problem was vexing her when a reporter visited the lab in January and again in March. The task turned into a punchline when friends asked about her job. "I'm spending my morning cutting mushrooms," Iyer recalls saying. "Putting that degree to good work."

The solution finally came in May. Iyer redesigned the stirrer—the details of which, Tsai says, are proprietary. More crucial was the switch from freshly cut button mushrooms to ones that were stored in the fridge for a few days after being sliced. This process produced a drier and easier-to-manipulate topping. When staff sampled the finished pies, no one could taste the difference.

Much has been written about the space race between Musk's SpaceX and Jeff Bezos' Blue Origin. Not quite as much has been said about the exciting breakthroughs being made in the emerging field of pizza robotics. Why they're happening is anybody's guess; pizza doesn't really seem high on the list of pressing issues. But engineers love pizza and solving their own problems. Who knows, they may have even taken inspiration from the Neal Stephenson sci-fi novel *Snow Crash*, which opens with a high-speed pizza delivery scene in a dystopian version of Los Angeles. Whatever the reason, the idea of a pizza robot has for years held an almost mythic sway over a certain category of technophile.

The most ambitious effort in the past decade was at a startup called Zume Pizza. Alex Garden, a former president of the video game company that made *FarmVille*, started Zume in 2015 with the goal of building a pizza-making robot on wheels. One of its biggest champions was Masayoshi Son, the founder of the Japanese technology conglomerate SoftBank Group Corp. Son is evangelical about the potential for robots. He's said that in 25 years robots will have an IQ of 10,000 and will, at some indeterminate time, replace "the entire working population." SoftBank committed $375 million to Zume in 2018.

Zume acquired robot arms and programmed them to assemble pizzas at its kitchen in Silicon Valley. One crucial flaw in the plan called for the pies to be baked on the road to minimize idling time. The result was that the cheese ran everywhere and made a mess. Zume switched to stationary cooking and added cars and mopeds for last-mile delivery. But the dream of robot-made pizza was ahead of its time. In 2020, Zume shifted to designing sustainable food packaging and fired more than half its staff. The robots lost their jobs, too. Zume stopped making pizza and removed the word from the company name.

Tsai had followed Zume's bumpy ride. For five years, he'd been designing the architecture for SpaceX's batteries, but by 2019 he was ready to pursue an interest in food and robots. He considered boba, the trendy Taiwanese tea with tapioca balls, but the drink wasn't consumed by nearly enough Americans to make business sense. Burgers occurred to him, but companies such as Creator and Miso Robotics Inc., which makes a burger bot called Flippy, each had a sizable head start. Pizza was the obvious candidate. Incredibly, about 13% of Americans eat it on any given day, according to the US Department of Agriculture. And much of the country isn't content with the big four. Domino's, Pizza Hut, Papa Johns and Little Caesars all lost points in the 2022 American Customer Satisfaction Index from the prior year's poll.

To start the business, Tsai, 38, leaned heavily on his network from SpaceX. He took inspiration from Musk's verticalized approach to product development: Stellar employees custom-designed and built most of the parts for their prototypes in house, he says, just as Tesla did for its cars and SpaceX for its rockets. For the first version of their pizza bot, Generation Zero, Tsai and his employees took frequent trips to Home Depot and Lowe's Home Improvement.

One problem with Generation Zero showed up early on. A robotic arm holding a large, metal spatula called a peel, which is used to slide the pizza in and out of the oven, was malfunctioning. It was entering the oven a few millimeters higher than it should have, cleaving the tops of the pizza crusts. Gooey cheese ran everywhere and incoming raw dough backed up on the conveyor belt. That's when the team called in Josh Villbrandt, the head of software. As staffers tossed the decapitated pies, scraped out the ovens and wiped down ▶

◀ everything, Villbrandt reprogrammed the arm to come in a little lower. The memory seems almost painful to recount. “We have to exit all of the pizzas, then pause the machine, then restart it all,” he says. “That’s a pretty big efficiency drop.”

Avidan Ross was one of the first investors in the company, known early on as Serve Automation. A founding partner at the VC firm Root Ventures, Ross says he was inspired by the company’s grand ambition. “There’s a set of engineers who are not only unintimidated by challenge but love it when someone says, ‘That’s crazy,’ ” he says.

Telling people you want to build a pizza robot does sound pretty crazy. Ross rationalizes his $6 million Stellar investment in economic terms. The food industry is experiencing the twin effects of labor shortages and increasing prices. Robots can solve that, he says. “The greatest engineers are going into food automation because of its universal impact.”

Numerous other companies are making their own pizza robots. Seattle-based Picnic Works Inc. sells an automated assembly line that it says can make 100 pizzas in an hour. In Fremont, California, formerly home to Tesla, Middleby Corp. makes the PizzaBot, designed to assemble a pie in under a minute. A third, Pazzi Robotics, sought to build autonomous pizza restaurants in Paris but was forced to liquidate its business in October. Philippe Goldman, the chief executive officer, blamed Pazzi’s demise on VCs’ weak stomach for hardware investments and the public’s general distrust of robots.

Ross dismisses the competition as gimmicky. “Pizza and a show,” he says. Stellar employees refer jokingly to an internal metric called “minimum viable pizza,” defined as a pie that’s sufficiently tasty, and judge success partly by the number of pizzas successfully “launched” into an oven. Entertaining patrons with robotic performances isn’t part of the company’s mission. “You literally just place the order for the pizza and it comes out the other side, and you don’t see any of the internal mechanics,” Villbrandt says. “Proof of concept of the kitchen working is not seeing the kitchen.”

The restaurant industry sees opportunity in automation, but Tsai remains an outsider. “Way too much credit is being given to the founders of Stellar Pizza for being former SpaceX engineers,” says Brittain Ladd, a retail and strategy consultant who previously advised a Philadelphia business called Muncho that has a Picnic pizza machine. “Pizza isn’t rocket science.” A robot could succeed, he says, if it can consistently deliver a better experience at a price comparable to human-made alternatives.

Consistency has been one of the greatest challenges for Stellar. Arik Jenkins, a former automation engineer at SpaceX, joined Stellar in 2020 and quickly became exposed to the darkest fear from his rocket-making days: Things kept blowing up. Under the pressure of the cooking process, the dough overinflated and then burst. This happened again and again. Hardened fragments, shrinking and then blackening, dotted the walls and ceiling of the 900F oven.

The explosions stemmed from air pockets that formed unpredictably and grew so large that the sauce and cheese slid off them. Desirable in some styles of pizza, puffy crusts didn’t work for Stellar. The resulting bare sections looked ugly, and the displaced ingredients piled up in other parts of the pie. Engineers had to lurk outside the oven’s windows, armed with a dinner knife tied to a stick, ready to throw open the door and pierce any emerging bubbles.

Making things worse, nobody knew which batches would burst and which would come out fine. The engineers approached the problem as they would any they encountered during their time at SpaceX. They started with an assumption—that the layers of dough weren’t bonding together firmly enough after flattening under the press—and tested their hypothesis. They adjusted the dough-rolling process, which they refer to as docking. They changed the nubs on the rolling pin to be shorter and then longer, sharper and then blunter, but none of those made a difference. More data was needed.

To enhance structure and flavor, Stellar’s pizza dough sits for about two days, mostly in the refrigerator, before going into the oven. This leaves room for variables that could make some dough more susceptible to bursting than others. The engineers bought thermocouples to measure the temperature inside each ball of rising dough. “Like, every second of that dough ball, as it went up from counter temperature and then went down to the fridge temperature,” says Jenkins, Stellar’s head of test and integration.

The research revealed the precise yeast content and series of temperatures required at every stage of the dough-rising process to enable each pie to bake the same way. Around the start of 2022, they finally arrived at a consistently bubble-free crust.

“We could really step back and be like, ‘Huh, we ju

Tsai is eschewing brick-and-mortar shops for pizza on wheels

Jenkins's first response was disbelief. The team had grown accustomed to dealing with a bubble debacle every few pizzas. After a while, they finally felt comfortable retiring the dinner knife militia that routinely patrolled the ovens. "We could really step back and be like, 'Huh, we just cooked 200 pizzas without touching anything,'" Jenkins says. "It was such a relief."

The current version of the pizza robot is Generation A, the first one capable of cooking fully autonomously and reliably on a truck. The robot is essentially a set of interlocking tools, sized to slide in and out of an Isuzu NRR box truck in one piece. (Stellar picked the Isuzu because the team liked the aesthetic.)

Inside the vehicle sits a refrigerated chamber with trays of dough. The fridge has capacity for exactly 420 dough balls, a number that would make Musk proud but Tsai insists is a coincidence. Each tray slides down, one by one, beneath a metal claw bearing a sticker of the three-eyed alien from *Toy Story*. When it's time to bake, the claw grabs a ball and moves it along the assembly line.

Next, a press flattens the dough. A conveyor belt advances the circular slab toward the front of the truck. Within seconds, sauce dribbles over the top in a dotted pattern that, once in the oven, will melt into one uniform coating. Then the conveyor belt pauses under a chute from which a cloud of diced mozzarella falls.

Depending on the customer's order, the next step could involve a band saw cutting in one motion through 19 separate logs of pepperoni dangling overhead. Additional chutes dispense veggies or sausage. Last, the pie moves near the cab of the truck, where an oven column sits. A mini elevator takes the pie up to one of the four ovens, and a robotic arm holding an automated pizza peel slides it inside.

Along the way, sensors check for roundness and placement of the toppings. If any one element doesn't measure up, the pie drops off the line into the trash. This happens occasionally when the team is experimenting with a new topping or other modification. The failure rate in the field is essentially zero, says Tsai. The whole process is videotaped, and each pizza is assigned an identification number and QR code that can be referenced if a customer complains later.

A reporter for *Bloomberg Businessweek* was pleasantly surprised after sampling a veggie slice. The crust was slightly charred, neither too crispy nor too chewy. The cheese was the right amount of gooey and played well off the tang of the black olives. It was no gourmet pie, but it tasted a lot better than Domino's. That's pretty much what Tsai is going for. To ensure quality, Stellar paid for the advice of Noel Brohner, the famed chef who's helped Los Angeles restaurateurs and celebrities such as Tom Hanks improve their pizza games.

Stellar began stress-testing operations in September by sending its truck to the neighborhoods around the University of Southern California campus, where students are more than willing to download an app in exchange for free pizza. On one of the first visits, 180 customers placed orders within five minutes, resulting in two-hour delays. Stellar started charging a base price of $8 for a 12-inch pie in late October, which reduced wait times. One topping you can't get from the Stellar truck at USC is mushrooms. That's because college students usually don't order them, Tsai says. He maintains that mushrooms are "largely resolved from a technical perspective."

Two employees sit in each truck, mostly to answer questions from customers and put finished pies into boxes. Often there's a third employee present: Tsai. He likes to observe how people interact with the app and the staff. He says a next-generation robot, expected in 2023, will box the pies itself. Even then, Tsai wants the head count to remain at two humans per truck. That way, one can take a break without leaving the assembly line unattended. The workers aren't pizza chefs, though. If any part of the machine breaks down, they'll have to turn the truck around and return to home base, no matter how many unsold pies are aboard. So far, that hasn't happened, Tsai says.

st cooked 200 pizzas without touching anything'"

He isn't concerned with making the truck drive itself, which would require an entirely different set of expertise and put his startup on a collision course with Alphabet Inc. and Tesla Inc. "Stellar is focused on self-cooking," he says.

The idea is to have a system in place that can be replicated easily and cheaply. Currently, a new garden-variety food truck costs about $100,000. Tsai declines to say what it cost to build the Stellar prototype. Factoring in salaries, rent, supplies and more than two years of work, it was at least $6 million, says a person familiar with the expenses who wasn't authorized to disclose the number and requested anonymity.

Over the past couple of years, the Stellar team consumed a great deal of pizza. Too much, maybe? "That's like asking me if I would ever get sick of rice," says Tsai, the son of Taiwanese immigrants. "Like, no." About an hour later, an interview with Villbrandt is interrupted by a courier toting a bag from the salad chain Sweetgreen. Villbrandt's face shows a tinge of pizza remorse. "You can't eat it every day," he says.

Tsai says he's pleased to have overcome the engineering challenges associated with miniaturizing the equipment. He's won over the discerning palates of the student body at USC and secured the backing of Jay-Z, whose venture capital firm led a $16.5 million investment in October. But Stellar has many more challenges ahead. It needs to reproduce the robot on multiple trucks, prove the economics of the business and expand beyond Los Angeles. The startup is determined to succeed, Tsai says, for humanity: "Solving problems here on Earth is really important to me." Ⓑ


YOU WILL

WHERE TO GO IN 2023

As tourists of all types are set to spend a record amount on travel this year, it's time to go big—because you're definitely not staying home

Paddleboarding in Fatu Hiva in the Marquesas Islands

January 9, 2023

Edited by Chris Rovzar

Businessweek.com

ADVENTUREL

● CROSS 21ST-CENTURY FRONTIERS IN THE MARQUESAS ISLANDS

Consider for a moment that the Arctic and Antarctica aren't the last great unexplored realms of our planet. A once under-the-radar expanse exists in the heart of the South Pacific, almost 900 miles west of mainland Tahiti where a few sparse islets pierce the waves. Like Tahiti's peaks on steroids, the mountains of the Marquesas archipelago are the dramatic remnant of cataclysmic volcanoes that erupted eons ago, and their craggy ledges and summits are now the subject of countless Instagram posts, sparking a surge in tourism. For Sven-Olof Lindblad, who forged his reputation as a leading purveyor of polar sailings, the South Pacific has become his newest obsession. (He even left his post as chief executive officer of Lindblad Expeditions Holdings Inc. in 2021 to focus more readily on the region.) Now he plans trips around the Marquesas archipelago on his private vessel, the 154-foot *Hanse Explorer*, to allow scientists and explorers to conduct underwater conservation studies. When he's not using the vessel for scientific purposes, luxury guests can rent out the superyacht and see this hidden world for themselves; it's the only private ship with a dedicated Marquesas itinerary.

And Lindblad Expeditions—in partnership with National Geographic—is rerouting all its vessels to the South Pacific, adding far-flung island-hopping circuits to their respective itineraries in 2023. Several international cruises are also including the islands of the Marquesas as new ports of call, allowing passengers to experience the destination that inspired much of Paul Gauguin's work, whether it's on hikes to lonesome black-sand beaches or horseback rides through interior jungles.

In December the Marquesas Arts and Culture Festival, held once every four years, returns to the island of Nuku Hiva. Visitors can watch as Polynesians gather from thousands of miles away to practice their *haka* war dances, hunt for wild game and tap intricate tattoos on their bodies.

● TRAMP LIKE HARFOOTS IN NEW ZEALAND

After a hiatus of more than two years during the pandemic, New Zealand is once again offering outsiders the adventure of a lifetime at the bottom of the world. The country's untamed natural beauty, back on screen in Amazon Prime Video's *Rings of Power* series, is on fullest display along its 10 Great Walks, which can take three to five days each.

Each hike is a unique experience in a different part of the nation, covering landscapes from volcanic plateaus to golden beaches and snow-capped mountain ranges. The most popular is the Milford Track, a four-day "tramp" (in local parlance) on the western side of South Island that winds through lush rainforest, over a mountain pass and into the Milford Sound—a fjord created by the sea flooding a glacial valley that writer Rudyard Kipling dubbed "the eighth wonder of the world." The walks, administered by the Department of Conservation, are often booked months in advance, and each trail has campsites or huts with common bunk rooms and a shared kitchen topping out at NZ$110 ($70) per night. There are also less rustic private offerings at considerably higher prices.

Or skip the tracks entirely and join winery company Invivo this month for the first flight from Auckland to Queenstown that features a tasting of eight different wines in the air. And Americans take note: Air New Zealand now offers nonstop flights to Auckland from New York.

Gokyo Lake in the Kumbhu region of Nepal

PREVIOUS PAGE: RALPH LEE HOPKINS. THIS SPREAD: DAVID DUCOIN

LANDS

● DISCOVER NEPAL WITHOUT ROUGHING IT

With its gold-topped temples and snow-covered Himalayan peaks, Nepal has long been the stuff of backpacker legends. Most cash-rich tourists make a beeline for the roughly $40,000-a-pop Mount Everest climb, but that's set to change now that Mountain Lodges of Nepal, a recently rebranded collection of upscale accommodations, aims to boost luxury hospitality in all corners of the country.

The collection extends from the fringe of south-central Chitwan National Park to the dramatic Mahalangur Himal range, which consists of four of the six highest peaks in the world. Other outposts dot the lush valleys of the Annapurna Circuit. Some of its properties, the Phakding Lodge among them, have been around for more than a decade but will receive a top-to-toe refurbishment combining Nepali architectural hallmarks such as warm woods and intricate weavings with modern amenities including a new farm-to-table restaurant built on the hotel's former helipad. Others, like the Deboche Lodge at 3,820 meters (12,533 feet) that's set to open in the last quarter of 2023, will be built from the ground up.

The crown jewel, however, will be Shinta Mani Mustang. Opening in May in the remote Upper Mustang region on the edge of Tibet, this 29-suite all-inclusive retreat is inspired by traditional Tibetan dwellings and the Jurassic-era ammonite fossils found around the nearby riverbeds. Off-site expeditions include tours around the Buddhist fresco-inscribed "sky caves" lining the Kali Gandaki River and multiday treks with stays at Shinta Mani's pop-up hotel rooms.

● HANG WITH ELEPHANTS AND GIBBONS IN ISAN

Thailand's northeastern region is a clutch of sleepy rural provinces that are more similar to Laos than the Bangkok capital. The area has never had the cachet of the country's mountainous north or beach-hemmed south, either, but that's slowly changing now that its hospitality scene is turning heads on the global stage.

In Khao Yai, Thailand's oldest national park and the elephant-populated green gateway to the region, hotel designer Bill Bensley helped craft the whimsical look of the new InterContinental. With wall-mounted luggage racks and clerestory ceilings, the hotel's 45 rooms mimic luxurious train cabins, and its 16 suites and French restaurant inhabit actual rail cars salvaged from junkyards across the country.

Nearby, the new Marasca Khao Yai is just as playful. Stay in safari tents or converted Volkswagen T2 vans equipped with your own outdoor barbecue grills and hot tubs. Either option is a great home base for days of exploring the park, seeking out elephants, gibbons and moon bears (oh my!) among the lush emerald hills and pounding waterfalls.

The region's fiery cuisine also made its debut in the 2023 edition of Thailand's Michelin guide, which deemed numerous Isan mainstays as a good value: They include larb authority Lab Somphit in Nakhon Ratchasima and grilled chicken specialist Kai Yang Rabeab in Khon Kaen. Also mentioned on the list is fine-dining trailblazer Samuay & Sons in Udon Thani. Chef Weerawat "Num" Triyasenawat, considered the René Redzepi of Thailand, turns oft-forgotten local ingredients—pickled bamboo shoots and steamed field crab, for example—into tasting menus. Clued-in foodies book its tables weeks in advance.


Sugar Beach, a Viceroy Resort in St. Lucia

SEASIDE

● GOLF AND GLOW IN ST. LUCIA

St. Lucia has been the Caribbean's answer to virtually every kind of vacation demand: adventure, romance, nature, culture, cuisine—it has it all. That's been especially true over the past year, as tourism returned to, and even surpassed, pre-pandemic levels. A record 39,000 visitors arrived in July alone. Travelers hiked into the lush, volcanic Piton Mountains, relaxed on white-sand beaches and devoured dishes that blend Caribbean, Indian, American and European influences. St. Lucia's collection of high-end resorts offered much-needed relaxation and recovery.

Droves more are sure to come this year, as new openings and initiatives help the island continue to bounce back. Cabot Saint Lucia will make its debut on a 375-acre peninsula on Gros Islet. The sophomore development from the creators of Nova Scotia's acclaimed Cabot Cape Breton golf community opens for preview play in March; real estate, guest villas, dining and wellness offerings will roll out later in 2023 and 2024. The highly anticipated debut follows last year's grand reopening of Sugar Beach, a Viceroy Resort nestled in a lagoon surrounded by steep mountains and 100 acres of protected rainforest. After a five-month closure, guests were met with new beach bungalows, a bar and a refreshed swimming pool. (Get a peel-and-massage treatment in the rainforest treehouse—it will add a shine to your skin and bring a glow to your spirit.)

The Saint Lucia Tourism Authority is inviting travelers to discover the island's more intimate and exclusive accommodations through its new Collection de Pépites. The program showcases luxury villas and boutique properties such as Rabot Hotel, a 25-room eco-lodge located on a 140-acre cacao farm overlooking the Pitons.

● JOIN THE JET-SET PARTY IN PANAMA CITY

In 1914 all eyes were on skinny Panama when its eponymous canal opened, making Panama City the new crossroads of the Americas. Once a backwater, the growing burg was suddenly one of the world's most cosmopolitan destinations, thanks to the influx of transplants from Europe, India, China and the Caribbean who helped construct the waterway.

Fast-forward more than 100 years, and the capital has retained its vibrant multicultural flair. And Panama City is finally starting to get the attention it deserves, especially on the international culinary stage. Standouts include Maito, a fine-dining venue that showcases indigenous ingredients and Panamanian flavors, and Fonda Lo Que Hay, which puts a swish, mod twist on the traditional roadside hangout.

Two hotelier heavyweights, Accor SA and Hyatt Corp., have bedded down in town, each with offerings in their luxury portfolios, the Sofitel Legend Casco Viejo and the Hotel La Compañia, respectively. Both are in the Unesco-protected old city quarter, which blends historic boulevards with red-hot nightlife. They pair perfectly with the growing number of resorts flanking Panama's exquisite beaches: Properties such as Bocas Bali, with overwater bungalows and soon-to-open bamboo treehouses, are giving neighboring Costa Rica's classic stays a run for their money.

Jet-setters are starting to arrive en masse now that an expansion of the international airport is welcoming a handful of new direct flights from the US. The relaunch of Copa Airlines' layover program, meanwhile, is encouraging a stop in Panama City for a few days at no extra charge.

COURTESY SUGAR BEACH. COURTESY DESIGN HOTELS

● CHILL BY THE BEACH IN TRANCOSO, BRAZIL

In 2020, Spanish photographer Marta Tucci was sent on assignment to Trancoso, a chic beachfront town 650 miles or so north of Rio de Janeiro on the coast of Bahia in Brazil. “In the first week, I fell in love with the place,” she says from the town she and her property developer husband now call home.

The couple isn’t alone. This village was once best known as a counterculture hideout in the 1970s and ’80s during the Brazilian military dictatorship; it transformed when the fashion pack began descending roughly 15 years ago to rent out the little houses here, which sit on and around the *quadrado central*. Bob Shevlin and his partner, Wilbert Das, Diesel’s former creative lead, were pioneers. “The first house we bought on the town square—in 2006?—it had no glass windows,” he recalls, noting they slept on the floor for a while. The pair went on to open the 13-room Uxua Casa Hotel & Spa in 2009, a magnet for the likes of Beyoncé and Leonardo DiCaprio.

Shevlin says Trancoso has undergone another radical change over the last two years: Folks like Tucci are flocking to live long-term in this chic beachfront hideaway. Many of Shevlin’s international friends are spending considerably more time here than they did pre-pandemic.

The uptick in year-round residents has spurred an increase in amenities, too, bolstering what’s long been available at luxury deli Empório le Marché, which hawks imports such as asiago cheese and mortadella. Nexo Brunch & Coffee Bar, for instance, is run by a young Brazilian nutritionist and her husband. Another coffee shop, Café Na Praça, is on the way. And São João Batista Burger & Pizza slings hamburgers in a homey setting.

Still, the sleepy, laid-back appeal of the village persists. “I was really hoping to find a place where I could spend a bit more time,” says Tucci of life here. “We’re taking it slow.”

● SPLASH WITH THE KIDS IN IVORY COAST

This French-speaking nation with Atlantic beaches, dense forests and skyscrapers is positioning itself as the next hot spot in West Africa. (Step aside, Ghana.) From 2017 to 2019, overseas tourist arrivals in Ivory Coast were increasing at an average annual rate of 7.2%, reaching 2 million visitors. That’s also when the Ivorian government began its “Sublime Côte d’Ivoire” plan, which aims to bring in 4 million tourists a year by 2025.

A new 60,000-seat stadium fits within this ambitious vision, set to open in time for the Africa Cup of Nations soccer tournament in January 2024. “Aérocité,” a $1.6 billion development rolling out over the next several years, will expand the international airport and create an urban complex with luxury hotels, a water park, residences and event spaces.

Abidjan, the country’s entry point, is a lagoon-facing commercial city that’s started to see the arrival of five-star boutique hotels. La Maison Palmier—Marriott’s first member-hotel in West Africa—has a stunning art-deco design, lush poolside gardens and a French-Ivorian restaurant attracting well-heeled locals. At the Noom Hotel Abidjan Plateau in the business district, wind down by an infinity pool overlooking the Ebrié Lagoon or take in Abidjan’s skyscrapers by night from the Sky Bar. The Sofitel—a property built in the 1960s as one of Africa’s first modernist hotels—was renovated in 2019 and also deserves a visit.

To escape the city rush, take a 20-minute boat ride to Ile Boulay’s trendy Boulay Beach Resort. But don’t miss Ivory Coast’s laid-back Atlantic beach towns, which are perfect for families. In San Pédro, opt for La Maison du Soleil or Hotel Eden Roc Ivoire. In Assinie-Mafia, Coucoué Lodge is a popular weekend escape. Stop at the Grand Bassam market on the way to sample choukouya, roadside marinated and grilled meats with onions and tomatoes.

SPLENDOR

La Maison Palmier in Abidjan

WHERE THE A

● GO (WAY, WAY) BACK IN TIME IN CENTRAL GEORGIA

Macon occupies a key place in American Indian and Black history—and with its bicentennial in 2023, the city is ready to show it all off. Ocmulgee Mounds National Historic Park is a prehistoric riverfront site where the Muscogee Nation lived for more than 12,000 years. Housing more than 2,000 American Indian artifacts and offering 6 miles of trails, it's expected to be named Georgia's first national park when a three-year federal review concludes soon.

In the historic downtown, stay at the former bank turned 94-room Hotel Forty Five, part of the Marriott Bonvoy collection. There's also the Woodward Hotel, named after the owner's grandfather, an English professor; expect books of Southern literature in its nine luxe rooms. Situated on an alley surrounded by buzzy local eateries, it has rooftop patio views. The city's culinary scene is home to more than a dozen Black-owned restaurants, such as Macon soul food institution H&H Restaurant and plant-based barbecue favorite Southern Vegan Soul Cafe.

Macon's pop-music roots can be found at the Capricorn Sound Studios and Museum, which memorializes the record label for Otis Redding, Al Green and the Allman Brothers. Oprah already gets the vibe—she was spotted here while producing the musical remake of *The Color Purple*. Filmed around town, it's due out in December.

● TAKE A FRESH LOOK AT MODERN EDINBURGH

Known for its Gothic architecture, gray weather and abundance of literary figures, the Scottish capital can be easily pigeonholed for its stoic antiquity. But several hotels are breathing new life into old buildings.

Gleneagles Townhouse, a long-awaited follow-up to its sister country estate in Perthshire (established 1925), opened in June, with 33 rooms set within the Old Town's historic British Linen Bank. Inside, original fireplaces and wood paneling contrast with modern artwork by local artists and quirky Toile de Jouy wallpaper. The Townhouse was soon joined by the 222-room Virgin Hotels Edinburgh, another restoration project—this one making over the mid-19th century India Buildings with all the flash and crimson flair the brand is known for. Its Commons Club bar and restaurant is an ode to Scottish larders with seasonal cuisine, and the rooftop bar offers a fresh perspective on the city's skyline.

This winter, the 214-room W Hotel Edinburgh will be part of the 1.7 million-square-foot TH Real Estate development, bringing new shopping, restaurants and entertainment to the upscale St James Quarter.

Summer brings out the best in the city, though: The Edinburgh Fringe, the world's largest arts festival, runs through the bulk of August. Just in time, 100 Princes Street will open; the historic former home of the Over-Seas League social club (dedicated to international friendship and understanding) will honor Scottish lore while bringing a high-fashion look inspired by Alexander McQueen and an "anywhere-anytime" ethos to service. Millennial British lifestyle brand Hoxton will also open a 211-room property in 10 conjoined Georgian town houses in the Haymarket neighborhood.

● OGLE WORLD-CLASS ART IN OSLO

The Norwegian capital is undergoing a quiet renaissance. An overhaul of the Sorenga neighborhood in the last decade turned an old container dock into one of the city's most popular swimming spots, just steps away from the architecturally marvelous Oslo Opera House, designed by Norwegian starchitects Snohetta AS. Along with the Astrup Fearnley Museet, the city's museum of modern art, the shoreline also includes a new home for the country's National Museum. It can display 6,500 artworks—twice

The Spence restaurant at the Gleneagles Townhouse in Edinburgh

COURTESY GLENEAGLES TOWNHOUSE. COURTESY VISIT MACON

ARTS


Macon's Grand Opera House, which hosts concerts, Broadway shows, movies and comedy

the number that were previously on display—including pieces like Edvard Munch's *The Scream*.

The pandemic wreaked havoc on hotels and bars in Oslo, but that's made room for a number of exciting entrants now being ushered into the scene. Among them, in one of Oslo's oldest neighborhoods, is the Sommerro hotel. Housed in the former headquarters of the city's electrical company, it boasts three bars and five restaurants.

The city also serves as a jumping-off point to explore Norway's mountains and fjords. Inventive hospitality options such as the Juvet Landscape Hotel's glassy modern buildings are perfectly situated over rivers and mossy hills in northwestern Norway; at Under, a restaurant on the south coast, guests dine 5 meters (16 feet) below the surface of the North Sea.

● REDISCOVER REGAL RELICS IN MADRID

Long the staid sister to beachside Barcelona, Madrid has begun to shed its government-town reputation and become the destination of choice amid the resurgence of European tourism. Not only does it have a fraction of the foreign visitors, it holds just as many big-city perks as London, Paris and Rome—including some of the best museums in the world, a decadent dining and drinking scene, and a central park to rival New York's.

Stunning refurbishments at the Mandarin Oriental Ritz and Marriott's Edition have all been completed in the last two years, rescuing historical, palace-style buildings from disrepair. At another newly opened hotel, the Four Seasons, Andalusian celebrity chef Dani Garcia has taken over an indoor-outdoor space overlooking the city. A few minutes away, his "fire omakase" menu at the Smoked Room Madrid, which uses steam aromas and Japanese cooking methods to enhance domestic produce, nabbed two Michelin stars in 2022 after only six months in operation.

There are also venues by savvy independent chefs who are leaving tapas and Iberico ham in the dust in an attempt to challenge perceptions of local flavors. At Bugao—a self-proclaimed "kitchen between seas"—chef Hugo Ruiz serves up inventive dishes with seafood fished from the Strait of Gibraltar.

MEET HISTORY

OUTDOOR

A dining area outside Maine's Aragosta at Goose Cove

● EXPLORE MAINE'S FINER SIDE

For Americans, visiting the Pine Tree State is a little like taking a quick trip to a foreign country. There's the distinctive geographical blend of craggy stone beaches, storm-blue lakes and fuzzy, fir-topped mountains. The local cuisine, of fresh seafood augmented by hardy farm-to-table veggies and berries, is likewise famous beyond its borders. And there's the general quiet, which you'll find in forests, on the water and, often, among the stoic people who live there. Sailing, hiking, skiing, canoeing, fishing, hunting and hammocking are among the myriad restorative activities beloved by natives and visitors alike.

In other words, it's a dream escape from urban life, which is why it's grown more popular than ever over the past decade. Restaurant-jammed Portland added a few more in 2022, including Twelve, a dining room from former Eleven Madison Park chef Colin Wyatt, and the Danforth, a cocktail lounge by the Death & Co team. An expansive rooftop bar, Luna, has also elevated the city's nightlife, offering gorgeous harbor views from the new Canopy by Hilton Portland Waterfront hotel. Further Down East (that's up the coast, in Maine-speak) on the vast Deer Isle, chef Devin Finigan has created a romantic destination with Aragosta at Goose Cove, which opened in 2019. Guests can stay at one of 12 cottages and suites and partake in a tasting menu of locally sourced halibut, lobster, oysters, kelp and duck or dine in a greenhouse perched right over the water. (There are also walk-in-only happy hours Mondays through Wednesdays.)

If a preppy paradise is what you're searching for, fashion designer Todd Snyder has continued his partnership with the Hidden Pond resort in Kennebunkport and designed 20 one-bedroom bungalows in an appealing rustic style. While there, take a boat ride, get a CBD-infused massage at the spa or simply relax on the beach. Some even have sand!

● SOAK AWAY STRESS IN KYUSHU

Japan's third-largest island, crowned by a constellation of still-blazing volcanoes, sets the backdrop for many of the country's touch points. Kyushu's wondrous ecology fuels a bumper crop of unique fruits and vegetables, including mind-bending citrus, such as puckery kabosu, sweet-and-sour hyuganatasu and the gigantic yellow banpeiyu. The soil is spiked with such a density of minerals that its wild, primordial forests are the inspiration for anime fairy-tale lands, including the one in Studio Ghibli's *Princess Mononoke*. Tonkotsu ramen, now pervasive in America, was born in the backstreets of Hakata; wash it down with shochu or sake, both of which are distilled abundantly from the ample fields of rice, sweet potato and barley nearby. The national passion for ceramics has turned Arita and several other little towns into points of pilgrimage.

The country's *onsen* culture (bathing in hot springs) is best articulated here, too, at frothing resort towns such as Beppu. New Shinkansen bullet train routes opening in late 2022 and 2023 are

PHOTOGRAPH BY GRETA RYBUS FOR BLOOMBERG BUSINESSWEEK. COURTESY KYUSHU TOURISM ORGANIZATION

An *onsen* in Beppu on Kyushu

EXPANSES

making it easier than ever to access Kyushu's hidden hamlets and seaside villages, many of which are sprouting compelling new *ryokan*, or inns. Hoshino Resorts' luxury wellness brand, Kai, has recently expanded in Mount Unzen and in Yufuin with a Kengo Kuma-designed resort. And a new Ritz-Carlton will soon open in Fukuoka, as well. The small, ultraluxury resort Tenku no Mori opened in the woods right outside of Kirishima with onsens in each cottage and a warning on its website that the dress code is "naked."

● SAVOR A SIP OF AFRICA'S DEEP SOUTH

Think of the South African wine lands, and Stellenbosch or Franschhoek likely spring to mind. This year, consider driving 100 miles southeast to the Western Cape's Agulhas wine triangle, where a handful of pioneering cellars are tapping into the region's unique coastal terroir and brisk sea winds to produce expressive wines with wonderful minerality and freshness. Syrah and sauvignon blanc are the standout cultivars—try Strandveld Vineyards, Lomond Wines or the Giant Periwinkle—but pinot noir also thrives in these cooler climes. On the banks of the Breede River, the rocky vineyards at Sijnn Wines shape impressive Rhône-style blends.

Elsewhere, book a guided tour of the Nuwejaars Wetlands, where 25 landowners are conserving 113,000 acres of the Agulhas Plain, reintroducing hippopotamus and Cape buffalo to their traditional ranges. Make your base at Grootbos Private Nature Reserve, which protects the endemic fynbos, or shrubland, vegetation of the region. The original Garden Lodge was entirely rebuilt in 2022; its 11 contemporary suites are hidden amid ancient milkwood forests.

● VISIT A SPA IN THE LOIRE VALLEY IN SUSTAINABLE STYLE

Dreams about France's Loire Valley usually conjure fairy-tale châteaux rising elegantly out of manicured gardens and Disney-perfect towns. But the sleepy region, with its rolling hills of green pastures and gently bobbing hot air balloons, is embracing a more modern, sustainability-minded hospitality. Several revolutionary properties have sprouted up in the past two years, including Loire Valley Lodges, with 18 actual treehouses hidden deep in a lush, 750-acre forest. There, masseuses will come to your room for treatments on your terrace, and the menu at the in-house Ardent restaurant highlights produce from the garden, such as cabbage stuffed with foie gras. At Les Sources de Cheverny, a new-in-2022 resort built out of an 18th century château and farm, you can delight in locavore dishes in the blond-wood barn restaurant Le Favori and sample ethically produced bath products in your suite.

Locals are especially thrilled about Fleur de Loire, a sparkling five-star Relais & Châteaux hotel debut in Blois from hometown hero chef Christophe Hay, whose prior restaurant, La Maison d'à Côté, had two Michelin stars and a green star for sustainability before it closed. The new resort is built in a 17th century hospice constructed on the orders of Gaston, duke d'Orléans, Louis XIII's brother, and it offers a patisserie, spa and 50-foot indoor pool. The main attractions, however, are the two dining rooms—both of which rely heavily on its 2.5 acres of gardens for produce and on local rivers for sturgeon, carp and other fish. Try the souffléd pike crepe with crunchy quinoa before heading off to sleep in a custom-made bed. And then spend the next day exploring the stunning countryside and nearby wineries by foot, tour bus, bike or even, yes, balloon.

DINING

Jerk chicken at Miss Likklemore's, which opened in 2022 in a new Toronto location

● SEE A NEW TORONTO EVERY TIME YOU VISIT

Canada's largest city continues to be one of North America's most ever-changing—and fastest-growing—metropolises. This year will be no different: The Nobu Residences Toronto, a complex including a hotel and one of the brand's flagship restaurants, is expected to open this summer in two 49-story towers erected atop the 128-year-old Pilkington Glass Factory. And an Andaz hotel will be at the heart of Foster + Partners' 94-story mixed-use One tower, which, when done, will be Canada's tallest residential building.

Toronto's dining scene is upping its already well-established game, too: Israeli chef Eyal Shani will soon bring his veggie-forward Mediterranean fare to his first Canadian outpost, Miznon, while local culinary stars Hanif Harji, Antonio Park and Patrick Kriss have just put the finishing touches on new restaurants. In September, Michelin dropped its first Toronto guide, highlighting 13 star-worthy restaurants, including Kriss's Alo. (It has a French tasting menu—Michelin catnip.)

Bringing the city's 3 million residents closer together is the Bentway, a C$25 million ($18.3 million) urban project transforming a derelict highway into a pedestrian-friendly retail, art and exhibition area that's flourished since its first phase opened in 2018. In 2023 the sustainable park will begin its ambitious next phase, making even more of downtown walkable and accessible.

● SNAG A DEAL IN DIZZYING ISTANBUL

Turkey's largest city is buzzing, in part because of an influx of Russians and Ukrainians alongside the typical Middle Eastern and Western European visitors. Normally a summer vacation paradise, the country recorded its second-highest tourism revenue ever in chilly October. Hotels remain full, and reservations at top restaurants are hard to nab.

If you can, book a table at Turk Fatih Tutak, which, with its two stars, holds the highest Michelin rating in Istanbul. (The guide arrived for the first time in October, a welcome recognition for the city's elite dining establishments.) Not on the list but worth a stop is Avlu. It serves excellent Turkish dishes at the newly refurbished Four Seasons, which occupies a former Ottoman jail in the historic district of Sultanahmet. Galataport, a mostly completed cruise port complex, was built to service enormous ships, but its retail and restaurant spaces bring a bit of Dubai-like glitter to the shores of the Bosporus. Later this year, an ultraluxe Peninsula Hotel is set to open with a long pool right along the strait's edge. It follows the 2021 opening of an 86-room Mandarin Oriental, also on the water. The bars in summer feature gorgeous views and endless opportunities for people-watching.

Runaway inflation has driven up prices, leaving shop owners struggling to make updates to keep pace. Luxury retailers in fancier neighborhoods such as Nisantasi or at huge malls like Zorlu Center see out-of-towners queuing up for lira bargains. But those looking to party the night away may have to ask a local: The government hasn't fully lifted the Covid restrictions on late-night music, sending the once-raucous party scene underground after 1 a.m.

● AWAKEN YOUR SENSES IN SAN FRANCISCO

The tech hub has been in the headlines lately for its vacant office towers and empty downtown streets, but its residential neighborhoods are thriving, and the city more broadly is glistening in a hospitality renaissance. With the crush of workers gone, now's a great time to use San Francisco as a home base for outdoor excursions in nearby Marin County and Napa Valley—or just to avail yourself of the city's less-packed restaurants, bars and hotels.

Take the posh 1 Hotel in the Financial District: Composed of salvaged redwood, native greenery and rustic stones, it's an organic oasis across from a promenade that stretches from the Oracle Park baseball stadium to amusements at Fisherman's Wharf. The Line SF just planted a flag in the gritty Tenderloin, showcasing local artwork

PAULA WILSON

OASES

in the hotel's public spaces and cocktails by inventive bartender Danny Louie. Near Union Square, Auberge is transforming the 1911 Spanish revival Hearst Building, which is set to open this year after a renovation under the eye of decor mavens Roman & Williams. It will have 150 rooms, plus a restaurant, rooftop lounge and spa.

Many wonderfully idiosyncratic restaurants opened in 2022 in the city, including Shuggie's Trash Pie + Natural Wine in the Mission District, with crispy-crust pizzas topped with gnarled mushrooms, bruised squash and other "ugly" produce that would have been discarded elsewhere. Don't miss nearby Mijoté, which serves a blend of Californian and French cuisine by chef Kosuke Tada, or Damansara, an inviting Malaysian canteen in Noe Valley. And locals are cheering the return of Liholiho Yacht Club after a three-year closure; the Lower Nob Hill hangout serves riotous Hawaiian flavors from chef Ravi Kapur.

● TAKE CARE OF BUSINESS IN MILAN

Italy's fashion capital is no longer just about style—it's poised to become a nerve center of global business with the arrival of networking-focused social clubs. In December the Ferragamo-owned Lungarno Collection introduced Portrait Milano, a 73-room hotel housed in a building that was one of Europe's oldest seminaries. The property's transformation included filling its 30,000-square-foot plaza with restaurants and boutiques. Named Piazza del Quadrilatero, it connects Corso Venezia and Via Sant'Andrea for the first time, modifying pedestrian access through the fashion district.

A short walk away on Corso Venezia, private club Casa Cipriani has 15 rooms and a signature Italian restaurant. Later this year, networking juggernaut Core Club will open its first outpost beyond New York and San Francisco in a nearby palazzo.

But a great international business city needs a great dining scene, and Milan holds its own with a multitude of decorated restaurants. In 2022 beloved chef Diego Rossi, whose Trippa Milano has been ranked the best trattoria in Italy, opened Testina, with a compact menu focused on popular classics (veal cutlet) and overlooked dishes (veal head gratin). Andrea Aprea's new bistro at the Luigi Rovati Foundation draws on his Calabrian roots and gastronomic flare (think amatriciana foil-wrapped potatoes). But the city's greatest culinary talents are on display at the Mercato Centrale, which has quickly become a foodie hub—serving up cured meats, Chinese dumplings and lush Italian rice dishes, as well as pizza and bread from master baker Davide Longoni.

● PARTY-HEARTY IN THUMPING DUBAI

The Middle East's over-the-top playground is turning up the volume this year. Atlantis the Royal, a long-awaited ultraluxury beachfront resort on the man-made Palm Jumeirah, is expected to open to guests in February. Its nightlife centerpiece, Cloud 22, offers sweeping views from 22 stories up and features a 90-meter (295-foot) infinity pool, private cabanas and a DJ. A-list chefs Heston Blumenthal and José Andrés are on board. Nobu, too, is moving over from sister property Atlantis the Palm as Nobu by the Beach, a pool club.

Other new hotels don't just focus on adults—they ban kids entirely. Côte d'Azur Monaco promises 24/7 festivities on man-made archipelago the World; Terra Solis, a 21-and-over desert resort outside the city from music fest host Tomorrowland, has two restaurants and offers day passes and sunbed rentals. Kids are allowed at Siro, a new fitness-themed hotel, but would they care about the 1,700 square meters of workout and recovery space?

Michelin has been on an expansion tear, and Dubai has benefited from a new list: In June the guide recognized 11 eateries with stars. But don't forget local standouts such as 3 Fils or Orfali Bros. The only drawback? They don't serve alcohol. B

—Matthew Brockett, Jackie Caradonio, Mark Ellwood, Lisa Fleisher, Lebawit Lily Girma, Benjamin Harvey, Richard Holmes, Jen Murphy, Martine Paris, Brandon Presser, Chris Rovzar, Chris Schalkx, Lindsey Tramuta and Stephen Treloar

In a World of Data, A Power Play Over Chips

By Alex Webb

In 2022 the whole world seemed to wake up to the idea that semiconductors, rather than data, are the new oil. A confluence of factors—from Russia's invasion of Ukraine to the fallout from Covid-19—has turned a thesis into a widely accepted doctrine that's spurring almost $100 billion in new state investment.

Unlike oil, data is remarkably plentiful and cheap. The real value resides in the ability to process and understand it, so chips are essential. The pandemic made much of the world realize quite how difficult life would be without them. You probably know the backstory by now: Anticipating a slowdown in customer demand in 2020, carmakers and other companies canceled many of their orders for the chips that would go into their vehicles and other products. Consumer-electronics companies swooped in and gobbled up much of the unwanted supply. Then, when demand unexpectedly resumed, the carmakers couldn't get the components they needed. And other supply chain disruptions made the matter worse.

A lot of those chips come from Taiwan. Which is where the war in Ukraine comes in. Russia's invasion immediately highlighted the vulnerability of Taiwan, which Beijing has always considered an "inalienable part of China's territory." Should China even blockade, let alone invade, the island that sits 100 miles off its coast, the domino effect would be colossal. Apple would struggle to get chips for its iPhones, Nvidia the Taiwan-made chips it supplies to data centers that run much of the internet, and Infineon Technologies the microcontrollers for cars made by Volkswagen and others.

If 2021 highlighted the consequences of even mild supply constraints, then 2022 showed how much worse things could be. Suddenly a corporate supply chain issue assumed a geopolitical urgency unseen since the Cold War. Europe and the US have responded with capital. The Chips and Science Act in the US will provide about $50 billion to bolster the domestic semiconductor industry. The European Union is advancing a €43 billion ($45 billion) package, aiming to produce 20% of the world's chips by 2030. But reducing dependency on Taiwan and others will take years, if not decades.

The second aspect of the US strategy is knottier. In October, President Joe Biden introduced measures banning the export to China not only of chips used in high-performance computing and artificial intelligence applications but also of the equipment used to make them. While it may be the right move to curb a rising threat, it also heightens the risk of China targeting Taiwan. Some have likened the export bans to the 1941 US oil embargo on Japan, which led to the attack on Pearl Harbor.

The US has a considerable advantage over China when it comes to chips. But if it overplays efforts to keep its Asian rival in stasis, increased tensions over Taiwan will only further accentuate the need for more domestic production. Ⓑ

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