Bloomberg Businessweek
March 8, 2021

THE VACCINE KING

Inside Pfizer CEO Albert Bourla's fast, fraught, and lucrative distribution of a lifesaving shot 46

Cut your taxes. Not your workforce.

Learn more at: OhioIsForLeaders.com

JobsOhio

Ohio's Economic Development Corporation

Ohio

0%

state tax on corporate profits.
Source: JobsOhio

240,000+

jobs in the financial services sector.
Source: EMSI, 2020

300+

higher education campuses.
Source: EMSI; IPEDS, 2019

5th

largest financial services sector in the U.S.
Source: BEA, 2020

≈40,000

graduates each year qualified to work in financial services/fintech.
Source: JobsOhio

How Covid-19 Has Changed the Way Companies Recruit and Retain Frontline Workers

Even before the pandemic, logistics companies faced driver and warehouse labor shortages. When Covid arrived and accelerated the consumer shift to e-commerce, the demand for fast, reliable deliveries skyrocketed, exacerbating these shortages.

The increased emphasis on the direct-to-consumer model, which appears poised to continue after Covid subsides, has increased the pressure on logistics companies—and has driven home the value of their frontline workers who have ensured that goods arrive at homes and businesses throughout the pandemic. While many industries have adopted a remote work model during the pandemic, that's not an option for much of the supply chain.

"Nearly 75% of our employee base is essential," says Steve Sensing, President, Global Supply Chain Solutions, Ryder. "Meaning, they've got to come to work. That's not going to change anytime soon. If you move boxes or drive a truck, you've got to be there in order to effectively do your job."

The increased demand for these frontline workers along with escalating wages throughout the industry have created new challenges around recruiting and retaining employees. Here are three ways Ryder has answered those challenges:

A new approach to warehouse safety

Despite Covid-related challenges, employee turnover rates at Ryder's warehouses have declined over the past year. Sensing says a major factor pushing them downward is the company's emphasis on safety.

"We've always been focused on protecting our employees from injuries or accidents," Sensing says. "Now, we are protecting them from things like Covid and the flu."

In Ryder-managed warehouses, this focus means supplying protective gear, taking worker temperatures daily and staggering shifts and breaks so employees aren't tempted to congregate during downtime. In areas where workers need to be closer than six feet apart, the company has installed plexiglass partitions.

Appealing to younger truck drivers

Ryder has appealed to millennial employees in recent years by creating a work environment that recognizes that their employment at Ryder is just one part of their life, but an important one that the company takes seriously. Management and leadership play an active role in developing employees by establishing goals and growth opportunities early on.

> The average age of a driver is **46,** and more than **55%** are **45** or older.
>
> Source: American Trucking Association

"We want to also provide competitive benefits, training and upward mobility for our employees, so they can move into a supervisory or management role," Sensing says.

Ryder's 800 shop locations also make it attractive to drivers who prefer to spend a day driving but sleep in their own bed. Rather than driving for weeks at a time, drivers can take a truck from one location to the next, drop it off for another driver and then drive another truck back to their shop, in order to sleep at home that evening.

Boosting tech—in tractors and in warehouses

Younger workers are more connected to technology than previous generations, and they expect a workplace that makes use of the most recent and efficient tech available.

Ryder has invested heavily in technology throughout the company, right down to its trucks and tractors, which now have much of the same technology, such as automatic transmissions and collision avoidance, found in cars.

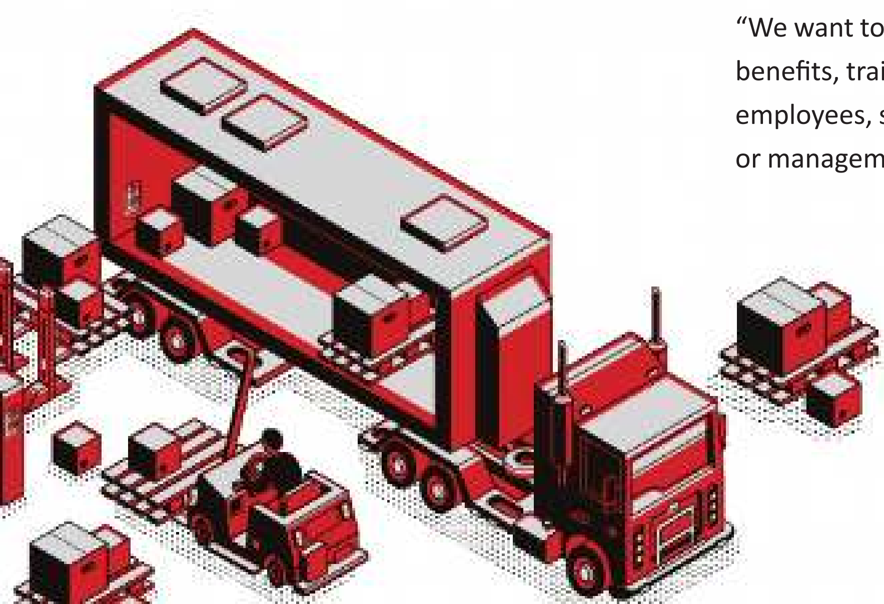
The company has increased its tech capabilities in the warehouse, as well. Ryder OpsBox, the company's proprietary labor management tool, allows for improved labor planning and better visibility inside the warehouse to increase efficiency.

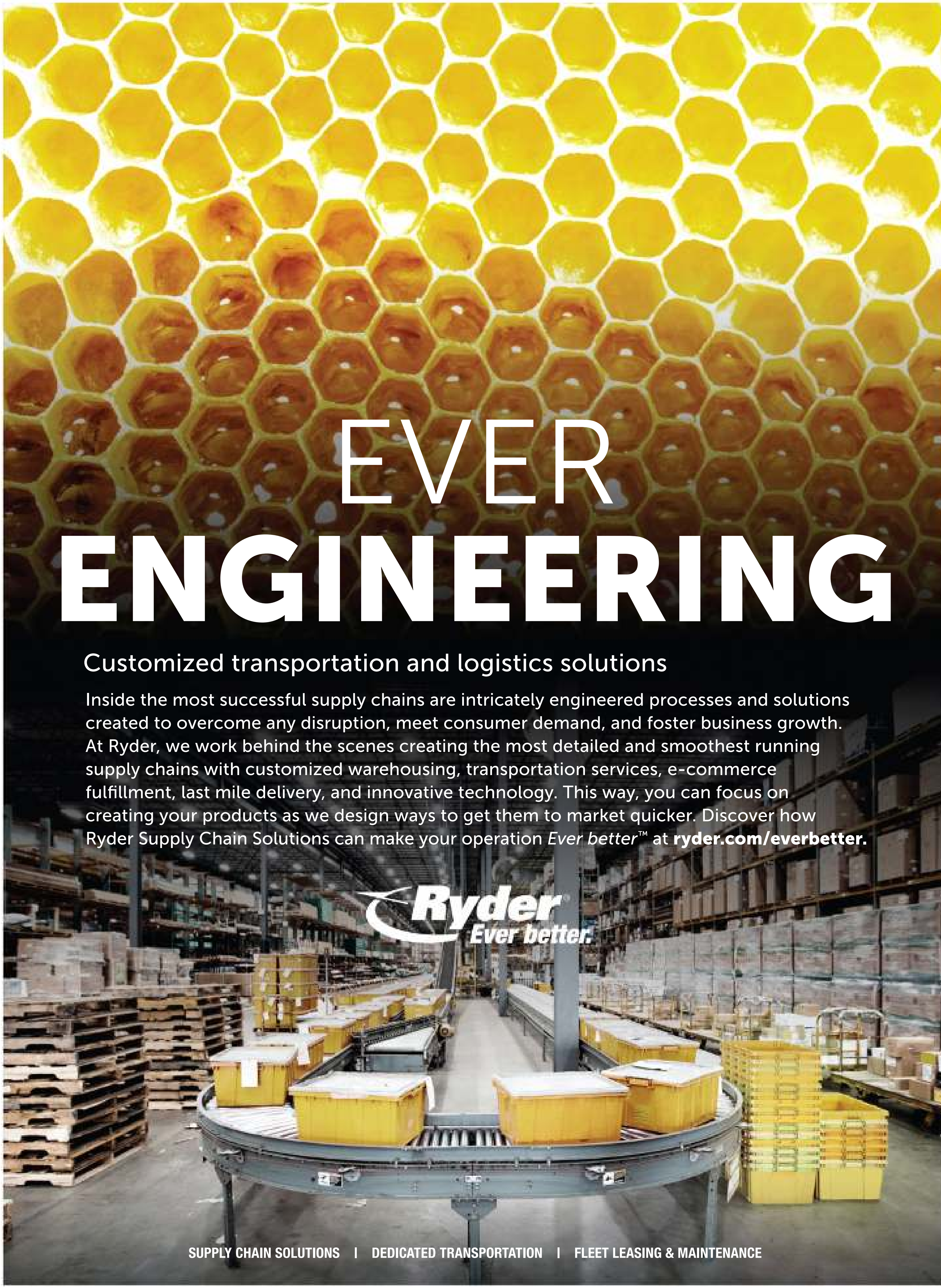
Competition for warehouse workers and truck drivers will likely remain intense due to the e-commerce acceleration that appears poised to continue even after Covid subsides. Companies that can attract and retain the best talent will have a competitive advantage over peers that struggle in this area.

"The best advocates for us are our employees," Sensing says. "The more that they go out and recruit people that they know, the better off we will all be."

Learn more at **www.ryder.com**

Sponsored by Ryder Ever better.




EVER
ENGINEERING
Customized transportation and logistics solutions
Inside the most successful supply chains are intricately engineered processes and solutions created to overcome any disruption, meet consumer demand, and foster business growth. At Ryder, we work behind the scenes creating the most detailed and smoothest running supply chains with customized warehousing, transportation services, e-commerce fulfillment, last mile delivery, and innovative technology. This way, you can focus on creating your products as we design ways to get them to market quicker. Discover how Ryder Supply Chain Solutions can make your operation *Ever better*™ at **ryder.com/everbetter.**
Ryder
Ever better.
SUPPLY CHAIN SOLUTIONS | DEDICATED TRANSPORTATION | FLEET LEASING & MAINTENANCE

Looking for a trading firm that supports you? We've got your back.

When you need trading expertise, you have it. Our trading specialists are some of the best in the industry. Schwab is rated a Top Broker for Customer Service by Investor's Business Daily.

When you're placing trades, you can expect fast, high-quality order executions that can often save you money with Schwab Order Execution Advantage.™

When you're not 100% happy, we'll work with you to make things right. That's why we offer a Satisfaction Guarantee.

charles SCHWAB

It's time for a change. It's time to trade up to Schwab.
Learn more at **Schwab.com/Trading**

Own your tomorrow.

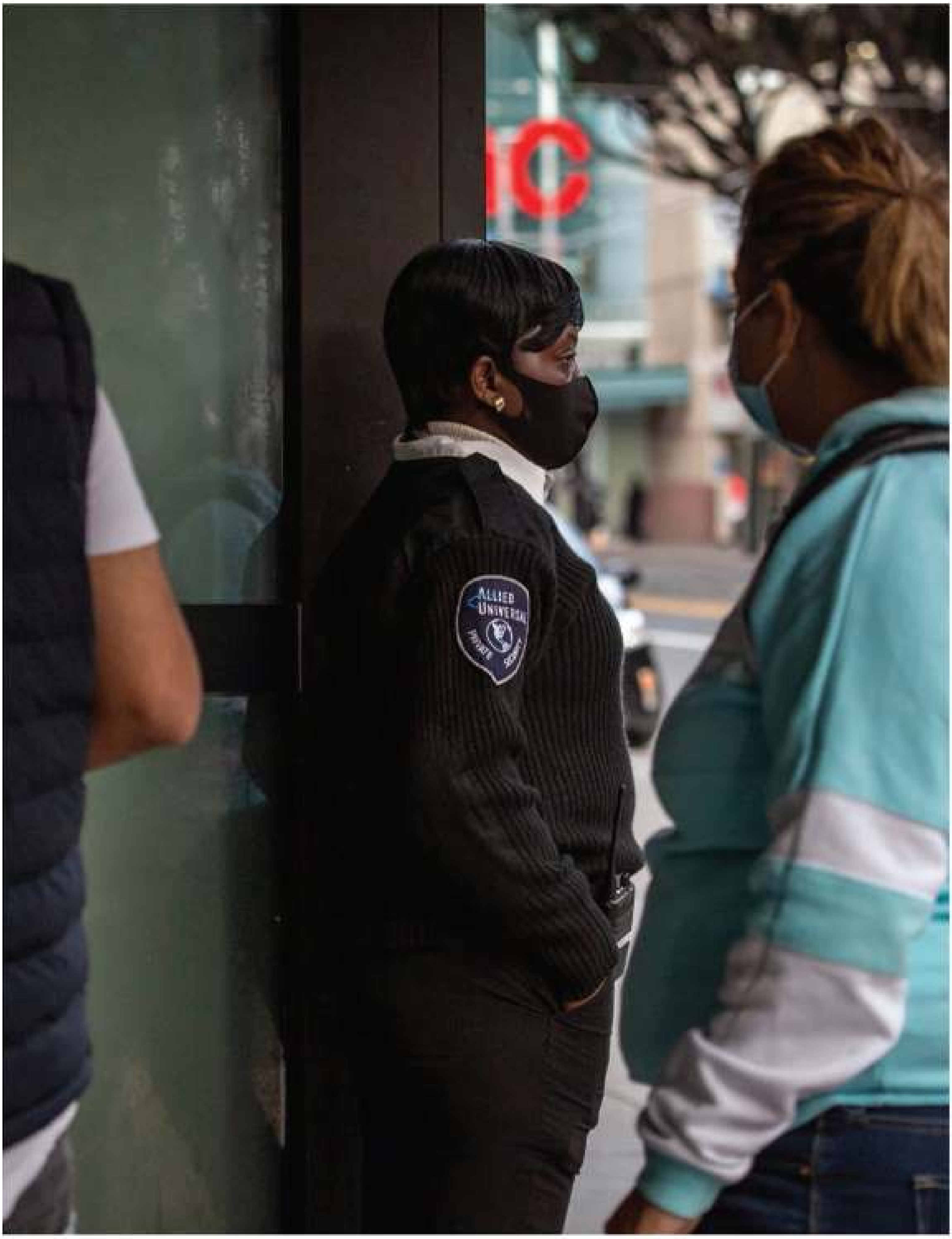
From Investor's Business Daily, January 27, 2020. © 2020 Investor's Business Daily, Inc. All rights reserved. Used by permission and protected by the Copyright Laws of the United States.

Schwab Order Execution Advantage:™ Schwab regularly and rigorously monitors execution quality among competing market venues and looks for opportunities to adjust order routing based on performance trends, technological advances, and other competitive developments.

Price improvement and savings per order based on performance for market orders in S&P 500 stocks with order size between 500 – 1,999 shares as of Q3 2020. Price improvement is not guaranteed. Past performance is no guarantee of future results.

If you are not completely satisfied for any reason, at your request Charles Schwab & Co., Inc. ("Schwab") or Charles Schwab Bank, SSB ("Schwab Bank"), as applicable, will refund any eligible fee related to your concern. Refund requests must be received within 90 days of the date the fee was charged. Schwab reserves the right to change or terminate the guarantee at any time. Go to schwab.com/satisfaction to learn what's included and how it works.

© 2021 Charles Schwab & Co., Inc. All rights reserved. Member SIPC. (0920-0A3P) ADP112284-00



◀ Security guards must contend with customers who are sometimes angry about mask-wearing mandates

PHOTOGRAPH BY RACHEL BUJALSKI FOR BLOOMBERG BUSINESSWEEK

FEATURES

How to Contact *Bloomberg Businessweek*
EDITORIAL 212 617-8120 ● AD SALES 212 617-2900, 731 Lexington Ave. New York, NY 10022 ● EMAIL bwreader@bloomberg.net ● FAX 212 617-9065 ● SUBSCRIPTION CUSTOMER SERVICE URL businessweekmag.com/service ● REPRINTS/PERMISSIONS 800 290-5460 x100 or email businessweekreprints@theygsgroup.com ● Letters to the Editor can be sent by email, fax, or regular mail. They should include the sender's address, phone number(s), and email address if available. Connections with the subject of the letter should be disclosed. We reserve the right to edit for sense, style, and space ● Follow us on social media ▶ FACEBOOK facebook.com/bloombergbusinessweek/ ▶TWITTER @BW ▶ INSTAGRAM @businessweek

■ COVER TRAIL

How the cover gets made

❶

"This week we're talking about Pfizer's worldwide vaccine rollout."

"Wow, yeah. That's a lot of pressure. Lots of strings to pull."

"I'm afraid of where this is going."

❷

"Pretty dark for a guy who developed a lifesaving vaccine."

"So, more God, less father. Got it."

❸

"Good John the Baptist vibe, but still not it."

"Hmm. So, it's like there's good… but there's also, like… bad."

"Yes! It's called *nuance* and *tension*. Do that."

"It's sort of like he made a blueprint of how to make money off something awful, while still helping the world. My head hurts."

"Just keep thinking about the blueprint."

Cover:
Bryan Derballa/*The New York Times*/Redux

TECHNOLOGY: PHOTOGRAPH BY TRAVIS DOVE FOR BLOOMBERG BUSINESSWEEK


Science for a **better life**
Can biology reverse disease and slow climate change?
Science is unlocking big ideas in tiny places, like genes that can help stop disease and crop DNA that helps farmers fight climate change. It's the Bio Revolution, one of the megatrends we're investing in to help treat chronic human conditions, like a warming planet. **To us, there's nothing more valuable.**
Gain more insights that matter at
Bayer.com/megatrends
BAYER

COMCAST **BUSINESS**

■ IN BRIEF

By Benedikt Kammel

● Global coronavirus cases have topped

115m

and more than 2.5 million people have died. In the U.S., regulators authorized Johnson & Johnson's single-shot vaccine. The government hopes to ship 20 million J&J doses this month and 100 million by the end of June. More than 265 million vaccine doses have been given worldwide.

● Nicolas Sarkozy was sentenced to a one-year prison term on a corruption charge.

The former French president was accused of pulling strings to help a magistrate land a prestigious job in return for a favor. He plans to appeal.

● Mount Sinabung spewed a giant ash plume into the sky on March 2. It was the Indonesian volcano's first major eruption since August.

● Apollo Global Management pulled off two big deals within a few hours.

The private equity powerhouse, together with Vici Properties, agreed to buy Las Vegas Sands' real estate portfolio for $6.25 billion on March 3, before announcing the purchase of U.S. crafting and hobby chain Michaels for about $3.3 billion.

● Nike executive Ann Hebert abruptly stepped down following a *Bloomberg Businessweek* report about her son operating a business reselling the company's sneakers and using her credit card. Hebert was vice president and general manager of North America for Nike, which said the decision to leave was hers.

● Lex Greensill's supply chain lending empire imploded.

The Australian financier faced questions from investors about the value of some of his firm's loans, and German regulators closed his namesake bank amid probes into accounting irregularities. Now part of his business will file for insolvency, while other assets will be sold.

● Goldman Sachs suffered an exodus of top decision makers in the space of a

few days. Omer Ismail, who ran Goldman's consumer bank, left to join Walmart. Eric Lane, the co-

head of the asset management business, quit for Tiger Global Management, followed by the departure

of General Counsel Karen Seymour. ▷ 29

"I'm here because I stand on many, many shoulders, and that's true of every Black person I know who has achieved."

Civil rights leader Vernon Jordan died on March 1 at the age of 85. The Georgia native rose from poverty to become a key adviser to politicians and corporations.

● Swedish payments company Klarna Bank was valued at

$31b

in its latest funding round, making it Europe's most valuable startup. Klarna lets online customers buy now and pay later in four interest-free installments.

● Rio Tinto Chairman Simon Thompson will step down.

The move adds to a management reshuffle in the wake of the mining company's controversial blasting of a 40,000-year-old Aboriginal heritage site last year.

SARKOZY: CHESNOT/GETTY IMAGES. VOLCANO: XINHUA/GETTY IMAGES. ISMAIL, LANE, AND SEYMOUR: GOLDMAN SACHS. JORDAN: WARREN K LEFFLER/GETTY IMAGES

How Farmers Could Profit From Fighting Climate Change

Agriculture has never been a principal focus of efforts to reduce greenhouse gases. But farm emissions—which make up about 10% of the U.S. total—are coming under increasing scrutiny as Democrats take control of agricultural policy and farmers themselves awaken to the threats of climate change. One strategy in particular is getting attention this year: encouraging farmers to view emissions reduction and carbon sequestration as potential sources of income.

The idea is fairly straightforward. Farmers would take steps to decrease their carbon output, such as reducing tillage to avoid releasing soil carbon, planting cover crops to hold more carbon in the soil, applying manure treatments and "digesters" to limit emissions of methane, and using nitrogen fertilizer more precisely to lower emissions of nitrous oxide. In return, the farmers could sell credits to companies that are looking to reduce their own climate footprint. Private markets for such credits are already springing up, and Congress took measures to encourage similar exchanges in the 2008 farm bill.

Much about this concept has yet to be worked out, notably the basic question of how to measure the climate value of various farming practices. Here the U.S. Department of Agriculture could help.

A bipartisan Senate bill introduced last year would direct the USDA to create standards for measuring the effectiveness of climate protection measures on farms, certify people to help farmers take such measurements and verify their value, and work with the Environmental Protection Agency to monitor private carbon-credit markets.

Such exchanges could go a long way toward encouraging farmers to reduce emissions and sequester carbon. But they won't work unless regulators can ensure that they'll bring substantial climate benefits. The danger is that a carbon-credit system might instead mainly enable airlines, investment fund houses, the energy industry, agribusinesses, and other companies to excuse their own greenhouse gas emissions by purchasing inexpensive and largely meaningless offsets.

By setting standards for measurement and verification and monitoring the private markets, the USDA can maximize the potential of "carbon farming." It can also extend the benefits beyond the big operations, which can most easily demonstrate reduced emissions, to smaller farms by helping them participate in collective efforts.

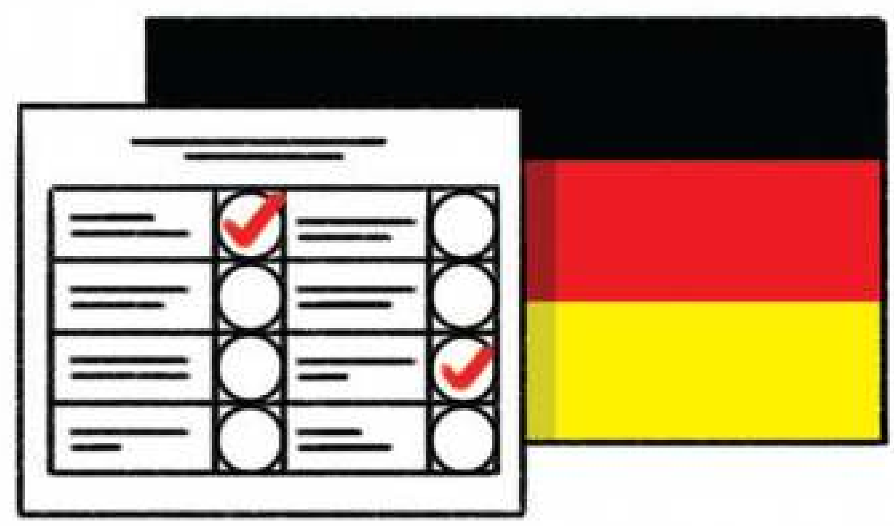
If such measurements proved reliable, the Biden administration's proposal to create a government "carbon bank"—which would buy credits from farmers for a guaranteed price per ton—might act as a powerful incentive for farmers big and small.

Carbon credits won't be enough on their own; they should be thought of as a complement to other attempts to encourage climate-friendly agriculture, including existing USDA programs that help farmers finance conservation efforts (which also improve soil health and crop yields), as well as Department of Energy research on soil carbon capture. Congress should also make possible improved terms on loans and reduced premiums on crop insurance for farmers who limit their emissions and water pollution and conserve carbon.

That said, carbon trading does hold significant promise for limiting emissions on the farm—so long as it's based on verifiable practices that will allow markets to accurately value the credits. The first step is to get the right data. Ⓑ

For more commentary, go to bloomberg.com/opinion

■ AGENDA



▶ Testing the Waters

Two of Germany's 16 federal states hold regional elections on March 14. The vote will be an important gauge of the political mood six months ahead of general elections, in which Chancellor Angela Merkel won't run for another term.

▶ Sportswear maker Adidas unveils its five-year strategic plan on March 10. It's likely to sell its Reebok subsidiary after studying options for the underperforming brand.

▶ Senate Democrats will work to pass President Biden's $1.9 trillion stimulus proposal before March 14, when supplemental unemployment benefits are set to expire.

▶ Saudi Arabia will remove some controversial restrictions on foreign workers by March 14. They will no longer need employer permission to change jobs or travel abroad.

▶ The European Central Bank sets interest rates on March 11. The bank has said it may need to boost support for the economy if rising government borrowing costs hurt growth.

▶ The Minneapolis trial for the officers charged in the killing of George Floyd in police custody begins on March 8. His death inspired weeks of protest under the Black Lives Matter banner.

▶ Hedge fund manager Crispin Odey, accused of groping a woman more than 20 years ago, presents his defense in a U.K. criminal trial on March 11. Odey says he misread the situation.

ILLUSTRATION BY JACKIE FERRENTINO

Introducing DaVinci Resolve 17

Edit and color correct video with the same software used by Hollywood, for free!

DaVinci Resolve 17 is a major new update packed with over 300 features and enhancements! Colorists get new HDR grading tools, AI based magic mask, color warper and more. Fairlight adds lightning fast keyboard and mouse sound editing tools. Editors get new metadata 'slate' view, smart reframing, proxies, keying, Fusion effects and more!

Next Generation HDR and Color Features!
New HDR grading tools, redesigned primary controls, AI based magic mask and more. The new HDR palette lets you create custom color wheels for targeted corrections, magic mask uses the DaVinci Neural Engine to isolate and track objects, and the color warper lets you morph colors in creative new ways! New DaVinci wide gamut image processing gives you even higher quality!

World's Fastest and Highest Quality Pro Audio Tools!
Fairlight features a powerful new engine that supports up to 2,000 realtime tracks with effects, dynamic and EQ. The new context sensitive edit selection tools and updated shortcuts make it even faster and easier to use, especially if you're switching from another system. You can now reverse clips, analyze loudness, view transients, preview video, move automation and more!

Powerful New Edit and Cut Page Features!
A new metadata 'slate' view with bin dividers makes it easy to sort and find clips based on scene, shot, camera, and more! There's also new audio trimming on the cut page, AI based smart reframing for changing aspect ratio, a new portable proxy workflow that supercharges edit performance, render in place, timeline based syncing, compositing, keying, Fusion effects and more!

Fusion Effects, Titles and Transitions for Editors!
DaVinci Resolve 17 lets you save anything created on the Fusion page as an effect, title or transition that can be used on the edit and cut pages! New animation curve modifiers automatically retime animations when clip length is changed, there are new vector shape tools for motion graphics, shared markers, and audio playback with graphical waveform!

DaVinci Resolve .... **Free**

DaVinci Resolve Studio ... **US$295**
Free DaVinci Resolve Speed Editor with purchase of DaVinci Resolve Studio

Learn more at www.blackmagicdesign.com   Available for Mac, Windows and Linux

The Hyperinflation Hype

● Talk that the U.S. is going the way of Zimbabwe or Venezuela is bunk—but bunk can move markets and influence policy

● By Peter Coy

We know from the past year that quite a few people inhabit alternate realities that float above the factual landscape like giant, impervious, untethered balloons. One unmoored balloon that's reached enormous proportions recently is the specter of hyperinflation—the conviction that a reckless expansion in the money supply will trigger an endless cycle of currency depreciation and price hikes, turning the U.S. into the equivalent of Weimar Germany circa 1923, Zimbabwe circa 2020, or present-day Venezuela.

This is meme economics, so the underlying theory can be hard to pin down, but the general idea seems to be that the Federal Reserve is in league with dark forces—perhaps the Democratic Party—to destroy the nation and deliver…something. "Hyperinflation this summer will usher in the next wave of leftist authoritarianism. There will be asset seizures and capital outflow controls soon," paul_revere2021_4 wrote recently on Reddit's NoNewNormal forum. Images of Fed Chair Jerome Powell maniacally printing dollar bills are all over the internet. There's even a website called moneyprintergobrrr.com, though you shouldn't visit it if you're troubled by recordings of people screaming in agony.

This wouldn't matter except that conspiracy theories have an insidious way of seeping into the real world. Fear of inflation—if not outright hyperinflation—helps explain the meteoric rise of Bitcoin. It's behind distrust of the Fed. And it feeds congressional opposition to President Biden's $1.9 trillion pandemic relief plan.

Hyperinflated hyperinflationism isn't emanating only from basement bloggers and Redditors. Paul Singer, the billionaire head of hedge fund Elliott Management Corp., wrote to investors last year that "hyperinflation, a rejection of fake money and fake-knowledgeable central bankers, is possibly lurking just out of sight." Dick Morris, a onetime adviser to President Bill Clinton who later veered to the right, told the conservative

TSVANGIRAYI MUKWAZHI/AP PHOTO

Newsmax TV network on Feb. 8 that "the central reality of '21 is going to be major, major inflation, hyperinflation."

Hyperinflationistas affect the debate by providing cover to more circumspect but politically influential players such as Republican Senator Pat Toomey of Pennsylvania, who challenged Powell during the Fed chief's testimony on Feb. 23. "We are seeing quite elevated asset prices and signs of inflation," Toomey said, adding, "there are a lot of warning signs that are blinking yellow."

Inflation, which in the U.S. peaked at just under 15% in 1980, has somehow become scarier during its long absence, like the monster in the basement. But back to reality: Hyperinflation is people carting around stacks of bills in wheelbarrows, central banks issuing new currency notes with multiple zeros lopped off, people hurrying to the cash register with food before prices go up again, retirement nest eggs being wiped out. It's a societal disaster.

That's not in the cards for the U.S. Hyperinflation is unofficially defined as an inflation rate of 50% or more a month. In contrast, consumer prices in the U.S. have been going up less than 2% a year since the 2007-09 recession. For the 12 months through January, the increase in the price index that the Fed tracks was just 1.5%, below the central bank's target of 2%. In other words, the U.S. has a problem with inflation, all right, but the problem is that it's too low, not too high.

Is inflation rising? A bit. Consumer prices were falling last spring, so comparisons this spring will be, ahem, inflated. As for the longer term, the bond market's expectation of annual inflation over the next decade has shot up all the way to…2.15%. You arrive at that number by subtracting the yield on inflation-protected 10-year Treasury notes from the yield on ordinary 10-year notes. Another measure, the median estimate of consumer price index inflation in the Survey of Professional Forecasters, is 2.2%. The professional forecasters who are surveyed expect the Fed's preferred measure, which is the price index for personal consumption expenditures, to rise 2.03% a year through 2031—almost smack dab on the Fed's target.

It's conceivable that inflation will accelerate to 3%, 4%, or 5% for a while because of post-pandemic splurging and production bottlenecks, but the Fed has ways to halt inflation of that sort from snowballing into hyperinflation. The first step would be to stop buying long-term Treasuries and mortgage-backed securities, a move that would cause long-term interest rates to rise. The second would be to push up short-term interest rates—a lot if necessary.

Higher rates discourage borrowing, which constrains spending and investment. Suppressing growth is a crude but ultimately effective way of chilling inflation. Higher rates also lower the value of existing fixed-income securities, hence the squeals of pain you're hearing from the bond market.

The real risk of inflation getting much above target isn't that the U.S. becomes Venezuela but that the Fed overreacts and accidentally causes a recession. If the Fed steps in too late and the economy substantially overheats, "the likelihood is that something adverse will happen, and therefore it's better not to do that experiment," former Treasury Secretary Lawrence Summers said in a Princeton webinar on Feb. 12.

The chance of a problematic inflationary overshoot—not hyperinflation—is where reasonable people can disagree. Powell acknowledges that excessive inflation can't be dismissed but emphasizes that it's still below target and unemployment remains too high. "The economy is a long way from our employment and inflation goals, and it is likely to take some time for substantial further progress to be achieved," he said in prepared remarks to Congress in February.

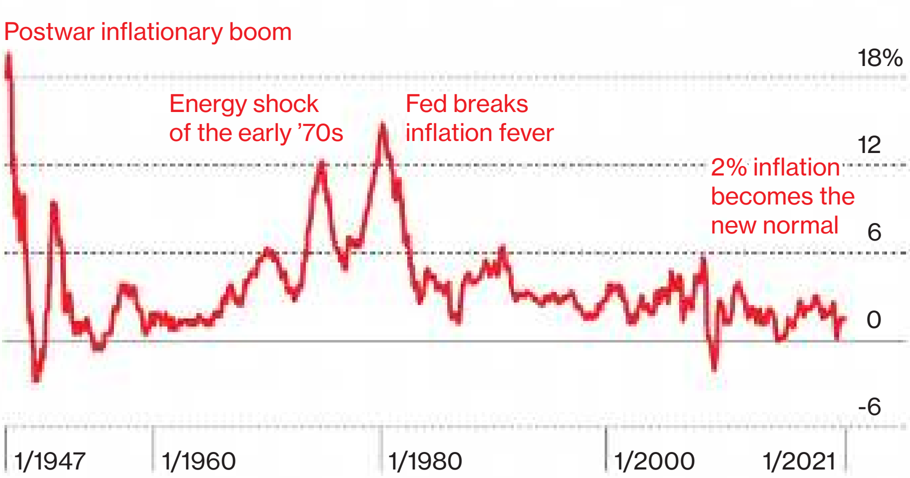
Inflation is hard to predict because the expectations of consumers and businesses play a big role in it. To some degree, prices will go up if people think they will go up and won't if they don't think so. In a series of papers beginning in 1896, Irving Fisher argued that expectations of the future inflation rate are influenced by observations of the past inflation rate.

A working paper released in October demonstrates the importance of inflation expectations. It focuses on the early 1980s, when the Fed under Chairman Paul Volcker raised rates to as high as 20%, caused a deep recession, and wrung inflation out of the U.S. economy. Although states' local unemployment rates were different, their inflation rates were similar. That's an indication that their inflation was less affected by their economic conditions and more by expectations of future Fed policy, which affects all states equally, says one of the authors, Emi Nakamura, a professor at the University of California at Berkeley. "Fundamentally it's a confidence game," says Nakamura, who in 2019 won the John Bates Clark Medal for the best American economist under 40.

In a strange way, then, the hyperinflation talk does matter—because perception can become reality. The more Powell tries to reassure people that inflation isn't a big problem, the more he alarms those who think he's dangerously wrong. If that contagious meme spreads and inflation expectations start to float higher, Powell & Co. could be forced to raise rates prematurely, puncturing the inflation balloon at the cost of growth and jobs. Ⓑ

Consumer Price Index

Year-over-year change



DATA: BUREAU OF LABOR STATISTICS

Tesla's European Headache

Success on the Continent could turn on its ability to break into the $360 billion corporate car market

Edited by
James E. Ellis and
David Rocks

Car buyers are showing increasing interest in Tesla models, and the employees at German software maker SAP are no exception. Europe's largest tech company, like major corporations across the Continent, provides cars for company and personal use as an employee perk. And SAP lately has been getting dozens of requests for Teslas each month. But the company won't buy them, saying Tesla Inc.'s lack of servicing centers near its Walldorf headquarters and other SAP SE facilities has fueled concerns that employees would take time off to deal with repairs if they were given the coveted electric vehicle. BMW AG and Daimler AG's Mercedes-Benz–longtime fixtures on the company's approved list–offer same-day fixes nearby, making their hybrid models the most popular plug-ins SAP provides.

Servicing teams "need to be there at short notice, and Tesla still has some work to do," says Steffen Krautwasser, who manages SAP's 17,000 cars in Germany. "The interest in Teslas is extremely high, but we simply can't offer them at this point."

While consumers and investors have turned

Tesla Chief Executive Officer Elon Musk into a global celebrity, companies in Europe—which has become the largest market for EVs—aren't flocking to Tesla's cars. And their reticence is costing Musk some serious sales. About 60% of new-vehicle purchases in Europe are made through the corporate channel, including company cars offered as a perk (for which employees have certain fees deducted from their paycheck). The sheer size of the roughly €300 billion ($360 billion) corporate car market will play a key role in determining how quickly the combustion engine is phased out. Yet Tesla, which is building its first European factory near Berlin, with plans to begin production this year, is almost absent from that sales channel. European automakers, including BMW, Renault, and Volkswagen, dominate.

Tesla's much smaller servicing network, its refusal to offer bulk discounts, and a lack of longstanding sales relationships with Europe's biggest companies have kept it far behind homegrown brands, which have decades of experience tailoring offerings to the massive corporate demand pool. Although Tesla is gaining popularity with private buyers, it accounted for only 0.3% of vehicles sold through the corporate channel in Germany last year, according to the country's KBA vehicle authority.

Lackluster sales in the corporate car market could leave Tesla with excess production capacity in Europe, says Ferdinand Dudenhöffer, who heads the Center for Automotive Research at the University of Duisburg-Essen. The manufacturer in January cut the price of the Model 3 in Germany, Europe's biggest car market, by about 7%, possibly pointing to concerns over lower-than-expected orders, he says. Any shortfall in European sales could only add to the global overcapacity Dudenhöffer expects for Tesla, risking pushing the company "into the red," he says. "Then the stock price will look vulnerable."

For Musk, winning over more European buyers is crucial if he wants to retain his yearslong dominance in EVs. While Tesla's Model 3 was the best-selling electric car in the U.S. and China, Renault SA's Zoe trumped it in Europe. The region overtook China as the world's largest EV market last year, and local carmakers are investing billions in electrifying their offerings to keep the U.S. manufacturer at bay. Volkswagen plans to at least double the share of its sales that are fully electric in 2021, with the high end of its target range suggesting it could come close to Tesla's expected deliveries of at least 750,000 cars. In Europe, the German manufacturer already pulled ahead of Tesla in battery-EV sales last year, according to market researcher Jato Dynamics.

Europe's corporate car sales rose by about a fifth over the past decade, with company buyers benefiting from generous subsidies including tax breaks, value-added tax rebates, and depreciation write-offs. In the region's eight biggest markets alone, the aid is worth €32 billion a year, according to researcher Transport & Environment.

Only about 4% of vehicles bought by companies in 2019 had a plug, but that figure is bound to increase as Europe intensifies efforts to green its auto fleet. France, Germany, and Italy were among the countries that hiked subsidies for battery-powered vehicles as part of pandemic stimulus programs in 2020, boosting EV adoption in an otherwise bleak year. BloombergNEF expects about 1.8 million hybrid and battery-only plug-in cars to be sold in Europe this year, about 40% of the global EV market.

European employees still pay fees for their car perk—in France they're typically 9% of the vehicle's list price, spread over 12 months; in Germany, workers pay a monthly tax of 1% of the price for a combustion engine car, which is deducted from their paycheck. Under a green tax break Germany introduced last year, most drivers of electric company cars will pay only a quarter of the fees charged to drivers of cars with a combustion engine. "That's a very lucrative incentive, because employees can see it in their monthly paychecks," says Marcus Weller, an analyst at German car dealer association ZDK.

Tesla's biggest hindrance could be its lack of repair stations. The carmaker runs four service centers in Italy—in Bologna, Milan, Padua, and Rome. Stellantis NV's Fiat has 1,300 all over the country, and VW operates about 800. The situation is similar in France and England, where Tesla has just 10 and 13 facilities, respectively, according to its website.

Tesla argues the time its cars sit idle in repair shops is minimal, because it utilizes remote diagnosis, wireless software updates, and mobile service crews. "Unlike vehicles with internal combustion engines, your Tesla does not require an oil change, spark plug or fuel filter replacement, or emissions tests," the company says on its German website.

Ford Motor Co. lagged European rivals until it established a servicing and sales network on the Continent, but today it sells the most units in Germany, behind four domestic incumbents.

Tesla likely faces years before it can hope to reach that stage. For now, BASF SE won't offer its cars to the chemical giant's more than 50,000 German employees, says spokeswoman Ursula von Stetten. When will that change? Teslas will be available "as soon as the appropriate infrastructure is in place," she says. —*William Wilkes and Stefan Nicola*

THE BOTTOM LINE Six out of 10 new cars sold in Europe are to companies, which often provide vehicles as employee perks. Tesla needs to crack that corporate market to thrive in the region.

▼ Vehicles sold through the corporate channel in Germany in 2020

PHOTO ILLUSTRATION BY 731; IMAGES: GETTY IMAGES (3); DATA: KRAFTFAHRT-BUNDESAMT

Protecting Vaccines, James Bond-Style

● Shippers are using kill switches, armed guards, and spycraft worthy of 007 to ensure delivery

Billions of doses of coronavirus vaccines will be dispatched in the coming months via truck, plane, ship, and rail to hospitals, clinics, and pharmacies around the world. With that cargo worth tens of billions of dollars—and some individual shipments valued at as much as $70 million—one thing is certain: Crooks will try to steal some of it. For freight haulers, the vaccine rollout poses "the biggest security challenge in a generation," says Thorsten Neumann, chief executive officer of the European arm of the Transported Asset Protection Association, an industry group representing companies that carry precious goods.

Interpol in December issued an orange alert notice warning that it expects a dramatic increase in armed robberies of the shipments, as well as vandalism by anti-vaccine militants. And if the profitable black markets for drugs treating, say, cancer and arthritis are any guide, it won't be hard for thieves to unload their loot; on the dark web, Covid-19 vaccines of unknown authenticity are already selling for $200 per dose. That's spurred freight companies to adapt a playbook developed to fight the $40 billion in theft from shippers every year of goods such as 5G handsets, $500 sneakers, and $5,000 handbags—employing methods ranging from added manpower to newfangled digital spycraft worthy of 007.

The pandemic has already sparked an upswing in thefts of related products. Last year millions of respiratory masks were taken from an aviation facility in Kenya, medical gloves worth $1 million were pillaged from a container in Florida, and almost 200 respirators headed for Colombia were stolen. Even toilet paper has been targeted: During 2020's panic-buying frenzy, 130,000 rolls were lifted from trailers in the U.K.

Dutch shipping company H. Essers, which frequently transports sensitive cargo such as cash and fine art, has selected its most experienced workers to haul the Pfizer-BioNTech vaccine across Europe. Those 250 drivers have been with Essers for an average of a decade, but they'll all go through

ILLUSTRATION BY LIA KANTROWITZ. DATA: ASIA VIDEO INDUSTRY ASSOCIATION/YOUGOV SURVEYS CONDUCTED IN AUGUST AND SEPTEMBER 2019 an enhanced background check. The trucks' doors have digital locks that can only be opened remotely, and the drivers will undergo extra training on responding to attacks on the vaccine cargo—though the company declines to provide details. "Securitywise, it's really at the highest level," says Ron van Holland, who oversees the security measures for Essers. Each truck "is a vault on wheels."

Robert Coyle, who heads transportation of health-care products for Swiss logistics giant Kuehne + Nagel, says the trucks hauling Moderna and Sinovac vaccines and the pallets of vials they carry are unmarked to increase security. They'll be escorted by armed guards in some places and have tracking technology so they can be watched around the clock. "We know if the doors are opened, we know when the truck stops, we know how long the truck should have stopped for a break," Coyle says.

Germany's Aircargo Transport GmbH, which specializes in hauling high-value goods, has equipped a dozen Mercedes and Scania trucks for the vaccines at a cost of $300,000 each. The cargo doors have been fitted with alarms that blare at 90 decibels—as loud as a lawn mower or leaf blower—if they're pried open. There's a dashboard panic button to alert headquarters of any danger, and if the truck is hijacked a kill switch can shut off the engine. Police escorts will likely flank convoys carrying more than $10 million worth of doses. And all shipments will be tailed by a car with guards to protect against miscreants who might try to blast open the back doors and steal the cargo while the truck is barreling down the highway. That technique, favored by Eastern European gangs, "sounds a little bit like James Bond," says Horst Boedicker, a manager at Aircargo.

Inside the trucks, the crates of vaccine doses will be fitted with wireless sensors that transmit changes in location, temperature, and light to track them if stolen and guarantee the integrity of the cooling systems needed to keep the shots fresh. Despite those protections, even the slightest tampering could ruin an entire batch. So it's important to stop not only actual theft, but also any attempt that threatens the cargo's integrity, says Mike Yarwood, who leads the loss prevention department at TT Club, a risk consultant. "If someone broke into a trailer and stole two laptops out of 10,000, the other 9,998 would be absolutely fine," he says. "But any interruption in the supply chain with vaccines means they will probably have to be destroyed. It puts a whole different dynamic on protecting these shipments." —*Thomas Buckley, with Suzi Ring and Thomas Seal*

THE BOTTOM LINE With some individual cargoes valued at up to $70 million, vaccines are certain to be targeted by thieves, spurring freight haulers to beef up security measures.

Pirates Take Aim at Streaming Services

● Illegal access to services like Netflix and Disney+ is rampant in Southeast Asia

Julius is an avid Netflix viewer. Whether it's old movies, anime, or hit releases such as *The Queen's Gambit*, the 28-year-old banker from Manila, who gives only his first name, is glued to his laptop. He just doesn't pay for any of the content. The moment a show starts trending on Netflix's Top 10, he catches it on an unlicensed streaming website or downloads an illegal copy from a file-sharing app. "It's always available somewhere," he says. "If I can save a few hundred pesos a month, I'll take it."

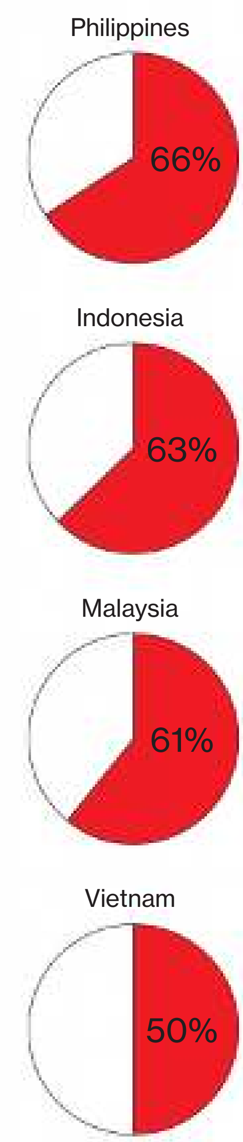
Julius and millions like him across Southeast Asia are becoming a headache for Netflix, Disney+, and Chinese streaming giants Tencent and IQiyi, which are waging an intense contest for subscribers in the region. Thousands of illegal websites streaming the latest hit shows and movies—content cribbed from legitimate services—cater to viewers from Vietnam to the Philippines, while other operators sell cheap hardware that allows access to pirated content. Shutting them down is a cat-and-mouse game made harder by governments that don't consider the theft a high priority, according to the industry.

"Before, piracy was seen as a nuisance, a cost of doing business," says Neil Gane, head of the Coalition Against Piracy in Hong Kong, which includes foreign and local industry members. "Now pirated content is in direct competition with legal services. Piracy has evolved—it's international, sophisticated, and it's high on the list of challenges for streaming services."

Piracy will cost TV and movie providers almost $52 billion in revenue worldwide in 2022, according to Statisa.com. It remains a daunting problem in big markets such as China and Russia, the sites of prolonged battles to curb digital theft. But it's the rising demand in Southeast Asia, home to more than twice the population of the U.S., that's raising warning flags. In the past two years, Indonesia, Vietnam, and other countries have been added to the U.S. trade representative's "notorious markets" list, an annual compilation of the worst intellectual-property abusers and counterfeiters.

Even before the pandemic, piracy was taking over. In 5 out of 6 Southeast Asian nations, more than half the respondents to a survey sponsored by the Asia Video Industry Association (AVIA) said ▶

▼ Share of respondents in 2019 who reported using pirate streaming sites



◀ they accessed illegal streaming sites in 2019. It was highest in the Philippines, where 66% admitted doing so. In Indonesia, 62% of those who accessed the sites said they'd canceled subscriptions to paid services. Visits to pirated sites increased by a third globally when lockdowns began last March, according to Muso TNT Ltd., which tracks piracy. In India, access to pirated movies jumped 63%, Muso said.

By the end of this year only 6.5% of households in Southeast Asia will have the streaming services of Netflix Inc. or Walt Disney Co., according to consultant Media Partners Asia. So countering piracy before it becomes further entrenched could be key to their long-term growth in the region. "It's still early days," says Vivek Couto, who runs Media Partners Asia. "The industry needs government policy that criminalizes the act and cracks down on operators."

For now, viewers in Vietnam can watch hits such as Netflix's *Bling Empire* and Disney's *WandaVision* almost as soon as episodes come out. One popular pirate site even uses Netflix's distinctive red typeface for its own logo. Consumers can also use illegal streaming apps and devices, available at local electronics marts, to view premium content.

At the Metro Manila Film Festival in December, officials at Globe Studios, a local production company, were hoping to get a few days of sales for their entry, *Fan Girl*, before the pirates caught up. The studio, which makes movies bought by Netflix, charged viewers 250 pesos ($5.15) per download during the virtual festival. But by the second day, pirated sites were screening the romantic comedy, with some charging just 10 pesos a view. "We were glued to our computers, watching 10 links pop up every hour—giving the movie away. Some had 45,000 views," says Quark Henares, head of the studio, a unit of Globe Telecom Inc. "We were supposed to lean back and enjoy the box-office success. Instead, we were tracking down websites and couldn't shut them down." Henares says Globe lost millions of pesos of festival revenue. Theft is making it impossible to produce content profitably in the Philippines, he says.

Pirate sites in Asia often have links to illicit online gambling, says Gane, whose antipiracy group is part of AVIA. Offering free entertainment allows pirates to draw customers to gambling sites and gain revenue from other questionable advertising there. And some websites offering pirated movies have ties to organized crime groups, according to Interpol.

To hinder illegal distribution, streaming services employ technologies such as watermarks, either visible to deter piracy or invisible. Digital fingerprinting helps broadcast platforms such as YouTube identify if material is copyrighted. But the most popular weapon against video piracy is to block websites, and that requires government cooperation. In most Asian countries law enforcement can shut down a site only if there's a criminal case against its operators, according to AVIA. Even in nations that have passed laws to allow courts or government agencies to block offending sites, the process is often slow.

In Indonesia the association sends the government a list every 10 days of 50 illicit websites identified by its automated software for rapid blocking. AVIA says more than 3,000 illegal sites have been shuttered since mid-2019. But a follow-up survey the group sponsored last year showed that, while the number of Indonesians accessing illicit websites fell 55%, only 16% of those who formerly accessed the

▲ Fare targeted by pirates (clockwise from top left): Netflix's *The Queen's Gambit* and *Bling Empire*, Disney+'s *WandaVision*, and Globe Studios' *Fan Girl*

NETFLIX/EVERETT COLLECTION (2); DISNEY+; GLOBE STUDIOS

pirate sites went on to subscribe to a paid service. "It's a whack-a-mole game," says Chand Parwez Servia, head of the Indonesian Film Board. "The problem is they are faster. What we need is enforcement and court action to go after the operators."

Indonesia's minister for communications and information technology didn't respond to requests for comment. The Intellectual Property Office of the Philippines recommended provisions for speedy site-blocking at a congressional committee hearing in February, according to Director General Rowel Barba, who says the agency currently has no legal authority to take down websites.

The heart of the problem, though, is the attitude of viewers, many of whom see nothing wrong in downloading movies. "A lot of users believe that since they're paying for internet access, whatever is on the internet should be free," says Maria Yolanda Crisanto, chief sustainability officer at Globe Telecom. "Changing that mindset has been slow." *—K. Oanh Ha and Claire Jiao, with Shirley Zhao*

THE BOTTOM LINE Piracy is expected to cost TV and film providers almost $52 billion globally in 2022. Content pilfered from streaming services in Asia is a fast-growing part of the problem.

18+

WHAT IS AVAXHOME?

AVAXHOME-

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

Unlimited satisfaction one low price
Cheap constant access to piping hot media
Protect your downloadings from Big brother
Safer, than torrent-trackers

18 years of seamless operation and our users' satisfaction

All languages
Brand new content
One site

AVXLIVE.ICU

AvaxHome - Your End Place

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

IBKR charges margin loan rates[1] from 0.75% to 1.59%

InteractiveBrokers

ibkr.com/lowrates

Interactive Brokers Rated #1 Best Online Broker 2020 by Barron's*

Trading on margin is **only for sophisticated investors** with high risk tolerance. You may lose more than your initial investment.

Member - NYSE, FINRA, SIPC - *Interactive Brokers rated #1, Best Online Broker according to Barron's Best Online Brokers Survey of 2020: February 21, 2020. For more information see, ibkr.com/info - Barron's is a registered trademark of Dow Jones & Co. Inc.
[1] Margin Loan rate as of 02/01/2021. IB calculates the interest charged on margin loans using the applicable rates for each interest rate tier listed on its website. Rates shown apply to IBKR Pro clients only. Rates subject to change. For additional information on margin loan rates, see ibkr.com/interest

02-IB21-1387CH1358

Can Clubhouse Keep The Party Going?

● Silicon Valley's hottest app is getting more than just money from its prominent investors

Investment firm Andreessen Horowitz has supplied much of the capital that helped spark the sudden rise of Clubhouse, the audio-based social network that's become one of the hottest things in Silicon Valley and has drawn in megacelebrities including Oprah and Drake. In a twist on the standard venture capital model, it also provides a good deal of the talent responsible for the content.

Clubhouse is an invite-only app, structured as a series of "rooms," where speakers lead discussions in front of audiences who can also be called on to participate. Marc Andreessen and Ben Horowitz, the founders of the firm, which is often referred to as A16Z—a play on the letters in its name—host their own show on Clubhouse. They also regularly show up in other rooms, and A16Z's other partners encourage people from their wide range of contacts to hold court. The entire thing can resemble a smartphone-based version of the conferences and salons that venture capitalists rely on to burnish their thought-leader credentials and build hype for projects. (Bloomberg LP, which owns *Bloomberg Businessweek*, has invested in Andreessen Horowitz.)

In perhaps the app's biggest coup to date, Tesla Inc. co-founder Elon Musk appeared in January on *Good Time*, the Clubhouse show A16Z partner Sriram Krishnan hosts with his wife, Aarthi Ramamurthy, Facebook Inc.'s director of product. The audience quickly ballooned to the 5,000-person capacity Clubhouse has set for rooms, and Musk's conversation with Vlad Tenev, Robinhood Markets Inc. chief executive officer, about GameStop Corp.'s stock trading drew national press coverage.

A few days later, Mark Zuckerberg, CEO of Facebook—on whose board Andreessen sits—showed up on *Good Time* to discuss the company's

Edited by Joshua Brustein and Anne VanderMey

ILLUSTRATION BY LARISSA HOFF. DATA: PITCHBOOK work on augmented reality. Bloomberg and others have since reported that Facebook is working on a Clubhouse competitor, and Twitter Inc. is doing the same. It's a clear sign that Silicon Valley thinks Alpha Exploration Co., the startup responsible for Clubhouse, has hit on something big.

New forms of smartphone-based media consumption that suddenly take off among early adopters don't always translate well to the wider world. For every Twitter, which first gained prominence as the must-have app of the 2007 South by Southwest conference, there's a Highlight, a location-based social networking service that was SXSW's top app in 2012 but was promptly forgotten after everyone went home. That cautionary tale holds special relevance for Clubhouse given that Alpha Exploration's co-founder and CEO, Paul Davison, created Highlight.

"The things that excite us in Silicon Valley are not the things that excite a kid," says Sarah Lacy, founder of news startup *Pando Daily*, which Andreessen has invested in personally. "That's why a lot of people in the Valley missed the rise of TikTok." Lacy, who now runs a network for women called Chairman Mom, says Clubhouse will reach escape velocity, too. "It has just captured something," she says.

Via a spokeswoman, Davison declined to comment for this article. A representative for A16Z also declined to comment.

A16Z has worked to get people from beyond the industry onto Clubhouse. Actor Jared Leto, Chinese artist Ai Weiwei, and television personality Gayle King have used the app. Clubhouse had 6.8 million active users for the week ended Feb. 20, according to market data firm App Annie. (The company's own data show significantly more users.)

A16Z is unabashedly enthusiastic about Clubhouse—this January it led a $100 million funding round. In February the firm posted a job listing for a producer focused on creating its content for the app. But it's also said it plans to build its own media outlet that will provide an optimistic look at tech issues.

Clubhouse could become more vulnerable the longer it relies on a powerful investor for both money and content, especially when that investor has competing ambitions in media. But Horowitz has framed the firm's investment in media startups, which also include blogging service A Medium Corp. and newsletter company Substack Inc., as complementary. "The ideas you can get across all are very, very different," he said recently on his own Clubhouse show. The longer, often thoughtful conversation that happens on Clubhouse "is not something that happens on the other social networks, at least for me."

An increasing proportion of what's happening on Clubhouse has nothing to do with its famous investors. While Silicon Valley types log on to keep up with Musk and Zuckerberg, most users head to more humdrum discussion rooms such as "The Brain Care Club" or "Living Your Best Life Post Breakup." At any given moment, thousands of conversations are taking place, most with nary a celebrity in earshot.

That's a good sign for the app, says Supernode Ventures managing partner and Mediabistro founder Laurel Touby, who isn't an investor but has been urging her professional contacts to tune in to her Clubhouse appearances. The app can still feel like a niche fixation for tech insiders, and even if it moves to broader audiences, some people may continue to remember it as A16Z's own little plaything, she says. "Is that so bad?" —*Sarah McBride*

THE BOTTOM LINE Venture capitalists have made Clubhouse a cultural sensation within their industry. The startup's next step is to outgrow its need for them.

▼ Media investments with Andreessen Horowitz participation (totals raised from all investors)

Facebook	$1.5b
Pinterest	$1.3b
Reddit	$918m
Roblox	$150m
Clubhouse	$110m
Medium	$107m
Airtime	$33m
Skout	$22m
Ampersand	$9m
App.net	$8m

Tech's Latest Perk: Never See the Office

● Silicon Valley companies are wooing executives with the promise of remote work forever

When Cathy Polinsky was the chief technology officer at online clothing company Stitch Fix Inc. in San Francisco, her friend Dan Debow would often bug her about switching jobs. Debow, a vice president at e-commerce platform Shopify Inc., had long tried to persuade her to come work with him.

But Polinsky, 43, had family commitments keeping her in the Bay Area, so she always said no to moving to live near Shopify's headquarters in Ottawa. Then, in May, Shopify went "digital by default," letting all 7,000 employees work from anywhere indefinitely. "Dan told me about Shopify's new initiative late last summer, and that's what really kicked off the conversation," Polinsky says. In January she joined Shopify as vice president for engineering, working from her home in California. One of her first steps was to launch a recruiting drive to hire more than 2,000 engineers in 2021. They'll all be able to work from home permanently, too. ▶

◀ Before the Covid-19 pandemic shut offices around the world, tech giants and startups would compete to hire executives like Polinsky and their teams by offering perks including free gourmet food, pingpong tables, and on-site doctors at gleaming Silicon Valley campuses. Now the battle for talent is going fully remote, with many companies granting top candidates permission to avoid the office altogether. Executive searches in the industry often don't even mention the location of company headquarters, and some explicitly offer full-time remote work.

One typical listing, sent around by headhunter Richard Kolodny for an e-commerce company seeking a chief legal officer, reads: "TOP COMPENSATION PACKAGE. This position can be FULL TIME REMOTE even after the pandemic ends."

Silicon Valley has long been at the vanguard of changes in work habits—from open offices to online chats. Its shift to remote work, too, may outlast the coronavirus. According to tech executives and recruiters, companies that still require leaders to be at headquarters risk looking sluggish and old-fashioned, while ones offering remote work have a bigger, more diverse talent pool to tap. "Not one of my clients requires an HQ-based executive anymore," says Andy Price, founder of tech recruiter Artisanal Talent Group. "If they do, I won't take the project, because that means the company is too stupid to see the handwriting on the wall. Covid unleashed the beast, and we're not going back."

Artisanal, whose clients include Databricks, Snowflake, and Splunk, handled about 100 executive searches in 2020 for more than 50 companies. None of them required candidates to be at headquarters. Prior to the pandemic, at least 90% of Artisanal's clients wanted new executives to be at or near their main campus, according to Price, who called in for the interview from a home office in Cabo San Lucas, Mexico.

Splunk Inc., a provider of data analysis software with a market cap of $23 billion, used to woo talent to its San Francisco headquarters with such features as game rooms and kombucha on tap. It dropped the word "headquarters" from its job listings altogether in 2020. The impetus was the pandemic, but the company quickly recognized the potential benefits of going remote, including access to workers outside the Valley. "At this point, we have the majority of our executive team in dispersed locations, not in the San Francisco Bay Area," says Chief Executive Officer Doug Merritt. "I moved from Northern California to Austin, Texas, over the summer and plan to be there indefinitely."

The shift is even happening within software engineering, the heart of the tech industry, and traditionally an office-centric profession. Take Jonathan Roes, an engineering leader who spent about seven years helping run Salesforce.com Inc.'s Heroku platform. Last year, he was recruited for two different jobs. The first was with Google as an engineering manager at its Sunnyvale, Calif., campus. Roes, who is 34 and lives in Charlotte with his wife and 7-year-old daughter, asked if he could work remotely rather than uproot his family. The Google hiring manager told him that would be "extremely difficult" and would require a vice president or higher to grant a rare special exception. A Google spokeswoman declined to comment.

The other job, a VP of engineering role at startup Streamlit Inc., offered the option to work from home indefinitely. Even though Streamlit paid less, Roes took the job. "The requirement to move was a big part of my decision," he says. "There are the laggards and the cutting-edge companies in tech and in the approach to work."

Streamlit co-founder Adrien Treuille, a former Googler himself, used to believe in congregating in an office. "I was a happy Silicon Valley

"Not one of my clients requires an HQ-based executive anymore"

▼ Working remote allowed Polinsky to join Shopify without moving

POLINSKY: PHOTOGRAPH BY CAYCE CLIFFORD FOR BLOOMBERG BUSINESSWEEK. ROES: PHOTOGRAPH BY TRAVIS DOVE FOR BLOOMBERG BUSINESSWEEK

▲ Streamlit offered Roes the option to work from home indefinitely

guy," he says. But about a year after his company went fully remote during the pandemic, he has no regrets. He credits Streamlit's flexible approach with snatching Roes from the jaws of Google. "We wouldn't have found him otherwise, if we'd limited the search geographically," Treuille says. "Remote is a killer perk. It's not going to go back to normal. It works too well, and there's too much good talent out there."

In addition to the hiring benefits of being digital-first, Treuille says it's made Streamlit more efficient. "The whole company is a computer program now," he says. For example, before Covid, employees would get coffee with colleagues in the office to share ideas, but it happened randomly. Now, Treuille says, Streamlit has a software bot that regularly suggests staff reach out to co-workers.

Not everyone is enthusiastic about the end of the office. Michael Morell, co-founder of Riviera Partners, a top recruiter of engineering leaders in the Valley, expects executives to once again coalesce around their companies' "center of influence" when vaccinations are widespread and CEOs return to headquarters regularly.

Having an engineering manager on the East Coast of the U.S. when the rest of the team is in another time zone presents real challenges, according to Morell, who thinks product development teams do better brainstorming in person. "When everyone is Zooming, that's fine," he says. But "when everyone on the West Coast is having in-person meetings around the water cooler and the head of the team is on the East Coast, I expect that won't last. The leaders need to be where the people are, and vice versa."

Bosses like Treuille and Polinsky are trying to address these challenges. Treuille has promised executives and other employees they will get the same face time with the startup's leaders whether they're at the office in San Francisco or in Kentucky. And when he sets up meetings, he asks himself if the time favors the Bay Area, where he lives, over other locations, and adjusts accordingly.

Polinsky says she was concerned about the distance before joining Shopify. But she saw other executives at the company thriving from far beyond Ottawa, including a VP for product in New York City and a managing director in Vancouver. "That's the evidence I needed," she says. Plus, such tools as GitHub, Slack, and Zoom have made software engineering from home easier in recent years. GitHub provides a central place online where colleagues thousands of miles apart can share code and suggest changes in real time, as if they were standing around the same desk, Polinsky says.

If the remote-work trend holds, it could undermine a storied part of Valley culture. Before the pandemic, the assumption was that to make it in tech you had to be in the Bay Area, living and working near everyone else who knew how to run a technology company. "That's just not true anymore," Treuille says. "There's no going back at this point. It just works." *—Alistair Barr*

THE BOTTOM LINE Silicon Valley recruiters are telling prospective hires they can work from home even after the pandemic ends—widening the talent pool and threatening tradition.

China's Subsea Cable Is Dividing the Internet

● The country is vying with the U.S. to control the world's digital infrastructure, and Europe is caught in the middle

An undersea cable will emerge this year near a popular sunbathing spot in the French port of Marseille. The cable, known as Peace, will travel overland from China to Pakistan, where it heads underwater and snakes along about 7,500 miles of ocean floor via the Horn of Africa before terminating in France.

The Peace cable, which is being built by Chinese companies, will be able to transport enough data in one second to stream 90,000 hours of Netflix. It will also speed up service for Chinese companies doing business in Europe and Africa. "This is a plan to project power beyond China toward Europe and Africa," says Jean-Luc Vuillemin, head of international networks at Orange SA, the French phone company that will operate the cable's landing station in Marseille.

The project represents a new flashpoint in the geopolitics of the internet. Huawei Technologies Co., which is at the center of a long-simmering struggle between China and the U.S., is the third-largest shareholder in Hengtong Optic-Electric Co., the company building the cable. Huawei is also making the equipment for the Peace cable's landing stations and underwater transmission gear.

Alphabet Inc.'s Google and Facebook Inc. say they won't be using Peace because they have enough capacity already. Even if they wanted to use the cable, it would be hard for the companies because of the U.S.-led boycott of many Chinese telecommunications equipment makers, including Huawei, for national security reasons.

Right now about 400 cables carry roughly 98% of international internet data and telephone traffic around the world. Many are owned and operated by U.S. companies—helping reinforce the country's dominance over the internet while giving a sense of security to the U.S. and its allies that may be concerned about sabotage or surveillance.

The U.S. has talked up the threat from Chinese-built infrastructure. In a statement last year, then-Secretary of State Mike Pompeo urged the international community to "ensure the undersea cables connecting our country to the global internet are not subverted for intelligence gathering by the PRC [People's Republic of China] at hyper scale." But France doesn't want to isolate China from internet infrastructure, in part to avoid being overreliant on the U.S.

Limiting use of internet infrastructure for security reasons has its costs, says Mike Hollands, a sales executive at data center company Interxion, which is involved in the project. Yet the global submarine cable system may become only more fragmented. The Institute of Peace and Conflict Studies and the Netherlands-based Leiden Asia Centre estimate that by 2019, China had become a landing point, owner, or supplier for 11.4% of the world's undersea

The Peace Cable

An undersea link will aid Chinese companies doing business in Europe

DATA: TELEGEOGRAPHY SUBMARINE CABLE MAP

cables. They expect this proportion to grow to 20% sometime between 2025 and 2030. On numerous occasions in recent years, the U.S. and its allies have blocked projects with Chinese involvement.

"It's really a matter of regret to see those geopolitics descending right down the stack into the physical layers of the internet," says Emily Taylor, a cyberpolicy expert and a fellow in security at international affairs think tank Chatham House. "What we're all going to have to come to terms with this is: How do we try to keep as many doors open as we can without laying ourselves open to national security threats?" —*Helene Fouquet, with Thomas Seal*

THE BOTTOM LINE Geopolitical considerations are becoming an increasingly prominent aspect of the job of building the pipes that make up the internet.


Progressive Casualty Ins. Co. & affiliates. Business and Workers' Compensation coverage provided and serviced by affiliated and third party insurers.
OPEN HO
FO
Small business is no small task.
So Progressive offers commercial auto and business insurance that makes protecting yours no big deal.
Local Agent | ProgressiveCommercial.com
PROGRESSIVE
COMMERCIAL

ETFs MAY BE GOOD FOR THE PLANET.

ETFs MAY BE GOOD FOR YOUR BOTTOM LINE.

iShares Sustainable ETFs let you tap into companies who are thinking long-term.

Get a new perspective on your portfolio.

Invest in something bigger.

iShares
by BlackRock

Visit www.iShares.com to view a prospectus, which includes investment objectives risks, fees, expenses and other information that you should read and consider carefully before investing. Risks include principal loss. A fund's environmental, social and governance ("ESG") investment strategy limits the types and number of investment opportunities available to the fund and, as a result, the fund may underperform other funds that do not have an ESG focus. BlackRock Investments, LLC distributor. ©2021 BlackRock, Inc. **iSHARES** and **BLACKROCK** are trademarks of BlackRock, Inc., or its subsidiaries in the United States and elsewhere. ICRMH0920U-1323574

The Sheriff Wants a Word With Robinhood

● Massachusetts regulator William Galvin says the free app is encouraging novice investors to trade themselves into trouble

PHOTOGRAPH BY TONY LUONG FOR BLOOMBERG BUSINESSWEEK

Edited by Pat Regnier

William Galvin is as old school as they come, even for a state securities regulator. Galvin, 70, drives an Impala, uses a flip phone, and leaves the emailing and tweeting to his staff. But he may turn out to be the worst nightmare of Robinhood Markets, the company whose zero-commission brokerage app captivates millennial and Gen Z investors.

Galvin is the secretary of the commonwealth of Massachusetts, a position he's held since 1995, when the founders of Robinhood were still in grade school. In that time, Galvin turned the office that oversees elections, historic preservation, and record-keeping into a financial regulator that's sometimes ahead of its national counterparts. He's won penalties from such Wall Street giants as Morgan Stanley and Goldman Sachs, as well as local icons like the mutual fund manager Putnam Investments.

In December his office sued Robinhood, alleging that the trading platform violated state law by emphasizing the addictive thrills of trading over helping novice investors learn how to make sound investment decisions. He says the company's brightly designed smartphone app is promoting the "gamification" of investing with features such as animated confetti when users make their first transaction and promotions giving away free stock for signing up or referring friends.

Although the company doesn't charge commissions, it makes money from trading activity because outside firms such as Citadel Securities pay to be able to fill Robinhood customers' orders. (Those firms can earn profits on tiny differences in market prices.) Robinhood co-founders Vlad Tenev and Baiju Bhatt could become billionaires after an initial public offering, which could take place within weeks, Bloomberg has reported.

The founders named the company after the medieval outlaw who stole from the rich to give to the poor, modernizing the myth with the tagline that they're "democratizing finance." It's a slogan that doesn't impress Galvin. "It's not quite fair to democracy," he says in an interview, sitting among birth and death records at the Massachusetts Archives building. "It's propaganda."

While Galvin has a long history of being a regulatory activist, his questioning of Robinhood isn't just headline chasing, says John Coffee, a Columbia law professor. The Financial Industry Regulatory Authority, the Wall Street-backed regulator that oversees brokerage firms, "should have been doing this for some time," he says.

The U.S. Securities and Exchange Commission and Finra have uncovered some lapses: In 2019, Finra fined Robinhood almost $1.3 million over how it routed customer orders. In December the SEC penalized the company $65 million for failing to properly inform clients that it sold their stock orders to high-frequency traders and other firms. Robinhood said then that its settlement with the SEC related to past practices and that it's transparent about how it makes money.

Galvin says he can act more quickly than other regulators. The SEC, he says, has a more deliberative process, whereas his team of about 30 enforcement staff often hear directly from aggrieved investors. Galvin also has a tool the SEC doesn't: His complaint alleges that Robinhood violated a new state rule that holds brokers like Robinhood to a fiduciary standard of care, which means putting customers' interests above their own.

"He's unafraid to stand up on his own, alone, and say this is the right thing"

A Robinhood spokesperson says that because the app makes no recommendations, the company doesn't have to meet a fiduciary standard. By eliminating commissions, the company estimates it's saved Massachusetts customers about $180 million to $360 million in trading costs since December 2017. It's denied gamifying its app in a way that encourages frequent trading and has said customers tend to trade less the longer they stay on the platform.

Galvin won't necessarily have an easy road, says Abu Jalal, a finance professor at Suffolk University in Boston. He must prove that Robinhood's features are materially different than those offered by other trading platforms. "There's still a bell ringing or a text sent when your order has been filled," Jalal says of other brokers' apps. "And you can still go in and see if you managed to make some money."

The difference, Galvin says, is that Robinhood's design encourages customers with no experience to make trades, including bets using margin, that could quickly ruin them. "I don't have a problem with risk," he says. "I do have a problem when investors are naively told they can do this. They deliberately target young people."

Another challenge for Galvin: While he thinks retail investors need to be protected from their worst instincts, the new crop of online traders may not appreciate such paternalism. The Robinhood app helped enable much of the recent frenzied trading in GameStop Corp., which Galvin also decries. Shares of the video game seller experienced wild price swings after it became a favorite on Reddit discussion boards. In late January, when Robinhood was forced to temporarily prevent clients from buying some stocks including GameStop, the outcry from customers was loud. Dave Portnoy, a day trader and founder of Barstool Sports Inc., asked Tenev in an interview following the outage: "You know everyone watching this hates your guts, right?" Tenev responded "That's what I hear."

Galvin won't be dissuaded. He notes in the complaint that one customer with no investment experience made more than 12,700 trades in just over six months. Robinhood has said it can't know if this is true, because Galvin hasn't named the customer. Massachusetts residents have more than 486,000 Robinhood customer accounts with a total value of more than $1.6 billion.

Galvin, for whom smiles don't come easy, isn't a typical back-slapping politician. He won a seat in the Massachusetts House of Representatives in 1975, the year he graduated from Suffolk Law School, and has served longer than any other current statewide elected official in the Bay State. "He's unafraid to stand up on his own, alone, and say this is the right thing," says Michael Goldman, a veteran Democratic political consultant. "If you're his worst enemy and he thinks you're right, he'll stand with you."

Galvin extracted huge penalties from mutual fund companies in the early 2000s after a market-timing scandal—investment managers had allowed some traders to move in and out of funds to profit from short-term pricing discrepancies. After the subprime crisis, he went after banks for selling shoddy mortgage-backed securities. Nothing about Robinhood seems new to Galvin, who's been filing day-trading-related cases for decades. It's just that the internet's reach makes the problems bigger, he says. Galvin looks down at his Motorola flip phone, which has chirped to life. He says it's time to go. *—Matt Robinson and Prashant Gopal*

THE BOTTOM LINE Galvin says Robinhood's business model encourages trading at the expense of good investment decisions, and argues that this violates a new rule in Massachusetts.

What If Walmart Was Your Bank?

● The retail giant just poached two Goldman Sachs execs. Wall Street is getting nervous

Walmart Inc. just took one step closer to becoming a competitive threat to big banks. The world's largest retailer has lured a pair of senior bankers from Goldman Sachs Group Inc. to run a financial technology venture.

The move alarmed Wall Street, which has been begging regulators to halt recent efforts by retailers and startups to begin offering core banking products to millions of consumers. "These are substantive hires that should serve as an unambiguous signal of Walmart's seriousness regarding its fintech foray," says Isaac Boltansky, an analyst at Compass Point Research & Trading. "The regulatory moat that has shielded traditional commercial banks is steadily evaporating, and the competitive risks are profound."

To lead its effort, Walmart plucked Omer Ismail, a veteran of Goldman Sachs who was a key architect of the bank's consumer efforts in recent years. Ismail will bring along David Stark, who engineered Goldman's partnership with Apple to offer a credit card and oversaw tie-ups with JetBlue Airways and Amazon.com.

Ismail's hiring could be a precursor to Walmart filing an application to operate a bank of its own. The Federal Deposit Insurance Corp. late last year formalized rules to allow nonfinancial businesses to set up so-called industrial loan companies. Traditional banks have complained these charters allow companies to enter banking while escaping the capital and other liquidity demands they're forced to follow. Bank trade groups, along with the Center for Responsible Lending, a consumer group, said in a December statement the new rules could undercut "the long-established separation of banking and commerce."

Walmart isn't currently planning to apply for bank status, according to a spokesperson. Even so, Chief Executive Officer Doug McMillon has begun to hint at broader ambitions, telling analysts just weeks ago that customers have been asking Walmart to offer affordable financial products, and that he wants to find ways to "monetize" the retailer's vast amount of data. With more than 150 million customers and 5,300 stores across the U.S.—many of which are open 24/7—Walmart would instantly have a consumer base and network of branches that would rival those of Bank of America, JPMorgan Chase, and Wells Fargo.

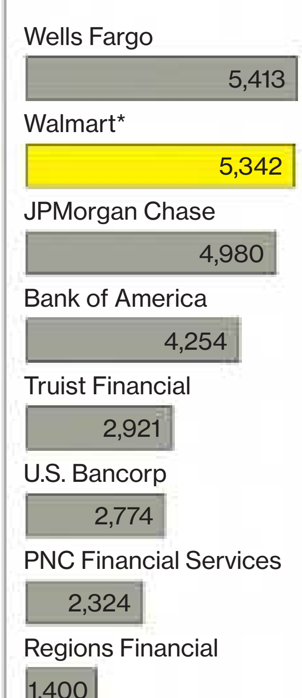
The research company M Science estimates the average person goes to Walmart's stores or website about 30 times a year, almost double the number of visits received by rival Target Corp. "Anything that drives a deeper relationship with their core business, which is selling stuff to consumers, is their No. 1 goal," says John Tomlinson, an analyst at M Science.

If Walmart does eventually move to start a bank, it won't be its first attempt. In 2005 the retailer applied to be an industrial bank in Utah. The application soon drew the attention of critics of its broader business practices, such as its treatment of workers and the amount of goods it imported ▶

● Ismail

● McMillon

▼ Locations in the U.S.



ISMAIL: GOLDMAN SACHS. MCMILLON: DREW ANGERER/GETTY IMAGES. LOCATION FIGURES ARE LATEST AVAILABLE. *INCLUDES SAM'S CLUB. DATA: WALMART, FEDERAL DEPOSIT INSURANCE CORPORATION

◀ from China. Walmart's corporate reputation at the time was under fire amid allegations of gender discrimination and for revelations that a significant number of its associates and their children were either on Medicaid or uninsured.

Back then the company said it wasn't seeking to open bank branches. Rather, it was hoping to use the charter to process credit and debit card transactions internally, a move that would have saved it about $30 million a year at the time. After two years and several delays, Walmart withdrew its application to get out of the spotlight. Despite the setback, it's continued to push into financial services: Its MoneyCenter locations allow consumers to cash checks, receive tax preparation services, and send money overseas. The company also offers credit and prepaid debit cards through partnerships with banks.

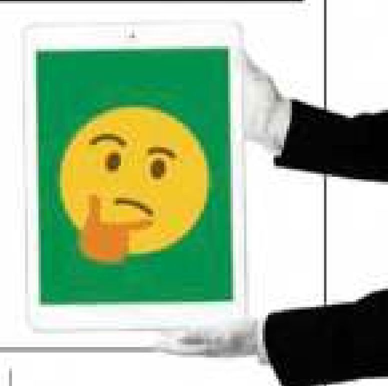
Walmart has so far been tight-lipped about its plans for the new financial technology company, which it formed with the venture capital firm Ribbit Capital. Ribbit already has its hands in many of the world's most successful fintech startups, such as Credit Karma, which allows consumers to check their credit scores and compare financial products, and Affirm, the installment lender that already provides financing to Walmart customers online.

"The big question is, What is their objective?" says Bert Ely, a banking consultant in Alexandria, Va. Whatever the retailer's intentions, the banking industry is on high alert: "The minute you start talking about Walmart and banking, the alarm bells go off." *—Jenny Surane, Sridhar Natarajan, and Matthew Boyle*

THE BOTTOM LINE A decision by the FDIC last year could make it easier for retailers to get into the banking business, but Walmart faced bad publicity the last time it tried.

Crypto Creates An Art Market

● Art-backed tokens look like the latest finance fad, but they have a precedent in photo collecting



Four months after Pablo Rodriguez-Fraile spent almost $67,000 on a digital artwork of Joe Biden and Donald Trump in the nude, the piece had transformed. Designed to respond to election results, it had morphed into a naked, graffiti-covered Trump lying on a trash-strewn lawn. The price changed, too: Rodriguez-Fraile sold it in late February for $6.6 million. "Obviously, I thought it would take a bit longer" to appreciate in value, says the 32-year-old, who has an MBA from Columbia and describes himself as a digital asset investor. "Having said that, funnily enough, I actually think it was a fantastic deal for the buyer."

The work in question is a short video created by Mike Winkelmann, an artist who goes by the name Beeple. But what Rodriguez-Fraile sold wasn't an everyday video file. The art is attached to something called a nonfungible token, or NFT. Like the cryptocurrency Bitcoin, NFTs run on blockchain technology. Unlike Bitcoins, each NFT can be a unique digital property—one NFT can represent ownership of a specific work of art. It can also be designed to suit a creator's needs: NFTs connected to Beeple's artworks, for instance, give him a 10% royalty every time his art changes hands. Far more important, Beeple's NFTs have his signature and proof of sale built into their code. There's no way to fake or forge or replicate one of his artworks, at least as long as the NFT is considered integral to the work.

NFTs' ability to confer uniqueness has led to a boom in digital art's collectibility. Before, anyone could replicate an image an infinite number of times, making it impossible to create the perception of scarcity or value. There was no way, in other words, to build a market. NFTs offered a solution. There could be infinite JPEG files of an artwork but only one "real" image specified by the NFT. Or six. Or 100. Whatever edition size the artwork's creator specified was what it would be. With an almost literal flip of the switch, a market was born.

There's a tendency to compare the boom in NFTs to the rally in GameStop Corp. shares—another recent, jaw-dropping value creation story that also seemed, to outsiders at least, to have come from nowhere. It's a particularly seductive narrative because the same people—young, tech-savvy men—appear to be behind both phenomena. But there's a big difference. Critics of GameStop buyers say the stock became detached from the company's fundamentals: A stock price is supposed to reflect things like profit, earnings, and assets.

This isn't how the art market works, and it's not how it's ever worked. Paintings aren't valued based on the price of the paint used on the canvas, and Jeff Koons's *Rabbit* sculpture didn't sell for $91 million at Christie's because of the amount of steel used to make it. (The sculpture is 41 inches high.) Art prices might rise and fall, but not because of fundamentals; instead, consensus alone confers value.

A good example—and a precedent for NFTs—is the development of the photography market. Like digital art, a photograph can be reproduced over and over and over from its original negative. Yet despite that reproducibility, not all prints are priced accordingly. "The market has always had ways in which to maintain value," says Geoffrey Batchen, a professor of art history at the University of Oxford who recently published the book *Negative/Positive: A History of Photography*.

Consider, Batchen suggests, Ansel Adams's 1941 photograph *Moonrise, Hernandez, New Mexico*. "He made at least 1,300, and possibly more, prints from that negative," Batchen says. "But if you look at auction catalogs, they will carefully parse which were the 'better' ones: which were printed by Adams alone, which were signed by Adams, which were made for portfolios."

To be clear, the image is the same, though Adams kept adjusting the prints' contrast and size. But it's Adams's signature or other minor distinctions that delineate a $50,000 print from one that's worth $650,000. "There is no logic to it other than the need to maintain capital," Batchen says. "It's entirely a market conception imposed on this object."

While this distinction might be lost on outsiders, many NFT collectors are willing to spend huge sums, at least in part, to impose and normalize a similar market framework for digital art. Before NFTs, "digital artists haven't really gotten what they deserve," says Tim Kang, a 27-year-old who says he's spent about $1 million on almost 200 digital artworks. "It's just one of the most artistic mediums, and [digital artists] do work for others, and they don't get any recognition for it hardly."

Kang was dragged into the spotlight in January, when he spent a then-record $777,777 (and 77¢) on a collection of artworks by Beeple. "It was hard for me to process at the time" why he'd made such a big purchase, he says. Only later did he realize, he says, that "I wanted to ensure that this is valid, that this is the future. I was taking a stand for our future of creative liberation."

◀ *Crossroad*, an animation by Beeple, and a kit that's part of a collection of his digital artwork

A finance-minded skeptic might say the NFTs' success is a product of the cryptocurrency boom, meaning there are lots of people sitting on fortunes in digital tokens looking for something to buy. But that's hardly different from the way a bull market in stocks can push up the auction price of a Picasso.

Batchen says the emergence of NFTs represents the future and the past of the art market. "There's a continuity here across the history of art," he says. "Especially when you come to media that are capable of multiple reproductions like prints and photographs and digital images." The real issue, he says, "is not the artificialness or otherwise of the value of digital objects. It's can they survive the obsolescence of the medium that conveys them?" In other words, are hard drives and blockchain technology as durable as well-preserved canvas and oil paint?

Rodriguez-Fraile, who says he's spent seven figures on digital art, isn't worried. "Are these going to be here in 500 years? That's a potential concern," he says. "I'm sure that something will happen along the way and some [digital art] will get lost. But it will certainly be a lower percentage than the physical art that's created in the world." —*James Tarmy*

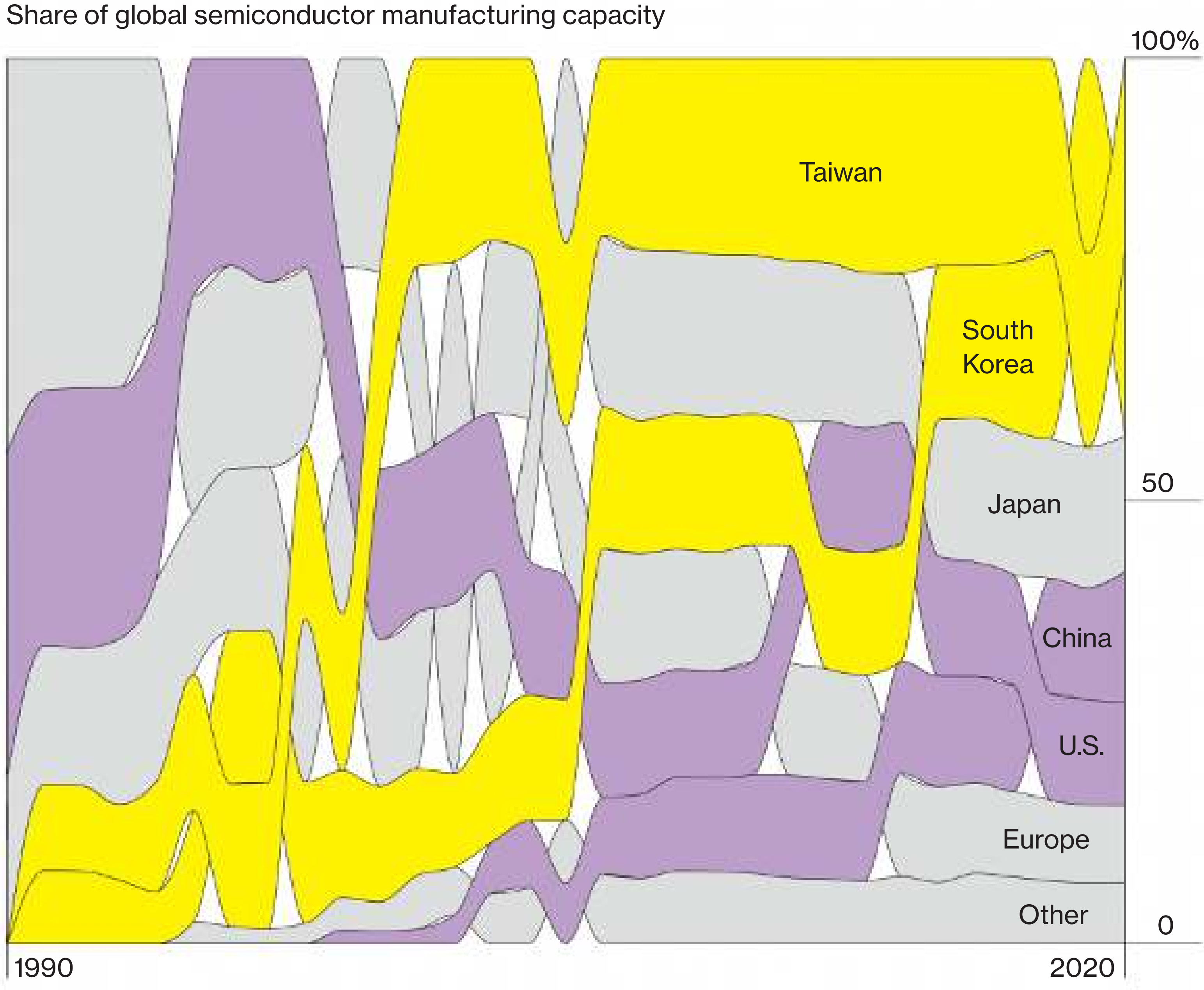
THE BOTTOM LINE Digital art can be reproduced endlessly, so collectors needed a way to agree on what makes a piece unique. Some think blockchain is the solution.

PHOTO ILLUSTRATION BY 731. PHOTOS: GETTY IMAGES (2), SHUTTERSTOCK (1). TRUMP: BEEPLE. KIT: BEEPLE

The Geopolitics Of Chips

● Taiwan and South Korea have amassed an uncomfortable degree of market power

Share of global semiconductor manufacturing capacity



DATA: BOSTON CONSULTING GROUP, SEMICONDUCTOR INDUSTRY ASSOCIATION

There's nothing like a supply shock to illuminate the tectonic shifts in an industry, laying bare the accumulations of market power that have accrued over years of incremental change. That's what's happened in the $400 billion semiconductor industry, where a shortage of certain kinds of chips is shining a light on the dominance of South Korean and Taiwanese companies.

Demand for microprocessors was already running hot before the pandemic hit, fueled by the advent of a host of new applications, including 5G, self-driving vehicles, artificial intelligence, and the internet of things. Then came the lockdowns and a global scramble for computer displays, laptops, and other work-from-home gear.

Now a resulting chip shortage is forcing carmakers such as Daimler, General Motors, and Ford Motor to dial back production and threatens to wipe out $61 billion in auto industry revenue in 2021, according to estimates by Alix Partners. In Germany,

Edited by Cristina Lindblad

the chip crunch is becoming a drag on the economic recovery; growth in China and Mexico might get dinged, too. The situation is spurring the U.S. and China to accelerate plans to boost their domestic manufacturing capacity.

The technological prowess and massive investment required to produce the newest 5-nanometer chips (that's 15,000 times slimmer than a human hair) has cemented the cleavage of the industry into two main groups: those that own their fabrication plants and those that hire contract manufacturers to make the processors they design. South Korean and Taiwanese companies figure prominently in the first camp. "South Korea and Taiwan are now primary providers of chips like OPEC countries once were of oil," says Ahn Ki-hyun, a senior official at the Korea Semiconductor Industry Association. "They don't collaborate like OPEC. But they do have such powers."

It's true the chip industry has no equivalent to the mighty oil cartel. Yet like a Saudi Arabia or a Russia, Taiwan Semiconductor Manufacturing Company (TSMC) and South Korea's Samsung Electronics Co. can move markets with a turn of the spigot. Samsung's decision at the start of 2019 to reduce capital spending on memory chips in a bid to bolster profits caused prices in the segment to rise after years of declines. TSMC's Jan. 14 announcement that it had earmarked as much as $28 billion for investments in new plants and equipment in 2021, a 37% increase from the previous year, sparked a global rally in chip stocks and fanned speculation that the company was creating the conditions for troubled Intel to sharply scale down, or even exit, manufacturing.

Taiwan and South Korea became chipmaking powerhouses by occupying territory ceded by others. Beginning in the 1980s, U.S. manufacturers began transitioning to "fabless" designing, which besides being less capital-intensive, relieved companies and their workers of the need to handle an assortment of cancer-causing chemicals. A report published last September by Boston Consulting Group (BCG) and the Semiconductor Industry Association (SIA), estimated that in 2020 the U.S. accounted for just 12% of semiconductor manufacturing capacity, while Taiwan and South Korea together made up 43%.

TSMC supplies the processors that power everything from Apple's iPhones to Google's artificial intelligence. It also counts several of the world's largest fabless chip companies among its customers, including Advanced Micro Devices, Nvidia, and Qualcomm. Samsung Electronics and its compatriot SK Hynix Inc. together control more than two-thirds of the market for memory chips that handle an ever-expanding sea of data.

"This pandemic has really been an inflection point in terms of the transition toward a digital economy and Asia is poised to benefit," said Tim Uy, an economist at Moody's Analytics, speaking at an online seminar on Feb. 24. It's already happening: The boom in sales of work-from-home equipment helped South Korea post one of the smallest economic contractions in the world last year, while Taiwan clocked faster growth than China for the first time in three decades.

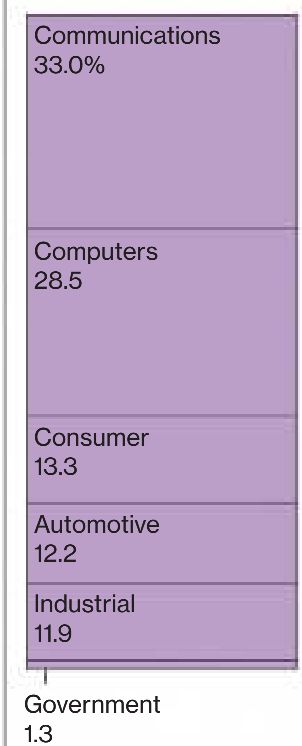
Automakers have been scrambling to get hold of chips that control antilock brake systems and dashboard displays, prompting the governments of several nations, including Germany, Japan, and the U.S., to appeal to Taiwan's leadership for help in resolving the issue. The situation underscores the strategic importance of Taiwan, which remains the most dangerous potential flashpoint between the world's two superpowers. China claims the island as its own territory, and the U.S. for decades has supplied Taiwan's government with weapons to defend against an attack from the mainland.

On Feb. 24, President Biden signed an executive order mandating a review of supply chains for semiconductors, pharmaceuticals, and other leading-edge technologies, with an eye toward reinforcing America's self-sufficiency. SIA, which bills itself as the voice of the semiconductor industry in the U.S., has taken a "when you can't beat them, join them" stand on the subsidies, tax breaks, and other supports Asian governments lavish on their chipmakers, launching a push last year for billions of dollars in federal incentives to spur the construction of new fabs on American soil.

While the fracking revolution lessened U.S. dependence on Middle East oil, beefing up the country's chipmaking capacity would probably require much higher levels of investment. Samsung's newest fab, in Pyeongtaek, south of Seoul, has a price tag of around $15 billion. For reference, that's almost 10 times the $1.6 billion Toyota Motor Corp. and Mazda Motor Corp. have committed for an auto plant they're building in Huntsville, Ala.

One solution may be to invite Asian manufacturers to expand their U.S. footprints. TSMC said last year it would spend $12 billion to build a plant in Arizona that's slated for completion in 2024. Samsung is scouting locations in Texas and Arizona for a logic-chip facility that would be the most advanced of its type in the U.S. Both companies are seeking government subsidies to compensate for what they say is the increased cost of setting up a fab in the U.S. ▶

▼ Share of semiconductor demand, 2019



"South Korea and Taiwan are now primary providers of chips like OPEC countries once were of oil"

◀ TSMC's factory complex in Tainan, Taiwan

◀ China, which buys more processors than any other country—some $300 billion worth annually—has invested massively to wean itself off its reliance on geopolitical rivals like the U.S. Its share of global manufacturing capacity now stands at 15%, three percentage points above the U.S., according to the BCG report, but none of its national champions are considered world-class. The soon-to-be-unveiled 14th Five-Year Plan may provide fresh guidance on Beijing's intentions.

So for now, Washington and Beijing are in a similar bind: heavily reliant on the flow of chips from Taiwan and South Korea, which are allied with the U.S. strategically but also entwined with China economically. Says Lee Kyung-mook, a professor of business management at Seoul National University: "They may now have more power than OPEC did going forward, because at least oil producers were spread all over the world." —*Sam Kim*

THE BOTTOM LINE The overwhelming power of Taiwan and South Korea in chips is adding urgency to calls in the U.S. for the country to beef up its manufacturing capacity.

A Taste of Independence

● Closed off to foreigners and feuding with China, Australia is becoming more self-reliant

A year of border closures is making Australia rethink its embrace of globalization. Before Covid, the country's economic strategy was predicated on attracting large numbers of immigrants, foreign students, and tourists to supplement earnings from mineral and farm exports. The formula yielded a record-setting 28-year streak of uninterrupted growth and a society where more than half the population was either born abroad or has at least one immigrant parent.

Then the pandemic hit, ushering in strict controls on international travel, followed by a diplomatic brawl with China, the destination for about one-third of Australia's exports. The country suffered its first recession in decades last year, yet the central bank is now forecasting that gross domestic product will return to its level at the end of 2019 by the middle of this year, which is 6 to 12 months sooner than it had previously anticipated.

How did this happen? First and foremost, coordination between the federal and state governments has been effective in curbing the spread of the coronavirus, so there's been less need for lengthy lockdowns. The country has recorded 114 Covid-19 cases per 100,000 people since the start of the pandemic, according to the World Health Organization, compared with 8,548 per 100,000 in the U.S. Australia was also quick to do a big fiscal stimulus, pledging the equivalent of 10.6% of GDP for wage subsidies and cash handouts to households and businesses.

But another big reason the economy has rebounded so quickly is that Australia turned inward—more by necessity than choice. Winemakers and other export-oriented businesses pivoted quickly to build domestic sales, and thousands of Australians packed cars and caravans and headed out to spend their money in the Outback or along the country's vast coastline. "The ban on Australians traveling has diverted around A$45 billion ($35 billion) into domestic discretionary spending or increased household saving," says Saul Eslake, an independent economist.

FROM LEFT: TPG/ZUMA PRESS; JAMES BUGG. DATA: AUSTRALIAN BUREAU OF STATISTICS, BLOOMBERG CONSENSUS ESTIMATES

"That's more than offsetting a A$25 billion decline in spending in Australia by foreign visitors."

Looking back on the past 12 months, Alister Purbrick is amazed that Tahbilk, his family's 161-year-old winery in the state of Victoria, has come through more or less intact. "If you'd have said in February last year that we were going to have the twin challenges of the pandemic and China essentially shutting its market to us, I think I probably would've had a nervous breakdown," he says.

Before the outbreak, Tahbilk had been sending a quarter of its exports to China, which announced at the end of November that it was imposing tariffs of as much as 212% on Australian wine shipments. Although Beijing justified the duties by saying that Australian winemakers had been dumping product in China, the move was widely seen as retaliation for Prime Minister Scott Morrison joining a chorus of world leaders calling for an investigation into the origins of the novel coronavirus.

Fortunately for Tahbilk, Australians have upped their intake of national wines. "People decided 'we've got to eat at home, so we're going to drink. OK, let's buy more and buy well,'" says Purbrick, who saw sales via online wine clubs surge 60% in the nine months through January, from a year earlier. "People were trading up, not down as you might have expected in a crisis." (For Tahbilk and the rest of the industry, a 22% jump in exports to Europe in 2020 also eased the pain of being shut out of China.)

The economy's surprising resilience has become fodder for a national debate on whether the nation of 25 million needs to undertake a course correction. Discontent with Australia's expansive immigration policies had been building for years, fueled by rising home prices and growing congestion on roadways and public transit, as well as by reports that newcomers are beating out citizens in the competition for jobs. "I think Australia pre-coronavirus was in the midst of a dangerous experiment," says Salvatore Babones, a sociologist at the University of Sydney. "This crisis is an opportunity for Australia to dial back immigration to still world-beating, but more modest, levels."

In an opinion piece published in May, Kristina Keneally, who is part of the leadership of the opposition Labor Party, wrote: "When we restart our migration program, do we want migrants to return to Australia in the same numbers and in the same composition as before the crisis? Our answer should be no."

Australia's decision last March to close itself off to foreign travelers has already forced a reset—albeit a temporary one. Its population had been forecast to expand 1.7% in the fiscal year that ends June 30. The central bank now expects the figure to amount to just 0.2%, the lowest level since World War I.

Part of the drop reflects the absence of tens of thousands of international students, mostly from Asia, many of whom become residents after graduation. Education is Australia's fourth-largest export, contributing $A37.6 billion in the 2018-19 fiscal year. Yet Gigi Foster, an economics professor at the University of New South Wales, argues there are hidden costs, too, saying her research shows that having a high proportion of non-English speaking students in undergraduate classes degrades the quality of instruction and contributes to grade inflation. The pandemic, she says, is giving Australia an opportunity to recalibrate: "There's not huge hordes of people coming in, so you can think about what you really want to do." Foster, who moved to Australia from the U.S. in 2003, would like to see the government and universities raise the bar for international entrants to attract a more "elite" group.

One area where Australia has become more selective is investment. A law approved last year gives the Treasury the right to block deals even if they've been blessed by the Foreign Investment Review Board. In August, Treasurer Josh Frydenberg availed himself of his new powers to block China Mengniu Dairy Co.'s acquisition of Lion Dairy & Drinks. Then in January, he nixed a $300 million takeover of building contractor Probuild on national security grounds.

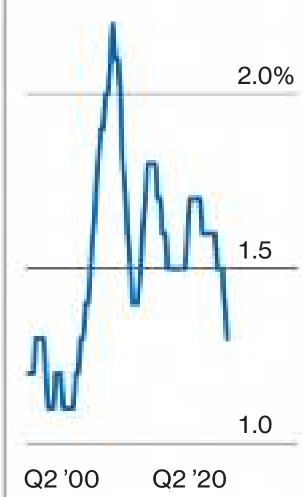
Will the urge to splurge on wine at dinner fade once government stimulus runs out? Will millennials keep heading to Byron Bay once borders reopen,

◀ Visitors at Mungo National Park in New South Wales

instead of jetting off to Fiji? And will the country continue to turn away Chinese investment if Beijing and Canberra patch up their differences? It's too soon to tell, but at some point Australians will have to decide how much they want to return to their old ways. *—Michael Heath*

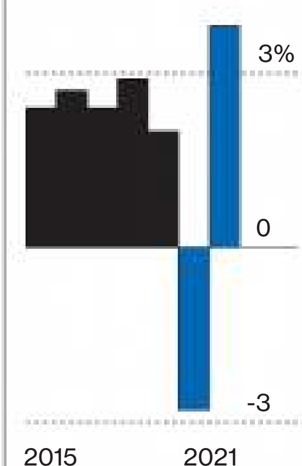
THE BOTTOM LINE Australia's resilience in the face of border closures and Chinese tariffs is raising questions about whether it needs to tweak its economic model.

▼ Australia's annual population growth



▼ Australia's annual GDP change

■ Estimate



After a Grim Limbo, Hope

● A migrant camp empties as Biden undoes Trump's "Remain in Mexico" policy

For 10 months, Francisco Caal lived with hundreds of other asylum seekers in a tent city across the Rio Grande from Brownsville, Texas, forced by President Trump to wait there for the U.S. government to decide his fate.

He'd fled Guatemala with his wife, Jeannethe Trujillo, he says, after he endured death threats and a bullet in the gut, the couple fearing for their lives. When they reached the U.S. border and asked for asylum, immigration agents turned them back because of the Trump administration's 2019 "Remain in Mexico" policy for asylum seekers. They waited and worried in a squalid limbo, spending their days inside a home made from ragged tarps lashed to the camp's chain-link fence, all with a view of U.S. soil, just 70 feet away.

They prayed that Covid-19 wouldn't get them before they were allowed to cross to "the other side," as the camp dwellers, who came from Central America, Cuba, Haiti, and Venezuela, call the U.S. "We just put ourselves in God's hands," Caal, 52, said on Feb. 24, sitting on a log inside the makeshift home as his wife cooked some black beans over their little fire pit.

On Feb. 25, a month after President Biden ordered an end to Remain in Mexico, aid workers told Caal and Trujillo to report to a United Nations clinic in the camp for a Covid test and be ready to move. A few hours later, they were among the first 27 people allowed to cross the Gateway International Bridge to Brownsville. As of March 2, more than 500 had followed, about three-quarters of the camp's population, according to UN agencies coordinating the effort in Mexico.

Emptying the camp would eliminate a symbol of Trump's immigration crackdown and count as an early success for Biden, who aims to undo his predecessor's most draconian anti-immigrant policies. The move comes as the new administration prepares for a battle to pass a sweeping immigration reform bill and as it draws criticism for reopening a Trump-era shelter for migrant children in Texas.

Edited by
Amanda Kolson Hurley

▲ Clockwise from left: Migrants from the camp in Matamoros, Mexico, entering the U.S.; Jeannethe Trujillo, an asylum seeker from Guatemala, prepares a meal before leaving the camp; a group from Matamoros on the bridge over the Rio Grande; tents and other items pile up as the camp empties —*Photographs by Cesar Rodriguez/ Bloomberg*

Meanwhile, the number of migrants crossing the southern border is surging. Border agents have detained 70,000 people illegally crossing per month since October, a sharp increase from a year ago.

The camp is a disturbing byproduct of Trump's push to slash the number of people given asylum in the U.S. After he took office, border agents cut the daily number of people allowed to cross the Rio Grande to ask for asylum, so immigrants slept on the bridge to keep their place in line. After Trump imposed Remain in Mexico—known officially as the Migrant Protection Protocols, or MPP—in January 2019, the line got longer. Asylum seekers flooded in from Central America, Cuba, and beyond, so they camped around the bridge, turning the Mexican side of the border into a tent city teeming with thousands of men, women, and children. They often had to wait months for a hearing in the U.S., and when the pandemic arrived, the Trump administration suspended them all.

Helen Perry, a former Army nurse who's executive director of the aid group Global Response Management, was shocked when she first visited the camp in September 2019. Perry had spent years working in medical clinics in war-ravaged places like Iraq. "This was worse than anything I'd seen," she says. There were no bathroom or medical facilities. Children suffered from eye and skin infections and intestinal maladies, caused by the raw sewage running through the camp and into the Rio Grande, where they liked to bathe and play.

She soon made the camp her aid group's biggest operation, with services such as toilets, hand-washing stations, and clean drinking water, and a clinic that could provide ultrasounds, EKGs, and oxygen treatment. In February 2020, Perry and her project coordinator at the camp, former Army Ranger and combat medic Sam Bishop, grew alarmed as the novel coronavirus spread west from China and Europe. "We were all anticipating essentially a bloodbath in the camp," Bishop says.

Perry had received an article about battlefield sanitation in 1919—coinciding with the Spanish flu pandemic—from a medical historian she knew in London. She adopted some of the article's simple practices for heading off disease: hand-washing, good air circulation, having people sleep head to toe, and isolating the sick. "I figured if this helped during the Spanish flu pandemic, it might be applicable for Covid," Perry says. She and Bishop applied the practices to the camp and built an isolation ward, expecting a surge of Covid cases.

Onelia Alonso, one of the first to arrive in the camp almost two years ago, was terrified that the coronavirus would sweep through it. Alonso, 62, who's seeking asylum for alleged political persecution in her native Cuba, followed the doctors' advice. She wore face masks, washed her hands a lot, and tried to keep her distance from people.

Remarkably, the camp didn't have a single Covid case until June, and it still hasn't had a case serious enough to warrant hospitalization. Of 1,800 people tested for Covid antibodies, about 250 were positive—suggesting they'd had the virus but never ▶

◀ got too sick. Of the hundreds evacuated from the camp, the UN says, zero tested positive for Covid. Maybe it was the open air or toughened population that kept coronavirus out, Perry says. Alonso notes, "It's like we miraculously developed some kind of herd immunity."

Biden may be bringing an end to the traumatic limbo these asylum seekers have endured for almost 18 months. But there's still a long way to go. There are about 25,000 more people in the Remain in Mexico program, with a few thousand spread across the length of the U.S. border with Mexico. From Feb. 19 to March 2, the U.S. government processed more than 850 people entering from Tijuana, Ciudad Juarez, and Matamoros.

Not all of the migrants at Matamoros are actively registered in MPP. Some have inactive status and others aren't part of the program. The Department of Homeland Security said in a statement on Feb. 24 that the agency "will work in partnership with the Government of Mexico, and partners on the ground, to facilitate the safe processing of current camp residents who qualify for [MPP]. New arrivals to the Matamoros camp will not gain entry into the United States through this limited process."

Those enrolled in MPP can register on a UN website and will be told where and when to show up for Covid testing and processing. Homeland Security, stressing that the border is closed, has instructed people not to approach unless they are summoned as it winds down MPP. It's not clear how the U.S. will handle people who come to the U.S.-Mexico border in the future intent on seeking asylum.

In the meantime, those departing Matamoros make the short walk in groups across the bridge to the U.S. From there, they get onto buses and ride a few blocks to the Brownsville bus station. They have a chance to speak with an attorney, and volunteers with church and activist groups are on hand to help them, says Cindy Andrade Johnson, a Brownsville resident and volunteer. Some immediately head to where their sponsors live. Johnson says groups and individuals have raised money for the costs of those who must wait to travel on.

For Francisco Caal, at least, the stress and fear of living in limbo is ending. Onelia Alonso can say the same: She was also part of the first group allowed into the U.S. Now they face more uncertainty as they wait for a date to go before a federal immigration judge to argue their case for asylum. The judge could tell them no; he or she could order them deported back to the danger they faced at home.

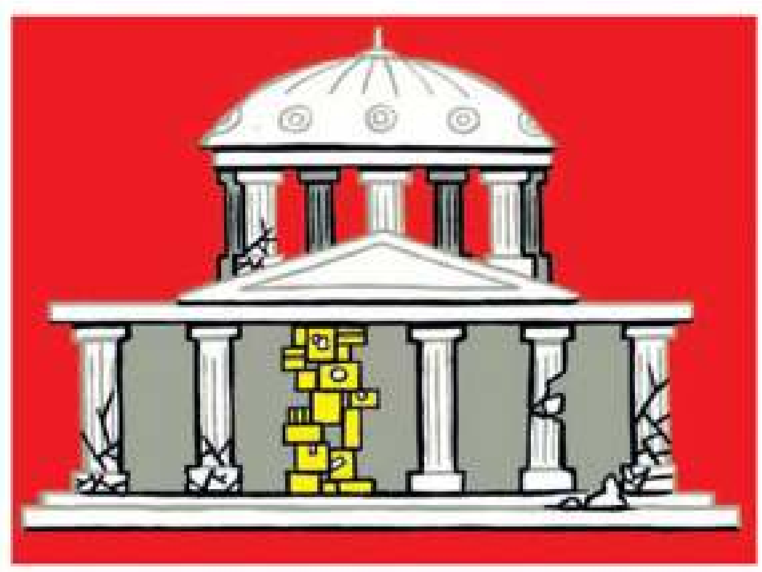
Caal wasn't thinking much about all that as he and Trujillo sat inside the bus station in Brownsville. They were headed to La Grange, Kentucky, where Trujillo's brother lives and will take them in. He had no idea where life would take them in the U.S. But he wasn't too worried.

"OK, I have no money, and don't really know what I am going to do, or where I am going," he said, smiling. "But we're in the United States of America, finally, and that's really all that matters." *—Michael Smith and Naureen S. Malik, with Maya Averbuch*

THE BOTTOM LINE The U.S. has admitted hundreds of asylum seekers from a Mexican border camp in a tangible reversal of one of Donald Trump's hard-line immigration policies.

How Online Shoppers Have Kept States Afloat

● New tax collections enabled by the Supreme Court are a godsend for pandemic budgets



Rachel Ramos, who sells graphic T-shirts on Etsy from her home in Fort Worth, was considering closing her shop before she saw business unexpectedly boom last May. The shop brought her \$25,000 from May through December, compared with \$11,000 the entire previous year. She's saving that money to buy a house for her and her two children. "This kept me from having to struggle as a single mother," she says.

A less obvious, indirect recipient of her windfall: the states where her customers live, which can use taxes on her T-shirt sales to help plug the holes in their budgets.

When much of the country went into quarantine last year, Americans holed up at home took to their laptops to buy just about everything online, from groceries to home goods to electronics. As they drove a surge in online retail, shoppers were also

ILLUSTRATION BY PATRIK MOLLWING

unknowingly helping to keep their state finances afloat—thanks to a 2018 Supreme Court decision in *South Dakota v. Wayfair*.

South Dakota passed a law in 2016 requiring online retailers with no physical presence in the state to collect sales taxes. (Those with a presence in the state were already required to do so.) The court decided 5 to 4 in South Dakota's favor, allowing states across the country to start reaping billions of dollars in taxes from purchases made from internet retailers. As states crafted laws allowing them to tax online retailers, they also extended the levies to virtual marketplaces such as eBay and Etsy.

The effect has been "huge" for many state governments, which have seen other sources of revenue plummet, says Natalie Cohen, president of National Municipal Research Inc., a consulting firm. "The two events together—the *Wayfair* decision and the pandemic—have just exploded online sales revenues."

Most state governments don't separate online sales taxes from other sales taxes in their accounting, so it's hard to calculate the impact nationwide. But in California, the world's fifth-largest economy, online taxable sales more than tripled in the first half of 2020 compared with a year earlier. In New York, "a dramatic shift in consumer spending" led to a significant increase in online purchases, which bolstered tax collections, according to a report in February from the state's comptroller. North Carolina's sales tax collections are expected to jump more than 10% from the previous year.

Eric Kim, head of the U.S. state rating team at Fitch Ratings, says that the *Wayfair* decision "could not have come at a better time" for states and local governments. Although taxes from online sales have mitigated their fiscal damage, sales taxes generally were still slightly down between March and December, according to the Urban Institute.

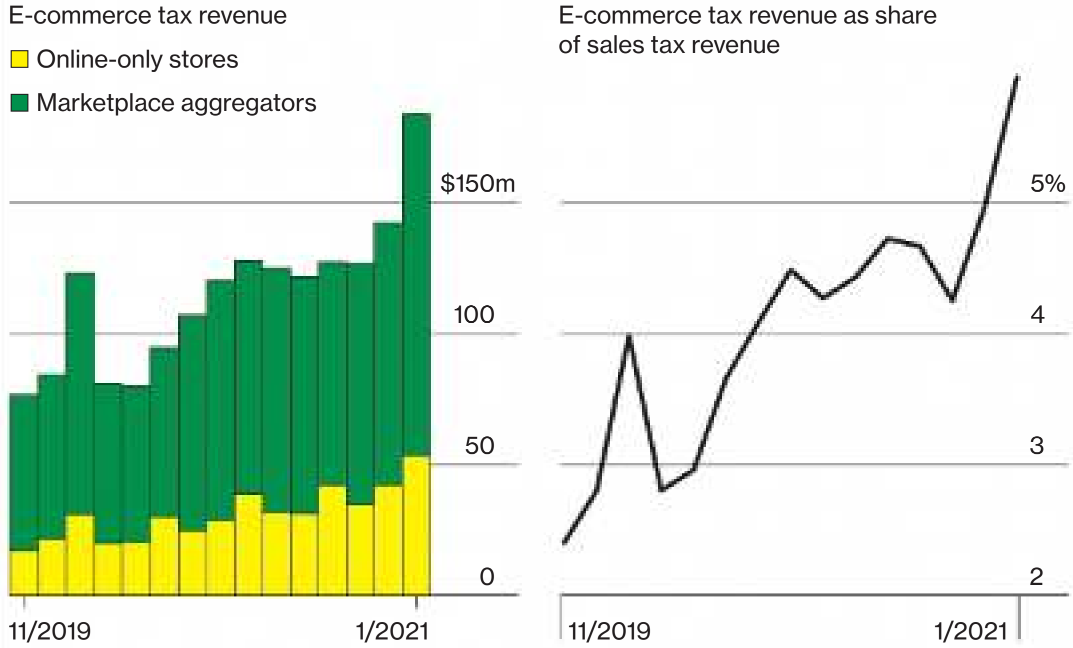
Post-*Wayfair*, Texas and 42 other states that passed laws allowing for the collection of the taxes are reaping the benefits. Only Florida and Missouri, among the 45 states that levy sales taxes, haven't moved to collect those dollars yet; bills in both states are making their way through the legislatures.

Texas, which in July faced a $4.6 billion budget shortfall, now expects a gap that's a fraction of that, in part because of Texans shopping from home. In the first year of *Wayfair*-enabled collections, the state gained about $1.3 billion in sales taxes, according to Comptroller Glenn Hegar. "That is a very large piece of the puzzle, especially during a pandemic," he says. "Not having that piece would have been a substantial hit."

The trickle-up effect from internet purchases means that local governments in Texas alone have collected about half a billion dollars in new sales taxes since the state started remitting them.

"That's $480 million more [that] local jurisdictions would not have had during a very difficult year," Hegar says. Those dollars can go to "providing police service, fire service—elements that you and I need every single day." —*Danielle Moran, with Michael Bologna, a reporter for Bloomberg Tax*

Revenue From Online Sales Taxes Soars in Texas



DATA: TEXAS COMPTROLLER

THE BOTTOM LINE More online shopping, plus a court decision that lets states tax those purchases, means smaller than expected budget shortfalls for stressed state governments.

Seeking a Climate Carve-Out

● Can the U.S. make climate change a standalone diplomatic issue with China?

In the lead-up to the 2015 Paris climate agreement, then-President Obama flew to Beijing and won a major concession from President Xi Jinping—that China would peak its carbon emissions around 2030. It paved the way for the historic accord.

As President Biden seeks to aim higher before a global climate conference in the U.K. this ▶

◀ November, he may find that getting on the same page with China will be harder. U.S.-China relations on climate matter not only because the two countries account for just less than half of the world's emissions, but also because what they do sends a signal to the rest of the world.

Biden administration officials—climate envoy John Kerry and Secretary of State Antony Blinken among them—have signaled they want to shield climate diplomacy from the more turbulent aspects of the bilateral relationship. But experts and government officials worry that tensions on everything including Taiwan and Hong Kong could undermine those discussions. "We're in a difficult place, and yet we have this inescapable reality that we can't address the global challenge of climate change without coordination between the U.S. and China," says Kelly Sims Gallagher, who oversaw Chinese climate diplomacy in the Obama White House.

Climate diplomacy doesn't exist in a vacuum. China has already expressed caution about cooperation with the Biden administration as long as the state of relations between the two countries remains strained. And Kerry has pushed back against accusations that he will urge the administration to go soft on China because of his climate goals. "Obviously we have serious differences with China, on some very, very important issues," Kerry said during a White House briefing in late January. Issues such as intellectual property theft and the South China Sea "will never be traded for anything that has to do with climate. That's not going to happen. But climate is a critical standalone issue that we have to deal on." In a speech on March 2, Kerry again said, "We can deal with this as a compartmentalized issue," and that the climate crisis can't "fall victim to … other concerns and contests" between the nations.

Kerry has made clear he'd like to see China step up its commitment to cutting emissions before the 26th United Nations Climate Change Conference in Glasgow (COP26) in November. The U.S. is expected to soon make its own ambitious pledge, but Kerry wants China and other big emitters such as India to increase their carbon-reduction pledges for 2030 rather than dangling longer-term pledges about carbon neutrality by midcentury. He's also criticized China's current plan to end carbon emissions by 2060, a full 10 years later than many other countries. "What steps will we take in the next 10 years?" he said during a press event on Feb. 19 marking U.S. reentry into the Paris accord. "China, which is the largest emitter in the world, needs to be part of the 2020 to 2030 effort."

Beijing is sending signals that it's serious about climate diplomacy. The reappointment of veteran negotiator Xie Zhenhua—a key architect of the Paris agreement—was seen as a good start by climate experts in the U.S. Xie joined Kerry at a UN Security Council meeting on climate in February, where he touted China's progress toward peaking emissions by 2030, while calling climate change a "pressing and serious threat to the survival, development, and security of humankind."

David Waskow, director of the international climate initiative at the World Resources Institute (WRI), a global environmental nonprofit group, says Xie has "been around a long time, and has a good relationship with Kerry," though "we should not expect the relationship on climate between the U.S. and China to easily snap back to what it was like in 2015. But climate may be the one area where the two countries can work well together."

The path to Beijing may run through Canada, Europe, and the U.K. this time around.

After Biden met virtually with Canadian Prime Minister Justin Trudeau on Feb. 23, Trudeau told Bloomberg News that the countries planned to work together to push high-emitting countries. Canada's Environment Minister Jonathan Wilkinson cited China as well as Australia, India, Japan, and Mexico as countries that should face pressure. If the U.S. coordinates with Canada and other allies before COP26, they could negotiate with China as a group, from a position of strength.

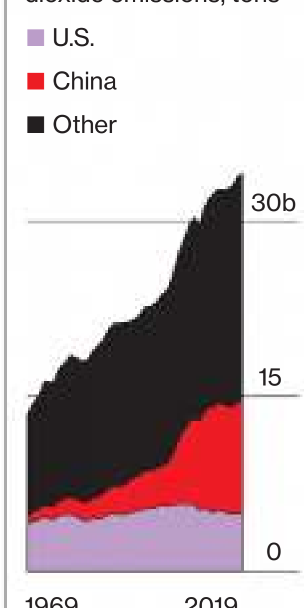
The U.S. is expected to set out its national plan to help limit global warming before an April 22 climate summit Biden has called with world leaders. Kerry has signaled that the U.S. wants to go big, and WRI and other environmental groups are pushing for a U.S. commitment to reduce greenhouse gas emissions by as much as 50% over the next decade from 2005 levels. That would be more aggressive than the Obama administration's 2015 pledge to cut emissions by 26% to 28% by 2025.

Even if China and the U.S. struggle to find common ground, progress is still possible. These days both governments understand that the race to dominate in clean energy is paramount to their economies. "Neither China nor the U.S. wants to lose out when it comes to the industries of tomorrow," says Alex Wang, an expert on environmental law and the law and politics of China at the UCLA School of Law. *—David Wainer and Will Wade, with Nick Wadhams and Kait Bolongaro*

THE BOTTOM LINE The White House aims to separate climate diplomacy from otherwise fraught U.S.-China relations. That will be tough, but not impossible, especially if it works with allies.

● Xie

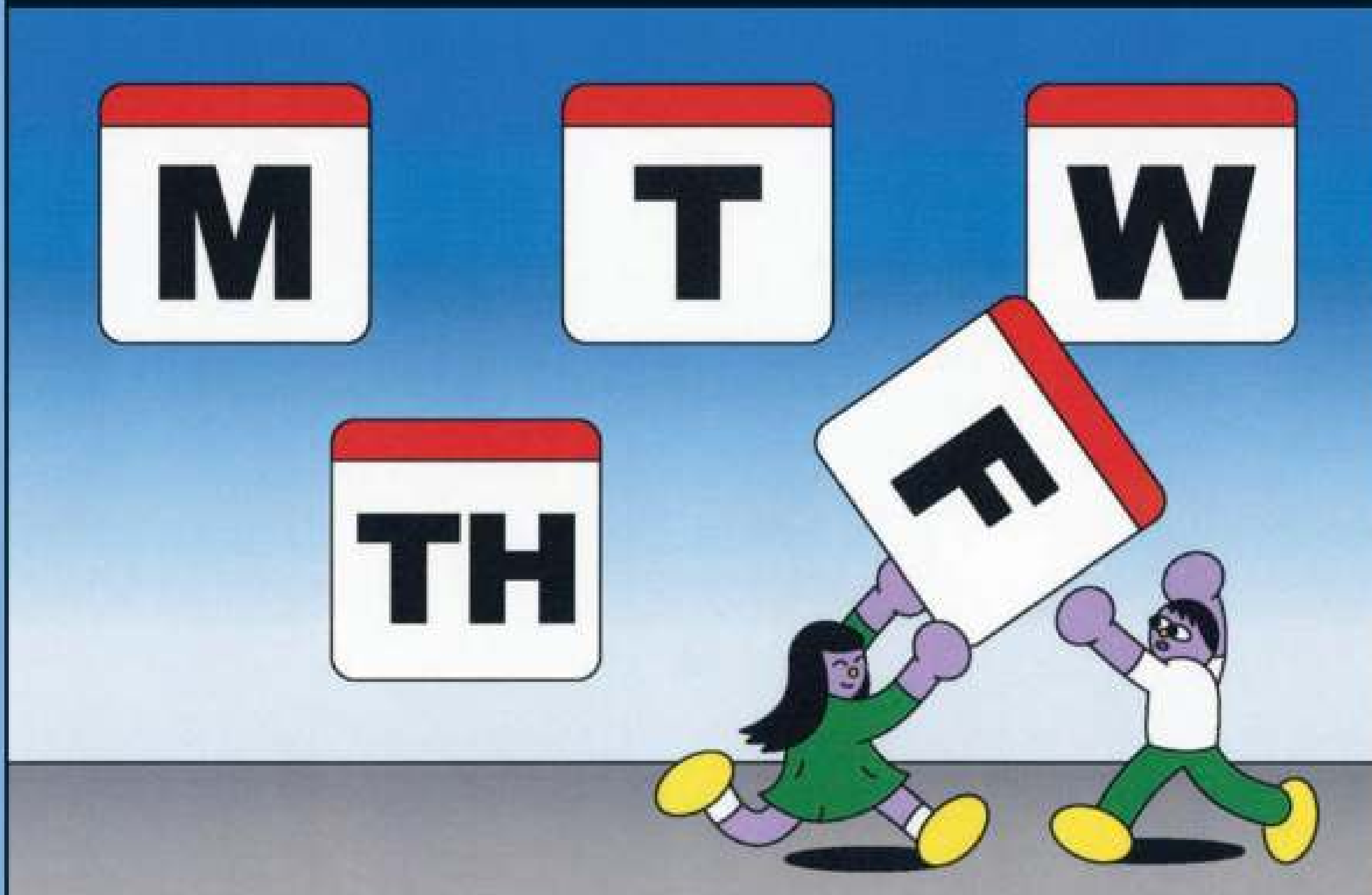
▼ Annual global carbon dioxide emissions, tons



TIFFANY HAGLER-GEARD/BLOOMBERG; DATA: COMPILED BY BLOOMBERG


MIND YOUR PLANET
THIS EARTH HOUR
TAKE A MOMENT TO REFLECT ON WHAT YOU CAN DO FOR NATURE
SATURDAY, MARCH 27, 2021 8:30 PM
worldwildlife.org/eh21
WWF
60+

Future of Work



Send This Story to Your Boss

A four-day workweek? More companies around the world are asking, "Why not?"

When the world went into lockdown last year, the 1,000 employees at Berlin-based tech company Awin did what millions of others did: They flipped open their laptops and started working from the kitchen or dining room. At the same time, Awin started running flat-out as its business with online retailers soared, putting intense pressure on the staff. So last spring the company told everyone to sign off around lunchtime every Friday to ease into the weekend. The experiment was so successful—sales, employee engagement, and client satisfaction all rose—that in January, Awin decided to go a step further, rolling out a four-day week for the entire company with no cuts in salaries or benefits. "We firmly believe that happy, engaged, and well-balanced employees produce much better work," says Chief Executive Officer Adam Ross. They "find ways to work smarter, and they're just as productive."

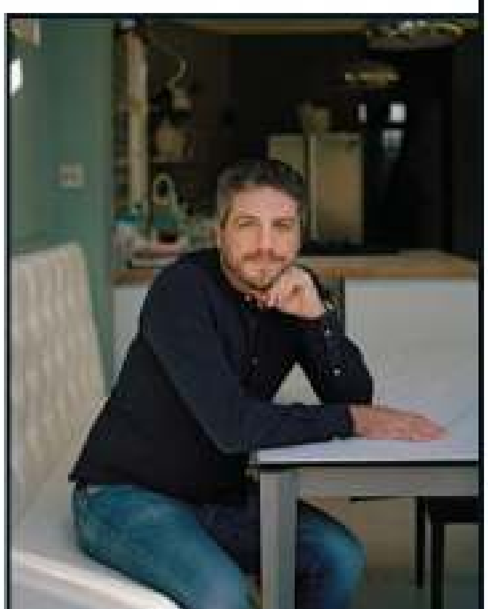
Awin is in the vanguard of a trend that's getting increased attention worldwide. Jobs website ZipRecruiter says the share of postings that mention a four-day week has tripled in the past three years, to 62 per 10,000. Consumer-goods giant Unilever Plc in December started a yearlong trial of the idea for its New Zealand staff. Spain's government is considering a proposal to subsidize companies that offer a four-day week. And even in notoriously busy Japan, whose language includes the word *karoshi*—death from overwork—lawmakers are discussing

ILLUSTRATION BY XAVIER LALANNE-TAUZIA. ROSS: PHOTOGRAPH BY SOPHIE GREEN FOR BLOOMBERG BUSINESSWEEK

Edited by David Rocks

a proposal to grant employees a day off every week to protect their well-being. “The four-day week is picking up momentum,” says Will Stronge, director of research at Autonomy, a U.K. think tank. “For the large majority of firms, reducing working hours is an entirely realistic goal.”

Laborers and even many office workers used to show up on the job six or seven days a week, though by the late 19th century most at least had Sunday off. In 1926, Henry Ford decided to give workers two free days every week, arguing they would buy more cars if they had more leisure time. They did, and by the end of the next decade most American manufacturers had followed his lead. It took a bit longer elsewhere, with Germany scrapping Saturday shifts only in the 1960s, after unions ran campaigns saying that kids need more time with their daddies. Over the past two decades, working time in developed countries has gradually decreased; France led the way in 2000 with its adoption of a 35-hour workweek. “Many developed economies face a shortage of skilled labor,” says Terry Gregory, a researcher at the German Institute of Labor Economics. “That gives workers more power to demand shorter hours.”



Awin CEO Ross, who introduced a four-day workweek in January after shifting the company to 4½ days when the pandemic started

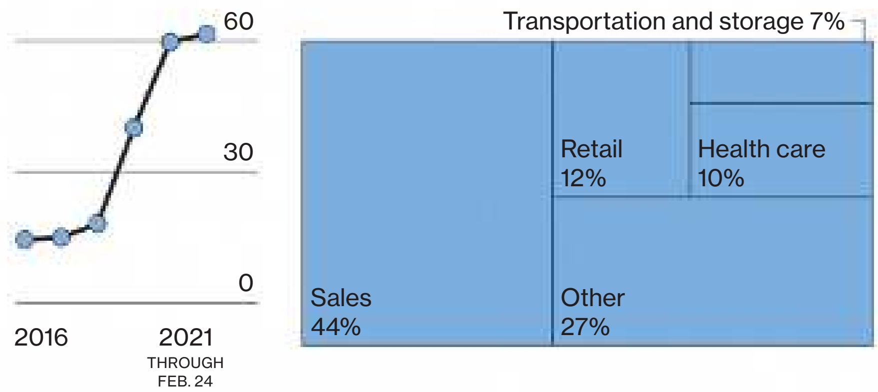
Broad acceptance of a four-day week may be harder. Jack Ma, the billionaire co-founder of Chinese e-commerce giant Alibaba Group Holding Ltd., frequently hails his country’s grueling “996” work culture—9 a.m. to 9 p.m., six days a week—as vital for long-term success. In the U.K., the Labour Party lost the 2019 general election even as it campaigned on a pledge to trim the standard workweek to 32 hours within a decade. And bosses are reluctant to reduce hours without cutting pay, fearing output will drop. “Employees perform a task more efficiently the more they’ve done it,” says Holger Schäfer, a labor market analyst at the German Economic Institute in Cologne. “I don’t believe there are really going to be productivity gains coming from shorter working time.”

Yet as the pandemic has slowed growth and increased inequality, there’s a new push to reengineer workplaces. Almost two-thirds of businesses with a four-day week report improved productivity, according to a study from the University of Reading. A group led by former U.K. Shadow Chancellor John McDonnell wrote a letter to leaders including Joe Biden, Boris Johnson, and Angela Merkel urging them to adopt a four-day week to save jobs,

Jobs Offering a Four-Day Week

Per 10,000 listings on ZipRecruiter

Distribution by sector, January 2020-February 2021



DATA: ZIPRECRUITER

rethink working patterns, and reduce energy consumption. In August, Germany’s 2.3-million-member IG Metall union proposed a shorter workweek in response to the health crisis and seismic changes in the auto industry, which will need fewer manufacturing hands as it shifts to electric vehicles. French carmaker Renault SA is giving about 13,000 staff Fridays off until mid-August while it seeks to cut costs as orders have slumped. (Workers will be paid the same, but only because their salaries are plumped up with state unemployment benefits.)

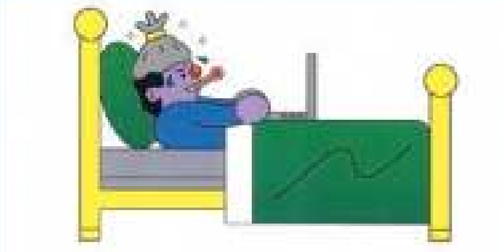
Awin CEO Ross says the four-day week is intended to retain the company’s software engineers and account managers, who help the likes of Asos, Nike, and Samsung connect with bloggers, influencers, and publishers. There have been some teething issues, such as deciding who will be off when (staff can choose the day they want to stay away or take two half-days), requiring the finance department to stick around five days a week during the January reporting period, and ensuring that client requests coming in on Fridays get prompt attention. About 80 employees volunteered to work in task forces to make the switch as smooth as possible, discussing potential contract changes, cutting hourlong meetings in half, and introducing software to ease collaboration.

Awin will assess the results of the trial program this summer, but Ross says the experience has been so positive that he can’t imagine going back. The CEO has felt the change himself: After logging weekly commutes to Berlin from London for six years, he now enjoys a day every week with a clear diary, allowing him to spend time with his family or think about what’s next. Companies used to “make provisions for people’s physical health but never their mental health,” Ross says. “I see that changing, and we want to be a driver for it.” ——*Stefan Nicola, with Carolynn Look and Jeannette Neumann*

THE BOTTOM LINE Although many CEOs resist the idea of cutting hours without reducing pay, two-thirds of companies that have adopted a four-day week say employee productivity has increased.

The End of the Sick Day

Working remotely, people are more likely to stay on the job when they're feeling ill



A few months back, it seemed as if the coronavirus pandemic would kill off presenteeism—you know, showing up at work with a sniffle or cough to prove your value or ensure you get your paycheck. Companies that didn't offer paid sick leave were sure to wise up, realizing it was madness to create incentives for workers to spread germs on the job, and Type A workaholics would see that putting the entire office at risk of infection is more selfish than selfless. As it turns out, presenteeism just got a new address: the kitchen table. "You're expected to be always accessible, because where else could you be?" says Harvard Business School professor Leslie Perlow. "There's nowhere to go, nowhere to hide."

Even before the Covid-19 pandemic, remote work had started to chip away at sick days. Slack messages saying "I've got a cold brewing, so I'll work from home today" were already replacing "Hey, boss [cough, cough], I need a sick day" phone calls. A 2014 Stanford University study found that call center employees who worked from home put in more days, because they stayed on the job at times they would have been too ill to come to the office. And the U.S. Centers for Disease Control and Prevention last year found that people with flu symptoms were more likely to work if they had the option to do so from home. "When everything happens in the same place, you no longer have that geographic boundary" between work and home, says Barbara Larson, a business professor at Northeastern University.

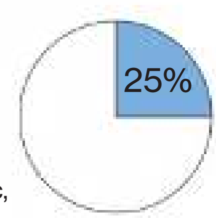
The U.S. Bureau of Labor Statistics says 1 in 4 companies adopted more generous sick leave policies last spring as the coronavirus spread. But instead of taking advantage of those rules, many ailing employees simply continued to toil away at a zombie pace from the couch: A OnePoll survey for a cold remedy company found that half of the 2,000 respondents had quietly taken partial sick days during the pandemic—without telling their boss—and 7 in 10 said they'd worked while feeling under the weather.

Remote work means people are less exposed to the germs that cause colds. That, plus social distancing, hand-washing, and mask-wearing, has sent flu infections plummeting this winter. And some of the current hesitation to ask for time off may be because the seriousness of Covid-19 has shifted the definition of what it means to be sick. With images of people dying on ventilators making sore throats seem trivial, many workers fear bosses would disapprove of a sick day for anything less than Covid. "If you actually call in sick, of course everybody's first question is, 'Is it Covid?'" Larson says. "People are reluctant to self-identify as sick right now."

But it's not only contagious illnesses that might require a sick day: Including ailments such as back pain, allergies, or depression, "95% of us suffer from something," says Ron Goetzel, director of the Institute for Health and Productivity Studies at the Johns Hopkins Bloomberg School of Public Health. He estimates that lower productivity from workers who show up when sick costs employers twice as much as treating those conditions would. Migraines alone led to losses of $45 billion a year in the U.S. and Europe, according to the *Harvard Business Review*, and almost 90% of that stems from presenteeism.

Researchers who study cognition have found that being sick impairs brain function as much as drinking alcohol or pulling an all-nighter. These risks are probably even greater for the knowledge workers who find it easiest to work remotely, because their jobs are all about brainpower. Nonetheless, employees shouldn't be forced to take days off if they feel they can be productive for at least part of the day, says David Burkus, author of *Leading From Anywhere: The Essential Guide to Managing Remote Teams*.

Share of U.S. companies* that created or changed paid sick leave or paid time off plans because of the pandemic, March-May 2020



For salaried workers paid to achieve goals, not put in a certain number of hours, working more flexibly is reasonable—as long as they inform colleagues of their availability. "Remote work pushes a lot of things down to the level of team culture, as opposed to organizational culture," says Burkus, a former management professor who conducts training courses for managers of remote teams (remotely, of course). It can be tough for workplaces to reach that level of trust, putting the onus on managers to lead by example, broadcasting when they'll be offline and why—be it for a child-care emergency, the flu, or just a needed break. "We've known for a long time that time away from work makes work better," Burkus says. "I'm fully supportive of mental health days." ——*Sarah Green Carmichael*

THE BOTTOM LINE A quarter of U.S. companies adopted more generous sick leave policies last spring, but ailing employees often didn't take advantage of the change, working instead at half-speed.

ILLUSTRATIONS BY XAVIER LALANNE-TAUZIA. *BASED ON SURVEY DATA FROM ABOUT 1,500 RESPONDENTS REPRESENTING 6.5 MILLION BUSINESSES. DATA: BUREAU OF LABOR STATISTICS

A Workplace Hybrid of Home and HQ

Flexibility is key in reimagining office culture for the post-pandemic world

After joining U.K. insurance group Aviva Plc last year, Danny Harmer spent just a few weeks with her new team before the first Covid-19 lockdown. If she has her way, that will be the most time the group ever spends together. Harmer, Aviva's personnel chief, is figuring out the post-Covid working environment for the company's 16,000 British employees, spread among 14 offices from London to the Scottish city of Perth. And what she's found is that while many miss the collaboration that can happen in the office, they also like the freedom of working remotely. "There's a change in mindset brought on by the pandemic," she says. "People have experienced it and go, 'Yes, I want some of this.'"

A recent Aviva survey found that 95% of its staff would choose either full-time remote work or a flexible home-office split once lockdowns end. The company is now attempting to institute what Harmer calls a "smart" working policy, closing some offices and allowing everyone the option of logging in from home, with access to redesigned company facilities when they feel the need.

That flexibility makes Aviva something of a pioneer among companies grappling with the post-Covid workplace. Some are embracing—or at least accepting—a hybrid home-office configuration, with HSBC Holdings Plc predicting a 40% reduction in its property footprint over the long term and Lloyds Banking Group Plc projecting a 20% cut in office space by 2023. Others, though, are less excited about the idea: David Solomon, chief executive officer of Goldman Sachs Group Inc., has called remote work "an aberration that we are going to correct as quickly as possible."

Jenny Burns, a partner at London consulting firm Fluxx, says the issue of where and when employees work is among the biggest challenges businesses face today. While some traditionalists believe they can return to their pre-pandemic setup, she cautions against that. "If you slip back into old ways quickly, you will lose employees," says Burns, who advises big companies on reimagining their working environments.

Speak Media, a 20-person provider of multimedia content to corporate clients, has walked away from its London office lease and is pressing ahead with a hybrid plan. Co-founder George Theohari wants employees to keep talking while working at home, testing short, focused virtual meetings and impromptu breakout sessions. Longer term, he plans to rent space in a London coworking facility so staff can gather there for team get-togethers and crucial client meetings—or simply because they want to get off the couch for a day.

Theohari says the point is giving people freedom to work where they're most likely to thrive, taking into account domestic circumstances and personality. "Younger team members' experience of working in the pandemic, compared to mine, may be much more negative," he says. He cites, for instance, his own good fortune at being able to spend less time commuting and more time with his family vs. the frustration of people in their 20s, who are more likely to live alone in small apartments. To address that issue, he's hired a workplace coach to help staff talk through problems. "As an employer, you always have a duty to care for your teams," he says. "That's been brought sharply into focus by this."

At Aviva, Harmer envisages that some meetings will require in-person attendance. But many others will become all-remote to mitigate concerns that people who come to the office regularly will be more visible to leaders and will jump to the front of the line for promotions. The increased flexibility, she says, will make it easier for the company to recruit from a wider talent pool. An internal leadership candidate who'd balked at the prospect of a long commute to London recently reconsidered the idea, as she now has the option of traveling to the city when necessary while mostly working from her home in Norwich, in the east of England. And that will ultimately benefit the entire business, Harmer says. "There is a competitive advantage," she says, "in anything that makes employees look at you and go, 'That sounds like a great place to work.'" —*Adam Blenford*

THE BOTTOM LINE While some traditionalists will return to pre-pandemic ways, many companies are embracing—or at least accepting—policies that allow working both at home and in the office, according to employees' needs.

Pfizer deserves every bit of the credit it's receiving. But should a drug company decide who gets a shot?

By Stephanie Baker, Cynthia Koons, and Vernon Silver

VACCINE CAPITALISM

ILLUSTRATION BY CHRIS NOSENZO

It's not every day that a head of government goes to the airport to greet a cargo shipment, but the pandemic has changed many things. On Jan. 10, Israeli Prime Minister Benjamin Netanyahu motorcaded to Ben Gurion International Airport, southeast of Tel Aviv, to watch a shipment of 700,000 vaccine doses from Pfizer Inc. emerge from a blue-and-white El Al Boeing 787-9.

"This is a great day for the state of Israel, with a huge shipment that has arrived," Netanyahu said, exuding a confidence few world leaders have mustered since the crisis began. "I agreed with my friend, Pfizer Chairman and CEO Albert Bourla, that we would bring shipment after shipment and complete the vaccination of the over-16 population in Israel during the month of March."

Bourla had thrown Netanyahu a political lifeline. Faced with surging Covid-19 cases and an election in March, the prime minister latched on to Pfizer's vaccine as his best hope to stay in office. Standing on the tarmac, he bragged that 72% of Israelis over the age of 60 had already been vaccinated, thanks to shipments that began in early December, and that more doses would come soon. That was because he'd struck a deal with Bourla to use his country as a test case for Pfizer's vaccine.

Vaccine distribution still has the feel of a zero-sum game. Five days after Netanyahu's victory lap, Pfizer told other non-U.S. customers that it would cut near-term supplies while it briefly closed its vaccine manufacturing facility in Belgium for an upgrade.

Panic and anger rippled through world capitals, nowhere more so than in Rome. Italy, which has suffered one of the highest Covid death rates and which had successfully set up a mass vaccination program and inoculated more people than any other European Union country, was waiting for new doses when Pfizer announced the cuts. The country's virus emergency czar at the time, Domenico Arcuri, lashed out, complaining that Pfizer had cut its shipments by almost 30% just as Italy was about to start vaccinating people older than 80 en masse. He warned that Italy could take unspecified action against the company.

Days after Arcuri aired his grievances, Pfizer began shipping millions of doses to Israel. Within a week, Israel expanded its rollout to include 16- to 18-year-olds.

"Look, we are very angry," Luca Zaia, president of Italy's Veneto region—one of the areas most affected by Covid, with more than 9,800 deaths—told reporters, sitting in front of EU and Italian flags. He'd recently learned that supplies to his region would be cut 53% for that week. "I want to understand what Nobel Prize winner they paid to organize the distribution, or which principle or algorithm they used."

It didn't come from some algorithm. The vaccine allocation was the product of a company struggling to apportion doses while demand far exceeded supply, using an opaque process that appears to have involved a mix of order size, position in the queue, production forecasts, calls from world leaders, the potential to advance the science, and of course the desire to make a profit. "Everybody wanted [deliveries] in the first quarter, and we tried to allow discussions and negotiations to spread things so everybody would get in an equitable base," Bourla says. The countries that hadn't placed orders wanted a place in line, and those that had placed early orders wanted to buy more. "It was a constant negotiation," he says. "Everybody wanted it of course earlier." Pfizer says the agreement with Israel didn't affect doses going elsewhere.

Israel had two things going for it: Netanyahu had offered to pay roughly $30 a dose, about 50% more than the U.S. government, according to people familiar with the deal. He also agreed to share countrywide data on the vaccine, a two-dose product based on an experimental platform called messenger RNA, or mRNA. It's being used almost exclusively in Israel, in what amounts to a large-scale effectiveness study. (Pfizer considered offering the same arrangement to Iceland, but the country didn't have enough Covid cases to make a study meaningful.) By Feb. 22, Israel had given first doses to 47% of its 9 million people, making it the world leader. Italy, meanwhile, had administered first shots to 3.6% of its citizens.

Health Minister Yuri Edelstein and Netanyahu welcome a shipment of vaccines at Ben Gurion Airport on Jan. 10

Bourla says the agreement with Israel will provide data that will transform the world's understanding of how to end the pandemic. "They are trying to extract the scientific information that the whole world is waiting on right now," he says. "We'll get data on symptomatic and asymptomatic transmission very quickly." Indeed, the news out of Israel on Feb. 24 was remarkable: The vaccine prevented 94% of Covid cases in almost 600,000 vaccinated people.

As the first company to develop an authorized Covid vaccine, which it did in partnership with Germany's BioNTech SE, Pfizer wields enormous power. Bourla had been Pfizer's chief executive officer only a year when the pandemic began and almost immediately faced choices no pharma executive would normally be making. Government policy matters, as does the behavior of individuals, but to some degree vaccine makers determine where infections will decrease and which economies will reopen first. Their customers are elected national leaders who've designed intricate vaccination programs with public-health officials, but those leaders are learning they're at the mercy of what manufacturers such as Pfizer deliver.

In the past few months, Bourla has taken on an almost statesmanlike role, holding calls with heads of state, including former U.S. President Donald Trump, European Commission President Ursula von der Leyen, and Canadian Prime Minister Justin Trudeau. Netanyahu boasted in January that he'd spoken with Bourla 17 times, with the CEO even taking his calls at 2 a.m. Bourla says he's talked to Netanyahu "even more" since then.

Pfizer's first-out-of-the-gate status has also offered Bourla a sales opportunity like none other. He's locked in orders from more than 60 countries on undisclosed commercial terms.

MOTTI MILLROD/REUTERS

Pfizer has supplied 95 million doses globally. It's executing on one of the most ambitious scale-ups in pharmaceutical history to meet the relentless demand, boosting production to 2 billion doses in 2021—more than it has agreements to sell at this stage. It expects the vaccine to generate at least $15 billion in revenue in 2021, putting it—under the brand name Comirnaty, an ungainly blend of "Covid," "mRNA," and "immunity"—on track to be one of the biggest-selling drugs in the world.

There's no rulebook for how a global corporation should behave during a pandemic. Pfizer accomplished something extraordinary, exceeding nearly everyone's hopes, and is now doing what pharma does: mass-marketing lifesaving products at prices the market is willing to pay. It's not bound to serve a global public-health agenda. All that said, there will one day be an autopsy of the pandemic, and a central question might be how a single company came to hold such power over so many.

In May 2020 the Trump administration announced the launch of Operation Warp Speed. Moncef Slaoui, a former GlaxoSmithKline Plc executive, joined as chief adviser to OWS to figure out which vaccines to back. He had an uncommon familiarity with mRNA technology from serving on the board of Moderna Inc., which had spent years researching the platform. No drug using mRNA technology had ever been approved.

Slaoui knew Pfizer might be a contender after it announced its decision to collaborate with BioNTech, another mRNA pioneer, but he didn't know Bourla. When they first spoke, in June 2020, Bourla made it clear he wasn't interested in taking money for research and development as the other companies OWS was evaluating were. Instead, he wanted an advance purchase order from OWS to guarantee a buyer if Pfizer succeeded. The company's $50 billion in annual revenue meant it could afford to take a flier. Bourla has said it wasn't an easy decision, but he felt it liberated scientists from bureaucracy to get faster results. "Albert was very clear that they had what it takes to deliver," Slaoui says.

Pfizer's confidence showed early on. It began marketing the vaccine globally in May, soon after it started safety testing. "The process started in the very early days when we reached out to every single country," Bourla says. "We started discussions in all continents of the world." The U.K. was the first country to do a deal, agreeing on July 20 to buy 30 million doses (later upped to 40 million) to be delivered in 2020 and 2021. As with most of Pfizer's deals with individual countries, the terms were not disclosed.

Pfizer executives found a partial fix to their supply problem in the vaccine vials themselves. They just needed authorization to say the vials contained six doses instead of five

Two days later, Pfizer announced a $1.95 billion order from Operation Warp Speed for 100 million doses, pending authorization of its vaccine from the Food and Drug Administration. The straight advance-purchase order set Pfizer apart from all the other OWS candidates. Moderna, for example, got $2.48 billion from the U.S. government, including $955 million for clinical development and manufacturing and payment for 100 million doses. By contrast, Pfizer has spent $2 billion of its own money on development. Company executives came out of the gate asking for a higher price per dose than the $19.50 they eventually agreed on, according to former senior administration officials who declined to be named because the discussions were confidential.

Higher prices were floated in Europe, too. Last summer, Pfizer and BioNTech started off asking for €54 ($65) a dose in negotiations with the EU, a person familiar with the talks says, confirming German media reports. BioNTech co-founder Ugur Sahin told *Bild* that initial ballpark figures were based on rough calculations of production costs before they figured out how the manufacturing would work. They later settled on a range of €15 to €30 a dose for "industrialized countries," depending on order size.

Free from the strings attached by a government grant, Pfizer could move faster. "We made the early decision to begin clinical work and large-scale manufacturing at our own risk to ensure that product would be available immediately if our clinical trials prove successful," Bourla said when announcing the U.S. deal. Less than a week after securing the U.S. contract, Pfizer started its final-stage trial, saying it aimed to seek regulatory review by the FDA as early as October. Moderna started its final trial the same day, but a longer interval between doses—28 days to Pfizer's 21—meant that, all other things being equal, Pfizer was positioned to report results first.

The orders kept rolling in. A few days after the trial started, Japan ordered 120 million doses to be delivered in the first half of 2021. In early August, Canada made a deal.

In late August, Pfizer shared early data showing that participants generated a strong immune response to the vaccine, and even more countries got in line. In early September the company agreed to "potentially supply" the EU with as many as 300 million doses, but the bloc dragged its feet on finalizing the deal. The Gulf state of Qatar placed an order a few weeks later.

Bourla had been consistently saying the company expected to report results from the final-stage trial by the end of October, which Trump seized on as he sagged in the polls in the homestretch of his reelection campaign. "We're going to have a vaccine very soon. Maybe even before a very special date," Trump said in early September. Concern that Pfizer was rushing the trial at the expense of safety checks mounted. Pushing back at the perception that the Trump administration was pressuring the company, Bourla promised to make safety paramount. "I wanted to speak directly to the billions of people, millions of businesses, and hundreds of governments around the world that are investing their hopes in a safe and effective Covid-19 vaccine," he ▶

◀ said in an open letter. "The vaccine must be proven safe."

Pfizer ruffled feathers with some inside Operation Warp Speed. The company had been pushing for the U.S. government to place an additional order of 100 million doses, but OWS officials were wary. The company was already failing to meet its production targets for November, for reasons that were unclear, according to the former senior administration officials. Pfizer says it kept the government informed about production.

When Pfizer announced the results of its final-stage trial six days after the election, the news was huge: The vaccine was more than 90% effective at preventing Covid symptoms. Slaoui says Bourla called him right before Pfizer issued a news release at 6:45 a.m. on Nov. 9, and he was so excited that he had to refrain from shouting for fear of waking up other guests in his hotel in Washington. Nevertheless, amid the euphoria was some bad news: Pfizer warned that it would be able to produce only 50 million doses worldwide by the end of the year, instead of the 100 million it had projected.

Pfizer was running into major production problems at its 1,300-acre campus in Kalamazoo, Mich., where the company set up a freezer farm the size of a football field to store doses at the required -75C (-103F). Scaling up manufacturing of a new product with a new technology required a steady flow of raw materials. It turned out Pfizer needed the government's help after all. To clear supply chain holdups, company executives were pressing Warp Speed for an order under the Defense Production Act, which would give it priority access to suppliers. Other OWS candidates had been taking advantage of the DPA for months. OWS hesitated. The administration officials say they were worried that Pfizer would use its size and market clout to muscle out Moderna in the supply chain if it got equivalent status under the DPA.

Pfizer's production holdups had a huge impact on the U.S. vaccine rollout. Before the trial results were announced, OWS had been expecting 20 million doses in November and 20 million in December. Instead it got nothing in November and 20 million doses in December, some of them flown in from Pfizer's production site in Belgium, to make up for the gaps from Kalamazoo.

The U.K., which was the first country to authorize the vaccine, on Dec. 2, had been expecting 10 million doses by the end of the year but got about half that. Despite the supply challenges, Pfizer announced right before Christmas that it had agreed to supply the U.S. with another 100 million doses. At the same time, government officials finally agreed to provide the company with priority under the DPA.

In late December a flurry of news stories from the Middle East revealed that Pfizer had contracted to sell millions of doses to countries in previously unreported deals. Dubai got its first doses flown in from Belgium and announced it would aim to inoculate 70% of its 3.3 million people with the Pfizer vaccine. Officials in Saudi Arabia told TV broadcaster Al Arabiya they were expecting 3 million Pfizer doses, with a third of those to be delivered by the end of February. Oman ordered 370,000, paying $30 a shot for early supplies arriving in December and $24 a shot for later shipments, the health minister told a government news outlet. This appeared to be one of the highest prices outside Israel, though lack of disclosure makes it impossible to say for sure.

Pfizer executives found a partial fix to their supply problem in the vaccine vials themselves. They just needed authorization to change the labels to say the vials contained six doses instead of five. It's standard practice in the pharmaceutical industry to overfill vials slightly to avoid running the risk of undershooting and violating FDA labeling laws. Pfizer was overfilling each vial by just enough for an extra dose if vaccinators used what are called low dead-volume syringes.

But not all vaccination sites had the syringes. Moreover, the company's application to the FDA and other regulators specified five-dose vials. Pfizer needed to generate data showing the extra shot could be reliably extracted.

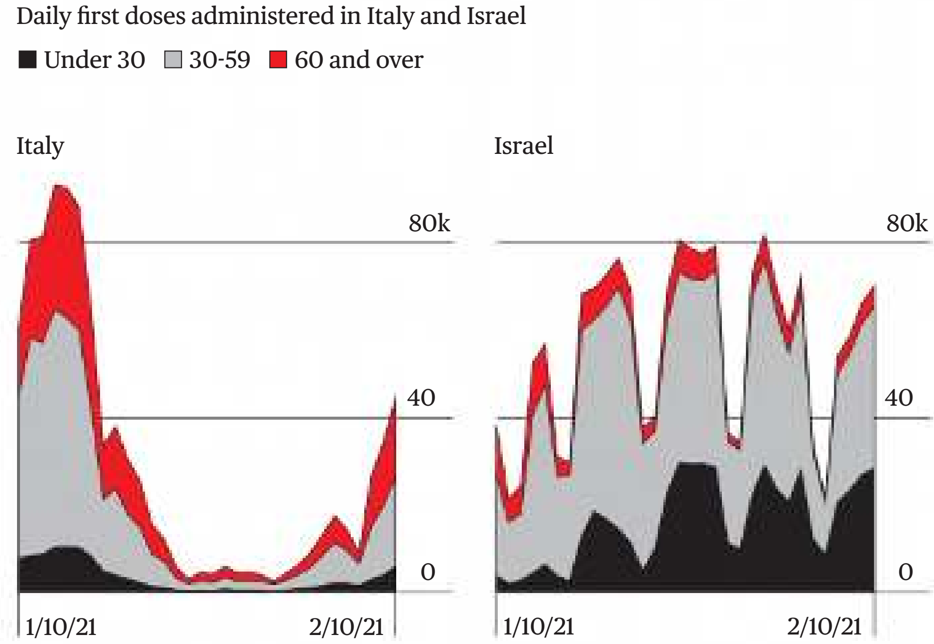
The company did that and then began pressing FDA officials to change the authorization to recognize the sixth dose. OWS officials were against the change, anticipating nightmare logistical implications right when they were starting the biggest mass vaccination campaign in U.S. history, the former senior administration officials say. Pfizer's vaccine needed to be kept at subarctic temperatures—it was already difficult enough to distribute without last-minute rejiggering. (Recently the FDA announced that it can be kept at normal freezer temperatures for up to two weeks.)

The company's lobbying efforts succeeded. On Jan. 6 the FDA revised its fact sheet, allowing the sixth dose and effectively boosting Pfizer's production by 20%. Regulators in Europe, the U.K., and elsewhere followed suit. The U.S. and the U.K. had managed to source the syringes, but other countries were left scrambling. Sweden and Japan complained they didn't have enough special syringes to extract the sixth dose and warned it would likely mean millions of doses would be thrown away. Austria was also short of supplies.

Bourla defended the policy change by saying the company

VACCINE POLITICS

Daily first doses administered in Italy and Israel



DATA: GOVERNMENT REPORTS

> "When there is a suggestion of death and life, when there is a question of the global economy, the demand will always be bigger. You will get complaints"

had validated 36 syringe-needle combinations that could get the extra dose out. "It would be criminal if we can use six doses, and we are throwing away one vaccine that can save lives right now," he told Bloomberg in late January.

The modification was a huge win for Pfizer. The company had promised to supply the U.S. with 100 million doses by the end of the first quarter, and it now says it can provide 120 million. Because nations pay by the dose, the move also delivered an instant 20% price hike per vial.

When Bourla took the helm at Pfizer in January 2019, his mission was to get the company to focus on blockbuster drugs and to fend off a potential battle with the Trump administration over drug pricing. The coronavirus immediately gave him a new focus. Pfizer's little-known partnership with a German biotech turned it into a hero of the pandemic. There was considerable doubt that mRNA vaccines would work, but Bourla's willingness to gamble on the new technology paid off.

While Israel was swimming in Pfizer vaccines in late January, other countries were struggling to find out when their deliveries would resume. On Jan. 8 the EU said it had doubled its order by securing the purchase of another 300 million doses. A week later, Pfizer announced the supply cut and the Belgian shutdown. Within days, it informed officials in Canada—which had recently doubled its order to 40 million shots—that the country would receive no doses the following week. Prime Minister Trudeau spoke with Bourla on Jan. 21, but the call didn't unlock additional supplies. Desperate for doses, he agreed to take vaccines from Covax, the facility backed by the World Health Organization to provide 2 billion doses to low-income countries. Canada was the only Group of Seven country to do so. Opposition politicians accused him of grabbing doses meant for countries that couldn't afford to do bilateral deals.

Bahrain, Dubai, and Saudi Arabia also reported delays in shipments. "Pfizer supply has been a global challenge," Amer Sharif, head of Dubai's Covid-19 Command and Control Centre, told Bloomberg TV. "There have been a lot of discussions with Pfizer representatives in the region." Oman was cut, too. "Do not panic," Ahmed bin Mohammed al-Saidi, Oman's health minister, urged at a press conference on Feb. 1. "We were assured that the next consignment will be here before the middle of this month."

The Gulf states have weathered the delays without major consequences, because their rates of infection are relatively low. Mexico, with surging cases and the world's third-highest number of deaths, has felt Pfizer's supply cut more profoundly. Having agreed in early December to buy 34 million Pfizer doses, the nation started vaccinating in late December, the first country to do so in Latin America. Then Pfizer's shipments stopped for three weeks, until roughly 500,000 doses for health-care workers arrived in mid-February. It hadn't even started vaccinating the elderly. On Feb. 2, Mexican Foreign Minister Marcelo Ebrard criticized Pfizer for holding back doses "that are already signed and paid for."

The world was waiting for Pfizer to retool its sprawling facility, the size of several sports stadiums, on the outskirts of the tiny Belgian town of Puurs. Last year, Pfizer hired several hundred more staff, bringing the total to more than 3,000, as it geared up for production. That wasn't enough to keep up with the crush of orders. The partial closure of the plant lasted almost two weeks.

"When there is a question of death and life, when there is a question of the global economy, the demand will always be bigger," Bourla says. "You will get complaints." Pfizer wasn't alone in cutting supplies to Europe—AstraZeneca Plc later also fell well short on its promised deliveries to the EU—but Europe was relying on the American company to start its rollout. "There's no doubt in my mind that there is anxiety, there is stress, there is pressure," Bourla says. "The voices are becoming louder, and people will try to find the scapegoats."

In the Rome region, the Pfizer cuts delayed the vaccine campaign for people older than 80 by a week, with first shots administered on Feb. 8. The knock-on effect means some of the most vulnerable are waiting until spring to get their first doses. Salvatore Parisi, 94, a retired Rome courthouse clerk, is sheltering at home until his April 3 appointment at a hospital for his first Pfizer shot, with a second dose scheduled for April 24. He's holding out hope that doses might become available sooner at his family doctor's office. "Every week we call. 'Is there something new?' 'No, no,' " he says via telephone to questions relayed by his 79-year-old wife, Maria Sinibaldi, because his hearing isn't what it once was. "I'm a little scared but not too angry. I'm just waiting for a call from my doctor."

The EU had developed a strategy of pooling vaccine procurement across the 27 member states. It signed supply deals with six vaccine developers. With Pfizer, the European Commission agreed to a framework for supplying countries quarterly, leaving week-to-week decisions to the company and each nation, says Stefan de Keersmaecker, a commission spokesman. When Pfizer made its cuts in January, that arrangement led to a patchwork of supply gaps across the Continent, which caused anger to mount against the drugmaker. A Pfizer spokeswoman said the cuts were made with the understanding that the Belgian factory revamp would lead to "significantly increased volumes" before the end of March.

EU member states also agreed not to negotiate bilateral agreements with drug companies. That didn't stop Germany from striking a separate preliminary agreement with BioNTech for 30 million doses, after it gave the company a €375 million ▶

grant in September. (Pfizer is not party to that agreement.) The EC says it hasn't seen Germany's deal, which hasn't been finalized. "Parallel negotiations aren't allowed in our vaccine strategy," De Keersmaecker says. "Legally it's not allowed."

German Chancellor Angela Merkel tried to defuse Europe's vaccine crisis by holding a videoconference with commission officials and drugmakers including Pfizer executives on Feb. 1. Pfizer says it got back on schedule with the EU at the end of January. Bourla says countries started getting more doses by late February.

Striking deals and mass-producing a new vaccine in the middle of a pandemic was never going to be straightforward. "This is the fastest any vaccine has been approved and rolled out, the fastest any vaccine has been mass-administered to people, the fastest response to a pandemic, and probably the fastest manufacturing ramp-up ever," says Jonathan Miller, an analyst at Evercore ISI. "I don't think this could have gone much faster than it did."

Public-health officials have warned that rich countries making deals with companies such as Pfizer will restrict access to the vaccine for those who can't afford price-is-no-object deals. In January, WHO Director-General Tedros Ghebreyesus criticized bilateral deals and implored high-income countries to share doses, warning that "the world is on the brink of a catastrophic moral failure." It wasn't until the end of that month that Bourla announced an agreement with Covax. The deal, for 40 million doses, represented less than 2% of Pfizer's projected 2021 production. Other vaccine developers have come in bigger. AstraZeneca has committed 170 million doses of its vaccine, while the Serum Institute of India Pvt Ltd. has agreed to supply 1.1 billion doses of its versions of the AstraZeneca shot and another vaccine developed by the American company Novavax Inc., pending authorization. Covax is also finalizing commitments for hundreds of millions of additional doses from Johnson & Johnson and Novavax.

No one in public health says the current global rollout of Covid vaccines is the best way to beat the pandemic. "In an ideal world, what we would have had is one global mechanism where manufacturers would have said, 'We're all going to supply one entity,' and governments said, 'We're all going to procure through one entity,'" says Katherine O'Brien, the WHO's technical lead on Covax. "It makes much more sense."

Bourla, of course, doesn't run a public-health agency. He answers to his shareholders. Locking in orders early, sometimes at a higher price for those that can afford to pay more, is what a CEO does. Pfizer has said it expects initial profit margins in the upper 20% range, which is high for a vaccine. Moderna has charged more for its shot outside the U.S., but its limited manufacturing capacity means it's done a fraction of the deals Pfizer has, with most deliveries expected only in the spring. AstraZeneca has struck dozens of bilateral agreements, but it's promised not to make a profit during the pandemic; it's selling its shot for a few dollars a dose. If there's a challenger to Pfizer's primacy, it might be the recently authorized vaccine from Johnson & Johnson, which is highly effective, requires simple refrigeration, and is administered in a single shot.

For now, though, Pfizer has unparalleled brand awareness, even if "Comirnaty" doesn't quite roll off the tongue. (The name might not even be used in the U.S.; brand names are established only after full FDA approval.) In late February, President Joe Biden toured Pfizer's Michigan plant and reassured the public that the government is working overtime to get everyone vaccinated. To meet the challenge, Pfizer is continuing to increase production. The company now expects to be able to ship 13 million doses a week by mid-March, up from 4 million to 5 million a week in early February.

Speaking with investors and analysts after releasing earnings results in January, Bourla and other Pfizer executives talked expansively about a post-pandemic world in which the company would be able to charge more for the vaccine. Vaccine prices are normally about $150 to $175, said Chief Financial Officer Frank D'Amelio. "We're in a pandemic pricing environment," he said. "Obviously we're going to get more on price."

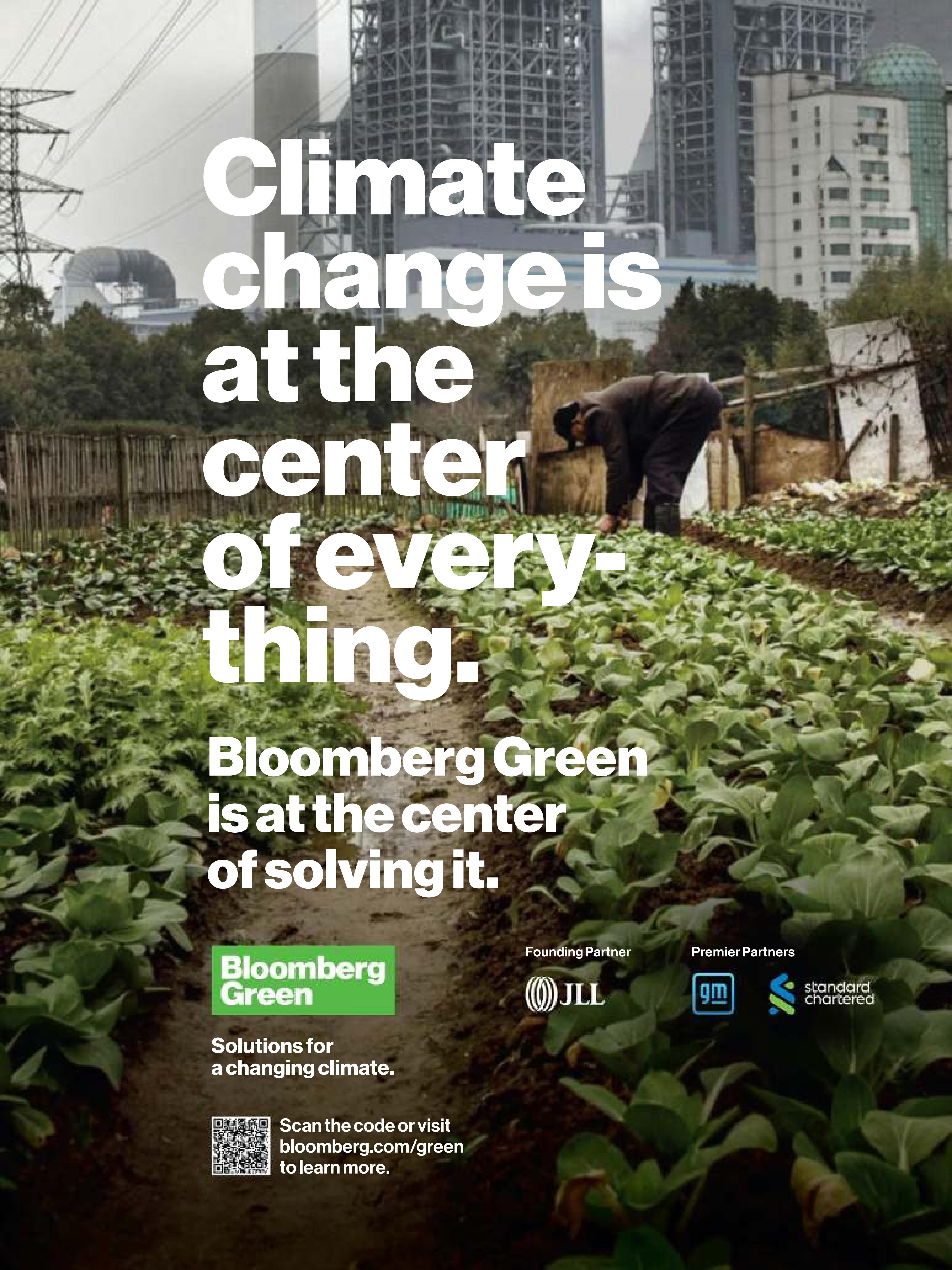
With new variants of the coronavirus spreading, the need for regular booster shots is highly likely. Pfizer is working on a new vaccine that can target the South African mutation of the virus, which may infect some people who've been vaccinated. The prospect of the world's population of almost 8 billion needing boosters puts Covid vaccines into an entirely new league. Pfizer expects to be able to make its vaccine easier to store and ship—it's working on a freeze-dried version. The company is preparing for what Bourla calls an "open market" in which supplies are plentiful and people can choose which vaccine they want.

President Biden tours Pfizer's vaccine plant in Michigan in late February

"I would feel very comfortable that we will have the lion's share of the market, because we are first and we are best," Bourla said on his earnings call. "In scenarios that Covid will move from a pandemic into more of a normal type of vaccination business, it is very clear that Pfizer will have a key advantage, not only because of the strength of data but also because we have developed significant brand equity and trust with the people."

The shortage will eventually subside. Until then, Bourla occupies a strange position. He's a savior, the bold leader of a company that stepped up. But he promised desperate governments doses he couldn't deliver on time. As supplies increase, hard feelings may fade, but Bourla's decisions during the height of the pandemic will be the subject of study. There was a vacuum in global leadership. He and his company filled it. The world needs better solutions before the next public-health crisis comes around. Ⓑ —*With Ivan Levingston, Sylvia Westall, and Naomi Kresge*

EVAN VUCCI/AP PHOTO


Climate change is at the center of every-thing.
Bloomberg Green is at the center of solving it.
Bloomberg Green
Solutions for a changing climate.
Scan the code or visit bloomberg.com/green to learn more.
Founding Partner
JLL
Premier Partners
gm
standard chartered

WHO GUARDS THE GUARDS?

THE PEOPLE ASKED TO ENFORCE COVID SAFETY RULES PUT UP WITH LOW PAY, MINIMAL TRAINING, AND SOME DANGEROUSLY ANGRY CUSTOMERS

BY POLLY MOSENDZ, KIM BHASIN, AND ANDERS MELIN
PHOTOGRAPHS BY RACHEL BUJALSKI

One Sunday last May, Karmen Kolda arrived early for his 11 a.m. shift as a security guard at a medical marijuana dispensary southeast of downtown San Jose. He'd made the 30-mile commute from his home in San Mateo wearing his usual all-black gear, with "SECURITY" printed on the back of his shirt. Kolda, who's employed by Genesis Private Security in San Jose, spent the day checking IDs and reminding customers to stay 6 feet apart and wear face masks. A little after 3 p.m., he heard a commotion. A man without a face covering was yelling at a clerk who'd asked that he put one on. Kolda stepped in and told the man to calm down or get out. The customer got in his face, cursed at him, and shoved him hard in the chest, sending Kolda—5 feet 9 inches, 190 pounds—into a display case. The attacker fled, and staff called the police.

After four days in the hospital with a fractured vertebra, Kolda went home. He says he spent three months partially confined to a recliner and had to sleep on his side to relieve his back pain. It wasn't until Labor Day that he could even move around without a walker. His doctor told him the injuries could have been worse had he not been wearing the ballistic vest his wife got him for Christmas. "Most security officers are really nice," says Kolda, 49, who's been in the industry since leaving the Army in 1994. "We're trying to survive through this pandemic as well."

It's hard to know how many of the industry's roughly 1.2 million employees have faced anything like what Kolda did. There are no national numbers on incidents involving guards trying to enforce pandemic protocols. But there have been reports of violence across the country. Two days before Kolda's back was broken, Calvin Munerlyn, a guard at a Family Dollar in Flint, Mich., told a customer to leave because her daughter wasn't wearing a mask. They argued, and the woman left, returning with two men to confront him 20 minutes later. One shot Munerlyn in the back of the head, police said, killing him. The three were charged with first-degree murder.

In July a guard in Gardena, Calif., got into a fight with a maskless man who entered a grocery store while waiting for a tow truck. The guard allegedly shot and killed the man, and he was arrested on murder charges. The next month in St. Louis, three maskless men beat and badly bruised a guard who'd told them to leave a Shell gas station, according to authorities. The guard shot one of the men, who was hospitalized. (The other two fled.) And in December, two men were charged with attempted murder after shooting up a strip club in Anaheim, Calif.; they had been asked to leave for not wearing masks. At least three people were injured, said the district attorney.

It's also unclear to what extent Covid-19 itself is killing Americans in the profession, because the U.S. doesn't keep data on this either. In the U.K., however, male security guards die from the disease at some of the highest rates of any job, with 100.7 deaths per 100,000 workers from March to December, according to the Office for National Statistics.

Even though the pandemic has devastated the service economy, security work is now one of the stabler paths to a paycheck. Retailers are spending on guards, despite the economic downturn, to assure compliance with coronavirus safety regulations. The job is often a dull one, performed by contract without benefits, usually for about $15 an hour. In 2019, guards earned a median annual wage of $29,680, according to the U.S. Bureau of Labor Statistics. In the pandemic era, some jobs now advertise health benefits and above-average wages. Allied Universal Security Services LLC, based in Conshohocken, Pa., says it pays some guards as much as $25 an hour, or $52,000 annually, to ensure it can fill jobs that require certain skills or are in competitive markets.

One certainty is that the industry is in a hiring blitz. Since last March, Allied has signed up 105,000 people, a spokesperson says. It's looking to hire an additional 30,000 by April. Allied's moves alone have increased the size of the field by more than 10% in less than a year. Many of these new security workers now find themselves at the center of a culture war over mask-wearing.

Allied has been holding 60 to 70 drive-through hiring events each week, from Jacksonville, Fla., to the San Fernando Valley in California, as well as conducting interviews online. In the months after Covid's appearance in the U.S., the company quickly hired 30,000 guards for retailers, as well as hospitals and office buildings that wanted to make sure they were following safety protocols.

At a business park off Interstate 88 in Naperville, Ill., dozens of cars rolled up to a tent in late May. The interviewees, many dressed in suits crumpled during commutes, lined up in their vehicles and moved from the tent to two others. At the first tent, organizers provided information about the role and the hiring process. (Armed guards are hired at separate events.) At the second, applicants provided their name and a brief work history; at the third, they learned about the next steps. The interview took five to seven minutes.

Kelly Taylor, Allied's Midwest recruiting director, said her team had been told to hire 600 people in 60 days at four Chicago-area enrollment sites. (Taylor, who's no longer with the company, exceeded her goal, making 681 hires, according to the spokesperson.) She put ads on TV, Facebook, LinkedIn, and CareerBuilder. "Being outdoors in the fresh air makes people feel safer," she says. The company wanted to hire 45 people in three hours in Naperville, but it signed up only 22. Later, the new employees went through a background check, drug screening, and a 20-hour training course. Those who weren't hired typically hadn't been able to agree on pay or job location.

The hiring is fueled by big-box retailers, other national chains, and grocery stores, which don't want their untrained employees enforcing mask-wearing and social distancing. After altercations between shoppers and staff over compliance became a regular occurrence, the United Food and Commercial Workers International Union, which ▶

A guard at the Westfield San Francisco Centre

◀ represents 1.3 million retail employees in the U.S. and Canada, asked retailers to institute safety measures that included hiring guards. In addition to Allied, Securitas AB, based in Stockholm, hired 10,000 guards for the U.S. market by July, then announced it needed another hiring round to meet demand. G4S USA, with headquarters in Jupiter, Fla., hired 15,000 last summer.

In pre-pandemic times, security guards' main concerns were signing visitors into buildings, directing delivery workers, scolding mischievous teens, and trying to stop theft ("loss prevention," to use the industry term). A guard in Pittsburgh who makes $11.30 an hour and declined to be named because he didn't have permission from his employer to speak to the news media, says that he's the human equivalent of yellow lines on the highway—or a traffic cone with legs. In some job descriptions, Allied says individuals may need to lift or carry up to 40 pounds; work in rain, snow, cold, or heat; climb stairs, ramps, or ladders; and stand or walk for long periods. They also may need to operate a Segway (which can weigh as much as 250 pounds), which is what actor Kevin James rides in the 2009 comedy *Paul Blart: Mall Cop*.

Between being a punchline, missing out on the union benefits and protections that some retail staff get, and the jobs being readily available, industry turnover is high. For many, it's a temporary gig to supplement income for, say, paying off a medical bill. It's a way for former police officers to earn money after leaving the force, and the profession attracts ex-military members, such as Kolda, too. New guards are constantly rotated into stores, often with limited institutional knowledge.

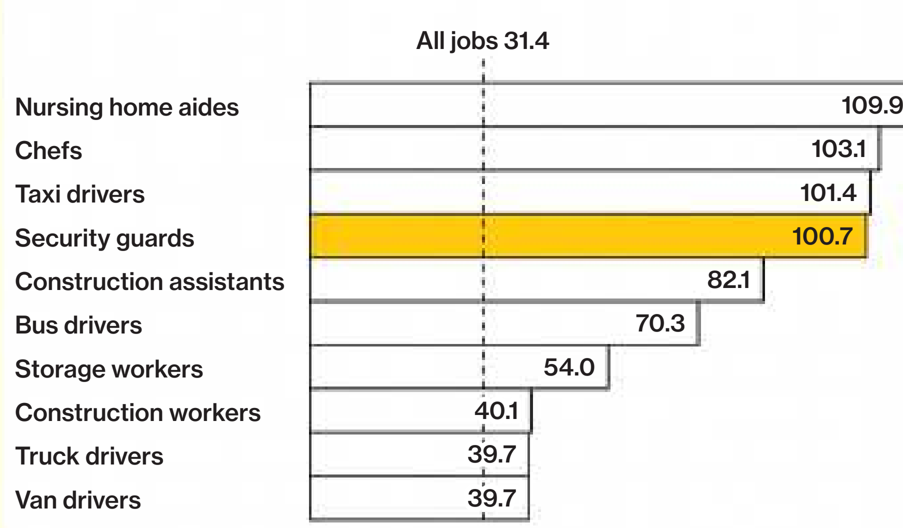
In the Covid era, guards are expected to act as public-health officials, in addition to law enforcement, without having the authority and often the experience of either. They're even being trained to secure testing sites, including recording temperatures. Recently, in Long Island City, N.Y., an Allied guard stood at the door of a CityMD clinic, turning away people without appointments. Most visitors just left, but occasionally someone would raise a ruckus: "What do you mean I can't come in? There's no line!" a woman yelled, her mask down under her chin. "You have to come back tomorrow," the guard responded, over and over. "You have to come back tomorrow."

The major companies train guards to de-escalate situations like this, but some smaller ones don't. Generally speaking, guards say that training focuses on what they can't do—which is most things, including making physical contact. As the Pittsburgh guard says, people look at you as if you have either no power or all the power. Simon Property Group Inc., the largest mall operator in the U.S. with more than 200 facilities in 37 states and Puerto Rico, had guards read statements to patrons entering malls when they started to reopen in May. They continue to promote "healthy shopper habits," such as encouraging customers to socially distance and suggesting that people with fevers go home. Simon properties offer temperature screenings with infrared thermometers, but they're not mandatory for entrance. Some guards who do this kind of work say they're performing "security theater." But that doesn't mean it isn't dangerous.

Tension around mask-wearing has risen in part because rules vary by state, county, and city, a legacy of former President Trump's decision to delegate Covid-related policy to governors. (President Biden has signed executive orders mandating masks on federal property and during air

A Hazardous Job

Covid-related deaths per 100,000 male workers, March-December 2020



FOR WORKERS AGE 20-64. DATA: U.K. OFFICE FOR NATIONAL STATISTICS

Kolda at home

travel.) In Missouri, for example, there's no statewide mask order, but St. Louis County has one, even as enforcement varies. A customer at the Saint Louis Galleria in the central Richmond Heights area will have to put one on to enter and browse because guards will enforce the policy and enlist local police as backup if need be. At the Chesterfield Mall, about a 15-minute drive west, there's also a mask mandate, but local police have said they won't enforce it. Still, if a guard there asks someone to put on a mask and the customer refuses, the mall can ask the customer to leave. Refusing to do so would mean that person is trespassing, and the cops would come to deal with that. Of course, enforcement discrepancies aren't the only complications. Anti-maskers, who think face-covering mandates violate their freedoms, or Covid hoaxers, who traffic in unfounded virus-related conspiracies, sometimes show up specifically to cause a scene.

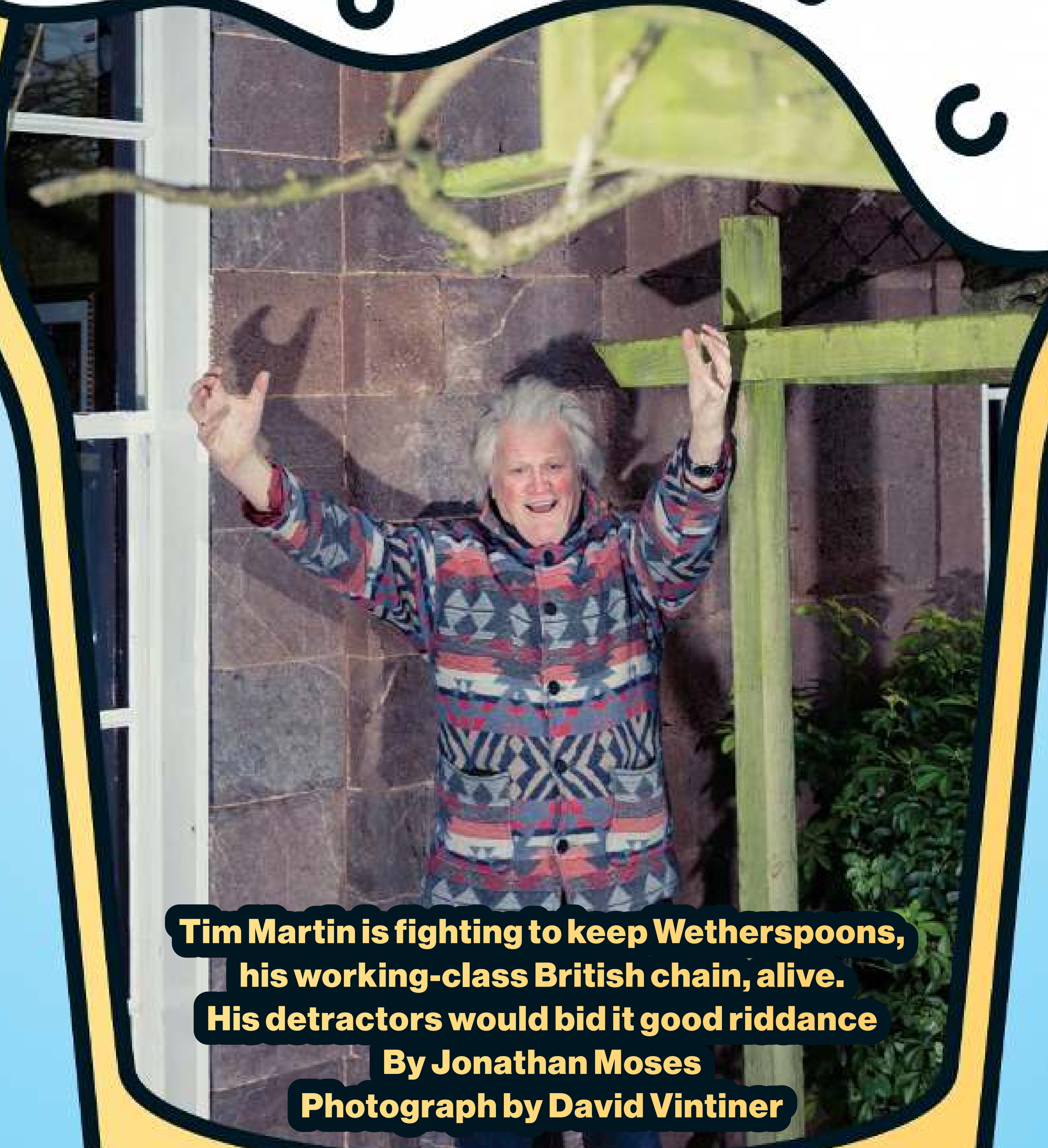
Violence occurs because "everybody's nerves are frayed," says James Keenan, a former New York City police officer who consults for security companies. "People don't know if their jobs are going to be left. They may have lost a relative or a friend. You can't see your favorite sports team, go to a bar and slam a drink, or go hike in your favorite park. Some people just can't see the end of it. And then here's Joe Mall Cop saying you can't come in unless you have a mask on. 'Well, f--- you!'"

Another incident in Flint—this one a five-minute drive from the dollar store where Munerlyn was killed—turned violent when a customer attacked a security guard who wouldn't let him inside the Carpenter Road Superette. The guard shot the customer in the ankle, police said. In Los Angeles, two men scuffled with staff after being escorted out of a Target for not wearing masks. Video footage shows a guard getting slammed to the floor. (He suffered a broken arm.)

Attacks with a weapon can be charged as aggravated assaults, punishable by hefty sentences. In Illinois, Governor J.B. Pritzker signed a law in August that makes assaulting a worker trying to enforce Covid-related rules, even without a weapon, a felony that can lead to up to 10 years in prison and a $25,000 fine. The same month, a Democratic state senator in Pennsylvania introduced legislation to upgrade to a felony the assault of any employee enforcing mask and social distancing requirements.

There's been no justice for Karmen Kolda. Law enforcement passed out flyers with the attacker's picture but came up empty. He says he still feels pain when rolling out of bed some mornings. He's lost 40 pounds, is 3 inches shorter than he was before the assault, and has a permanent, 2-degree forward tilt. He says his employer, Genesis, covered his medical bills and paid his salary while he was recovering. He's back at work now because he was bored at home. "No doubts," he says, "no reservations." B —*With Alyce Andres*

GOD SAVE MY PUBS



Tim Martin is fighting to keep Wetherspoons, his working-class British chain, alive. His detractors would bid it good riddance

By Jonathan Moses

Photograph by David Vintiner

Late one evening last March, Tim Martin, founder and chairman of JD Wetherspoon Plc, Britain's highest-profile pub chain, descended to his basement to record a video message for his staff of 43,000. It had been a bad week. Cases of the novel coronavirus were surging across the U.K., racing far ahead of the National Health Service's ability to cope. Desperate to stop the spread, Prime Minister Boris Johnson's government had ordered all bars to close. The decision was without precedent; Britain's pubs stayed open even during the Blitz.

In the grainy video, recorded on a phone camera, Martin did his best to sound reassuring. "I'm very sorry about the situation that has occurred with our pubs," he said, clutching a mug of tea decorated with what looked like woodland sprites. "It puts everyone in a very difficult position, and I know you're all sitting there wondering what the hell is happening." What he said next wouldn't exactly put Wetherspoons employees at ease. There was "no money coming through the tills," and government checks that would temporarily cover as much as 80% of wages for furloughed workers weren't yet in the mail: "They'll probably be pretty slow paying it, so there may be some delays, for which I apologize." For those who "didn't want to wait around," he continued, "we'll give you first preference if you want to come back." There were jobs available at supermarkets, he noted. "Deeply appreciate your work," he signed off. "Best of luck!"

The national reaction was furious. "Tim Martin tells his 40,000 staff to go to work at Tesco," read a typical headline. Ninety members of Parliament signed an open letter denouncing the company, which had revenue of £1.8 billion ($2.5 billion) in 2019, and demanding that Martin guarantee wages. In responding to the uproar, he and Wetherspoons were adamant that they'd never said workers wouldn't be paid, and they rapidly announced that 80% of all salaries would be covered, in line with the government's furlough scheme. But whatever their original intentions, the damage was done. Once-loyal customers declared on radio call-in shows that they'd never return. When pubs reopened in early July, some drinkers relied on an app called Neverspoons to direct them to independent establishments instead. It was downloaded 18,000 times the first week it was available.

In many towns, avoiding Wetherspoons is no easy feat. Since it was established in 1979, its core competence has been expansion, even as the overall number of pubs in the U.K. has declined sharply. Virtually no town center or city neighborhood is without at least one Wetherspoons, with nearly 900 spread across the U.K. and the Republic of Ireland. They often occupy some of the finest buildings around—*fin de siècle* opera houses, art deco cinemas, old winter gardens, and towering Georgian corn exchanges, all repurposed to sell beer for as little as £1.29 a pint. They also manage to accommodate everyone, playing host to drunken students while remaining places you might take your grandmother for tea. They're loved and loathed, sometimes by the same people, at once a national treasure and an embarrassment. Wetherspoons is so ubiquitous that, after pro-European Union campaigners vowed to stay away in protest of Martin's advocacy for Brexit, the humor site the *Daily Mash* called it "impossible to boycott."

Things have been dire for Wetherspoons since the uproar over the video, though. In October the company reported a £105 million pretax loss, its first time in the red since 1984. Even after the reopening, it said, sales were 15% lower than a year earlier. Then came another burst of Covid-19 cases and a second national lockdown, which gave way to a dense thicket of new regulations. By November, most of Northern England was at Tier 3, the highest level of Covid precautions, requiring pubs to close. By mid-December, London and large swaths of the southeast were there, too. On Jan. 5 came a third national lockdown.

The latest wave of closures represents an existential threat to the entire British pub trade, which is thought to contribute more than £23 billion to the economy each year and more than £12 billion in tax revenue. And while vaccines, which the U.K. has been distributing more rapidly than almost any other country, promise to end the acute phase of the pandemic, Covid's potential long-term effects—fewer office workers to fill pubs at day's end, for example—could create a world considerably less hospitable to a business that can't move its relationship with customers online.

Over its 40-year history, Wetherspoons has become an avatar for a low-wage, low-cost economy, sacrificing worker pay for affordable prices and leveraging its scale to beat out smaller competitors. Now the chain finds itself standing alongside its rivals in a new position: unsure about what political leaders will do next to control a virus that's changing form and still spreading rapidly; about what the exit from the common market will mean in practice; and, above all, about who will bear the cost.

For much of the postwar era, Britain's pub industry was dominated by a group of brewers known as the Big Six. Their network of company-owned pubs stretched across the country, selling predictable beer churned out at vast factories. Their executives spoke with plummy, upper-class accents and dressed in neat, prim suits. Their enterprises were little loved, despite periodic attempts at quirky, themed redesigns, but their grip on the industry seemed unbreakable.

Martin bought his first pub in 1979. As a child he'd attended boarding school while his father worked as a marketing director in Malaysia for Guinness. After qualifying as a barrister, he never practiced; instead he bought the pub, in the north London suburb of Muswell Hill. Martin renamed it Wetherspoons, after a former teacher, the following year. He'd soon add more north London locations.

Margaret Thatcher's first election victory was also in 1979, and Martin's rise partly mirrored the prime minister's. A recession followed her win, and Martin took advantage of a beer supply surplus to secure cheap contracts and offer lower prices at the bar. His pubs sold "real ale," a traditional beer—marked by the presence of live yeast and dispensed without added carbon dioxide—that's brewed regionally, in contrast to the increasingly standardized offerings of the Big Six. And where the pubs of the megabrewers would get ▶

◀ ever more generic makeovers, Wetherspoons worked to seem sui generis.

The chain expanded quickly, aided by Thatcher's economic reforms. Her government liberalized urban planning rules, allowing Wetherspoons to set up shop in unorthodox buildings. A former town hall, for example, could be converted to a pub far larger than a traditional venue, allowing Martin to create economies of scale that pushed prices lower still. By the late 1980s, Wetherspoons had established itself as a respectable competitor to the giants, with more than 30 pubs to its name.

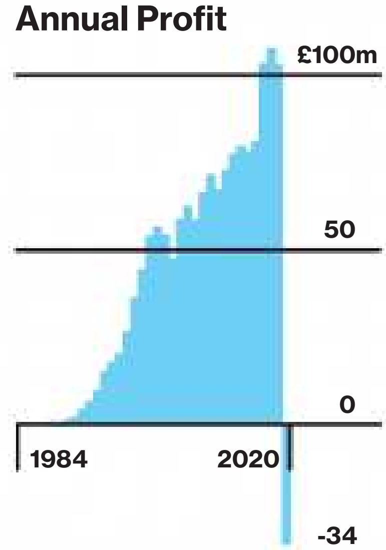
In 1989, Thatcher's government passed legislation known as the Beer Orders. It barred brewers from owning more than 2,000 pubs, sparking a selloff that transformed the industry and gutted the power of the Big Six, most of which were eventually absorbed into foreign-owned brewing groups. With the stranglehold broken, and with fresh capital coming in from an initial public offering in 1992, Wetherspoons grew and grew. It had 50 pubs by the end of the year it went public. Within two more years it had 100; within five, 200. By 1998 the company was opening 100 pubs a year.

Wetherspoons imitated the ambitions of the Big Six but learned from their mistakes, avoiding identikit branding and departures from traditional pub décor. No two of its pubs were quite the same, even in their choice of floor covering, with each location getting a unique carpet design. These have since become famous, inspiring their own popular book, *Spoon's Carpets: An Appreciation*, by the writer Kit Caless, appealing to those who hold that the aroma of beer-stained fiber is a sure indicator of a proper British pub.

Such touches belied a more corporate reality. Unlike traditional pubs, Wetherspoons divided its venues into gridlike seating plans, with relatively private booths and ample table seating that kept patrons with their own groups and reduced the frequency of chance interactions. Staff were as likely to be from Warsaw or Sofia as Wiltshire or Suffolk; Martin was among the first British executives to hire workers from new EU member states, bringing in young people willing to work for just above minimum wage.

As he became more successful, he got involved in national life. A lifelong skeptic of the EU despite his reliance on European workers, he began in the 1990s to push for Britain to prune its ties with Brussels, then to sever them entirely. In 2012, after Prime Minister David Cameron blocked the U.K. from signing on to a new EU treaty intended to deepen integration among member states, Martin distributed a celebratory "Veto Ale" in every Wetherspoons. In the runup to the Brexit referendum four years later, he had almost 2 million paper beer mats printed with anti-EU messages, further backed by articles in *Wetherspoon* magazine (now called *Wetherspoon News*), which is distributed free across the chain. And after the first withdrawal agreement failed to win support in Parliament, Martin upped the ante, touring pubs to promote the benefits of a no-deal exit. The company even created stunt menus, promising that its drinks would be cheaper if the U.K. crashed out of the bloc without a trade agreement. (The truth is almost certainly the opposite.)

Wetherspoons' Annual Profit



DATA: JD WETHERSPOON

This tireless advocacy—combined with labor practices that included low wages and, until 2016, so-called zero-hours contracts that kept many staff uncertain of their schedules, and therefore their income—made Martin the bane of many progressives. He said he was simply channeling the interests of the broad middle of society, positioning himself as a tribune of ordinary people. Political leaders from a "narrow and privileged background," he wrote in *Wetherspoon* magazine, "think they know better than the man, or woman, in the pub." The EU, he added, was their way of taking control from "the great unwashed British public, with its interfering courts, aggressive and intruding press, and cantankerous population."

He's adopted a similar posture—the voice of reason countering the whims of meddling bureaucrats—when it comes to coronavirus measures. "The rules have constantly changed, without consultation, on an arbitrary basis, causing mayhem, unemployment, and economic dislocation," Martin said in a recent article. "No one in government seems to have any experience of running a business."

I met Martin in October along London's Baker Street, at an ornate Wetherspoons situated in a former railway ticket hall and decorated with Roman-style columns. It was between lockdowns, but the pandemic had left its mark on the pub: A bouncer guarded the hand sanitizer, and the clientele were spaced apart or kept separate by plexiglass screens. Five days earlier, the company had announced its £105 million loss. Martin, who's usually ebullient and feisty, was noticeably downbeat. "Losing a hundred million, the novelty of that will wear off quite fast," he said in his distinctive, loping voice. "Since last Thursday we've had lockdown announced in Wales, we've had Tier 2 in London and Manchester and South Yorkshire."

The March video incident still weighed on him, too. "I made slightly loose language, and it was a very strange example of, if there's a certain mood, how things can get," he said. Would he clarify, I asked, whether the company had always intended to bridge staff payments? "I'm not even going to go there," he replied. "The interpretation in the press was total bollocks. And all our staff got paid, and they always have been. And there are hundreds of thousands out of work who haven't been." (Wetherspoons remains sensitive about the issue. Well before this story was published, *Bloomberg Businessweek* received a letter from the company's legal department saying it would be "untrue and defamatory" to repeat claims it didn't intend to pay staff until government support kicked in.)

Despite the ongoing blows to his business, Martin was trying to maintain Wetherspoons' usual standards. His approach to management owes some inspiration to Walmart Inc. founder Sam Walton, who held that successful empires

“Losing a hundred million, the novelty of that will wear off quite fast”

are built on small, incremental changes. Martin pulled out his phone to show me a series of captioned photos from his spot checks, noting peeling paint, untended flower baskets, and a front door that had been pinned back too far, letting in cold air.

Even the most assiduous management, however, may not be enough to surmount the challenges the industry faces. The pub might be among the most potent symbols of British, and particularly English, life, but that doesn’t make it invulnerable to shifting consumer tastes. Already before the coronavirus, more than 1,000 pubs were closing annually in Britain, victims of high tax rates, extractive ownership models, competition from scale operators such as Wetherspoons and supermarkets, and a steady reduction in alcohol consumption.

The pandemic has compounded these factors, creating a storm for operators large and small. Wetherspoons estimates it will lose £14 million every month its pubs are closed. In November the British Beer & Pub Association warned that, without support, as many as 12,000 pubs could be forced to shut permanently. “I don’t think we’ll do as well if there aren’t independents around,” Martin said. “There has been quite a lot of clusters of restaurants and bars which have opened near us, and we always seem to do better when they’re there. I don’t think we’re looking for a monoculture.… That would be a rather sad country.”

He didn’t intend to let the changing landscape compromise his focus, however. Keeping up the basics, he maintained, would help bring customers back. At one point during our interview, he unfolded his gangly frame from the table and went to the bar to complain that his tea had been served without the bag. “You always get tea with the tea bag left in and a spoon.” A waitress arrived a few minutes later with a fresh cup, this time forgetting to bring a saucer. Martin sent her back again. It came across as rather precious, if not mildly tyrannical, until I remembered my own annoyance, 10 minutes earlier, at having nowhere to place my tea bag. The details do matter.

Whether Wetherspoons’ business model abides in the post-Covid, post-Brexit age remains to be seen. Even before the virus struck, the company was being criticized for its role as a pioneer of precarious, minimally compensated work arrangements. Just a couple of years ago, in 2018, it saw its first strike, by a group from a Brighton Wetherspoons, who wrote that they were “forced to work as fast as we can for long shifts with barely any breaks, even when we’re sick or injured. We’ve seen the people we work with struggling to make ends meet, sofa surfing and scraping by.” Britain’s Labour Party, which has been neck and neck in opinion polls with the ruling Conservatives, has pledged to take aim at “structural flaws” in the economy, such as low pay and insecurity, that are rife across the hospitality sector—changes that could chip away at Wetherspoons’ model of cheap beer served by poorly compensated workers. Meanwhile, Britain’s exit from the EU makes it less likely those workers will be found outside the U.K.’s borders. Martin may be in favor of immigration, but he’s a lone voice among his fellow Brexiteers, for whom Brexit and tight border controls are synonymous.

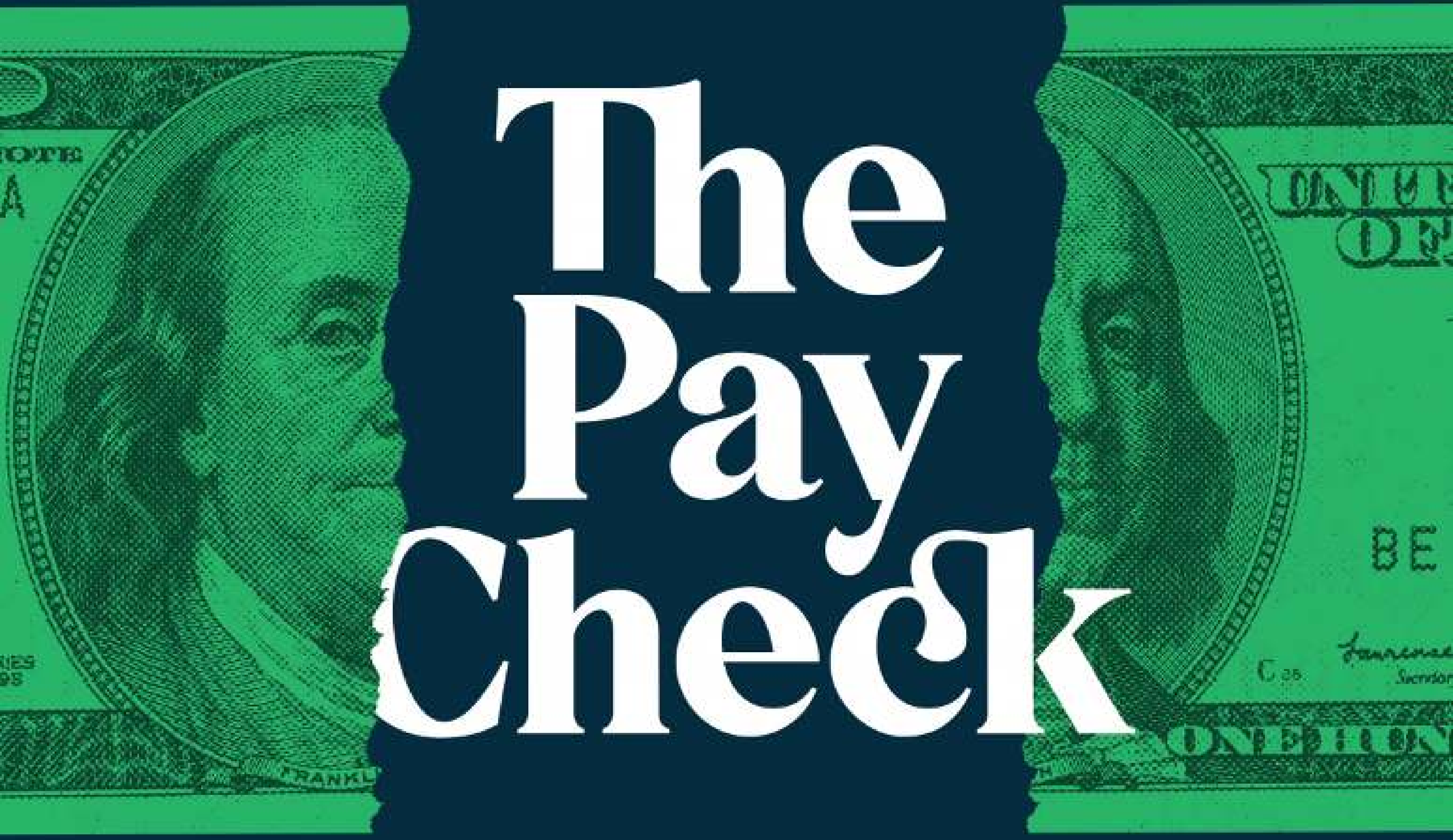
Even when business is good, life behind a Wetherspoons bar can be difficult. One day last fall, I met Michael Chessum, a former employee who’d become an anti-Brexit activist, in a Wetherspoons near Tower Bridge. Despite the grandeur of the setting, the pub wasn’t one of the chain’s finest, with a low ceiling, garish lighting, and an awkward layout combining to create an oppressive, claustrophobic feel. Yet even with the recent rise in Covid cases across the capital, the place was packed. Apart from the absence of a line at the bar—only table service was permitted, to prevent crowds forming—it felt strikingly similar to earlier times.

Chessum and I found the only spot left to sit, on high stools by the dead zone around the bar. He was skeptical of my order, a steak and ale pie. “I don’t know what they’ve cooked your pie in,” he said. (A Mealstream combi oven, according to the company.) Chessum had been hired as a kitchen hand in 2015. He recalled the pay being poor—just above minimum wage, with tiny increments between different job titles. (Wetherspoons says it supplements its wages with bonuses and share distributions.) Visits from Martin were a source of considerable anxiety for managers, who were “visibly scared of him.” Chessum left after six months, unable to make a living.

Low wages were part of a kind of unvirtuous circle, helping to make Wetherspoons one of the only affordable places left for other poorly paid workers to go out for drinks. This dynamic spoke to why Chessum had fond memories of his time there, despite his experience as an employee. His pub had been small and uncharacteristically intimate, a last redoubt of working-class drinkers in Stroud Green, a fast-gentrifying part of London. He and his colleagues took pride in getting to know the regulars. There was Toothless Sue, a vulnerable pensioner whom staff would occasionally help look for when she went missing. Busta Crime, who was fond of skirting the law. A man known as Where There’s Muck There’s Money, his catchphrase—“because he’d made his fortune dealing with animal filth or something.” A dissolute academic who’d sit with a bottle of beer, a double Glenmorangie, and an iPad—“usually nature documentaries.” A clique of intellectuals who included a member of the Communist Party of Great Britain (Marxist-Leninist), “an absolutely insane organization who think North Korea is paradise.” It was, in other words, a normal British pub, acting as an unofficial site for social services, a refuge for eccentrics, a place for anybody to belong.

Wetherspoons sold Chessum’s location in 2016 to a company that converted it into an upmarket gastropub serving “nourishment bowls” with “delicio pumpkin,” “panko halloumi,” and craft beers. People in the neighborhood were left with a 2-mile walk to the nearest affordable pub. As far as he knew, the regulars, without somewhere to go every day, simply scattered. The local Wetherspoons may have been run by a pitiless corporation, but it was still their neighborhood pub. “It felt very much like a single community. We were part of each other’s world,” Chessum said. “I wonder where the f--- Toothless Sue is now.” B

White people in the U.S. have, on average, six times the wealth of Black people.



The Pay Check

Our new season explores how it got that way, and what the racial wealth gap means for our society. Listen starting March 11.

A Bloomberg podcast

Listen on Apple Podcasts

FUTURE SHOCK!

Electrification is redefining what it means for a car to be extraordinary. *By Hannah Elliott*
Illustration by Jacquie Boyd

THE SUPERCAR SPECIAL

March 8, 2021

Edited by
James Gaddy

Businessweek.com

The Koenigsegg Gemera, which made its worldwide public debut last March, has a carbon fiber body every bit as visually stunning as its predecessor, the Koenigsegg Agera—a vehicle that until January held the title of fastest production car ever. It also has an advanced version of the Agera's dihedral doors that, when opened, give the impression of wings taking flight. Massive air vents and aerodynamic flourishes, meanwhile, make it look just as menacing.

But there's a radical difference between the two supercars that isn't apparent until you pop the hood: Instead of the midmounted twin-turbocharged V-8 engine that is the roaring 960-horsepower heart of the Agera, the €1.5 million ($1.8 million) Gemera has a turbocharged 2.0-liter inline-three engine—plus three electric motors. The combination of combustion and electric technology is good enough for a combined 1,700 hp. The Gemera is expected to shoot from zero to 60 mph in less than 2 seconds.

The Swedish manufacturer isn't the only elite auto brand looking to electric power for its future. Pininfarina unveiled its 1,900-hp all-electric Battista in 2019, the same year Lotus revealed its 1,973-hp electric Evija. Both are slated for production this year. Ferrari is currently making its 986-hp SF90 Stradale hybrid. McLaren has also unveiled a $225,000 Artura hybrid that uses an electric motor to get to 205 mph.

The arrival of the electric powertrain has divided enthusiasts, eggheads, and engineers alike. The latest design from Gordon Murray, whose McLaren F1 set the record for fastest production car in 1998, is called the T.50 and has a naturally aspirated V-12 engine. "For a sports car at the moment, it's the wrong time [for electric technology]," he says. "The cars are so heavy." Murray's T.50 weighs a little more than 2,100 pounds, whereas those of electric cars such as the Battista and Evija are about twice that because of the batteries.

John Hennessey, whose claim to fame is his Venom GT Spyder, which recorded a then-world-record top speed of 265.6 mph in 2016, plans to attempt to reclaim the record this spring with his V-8-powered Venom F5. "We're really glad that we did it naturally aspirated," he says. "I had waited a while before we got further, because I thought maybe over time, battery technology would improve and weights would come down, but it doesn't seem like they have."

Jamie Morrow, Bugatti's pro driver for the 1,500-hp Chiron Pur Sport, is less diplomatic. "None of our owners are asking for hybrid or electric technology," he told me on a recent drive along Southern California's Mulholland Highway in the $3.9 million coupe. "In fact, they're relieved we have not pursued it."

Special cars devoted to high performance and extreme design have existed since the dawn of the horseless carriage. In the 1920s and '30s, wealthy thrill-seekers looking to push the bounds of speed and impress their neighbors could buy a

"The next phase of supercar automotive technology has to be electric. The electric motors are there. The performance is there"

Once an anomaly, supercars powered by electricity are redefining what it means to be extraordinary in the modern age. In the past two years, dozens of high-performance vehicles have sprung into existence, a veritable cascade of releases compared with the scattered few of previous decades. But now that 1,000-plus horsepower and top speeds of 200 mph have become commonplace, automakers are relying on electric motors to push beyond the outer limits of the combustion engine.

According to some, electric is the only way forward. "The next phase of supercar automotive technology has to be electric," says John Wiley, who manages valuation analytics for Hagerty Group LLC, which specializes in insuring these rare automobiles. "The electric motors are there. The performance is there. This is the next innovative step."

David Lee, a businessman and car collector in California who owns a LaFerrari, a car that marked Ferrari's first foray into hybrid technology, agrees. "From an engineering perspective, natural aspiration can give only so much power—and the automakers have maxed it out for these cars," he says. "This is just the way it's going."

Bentley Blower, famous for winning exotic endurance races, or a Bugatti Atlantic, which epitomized the height of art deco design. In the 1950s the Corvette, Mercedes-Benz 300SL, and Jaguar E-Type all qualified as Very Special sports cars.

It wasn't until a crew of young designers at Lamborghini unveiled the Miura in 1966 that the term "supercar" earned official status. Instantly recognizable by its low profile, gently swooping body, and ovoid headlights, the Miura was unlike anything before; it was the first production sports car with a rear midengine two-seat layout. Pricing at the time was high—$20,000 ($162,000 in today's money)—but so was its performance. The top speed was 180 mph, far above the sub-140-mph limit of the Ford Mustang and other popular sports cars.

Other automakers quickly followed suit. Much like the sartorial wonders sent down the runway at haute couture fashion shows, supercars help automakers display what they're capable of creating when time and money are no object. "It's an automaker's ability to stretch every aspect of design and performance, to not be bound by the constraints of mass

PHOTOS: COURTESY COMPANIES

A NEW BREED OF SPEED

ASPARK OWL ▶ Announced in 2017 and under production this year, the €3 million Japanese supercar expanded the idea of what an electric supercar could be. It boasts a carbon fiber monocoque tub, all-wheel drive, and, at the time of its debut, the fastest acceleration of any electric car to date: zero to 62 mph in 1.9 seconds. Only 50 will be made.

PININFARINA BATTISTA ▶ Developed by the automotive arm of the heritage coachbuilder of the same name, the $2.5 million Italian has four electric motors—one attached at each wheel—that can produce 1,900 hp. Unveiled in 2019, it's under production this year. Only 150 will be made.

LOTUS EVIJA ▶ The $2 million vehicle from the British manufacturer debuted in 2019 and is under production this year. It comes equipped with a system that promises 80% of a full charge in only 12 minutes—far less than the hours required for other electric cars. Range on the 1,972-hp car is 215 miles. Only 130 will be made.

MCLAREN ARTURA ▶ The $225,000 Artura hybrid is among the least expensive of the electric-powered supercars but no less dynamic visually, with the same swooped body lines and open-upward doors of its McLaren brethren. It pairs a six-cylinder engine with a single electric motor for a top speed of 205 mph.

economies of scale," says Jonathan Klinger, Hagerty's vice president for car culture.

As such, supercars occupy the realm of fantasy rather than anything as practical in real life as, say, power seats. They're a potent cocktail of innovation, power, and sex appeal. "Supercars are much more than whatever performance statistics they hold," says Martin Roach, the England-based author of *The Supercar Book: The Complete Guide to the Machines That Make Our Jaws Drop*. "They tick lots of boxes in the human psyche, even the bad ones. A supercar is an aspirational object, an engineering masterpiece, and an object of beauty."

They have a mundane purpose, too, as first-time platforms for inventions later applied to more affordable vehicles. Parking cameras, navigation systems, dashboard clocks, ceramic brakes, and carbon fiber materials all trace their ancestry to supercars.

The same logic applies to electric engines. "Supercars helped change the larger narrative around the electrification of vehicles," Klinger says. "Fifteen years ago, if you even brought up the word 'hybrid' around a die-hard car enthusiast, they would immediately jump to making fun of the Prius."

The Porsche 918 Spyder hybrid changed that calculus in 2013, with its Le Mans-cool good looks and powerful V-8 engine. When electric motors could get to 62 mph in a scant 2.6 seconds, hybrid technology suddenly made sense to the modern sports-car buyer. It also paved the way for Porsche to sell the electric Taycan sedan it introduced in 2019.

Ironically, as trucks and SUVs have become the choice for consumers—occupying 75% of the U.S. vehicle market—supercars are more popular than ever. "Manufacturers like ourselves are doing more special editions than in the past," says Peter Freedman, vice president and chief marketing officer of Aston Martin. "It has increased in the last six to seven years as the demand for those products has increased."

It's telling that Lamborghini introduced two new vehicles in 2014, five in 2018, seven in 2019, and nine in 2020. Although production numbers are difficult to come by in the secretive supercar sphere, "We like to make one less than we can sell," Lamborghini Chief Technical Officer Maurizio Reggiani often says, echoing a famous refrain.

The cars themselves have even become, dare we say, less single-minded about blasting track records—though any supercar by definition will remain face-searingly fast—and more accommodating to actual life behind the wheel.

The 2021 Bugatti Chiron Pur Sport, for instance, offers a gearbox shortened by 15% for optimized canyon-carving on lonely mountain highways. The 2021 Lamborghini Aventador SVJ offers a push-button lift that makes it drivable over speed bumps. Every new Ferrari features extensive entertainment and navigation systems.

But perhaps most shocking of all is that the new Koenigsegg Gemera offers luxuriously ample seating for four adults—and eight cup holders. They're such a radical concession to real life in an otherwise extraterrestrial car, they could almost make you forget the thing is electric. That may be the point. Ⓑ

The Means to a Dividend

Pump the brakes if you're thinking of buying a supercar as an investment. Here's what the experts say. *By Kyle Stock*

The 2017 Ford GT is a rarity with a 33% annualized rate of return

Everyone notices the doors, but few pay much attention to the sills.

In 1954, Mercedes-Benz unveiled its sinuous 300SL coupe with "gull-wing" doors that hinged vertically from the vehicle's roof into the sky. They were unlike anything the car world had seen. They were also a bit of an afterthought.

Equally vanguard was the chassis, a bundle of thin, hollow steel tubes welded into an intricate lattice of triangles. It was airplane stuff, years ahead of the heavy boxed beams that Detroit and Stuttgart had long relied on.

That futuristic chassis required higher sills, which meant a traditional door wouldn't work. Thus, the gull-wings; thus, the legend. Today the 300SL is among the world's most expensive and collectible vehicles.

But as an investment, well, it's kind of meh. If you were prescient enough to buy a seminal 300SL new for its $7,000 sticker price, lock it in a garage, and take good care of it, the machine would fetch roughly $1.4 million today, an annualized return of about 8%, not accounting for inflation, storage, and maintenance. You'd have been much better off in the Dow Jones index, which requires zero oil filters.

Making a killing on high-end, exotic sports cars is about as easy as winning a race in them: You have to be extremely skillful and more than fortunate. "There are very few supercars which will be a solid investment when purchased over the medium term," says Clive Wilson, who tracks the market as the valuations editor at Cap Hpi in London.

The only time that Stephen Serio, who hunts down rare cars for wealthy individuals, has been able to predict a spike was from talking to a range of collectors and noticing a tiny trend in their tastes. He likens it to insider trading, albeit a legal version. "Honestly, everyone's guessing," he says. "You've got to get lucky."

For every Lamborghini Countach, the definitive poster supercar, there's a Lamborghini Urraco, which was made in the same era and today goes for about as much as a well-appointed new Volvo. If you bought a 300SL in late 2014, you'd be sitting on a 20% loss right now.

Historical precedent offers a few clues to a good investment. Usually, a vehicle needs to introduce a change in technology or performance. Mercedes did this with its winglike doors and its airplane chassis. Lamborghini did it in the '60s when it put the engine behind the driver in its Miura.

The vehicle also needs to be striking—objectively beautiful—in a shocking, atypical way. Again, Lamborghini is the paragon here with its Countach, an exercise in geometry and the first of many so-called wedge cars when it made its debut in 1974.

Scarcity is clutch as well. Valuations tend to stay high for models that aren't replaced by any particular product. Ferrari's LaFerrari, for example, was

THEODORE W. PIEPER/RM SOTHEBY'S

a one-off made for three years, rather than part of the lineup. Crucially, only 499 of them came out of the factory. As time goes on, those numbers inevitably drop, buttressing value further. “People always want what they can’t have,” Wilson says.

Production volume can be tricky, though. At the end of a model’s life, automakers often crank out “limited editions” with extra options and supersize sticker prices. The brand’s faithful—dubbed “pet buyers” by auction savants—gobble them up, but their production runs are often far greater than earlier iterations. “It’s a constant gerbil wheel,” Serio says. “If they’re making something to be collectible, you can pretty much be sure it’s not going to be.”

Michael Prichinello has bought about 350 vehicles since he co-founded the Classic Car Club Manhattan in 2005. His recipe for a good investment is a car that “has played or will play a meaningful story in the arc of automotive history.” All-wheel drive, torque vectoring, carbon-fiber chassis, and electric motors all represent crucial chapters in supercar evolution, each tied to a breakthrough machine.

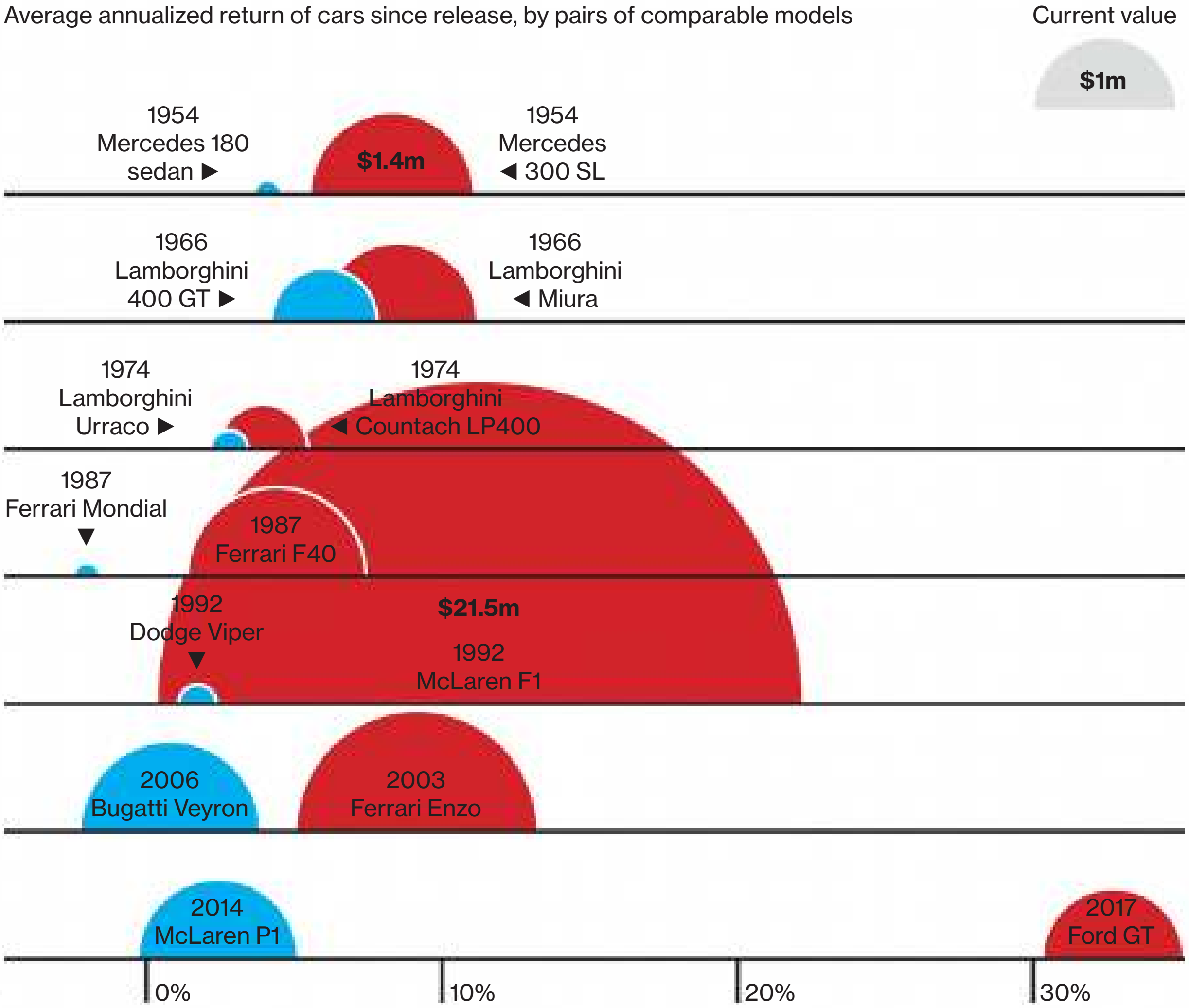
Cars tend to attract a cult following when a company gets out of character, after an executive gives a green light (and a billion-dollar budget) to a vehicle they maybe shouldn’t have. Buyers realize they are getting something that might never have been. This is why Ford GTs are so coveted; the car was incongruous with the company when it showed up at Le Mans in 1964.

Prichinello puts the early Teslas in this category, as well as the first of the midengine Corvettes and the hybrid Porsche 918. “There’s a big quotient on quirkiness, the things that don’t make sense,” he says. “There has to be some weirdness, and the weirdness can’t be a detraction.”

Even some of the best supercars, the ones that check every box, don’t have that special something. They end up as the automotive equivalent of a dividend stock. Still, if you’re looking for a dubious high-risk investment that goes 200 mph, here are some general guidelines.

Taken for a Ride?

Average annualized return of cars since release, by pairs of comparable models



DATA: HAGERTY GROUP LLC AND J.D. POWER

THE ROAD TO A RETURN

BE FIRST ... OR LAST

▶ Seminal versions tend to hold their value, as do those in the final year of production. Collectors have recently purchased Corvettes that act as bookends, betting on the last versions with the engine up front in the 2019 model year, and the first iterations with the engine in the middle of the car out last year.

SWEAT THE SMALL STUFF

▶ Imperfect maintenance or shabby condition can chew up almost half the value. When a particular market turns south, pristine examples tend to hold their value for at least a little while. What’s more, a supercar with unsual configurations, say, a manual transmission or racing components, can move to the top of its class. Even an uncommon color can make a huge difference.

CONSIDER THE COST OF OWNERSHIP

▶ Changing the fluids on a Ferrari F40 runs about $1,000. The fuel tanks should be replaced every 10 years, which is generally a $12,000 job. In short, there’s no such thing as a buy-and-hold supercar. These days serious collectors rent purpose-built climate-controlled garages where professionals handle security and maintenance logistics. Insurance specialist Hagerty Group LLC has four such facilities, dubbed Garage + Social, and charges $500 per month per car. On a $300,000 car, that’s essentially a 2% expense ratio before insurance and five-figure brake jobs.

MAKE SURE IT’S LIQUID

▶ Some of the rarest supercars sputter on the resale market. Often the manufacturer is out of business, making maintenance a pain. More critically, the vehicles that keep momentum have a crowd of fanboys. Active owners’ clubs and driving events act as a sort of flywheel effect, driving transactions, boosting prices, and pulling in new acolytes. There’s a case to be made that the supercar market is due for a bit of a bull run. For one thing, valuations have slowly and steadily swooned since 2015. Then came Covid-19, which crimped production, making 2020 somewhat of a standout vintage.

BUY LOW-ISH

▶ Generally, there’s the one-generation rule: When teenagers get to a place where they can afford the car that was a poster on their childhood wall, the vehicle’s price will spike. Consider the ’70s-era Lamborghini Countach. For 40 years, its price was pedestrian; from 2014 to 2016, its value surged sixfold. On newer cars, the nadir tends to come about eight years out: The vehicle has lost its shine among those looking for the new new thing, and yet, it’s too fresh to be deemed a “classic.”

A Track Record of Innovation

Extras you see everywhere today originated in some of the most exotic vehicles ever made

By Hannah Elliott

Warning lights on your dashboard may be commonplace–even required–now, but when the Lamborghini Countach came out in 1974, the idea was more science fiction than reality. The car's designer, Marcello Gandini, dreamed up a spaceship-like display for the center console that would blink when the car exceeded a set speed, a system that would also presage advanced modern cruise control. Likewise, nobody thought all-wheel drive or a flat-six engine could be associated with the world's fastest car until Porsche did it with the 959 in 1986. But supercars have always been on the cutting-edge frontier–that's why they appeal to our imagination. A speed-sensitive electronic rear wing and air flaps near the rear window of the Bugatti EB110 were the 1990s precursor to today's "active aero" kits, which can even help slow down the car under additional braking. The McLaren P1 and Porsche 918 Spyder hybrids proved electric supercars can keep up with those powered by combustion, while looking even sexier. Here's an abbreviated survey of the supercars that have driven innovation through the decades.

1960s

LAMBORGHINI MIURA
Released in 1966, it was not only the fastest production car on the road—with a top speed of 174 mph and a zero to 62 mph time of 6.7 seconds—but also the first of its kind to include the midengine, two-seat layout that's been the supercar norm ever since. The low ride height and cockpit design influenced countless others.

ALFA ROMEO 33 STRADALE
The first production vehicle to use dihedral, or butterfly, doors, the Alfa Romeo 33 Stradale had a unique body made from magnesium components and a suspension taken from the more glamorous and successful Italian race cars of the 1960s. Only 18 were made, starting in 1967, but the design proved very influential.

1970s

LAMBORGHINI COUNTACH
With a long production life (1974-90), the Miura's successor affected wedge-shaped cars for decades. Its V-12 engine could produce 375 horsepower—twice that of the era's standard sports car. The then-new scissor doors ended up on subsequent models, including today's Aventador SVJ Roadster.

BMW M1
Made in 1978 in a unique partnership with Lamborghini and inspired by BMW's Turbo concept car from 1972, the M1 had a fiberglass body and a six-cylinder engine that was the brand's first to be midmounted and produced for road use. (The second was the i8 hybrid, which came out in 2014.)

1980s

FERRARI F40
When it appeared in 1987, the F40 was Ferrari's fastest (201 mph top speed), most powerful (478 hp), and most expensive ($417,000) car. Only 1,315 were made. Its raw good looks—that chiseled front end, big hips, massive NACA ducts, and wide rear wing—made it the poster child of the '80s.

PORSCHE 959
Until the Carrera GT and the 918 hybrid, this was Porsche's only supercar. The twin-turbocharged flat-six 959 was the fastest production car on the road at its debut in 1986, with some variants capable of 211 mph. The car was progressive for its use of turbo engines and a novel all-wheel-drive system.

1990s

BUGATTI EB110
At its debut in 1991, the EB110 had futuristic innovations—a double-wishbone suspension and a glass cover for a view of its V-12 engine—much like today's Koenigsegg and Bugatti Chiron. A speed-sensitive electronic rear wing and air flaps foreshadowed the "active aero" kits that streamline cars now for faster acceleration.

CARBON-FIBER CHASSIS

MCLAREN F1
The three-seat F1 set the record in 1998 for world's fastest production car at 240.1 mph. It was one of the first to use a carbon-fiber monocoque chassis, enabling its bodyweight to be lighter than many of its peers. Its side mirrors used light indicators ahead of its time.

2000s

PAGANI ZONDA
Made mostly from carbon fiber, it originally came with a five-speed manual transmission and Mercedes-built V-12 engine able to do zero to 100 mph in just over 9 seconds. Also distinctive: its dual sets of headlights and jewelry-like interior.

BUGATTI VEYRON
One of the fastest cars in the world, with a top speed of 267.8 mph and a dual-clutch direct-shift transmission. The Veyron has a rarely seen W-16 (a 16-cylinder piston engine with four banks of four cylinders in a W configuration) that achieves 1,000 hp.

FERRARI ENZO
The 12-cylinder, 660-hp, midengine sports car represented the pinnacle of Ferrari's engineering. It came with a progressive automated manual shift transmission and active aerodynamics like movable front underbody flaps and a small adjustable rear spoiler and diffuser.

ACTIVE AERODYNAMICS

2010s

FERRARI LAFERRARI
Ferrari's first hybrid, in 2013, combined a V-12 engine with one electric motor and a seven-speed automatic transmission. With 949 total horsepower, it had the most muscle of any Ferrari ever—and 40% better fuel efficiency. Of the 499 made, each cost more than €1 million ($1.2 million).

MCLAREN P1
The successor to the F1, produced from 2013 to 2015, was a plug-in hybrid that used an experimental roof structure called the "monocage." The design came from the first McLaren production car, the MP4-12C, and has now been used in subsequent models.

PORSCHE 918 SPYDER
Released in 2013, the all-wheel-drive plug-in hybrid was the first of its kind from the German manufacturer. It paired an electric motor with a naturally aspirated V-8 midengine and seven-speed dual-clutch paddle shifting for a total of 887 hp. And it looked nothing like the boxy hybrids dominating the consumer landscape.

HYBRIDS CAN BE COOL, TOO

PHOTOS: BLOOMBERG (1). BRIAN SNELSON/FLICKR (1). COURTESY BUGATTI (1). GETTY IMAGES (9). RM SOTHEBY'S (2)

In the Driver's Seat

A country club for race cars emerges in Miami. *By Jaclyn Trop*

Aerial view of the Concours Club in Miami

I'm strapped into a BMW M2 coupe, my harness bolted to the roll cage, as Rod MacLeod, a professional driver, rips around the track at the Concours Club outside Miami. We're on our first lap, gathering speed as we head down the north straight and into the track's second turn. "From the passenger seat, it can be quite violent," MacLeod shouts from beneath his helmet as the speedometer's needle edges into triple digits. "It feels like you're on a thrill ride."

The 75-acre campus, which opened to members in January, is more like a five-star automotive resort than the bare-bones tracks elsewhere in the U.S. For $35,000 a year plus a $150,000 initiation fee, members get unlimited access to a level of luxury unprecedented in racing.

Its main feature is a 2-mile tangle of 11 serpentine twists built by racecourse designer Alan Wilson, whose credits include the Thermal Club outside Palm Springs, Calif. But the club's amenities are a master class in attention to detail. More than 40 garages are available with additional storage options. It's slated to include an infinity pool and a restaurant by Miami chef Brad Kilgore. There are chilled wheatgrass shots in the paddock and helmet dryers in the locker room. A master sommelier can recommend the ideal post-race pour.

But I suspect the bigger draw will be convenience. The Concours Club is built across from the runways at the Miami-Opa Locka Executive Airport, less than 15 minutes from the Country Club of Miami and 20 minutes from South Beach. Other famed tracks such as the Monticello Motor Club in New York's Catskills are hours away from a major urban hub–and just as far from high-end entertainment and lodging.

Concours is the vision of Neil Gehani, an amateur racer and founder and chief executive officer of the $1.7 billion Trilogy Real Estate Group LLC in Chicago. After he began splitting his time between Chicago and South Beach, the developer wanted to create a driver's paradise near the private airport, where members could jet in and enjoy dinner or a drive before flying back to their homes around the world. He says he's invested more than $90 million in cash to build the site and estimates that figure could double by the time the project is complete this year. He spent $500,000 just to refine the track's first turn after analyzing early performance data.

On the day of my visit I'm assisted by the nine-person team dedicated to providing members with the glamour usually reserved for Formula One drivers on race day. One lifts the helmet's neck support before I have a chance to do it myself; another waits with a cold towel each time I climb out of the car.

MacLeod, who's coached the likes of IndyCar champion Josef Newgarden to victory, is my guide through eight laps to get me acclimated. Wedged into a hot car under the South Florida sun, I feel sweat pooling under my helmet and racing suit, and the engine's vibrations travel from the floorboard under my feet to the top of my head.

When it's my turn to sit in the driver's seat, MacLeod stands in the pit, wielding an iPad that critiques my performance in granular detail. After a half-dozen laps, we evaluate the data and discuss how I can improve–namely, brake earlier and more aggressively–during the next round.

A dish of dulce de leche panna cotta, passion fruit, and toasted coconut by chef Kilgore

Cars drive on the facility's circuit after competing in the Ferrari Challenge North America series

This feedback is a key selling point, says Aaron Weiss, president of the Concours Club. "Putting a 175-pound coach in the passenger seat changes the weight, but we've completely removed that guy from the car," he says. "Instead he's in the pit providing real-time coaching. We can see to an embarrassing level of detail exactly where you are on the course."

MacLeod's voice pumps through the speakers into my car, calmly dispensing directions in a way even a novice like me can understand while also traveling at 114 mph. "As you saw earlier, it can feel violent from the passenger seat," he says. "But once you're sitting on this side, it becomes much more natural."

As the sun begins to set on my 29th and final lap, the car starts feeling smoother beneath my grasp, as if I'm riding a bicycle full speed ahead as the training wheels fly off. Even though the safety harness pins my neck and shoulders to the seat, I experience a different sensation: It feels like freedom. B

PHOTOS: COURTESY THE CONCOURS CLUB (3)

Golden Eyes

A limited-edition pair of Persol sunglasses is easy on the ears
Photograph by Janelle Jones

Steve McQueen, patron saint of guys who like to drive fast, was rarely photographed in anything other than Persol sunglasses. He wore his favorite pair—tortoise-framed 714s customized with blue-tinted lenses—in *Bullitt*, *The Getaway*, and *The Thomas Crown Affair*. Introduced in the 1960s as a more compact version of Persol's original 649 model, the 714 was the first pair of sunglasses to fold conveniently inward, ensuring safe storage in places as small as a breast pocket. The unique pilot shape, keyhole bridge, swordlike accents on the edges, and acetate frames are all present in a limited edition dubbed 714SM ($790), but it's the warm Havana brown color and alluring 24-karat-gold-plated lenses that really steal the show.

THE COMPETITION

- Made in Italy, the $445 Fletcher sunglasses from Tom Ford provide a bigger, squarer frame for the face. They're available in a similarly warm Havana option—for the frames and lenses—as well as in black with blue lenses.
- That other classic shape, Ray-Ban's Wayfarer, has been around since 1952. The black version is most closely associated with Tom Cruise in *Risky Business*, but the $204 Classic B-15 tortoise model is a no-less-iconic style you can make your own.
- Dior's $410 BlackSuit shades are, oddly enough, a deep brown. The Italian-made tortoiseshell acetate frames have a subtle round shape, green-tinted lenses, and silvertone hinges that resemble the stitching on the label's signature suits.

THE CASE
Persol's 714SM sunglasses use the brand's patented flexibility to ease temple pressure and comfortably adapt to any face. A premium leather case is included; monogram engraving is available, too. The gold-plated lenses won't provide any extra protection from road glare, but they will offer a talking point for others on McQueen-worthy drives, whether you're stopping for a red light ahead—or red and blue ones behind. *$790; persol.com*

SPACs Are ‘the Poor Man’s Private Equity Funds’

By Shuli Ren

ILLUSTRATION BY GEORGE WYLESOL

SPACs—special purpose acquisition companies—are one of Wall Street’s hottest products. These publicly traded shell companies give tycoons and celebrities the capital to search for splashy one-shot deals.

In a 2016 paper, Lora Dimitrova of the University of Exeter Business School dubbed SPACs “the poor man’s private equity funds.” That’s because they give ordinary investors a way to participate in the purchase of a hot company before it goes public—a perk usually reserved for the wealthy.

It makes sense. The venture capital world is practically closed to “the poor man,” while fast-growing startups are staying private for longer. So individuals are turning to blank-check shell companies as their gateway to alternative investments.

Last year’s boom shows no signs of stopping. In the first two months of 2021, 188 SPACs went public, raising $60 billion and setting a pace to quickly surpass 2020’s record of $83 billion, data compiled by Bloomberg show. Blank-check companies are attracting more money than conventional initial public offerings.

Hedge funds are playing the field, but so are retail investors. These “poor men” account for about 40% of SPAC trading on BofA Securities Inc.’s trading platforms. This year, SPACs on average are rising more than 6% on their first day of trading, up from last year’s 1.6%, a sign of heavy retail participation.

SPACs typically have two years to find a target and close the deal, or they have to return money to investors, plus interest. They tend to spend at least three to five times the amount of cash they’ve raised. Using that formula, and with the average SPAC IPO generating $335 million last year, hundreds of blank-check companies would be searching for private firms valued at $1 billion or more.

SPACs have looked for value plays in fields such as energy, industrials, and finance. Now, most new SPACs are searching for targets in tech, health care, and consumer discretionary sectors. Electric-vehicle startups are a hot spot, with 26 EV makers, including Nikola Corp. and Luminar Technologies Inc., merging with SPACs last year, data provided by PitchBook Data Inc. show. Shares of Churchill Capital IV, a SPAC, soared when it proposed combining with Lucid Motors.

There are 10 SPACs seeking to buy cannabis startups, according to New Cannabis Ventures. Shares in Silver Spike Acquisition Corp. roughly doubled this year after finding a target in December. Gaming is another hot space: DraftKings, a sports betting operator, now trades at about $60 a share, more than a threefold increase from its April debut.

Retail investors want the next big exotic thing. Boring logistics or mortgage company deals won’t appeal to them. The billionaires launching SPACs will have to think outside the box. —*Ren is a columnist for Bloomberg Opinion*

Bloomberg Businessweek (USPS 080 900) March 8, 2021 (ISSN 0007-7135) H Issue no. 4691 Published weekly, except one week in February, April, May, June, July, August, September, October and November by Bloomberg L.P. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Executive, Editorial, Circulation, and Advertising Offices: Bloomberg Businessweek, 731 Lexington Avenue, New York, NY 10022. POSTMASTER: Send address changes to Bloomberg Businessweek, P.O. Box 37528, Boone, IA 50037-0528. Canada Post Publication Mail Agreement Number 41989020. Return undeliverable Canadian addresses to DHL Global Mail, 355 Admiral Blvd., Unit 4, Mississauga, ON L5T 2N1. Email: contactus@bloombergsupport.com. QST#1008327064. Registered for GST as Bloomberg L.P. GST #12829 9898 RT0001. Copyright 2021 Bloomberg L.P. All rights reserved. Title registered in the U.S. Patent Office. Single Copy Sales: Call 800 298-9867 or email: busweek@nrmsinc.com. Educational Permissions: Copyright Clearance Center at info@copyright.com. Printed in the U.S.A. CPPAP NUMBER 0414N68830

FSC MIX Paper FSC® C084269

“WE ARE DESIGNING THE FUTURE IN MICHIGAN.”

Innovation. Resilience. Agility. It’s how Michigan businesses continue to build the future. Tech companies, engineering talent and innovators in manufacturing are all coming here for a reason. Our expertise, talented workforce and proven adaptability are making a difference now and shaping the future. Join us and make your mark where it matters.

Put your plans in motion by visiting
michiganbusiness.org/pure-opportunity

MICHIGAN.
PURE OPPORTUNITY.

MICHIGAN ECONOMIC
DEVELOPMENT CORPORATION