Bloomberg Businessweek
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ready

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next one?

A FIVE-POINT PLAN TO STOP FUTURE PANDEMICS 38

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◀ Gerwyn "The Ice Man" Price at this year's darts championship

PHOTOGRAPH BY SOPHIE GREEN FOR BLOOMBERG BUSINESSWEEK

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■ COVER TRAIL

How the cover gets made

❶

"This week we're talking about the next pandemic."

"Oh, God. Is Charmin a publicly traded company?"

"Hoarding toilet paper isn't going to help humanity. But studying bats might!"

"Sometimes you make my job too easy."

❷

"Terrifying."

"Terrifying? Vampy looks pretty sweet."

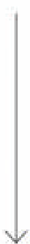
"Bats are the big carriers of zoonotic viruses—Ebola, Marburg, rabies. The earliest detections of SARS-CoV-2 were in bat guano."

"Umm...so, I should basically never leave my apartment again?"

"*That's* what's so scary: Bats can still get inside! I watched my dad catch one with a broom and pillowcase once."

"You're really not helping."

"To be fair, they had nothing to do with smallpox."



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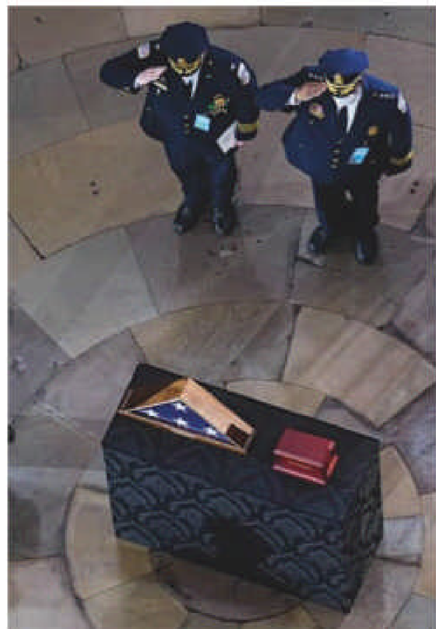
● Coronavirus cases globally have surpassed

104m

and more than 2.2 million people have died. But the vaccine effort is picking up, with almost 105 million doses given. Johnson & Johnson unveiled a vaccine with two advantages over the competition: It only needs to be given once and can be stored in a normal refrigerator.



● Brian Sicknick, the U.S. Capitol Police officer killed in the Jan. 6 riot, lies in honor in the Rotunda on Feb. 3.

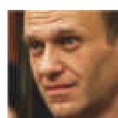
● “We cannot move on without accountability. We cannot heal without accountability.”

Representative Alexandria Ocasio-Cortez, Democrat of New York, on Instagram on Feb. 1 discussing the Capitol invasion, during which she feared for her life.

● Jack Ma’s Ant Group will transform itself into a financial holding company.

People familiar with the plan hashed out with Chinese regulators say it will help Ma avoid an outright breakup of the business. Ant has come under intense scrutiny from China’s financial watchdog, resulting in the abrupt withdrawal of its November IPO.

● A Moscow court sentenced Russian



opposition leader Alexey Navalny to more than 2½ years in prison in connection with a 2014 fraud conviction, as President Vladimir Putin seeks to crush resurgent protests against his rule.

● Myanmar’s military staged a coup on Feb. 1 and detained Aung San Suu Kyi, who led the elected government. The move threatens to upend the country’s democratic transition and prompted a warning from President Biden that the U.S. could reinstate sanctions lifted by President Obama in 2016.

● Exxon Mobil posted its first loss in at least 40 years on Feb. 2 following a

$19.3b

writedown of its U.S. natural gas and other assets. The company also reported its lowest production in more than two decades.

■ AGENDA

► The Ex-President on Trial

U.S. senators begin Donald Trump’s second impeachment trial on Feb. 9. Democrats accuse the former president of inciting the Jan. 6 insurrection at the U.S. Capitol. It’s unlikely enough Republicans will take their side to convict him.

► Oil giant Shell gives an update on its energy-transition strategy on Feb. 11. With fossil fuels falling out of favor, the industry is turning increasingly to renewable sources.

► Federal Reserve Chair Jerome Powell shares his outlook at the Economic Club of New York on Feb. 10. Economists want to hear about the future of the Fed’s asset purchases.

► SoftBank reports fiscal third-quarter earnings on Feb. 8; founder Masayoshi Son will run through the numbers. The fund has recovered, after startup investments paid off.

► The Bank of Russia publishes its interest-rate decision on Feb. 12, with Governor Elvira Nabiullina hosting a news conference. Economists see rates holding steady at 4.25%.

► General Motors reports earnings on Feb. 10. GM’s embrace of bigger SUVs such as the Chevrolet Tahoe and GMC Sierra pickups has attracted buyers.

► Feeling boxed in at home? Auction house Bonhams sells historic travel and exploration memorabilia, from antique globes to colonial-era photos, in London on Feb. 10.

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February 8, 2021

Stopping the Next Pandemic Starts Now

By Michael R. Bloomberg and Tedros Adhanom Ghebreyesus

As the First World War wore on, a new scourge erupted: an influenza pandemic that left even more bodies in its wake than the conflict itself. But the 1918 pandemic was overshadowed by the war, and its lessons went unheeded.

One hundred years later, the world faces a similar test. When the Covid-19 pandemic eventually recedes, will we learn the lessons it is teaching us? Or once the emergency subsides and life returns to "normal," will we carry on the same as before?

Sooner or later, a virus may emerge or reemerge that could be more transmissible than the Covid-19 virus, more virulent, or both. But efforts to identify dangerous new viruses remain limited. The pandemic is at the forefront of everybody's attention, and it's essential to harness that sense of trauma and urgency and start building the systems that will make us ready for when the next one arrives—because it is not a matter of if, but when.

As this week's issue of *Bloomberg Businessweek* details (page 38), there are pressing needs, including:

More research. Scientists must engage in a worldwide effort to study viruses circulating in animals that could potentially spill over and infect humans, including mapping pathogen hot spots and working with the animal and human health sectors with a "One Health" approach. After the West African Ebola outbreak from 2014 to 2016, the World Health Organization published the *R&D Blueprint* for epidemics, which prioritized coronaviruses as one of the pathogens that needed more research and development. More research, coordinated at the global level, is still needed urgently to better understand which characteristics of pathogens make them epidemic threats and to rapidly develop diagnostic tests, therapeutics, and vaccines.

More global surveillance. More global surveillance in humans and animals (domestic and wildlife) is needed to rapidly detect new and existing threats. The WHO is working with the Food & Agriculture Organization of the United Nations and the World Organization for Animal Health to improve global surveillance, but investment levels are low and systems remain inadequate. Surveillance in animals and humans needs to be at the local level with robust reporting mechanisms to quickly call attention to anything unusual.

More domestic data. All countries need to enhance surveillance of infectious pathogens, including genetic sequencing. This allows for robust analyses that can lead to precise and targeted use of measures to prevent the spread of disease and makes it possible to detect mutations that lead to virus variants. (This is how Brazil, Denmark, South Africa, and the U.K. identified important SARS-CoV-2 variants.) In the present pandemic, U.S. labs have been sequencing only about 3 in 1,000 patients. The WHO is working to increase genetic sequencing capacity globally.

More vaccine platforms. As rapidly as drugmakers were able to create Covid-19 vaccines last year, they could have done so faster if novel vaccine platform prototypes, such as mRNA and others, had already been taken through Phase 1 and Phase 2 trials to confirm safety and dosage for coronaviruses. More vaccine "platforms" that are generalizable, and with increased manufacturing capacity across the entire value chain, are needed for every sort of potential pandemic virus. Global efforts to create universal vaccines and treatments capable of protecting against broader families of viruses with epidemic potential—coronaviruses, flu viruses, and others—are also essential.

More coordination. Collaboration—locally, nationally, and internationally—is critically needed to tackle epidemic and pandemic threats. Robust clinical trials that are actionable, coordinated, and seamlessly designed are critical for having the information needed to bring products meeting the highest international standards for regulatory and policy decisions. The world should get supply chains ready and protocols in place for distributing supplies, testing people, gathering relevant health data, and distributing vaccines.

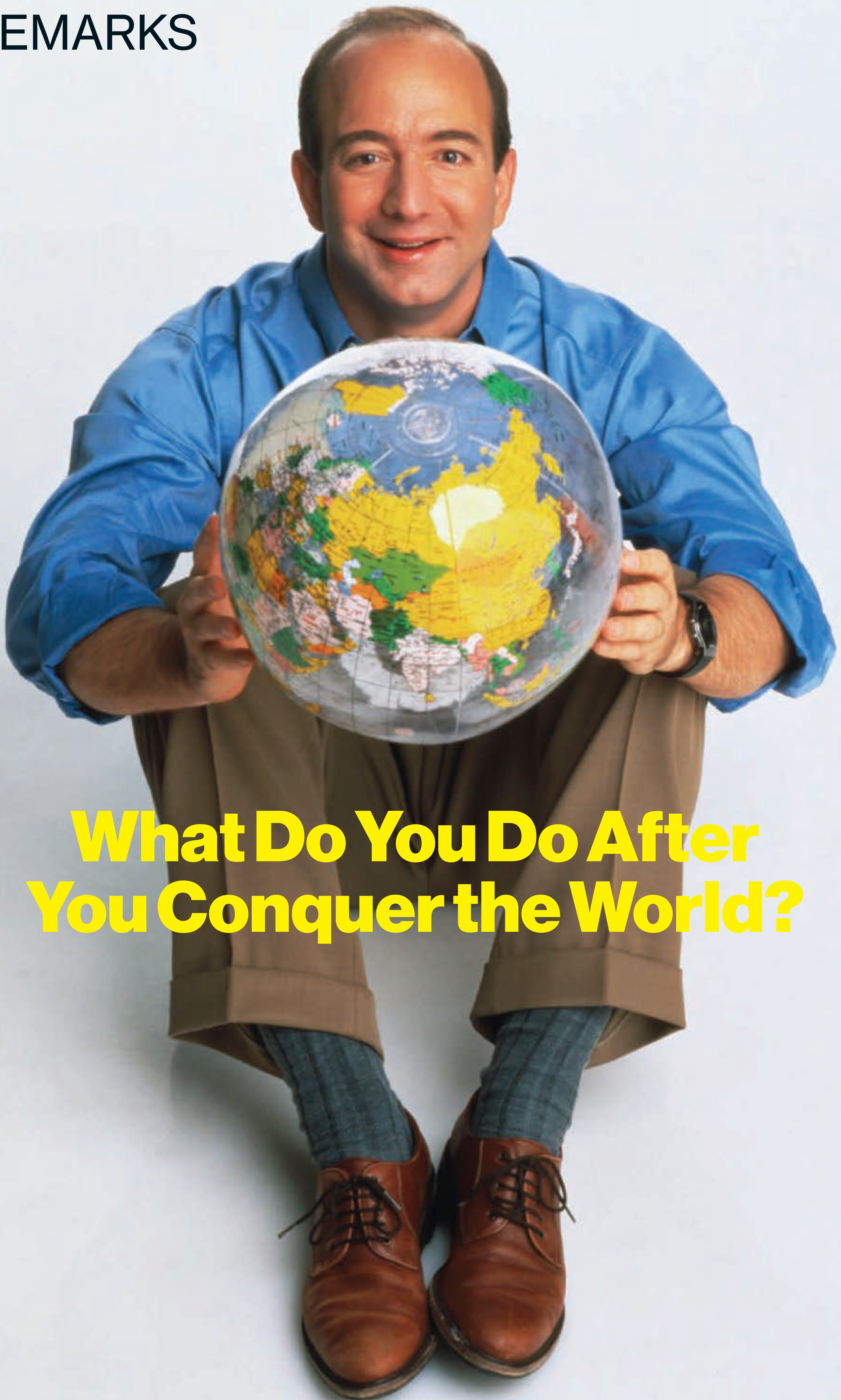
More community engagement and communication. An "infodemic" has accompanied the Covid-19 pandemic requiring immense response to tackle mis- and disinformation around all aspects of the virus and the measures used to stop it. Mis- and disinformation spread faster than viruses—and can be as deadly.

More primary health care. Primary health care, the eyes and ears of every health system, is the foundation for preparing for, preventing, detecting, and responding rapidly to emergencies of all kinds, from outbreaks of infectious diseases to epidemics of noncommunicable diseases (NCDs) such as cancer, diabetes, and cardiovascular disease.

NCDs have been a major factor in Covid-19 hospitalizations and deaths. If more nations had taken more aggressive steps to reduce NCDs, there could have been far fewer deaths during the pandemic. We can't let that happen again.

There is a wide array of proven policies that local and national governments can use to fight NCDs, including smoke-free public places and graphic warnings on cigarette packaging, improved food labeling and public awareness campaigns about trans fats and sugary drinks, and bike lanes that promote exercise and reduce air pollution by providing an alternative to cars.

By making important investments that better prepare us for the next pandemic, while adopting policies that will mitigate its impact, we can save millions of lives. This work must not wait until the threat of Covid-19 has passed. It must begin now. *For more commentary, go to bloomberg.com/opinion*
—Dr. Tedros is director-general of the WHO



What Do You Do After You Conquer the World?

● Jeff Bezos' surprise resignation as the CEO of Amazon seems somehow natural and even inevitable

● By Brad Stone

Jeff Bezos has a formulation about one-way doors and two-way doors—decisions that are irreversible and permanent and those that can always be unwound. Stepping through what's almost certainly a one-way door on Feb. 2, Bezos said he will resign as chief executive officer of Amazon.com Inc. and become executive chairman later this year. He'll hand day-to-day control to Andy Jassy, the longtime head of Amazon Web Services, a swiftly growing division that's almost single-handedly changed the way companies buy the technology that powers their businesses.

With that comes at least a partial end to one of the most epic runs in business history. Yet Bezos' move feels, in many ways, natural and even inevitable. Over the past 25 years the Amazon founder, now 57, led the company through perhaps the most fertile period of any American business ever. Amazon began as just an idea at the Wall Street hedge fund D. E. Shaw & Co., where Bezos was a vice president; it was an online bookseller and era-defining dot-com stock during the late 1990s. Bezos then rescued the company from the internet bust by inventing and guiding creations such as Kindle, Amazon Prime, and AWS. Along the way, he minted an idiosyncratic corporate culture, where employees almost religiously adhere to 14 leadership principles ("invent and simplify," "customer obsession," etc.) and constantly write belabored six-page documents that, at the start of meetings, are read by all attendees in almost sacred silence.

While that culture has drawn criticism for being difficult, even punishing, particularly for employees seeking work-life balance, it's also been unmistakably effective: Over the past decade, Bezos has piloted Amazon to a $1.7 trillion market capitalization, where it occupies the same rarefied 13-figure air as Microsoft Corp. and Apple Inc.

But Bezos' decision to step down also reflects an uncomfortable reality for one of the wealthiest people in the world: The walls of his highly compartmentalized empire have been crumbling for some time. It's becoming increasingly difficult to be Jeff Bezos (at least by his own standards). He presides over a collection of properties that spans not only Amazon but also the *Washington Post*, several philanthropies, and a space company, Blue Origin LLC, that lags far behind its chief rival, Elon Musk's SpaceX.

Just consider the ways the various Bezos assets have collided over the past few years. His ownership of the *Post* consistently angered the last U.S. president and probably cost Amazon the Pentagon's $10 billion JEDI cloud computing contract, which the Trump-controlled Defense Department awarded to Microsoft. When he traveled to India in early 2020, Prime Minister Narendra Modi declined to meet with him, and a senior official criticized the *Post*'s coverage of the country.

Union organizers perpetually protest Amazon's treatment of its blue-collar workforce and periodically show up in front of Bezos' homes—once, with gallingly poor judgment, they even wheeled out a guillotine. Bezos, now the second-wealthiest person in the world, is an obvious target for this kind of frustration, but Amazon's relationship with its 1 million blue-collar workers around the world makes the situation more fraught. The company has embraced and extended the use of outside contractors for some of its least glamorous work, such as driving package-delivery trucks and holiday-surge staffing at warehouses. Economists have blamed this so-called fissured workplace for increasing inequality and contributing to unsafe working environments. Amazon employees in an Alabama fulfillment center are set to vote this winter on whether to unionize and try to curb such practices.

Further complicating Bezos World are the environmental impacts of Prime and the online shopping habits Amazon has enabled in millions of users. In 2019, Bezos created the Climate Pledge and vowed the company will get to net carbon neutral across its businesses by 2040. Last year he unveiled a personal philanthropy, the Bezos Earth Fund, with plans to give out $10 billion to fight climate change. Those are laudable goals, but they also conflict directly with Amazon as it currently exists: The company is growing 38% a year and supporting that expansion with an armada of pollution-spewing trucks, cargo airplanes, and energy-intensive AWS data centers. Last year, Bezos and his partner, Lauren Sanchez, got a taste of how difficult that balancing act will be. When they started canvassing climate philanthropies to begin making the initial grants from the Bezos Earth Fund, at least some of the organizations, skeptical of Amazon's climate record and its relationship with its front-line workers, were hesitant to accept Bezos' largesse.

Many of the criticisms levied against Bezos and his empire are reasonable and can be navigated. But the most constrained resource in his web of conflicting business holdings is his own time, and that can't be easily managed. He used to spend part of Wednesdays and weekends at Blue Origin, based just south of Seattle. But that may no longer be enough. Blue Origin is two years older than SpaceX but so far has little to show for it, despite Bezos funding the company by selling $1 billion of his Amazon stock every year. In January, Blue Origin launched a successful test flight of New Shepard, a rocket that will carry paying tourists to the edge of suborbital space. It hopes to send actual people on a mission this summer, according to a person with knowledge of the company's plans who asked not to be identified.

The Blue Origin website proclaims, "We are not in a race, and there will be many players in this human endeavor to go to space." But, of course, practically everyone in the space industry, including those at SpaceX and even at Blue Origin, ▶

CHRIS CARROLL/CORBIS/GETTY IMAGES

◀ recognizes that Musk is flying literal circles around Bezos. SpaceX rockets regularly reach the International Space Station, and it just announced plans to take paying civilians into orbit. In his email to Amazon employees on Tuesday, Bezos said stepping down will give him more time to focus on "other passions," including Blue Origin. "I've never had more energy, and this isn't about retiring," he wrote.

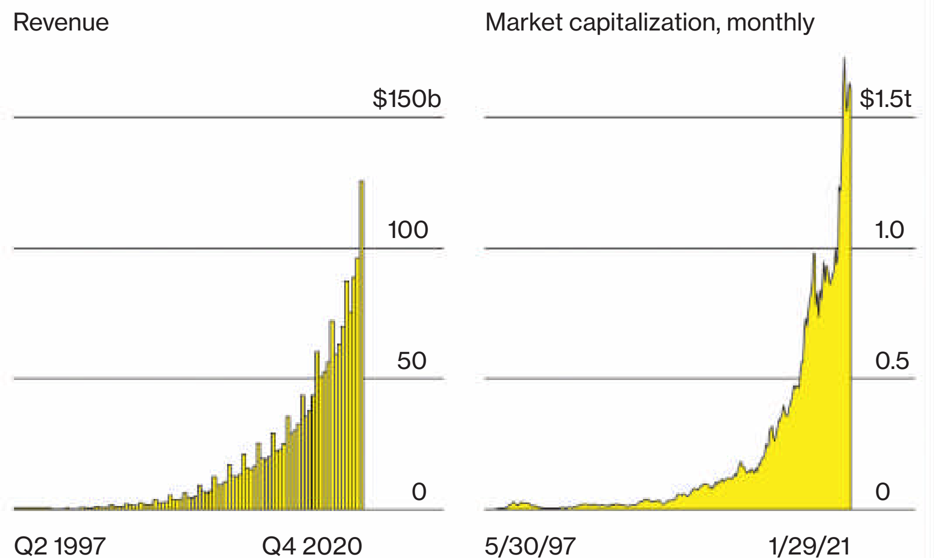
There's another reason Bezos might want to step back from active duty: Things at Amazon, which just cleared $100 billion in sales for the first time, could very well become a lot less fun from here on. There are complicated, maturing businesses to oversee, such as the Amazon Marketplace, with its bevy of disaffected merchants who consistently complain of fraud and unfair competition from overseas sellers. There are also regulatory challenges looming in Washington and Brussels. Several U.S. states, as well as the Federal Trade Commission, are examining Amazon's conduct, though the status of those investigations is unclear. When Bezos testified virtually last July before the U.S. House antitrust subcommittee alongside Tim Cook, Sundar Pichai, and Mark Zuckerberg, he did perfectly fine—but he looked like he would rather have been building rockets or doing just about anything else.

With Jassy, who's 53, Amazon has an accomplished and disciplined leader who performs well in the spotlight and presents a somewhat humbler target for Amazon's political opponents. Jassy was Bezos' first "shadow," or technical assistant, at the company. As a new graduate from Harvard Business School, Jassy made his first mark on the founder in the late 1990s by inadvertently hitting him on the head with a kayak paddle during a friendly game of broomball.

In my first book about the company, *The Everything Store*, I dubbed Jassy and other key Bezos deputies Jeff Bots, because they had totally internalized their leader's operating philosophy and longtime credos about customer obsession and long-term thinking. But that's a term I've abandoned for the coming sequel, *Amazon Unbound*—not because of the corporate pushback, but because Jassy and other deputies have proven themselves to be innovators in their own right with independent track records.

▲ Jassy

Amazon Since Its IPO



DATA: COMPILED BY BLOOMBERG

Over the past 15 years, Jassy has steered AWS to a $50 billion annual rate of sales, an extraordinary accomplishment. With a prominent seat on the S-team, Amazon's hallowed leadership committee, he's also had a strong voice in every major decision (including the company's missteps), from the HQ2 saga to the acquisition of Whole Foods. "He's clearly been the most important person at Amazon for a long time," says Ed Yruma, managing director at KeyBanc Capital Markets. "People have a really high regard for him. He's thoughtful, smart, strategic—getting into the weeds when he needs to, and perhaps most importantly, really focused on innovating."

Jassy can still act and sound extraordinarily like his famously secretive mentor. He lobbied to hide AWS's sales on Amazon's income statement for as long as possible to avoid tipping rivals to how good a business it was becoming, until the company's lawyers prevailed and forced the division to disclose them in 2015. And he sounded positively Bezosian last December when he expounded upon the need for companies to engage in constant self-scrutiny and change. "It's really hard to build a business that sustains for a long period of time," he said on the virtual stage at the AWS Re:Invent conference. "To do it, you will have to reinvent yourself many times over."

Bezos promised employees that he intends to stay active at the company and to "focus my energies and attention on new products and early initiatives," much as he did during the early days of Alexa and the Kindle. Brian Olsavsky, Amazon's chief financial officer, said on a call with reporters that Bezos "will be involved in many large, one-way-door issues," the sort of practically irreversible decisions that include major acquisitions. This is no doubt a comfort for investors, who expressed their satisfaction with the orderly transition by resisting a panicked selloff and keeping Amazon stock relatively flat when the market opened on Feb. 3. If there's one thing they've learned about Bezos over the past 25 years, it's to trust he knows exactly which door to go through at precisely the right time. Ⓑ —*With Matt Day*

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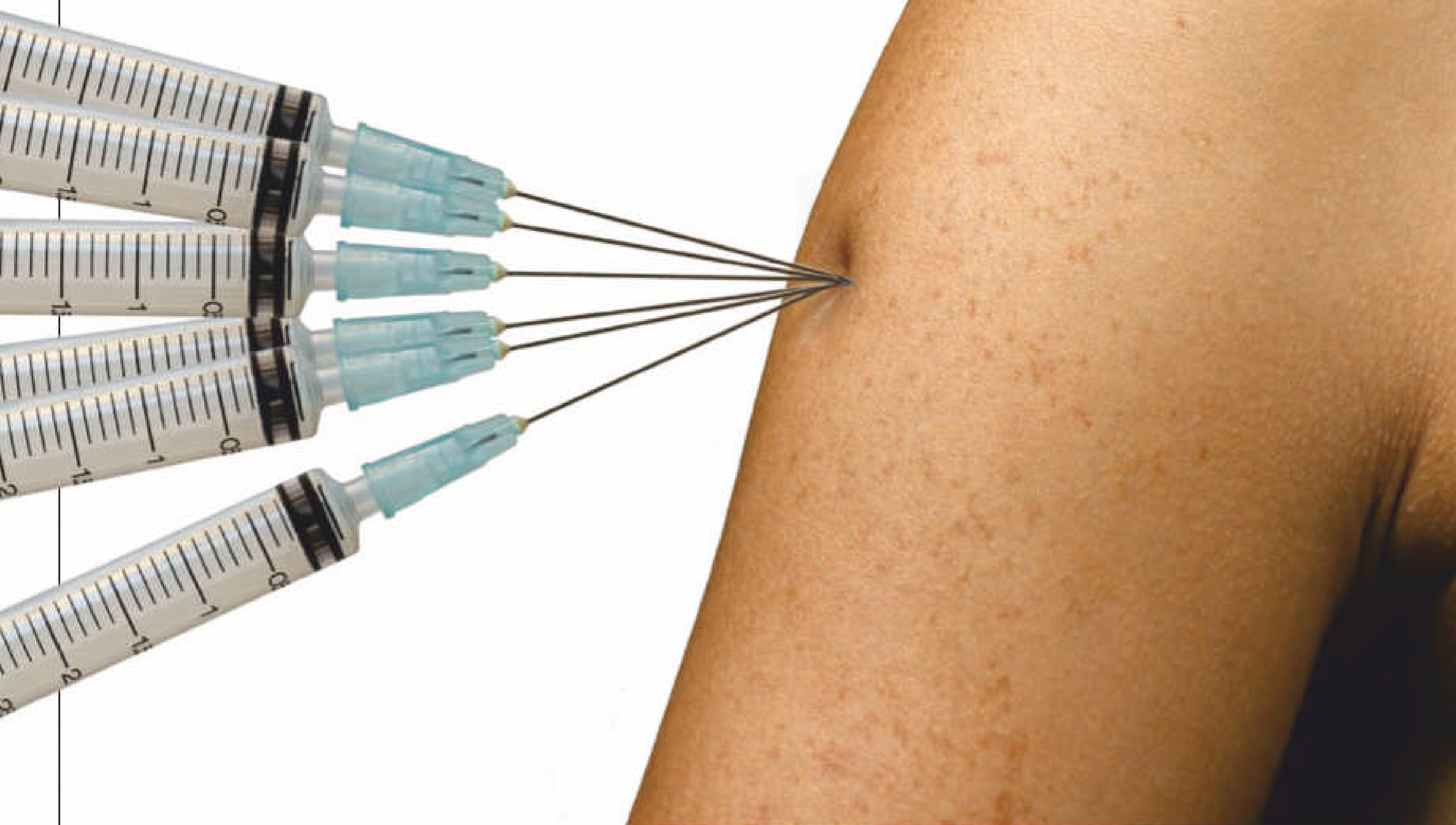
There's Still a Lot Of Work to Do

● With the emergence of coronavirus variants, vaccine makers are racing to develop booster shots



Just two months ago, the prospects for beating the novel coronavirus with highly effective vaccines couldn't have seemed better. Shots from Moderna and the Pfizer-BioNTech partnership proved more than 90% effective in preventing Covid-19 symptoms in massive trials, surpassing the most optimistic forecasts. An end to the pandemic appeared imminent.

Yet pharma companies now suddenly face a daunting challenge that few anticipated we'd see so soon: an onslaught of fast-spreading and potentially dangerous mutations of the virus. So even as they ramp up production in the early stages of a massive rollout, drugmakers have to retool their vaccine strategies. That's raised the possibility that patients will need extra shots to protect against the new strains–and that drugmakers could get a new revenue stream that, for some, may prove lucrative.

The highly transmissable B.1.1.7 mutation first identified in the U.K. is spreading across the U.S. But the strains researchers are most worried about come from South Africa and Brazil. The South African variant has spread quickly across Africa and has been seen in at least 24 countries elsewhere. It was reported in South Carolina on Jan. 28 and in Maryland two days later. The strain prominent in Brazil shares one of the same key mutations.

Current Covid vaccines are formulated to fight the form of the virus that was most prevalent last year. But small changes occur as the virus replicates, so as the pathogen spreads, it mutates into viruses the original vaccines might not be properly tailored to fight. The world has "allowed the virus to infect 100 million people already," says virologist David Ho, who heads the Aaron Diamond AIDS Research Center at Columbia University. "That is 100 million chances for mutation."

If that sounds terrifying, scientists say it should be manageable with either new strain-specific vaccines or booster shots. It's also likely to be good for business. "It is increasingly likely" that wrangling the virus with a series of booster shots will translate into a sustained revenue stream for ▶

PHOTO ILLUSTRATION BY 731; PHOTOS: GETTY IMAGES (2)

Edited by Rick Schine, David Rocks, and James E. Ellis

◀ drugmakers, Pfizer Inc. Chief Executive Officer Albert Bourla said on a Feb. 2 call with investors. When Moderna Inc. said on Jan. 25 that it was working on a pair of booster shots, its share price increased 12%.

Meanwhile, AstraZeneca Plc and its partner, the University of Oxford, plan to have a revised version of their vaccine tailored to new variants available by fall, researchers involved said on Feb. 3. The same day, Germany's CureVac NV and British drug giant GlaxoSmithKline Plc announced a €150 million ($180 million) pact to devise next-generation messenger RNA vaccines against emerging variants.

Clearly, there's money to be made in booster shots. Industry leaders and analysts have been talking about Covid boosters in terms similar to those used to describe the market for flu shots, those never-ending annual jabs that go into hundreds of millions of arms around the globe. Morgan Stanley analyst Matthew Harrison estimates the yearly market for Covid vaccine booster shots could range from $5 billion to almost $23 billion. It's impossible to give a more precise estimate, because no one knows how widely mutations that evade the vaccines' effectiveness will spread or what proportion of people in each country will need to be vaccinated.

Until recently, the evidence that vaccines were less potent against some of the variants was mostly lab-based. Tests showed vaccines from Pfizer and Moderna produced much lower levels of so-called neutralizing antibodies against the South African strain. In one study, scientists from the Aaron Diamond AIDS Research Center found that the Pfizer and Moderna vaccines were 6.5 to 8.6 times less potent against the mutation. Still, the companies have said that even these reduced antibody levels should be high enough to hold the strain at bay.

Then late-stage trials of vaccines developed by Johnson & Johnson and Novavax Inc. came out. They showed their shots to be highly potent against the original forms of the virus. But results from studies done in South Africa told a less impressive tale. The J&J shot was found to be 72% effective in the U.S., but that fell to 57% in South Africa. Novavax's shot, 89% effective in the U.K., was only 49% effective in South Africa. Those results are "sobering," says Eric Topol, director of the Scripps Research Translational Institute in San Diego. "We see an unequivocal drop-off in efficacy."

That means vaccine makers are now diverting attention to work on either booster shots or a new, adjusted vaccine that can work better against the South African mutation, known scientifically as B.1.351. "We are having enough of a struggle getting the first round of vaccines in," Topol says.

Pfizer contends its existing vaccine can handle the variants, because it produces high levels of antibodies. Still, the company plans to start studies of a third booster shot of its existing vaccine as well as a customized booster against new strains. The extra shot would be given six months to a year after the first two doses. If booster shots continue to be needed after the pandemic is over, Pfizer will likely get a higher price for the follow-up vaccine, executives said on its Feb. 2 investor call. The difference in pricing could be substantial. Pfizer is selling its Covid vaccine to the U.S. for $19.50 per dose, meaning $39 for the full regimen. For normal vaccines, the company gets around $150 to $175 a dose.

Moderna said it also will begin work on two booster shots, including one targeted to neutralize the South African strain. The booster may work at a lower dose than Moderna's existing vaccine, meaning Moderna could potentially make as much as eight times as many booster doses with its existing manufacturing footprint. Meanwhile, Johnson & Johnson and Novavax have also said they're looking into approaches that could help fight the South African strain.

● Potential maximum annual sales of Covid vaccine booster shots, according to Morgan Stanley

$23b

Details and timing for the booster shot studies are still being worked out, but they likely won't require big trials on thousands of people as the first round of vaccines did. Peter Marks, director of the FDA's Center for Biologics Evaluation and Research, said during an American Medical Association webinar that the agency is seeking to finalize a playbook with the industry to address mutations.

If the agency feels the virus has drifted enough to require a different sequence, it will need small trials to make sure the vaccines produce an immune response, he said. The first few studies may have to go through an advisory committee, but the agency is looking to streamline the process as much as possible and may require less data over time. "We would intend to be pretty nimble with this," Marks said, "so we get these variants covered as quickly as possible, because it is clear they can spread pretty quickly."

So for now, it's a race to vaccinate the U.S. and Europe before the South African variant becomes more common, or, worse yet, if new mutations enable the virus to escape existing vaccines. If health experts and drugmakers fail to get their arms around the mutation conundrum, Anthony Fauci, the top U.S. infectious disease expert, said on Feb. 2, the timetable for ending the pandemic "could change dramatically." *—Robert Langreth, with Jeannie Baumann, Cristin Flanagan, and Emma Court*

THE BOTTOM LINE After a yearlong development stint, the world began widespread vaccinations against Covid-19. But new mutations suggest the vaccine battle is far from over.

Taking the Travel Out Of Duty Free

● China is shoring up the tax-free shopping industry by letting domestic tourists into stores

Bargain-hunting travelers have long fattened the profits of duty-free shops, but Covid-19 travel restrictions have hammered those perfume-suffused emporiums. Except in one place: China's Hainan Island, where even domestic visitors can shop duty free. Last year the government eased restrictions on such purchases as more Chinese tourists unable to journey abroad flocked to the island, providing a lifeline for the global industry. Duty-free sales in China "have been extremely solid in the last 12 months," says Jean-Marc Pontroué, chief executive officer of high-end watchmaker Panerai, which is adding two duty-free locations on Hainan this year. "We remain optimistic, because the Chinese can hardly get out of China."

China is now extending parts of that Hainan policy to the mainland, with duty-free shops in central Shanghai, Beijing, and about a dozen other cities. Those operations look pretty much like other upscale retail outlets–pricey skin creams, displays of hand-made wristwatches, sumptuous leather handbags–except that shoppers who can prove they've been overseas in recent months don't have to pay levies as high as 30%. ▶

▼ A duty-free mall in Sanya

GUO CHENG/GETTY IMAGES

◀ The goal is to get wealthy Chinese to shift some spending back to China rather than on trips abroad, and it's working. China's share of the global luxury market—the goods typically sold at duty free—almost doubled last year to 20%, according to consultants Bain & Co. "Even when international travel reopens, there will be an alternative for mainlanders," says Bruno Lannes, a Bain senior partner in Shanghai.

Hainan, a subtropical island in the South China Sea with hundreds of beachfront resorts, has led the way, with duty-free shopping for domestic visitors since 2011. The government in July tripled the annual limit for such purchases, to 100,000 yuan ($15,500) per person, and removed a cap of 8,000 yuan for any single product. In early January, Hainan's duty-free sales averaged 180 million yuan a day, more than three times the level a year earlier, according to the local government.

Until last year, state-owned China Tourism Group Duty Free Corp. had a monopoly on shops in Hainan. The company, which controls 90% of such sales in China, on Jan. 29 released preliminary results showing 2020 net income grew 32%, to 6.1 billion yuan, on revenue of 53 billion yuan. CTG's Shanghai-traded shares have more than quadrupled over the past 12 months, vs. a 45% increase for the benchmark Shanghai Shenzhen CSI 300 index. That strength contrasts sharply with duty-free operators elsewhere. South Korea's Hotel Shilla Co. lost 283 billion won ($253 million) last year on revenue of 3.2 trillion won. And Switzerland's Dufry AG likely lost more than 1.5 billion Swiss francs ($1.7 billion), according to analyst estimates compiled by Bloomberg.

◀ Foreign duty-free chains are planning more shops on Hainan

CTG faces growing competition from domestic and foreign rivals, on both Hainan and the mainland. Department-store operator Wangfujing Group is building a duty-free shop at the Universal Beijing Resort theme park scheduled to open in May, and in January it signed a deal for Hainan stores. DFS Group, a duty-free operator owned by luxury house LVMH, is working on a 30,000-square-meter (320,000-square-foot) outlet at a golf resort in Haikou, Hainan's provincial capital. Paris-based Lagardère Travel Retail on Jan. 4 said it had formed a partnership for a duty-free shop in Sanya, a city on the south coast with scores of luxury hotels. The next day, Dufry announced a partnership for a shop in downtown Haikou. China "provides immense potential in terms of new customers for many years to come," says Pedro Castro, Dufry's chief operating officer for Asia.

"With China being the main—or maybe the only—luxury market left, a lot of brands have put more focus there"

A test of the industry's strength will come during the weeklong Chinese New Year holiday in February. Typically a busy time for duty-free stores worldwide thanks to big-spending Chinese tourists, the start of the Year of the Ox is likely to be more restrained as the government discourages even domestic travel following coronavirus outbreaks in several cities. Ivan Xu, a 30-year-old corporate travel manager in Shanghai, spent $10,000 on Dior clothes and a designer handbag during a December trip to Macau. He'd planned more duty-free bingeing in Hainan during the Lunar New Year but has postponed the vacation. "There's no point in taking the trip if we're worried about our safety," he says. "We can find a better time to go there for the beach and shopping."

An even bigger challenge will come once the pandemic is brought under control and Chinese tourists can resume jetting around the world. While there's little doubt that will take a bite out of sales in China, duty-free store operators are betting that the country, and especially Hainan, will still offer plenty of opportunity. "With China being the main—or maybe the only—major luxury market left, a lot of brands have put more focus there," says Eudes Fabre, head of North Asia for Lagardère, which is planning further expansion in the country after it opens its Sanya store. "There's a lot of thinking about where to go next." —*Bruce Einhorn, Daniela Wei, and Corinne Gretler*

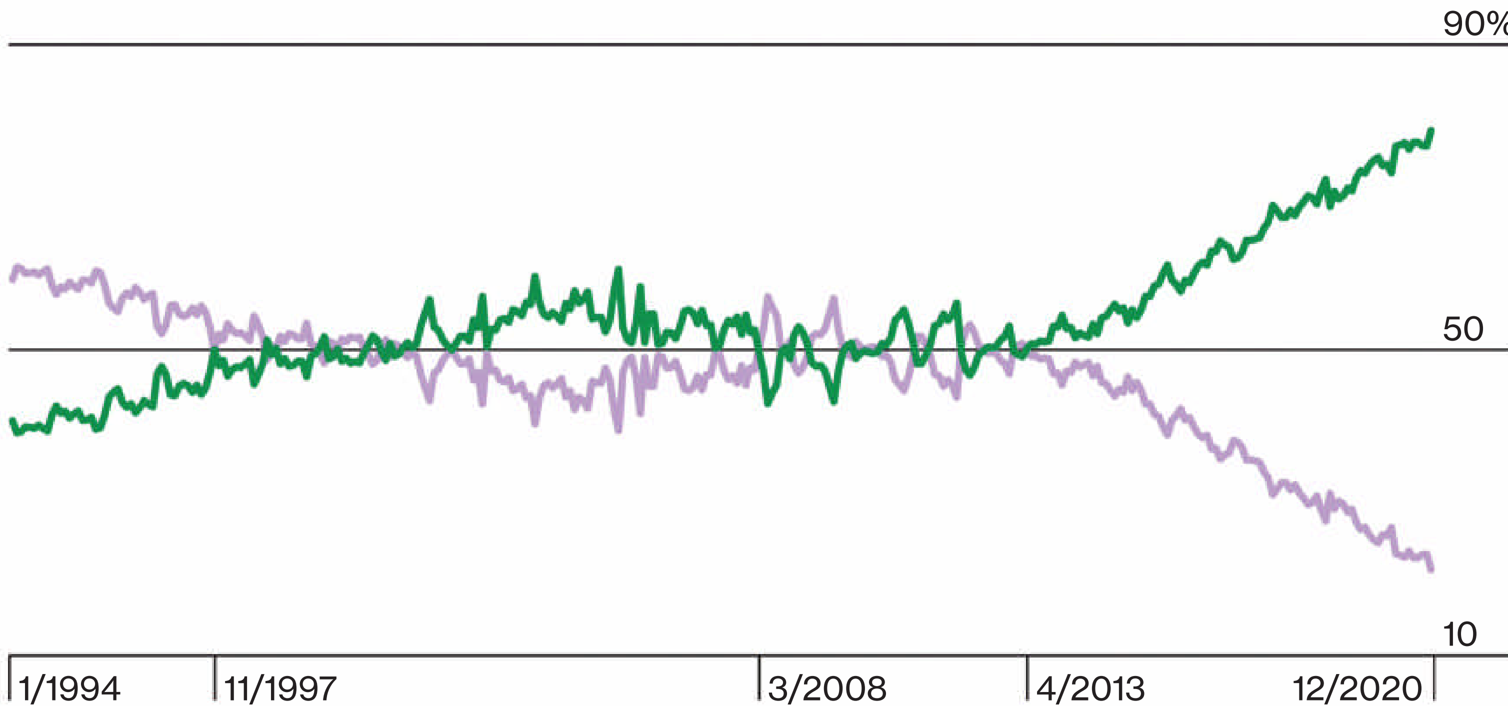
THE BOTTOM LINE China's government last year tripled the annual limit for duty-free purchases by domestic travelers to Hainan, and by January tax-free sales there averaged $28 million a day.

Cars Have Run Out of Gas

Despite all the buzz about how electric vehicles will reshape transportation, the real transformation in the auto business has been consumers' race away from traditional cars and toward so-called light trucks (which include not only pickups but also SUVs and minivans).

Share of vehicles sold in the U.S.

Cars / Light trucks (includes SUVs)



Light trucks as share of U.S. vehicle sales in 2020

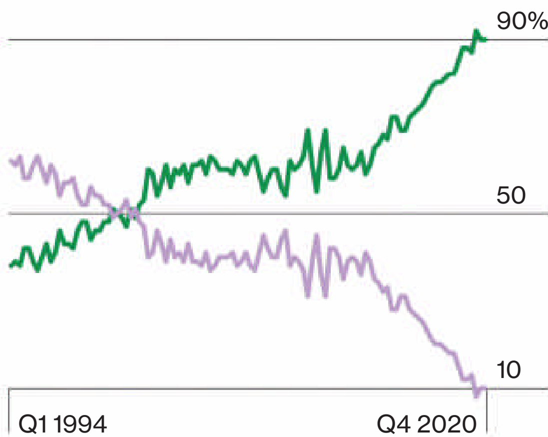
By vehicles sold
76%

By retail value
81%

Cars made up only 8% of GM's sales by retail value in 2020, including 43,000 of models set to be discontinued.

Share of GM vehicles sold in the U.S.

Cars / Light trucks



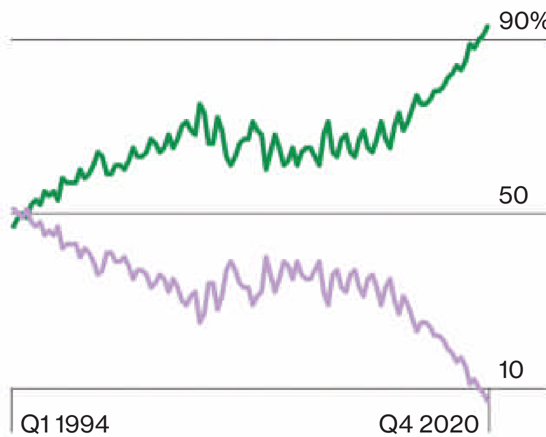
Light truck share of vehicle sales in 2020

By vehicles sold	By retail value
90%	92%

Ford announced in 2018 that it would phase out most of its sedans by 2020, including the Fiesta and Fusion.

Share of Ford vehicles sold in the U.S.

Cars / Light trucks



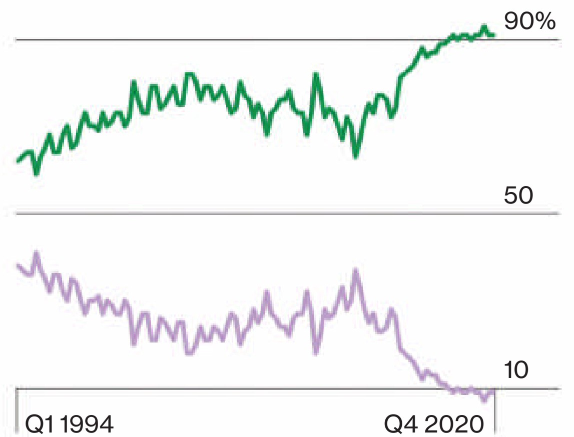
Light truck share of vehicle sales in 2020

By vehicles sold	By retail value
91%	94%

Light truck sales made up 91% of Fiat Chrysler Automobiles' sales in 2020 and have stayed stable since 2018.

Share of FCA vehicles sold in the U.S.

Cars / Light trucks



Light truck share of vehicle sales in 2020

By vehicles sold	By retail value
91%	91%

DATA: BUREAU OF ECONOMIC ANALYSIS, BLOOMBERG INTELLIGENCE, WARDSAUTO

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TECHNOLOGY

Allow Facebook to use this iPhone to track your activity across other companies' apps and websites?

Yes, I totally trust Facebook

No way. Thanks for asking, Apple

● A fight over a privacy feature for Apple's iPhones reveals a deeper rift

It's tough to pinpoint exactly where things with Facebook and Apple went wrong, but like so many relationships gone sour, the first signs of real trouble looked like petty sniping. In March 2018, Facebook Inc. was in the midst of a scandal involving political consulting firm Cambridge Analytica and was facing serious questions about its stewardship of its users' personal data. A commentator on MSNBC asked Apple Inc. Chief Executive Officer Tim Cook what he would do if he were in Facebook CEO Mark Zuckerberg's shoes. "I wouldn't be in this situation," Cook said.

A week later, Zuckerberg implied Apple's products were just for "rich people." Then Apple showed off a feature to help phone users cut down on time spent inside apps. "If you see an app where you might want to be spending a little bit less time, you can set your own limit," said an Apple executive, while Instagram's app appeared on a large screen behind him.

Competition in Silicon Valley can be brutal, but for much of the past decade, Apple and Facebook have shared a mutually beneficial relationship, if not always a friendly one. Facebook relies on Apple's iPhones to reach millions of users, and Apple needs Facebook's wildly popular apps on its phones to keep people from going to competing platforms. Both companies have thrived since the iPhone's release, and for the most part they haven't made products that compete directly.

But Facebook and Apple find themselves on a collision course. Their competition on messaging has heated up for years. Facebook is focusing on products that are also on Apple's road map, ▶

Edited by Joshua Brustein and Anne VanderMey

◀ such as virtual- and augmented-reality headsets. "We increasingly see Apple as one of our biggest competitors," Zuckerberg told analysts in January. "Apple has every incentive to use their dominant platform position to interfere with how our apps and other apps work, which they regularly do to preference their own."

The feud has escalated rapidly over Apple's forthcoming update to the software that powers its iPhones, which includes a requirement that developers get explicit permission to collect certain data and track users' activity across apps and websites. Such a move could undermine the efficacy of Facebook's targeted advertisements. In December, Facebook took out full-page ads in a trio of U.S. newspapers saying it was "standing up to Apple for small businesses everywhere" by opposing the changes, which it describes as an abuse of market power. Facebook is considering filing an antitrust lawsuit against Apple, according to a person familiar with the company's thinking.

Apple says the software update will give users more clarity about who's collecting their data and why. It describes privacy as a "fundamental human right"—and its record on the issue is a way to differentiate itself from Alphabet Inc.'s Google, which makes Android, the software powering most non-Apple smartphones.

Cook seemed to take a shot at Facebook on Jan. 28 at the online Computers, Privacy & Data Protection Conference. "If a business is built on misleading users, on data exploitation, on choices that are not choices at all, then it doesn't deserve our praise, it deserves reform," he said. Cook added that some social networks facilitate the spread of dangerous disinformation and conspiracy theories for the sake of user engagement. "It is long past time to stop pretending that this approach doesn't come with a cost—of polarization, of lost trust, and, yes, of violence," he said.

Discussions between the two companies about the software update have been unproductive, says Graham Mudd, a vice president for Facebook's ads and business product marketing. He says attempts by Facebook and others to discuss the software update with Apple have "failed." "Apple did not respond, either at all or with any degree of collaboration."

The recent flareup now centers on the wording of the pop-up prompting iPhone users to decide whether to allow tracking. Executives at Facebook worry that Apple will frame the choice in an alarmist way, effectively pushing users to reject tracking. Facebook Chief Financial Officer Dave Wehner told analysts that he expects "high opt-out rates" for Apple's prompt, and Facebook has said these changes will impact its business moving forward. It plans to front-run Apple's prompt with messaging of its own, framing advertising as a way to have a better experience on Facebook and support businesses that rely on targeted ads for sales.

Whatever the outcome, the dispute points to further tension ahead. Elizabeth Renieris, a data protection and privacy lawyer who runs the Notre Dame-IBM Technology Ethics Lab, says the clash over tracking has exposed how much both companies dominate their respective markets, which could be problematic since both are under antitrust scrutiny. Facebook's argument that small businesses won't be able to reach customers after these changes demonstrates how critical it is in the world of small-business advertising, she says. Apple's claim that it must create and enforce industry-standard rules on user privacy illustrates its outsize influence on the smartphone market.

"They're presuming their ongoing dominance for the next decade or more. They're already talking about their next feud," she says, referring to Facebook. "It's quite insane to me that they would publicly air all of this."

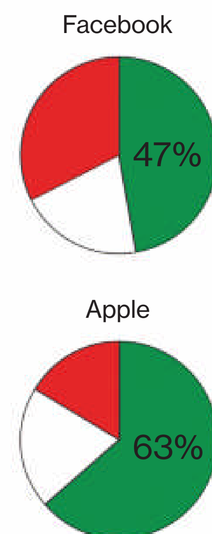
Zuckerberg warned analysts last month about "very significant competitive overlap" in the years to come. Facebook owns three messaging products with more than a billion users each—WhatsApp, Messenger, and Instagram—that compete with Apple's iMessage. Zuckerberg accused Apple in late January of giving its own app unfair advantages over competitors, though he also has pointed to iMessage's success as a way to prove Facebook doesn't have a monopoly over private messaging.

The two companies will compete in hardware when Apple releases a virtual-reality device to rival Facebook's Oculus Quest headset as early as next year. Both companies are also developing their own augmented-reality glasses, though those are further off.

Given its bruised reputation, Facebook is at a serious disadvantage in a fight over privacy, and Zuckerberg has tried to stress what he sees as the nonbenevolent motives behind the phonemaker's business decisions. "Apple may say that they're doing this to help people, but the moves clearly track their competitive interests," he said on Jan. 27. "I think this dynamic is important for people to understand, because we and others are going to be up against this for the foreseeable future." —*Kurt Wagner and Mark Gurman*

THE BOTTOM LINE Apple and Facebook have generally steered clear of direct competition, but their spat over data collection is a sign that this is changing.

▼ U.S. opinion, 2020



PHOTOGRAPH BY DAVID JAEWON OH FOR BLOOMBERG BUSINESSWEEK. DATA: YOUGOV

A Shipping Guru Chases The Middle Mile

● After spending years building Amazon's delivery operations, Scott Ruffin is creating one to offer to its competitors

Long before the pandemic overloaded U.S. delivery infrastructure, Scott Ruffin was trying to make Amazon.com Inc. a shipping powerhouse. He spent five years building out home-delivery operations for the e-commerce giant, reducing its dependence on services such as FedEx Corp. and United Parcel Service Inc.

Now Ruffin wants to do it on his own. Introduced in stealth mode in September with $5 million in seed funding, his startup Pandion aims to help major retailers offer affordable one- and two-day deliveries and compete with his former employer.

The shipping business is hot right now, but it's also a mess. FedEx and UPS responded to increased demand during the pandemic by raising rates. Amazon—which has tens of thousands of its own trucks and about 80 planes—fared better than most, but still had to limit what shoppers could buy. People were warned to start ordering their Christmas gifts as early as October, and packages piled up in warehouses during the holiday season.

A spokeswoman for FedEx said that shipping volumes were up 24% during the peak season and that the company would "continue to develop innovative solutions to meet demand." UPS declined to comment for this story.

Ruffin's startup is a bet that demand for deliveries won't subside as Covid-19 eases. U.S. shoppers are on track to spend $843 billion online this year, up 6.1% from 2020, according to researcher EMarketer, a signal that last year's surge in e-commerce spending wasn't just a plague-year fluke. "Amazon has solved the problem for itself, but the rest of the world still needs a solution," says Harpinder Singh, a partner at Innovation Endeavors, a Pandion investor.

Pandion aims to ease delivery cost and congestion by focusing on the "middle mile" of a package's journey, the leg between a package leaving a warehouse and being placed in the vehicle that drives it to a customer's home. Amazon's approach to the problem involved building a huge network of

▲ Ruffin is betting that high demand for shipping will continue after Covid

"sortation centers," where packages are organized by ZIP code and then passed off to the U.S. Postal Service or the company's own delivery network for the trip to the final destination.

Because Amazon commands almost 40% of U.S. e-commerce spending, Pandion will go after the remaining 60%, which includes big retailers such as Walmart, Target, and Wayfair. "It's really tough to compete with Amazon, and you can't compete without an alternative to FedEx and UPS," says Ruffin, a former Marine Corps logistics officer who spent the past two years working in Walmart Inc.'s ▶

◀ e-commerce transportation operations. He's hiring engineers, including former Amazon employees, and will begin opening a handful of Pandion package sorting centers later this year, using contract trucking companies to transport packages. Ruffin says the still-tiny company should be able to handle up to 10 million packages a month by November and reach half the U.S. population.

Ruffin isn't the only entrepreneur working to capitalize on the glut of packages. Global investments in supply chain and logistics startups hit $8.1 billion in the fourth quarter, more than double the same period a year earlier, according to CB Insights data. Those investments include companies building self-driving delivery vehicles, refrigerated storage for groceries, and automated warehouses where robots fetch products after they're ordered by shoppers.

"There will be more demand growth, and there's a lot of room for innovation," says Chris Caton, a managing director at industrial real estate firm Prologis Inc. And speed comes at a premium. "We're starting to see increased demand from Amazon resetting the bar for delivery times," says Karl Siebrecht, chief executive officer of Seattle-based logistics startup Flexe Inc.

Amazon has focused on the middle mile in a way that logistics had not done historically. The company uses its sorting centers to make sure delivery trucks are packed with orders in close proximity to make each route efficient.

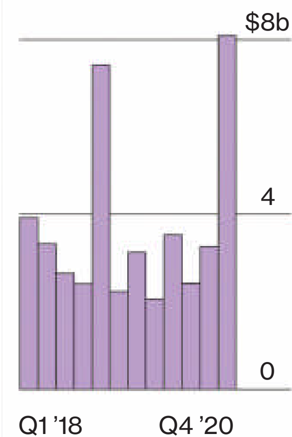
FedEx and UPS were mainly designed to serve downtown business districts, while Pandion has the advantage of building an operation that focuses on residential deliveries from the start, Ruffin says.

The startup also plans to use software to route packages in real time and avoid bottlenecks in the delivery network, similar to commuters using the navigation app Waze to avoid traffic jams on their way to work. Most e-commerce orders make three or four stops at various shipping hubs on the journey from a company's warehouse to a customer's door, and Pandion's software will evaluate each step along the way. It's a feature Ruffin says will differentiate his startup from Pitney Bowes Inc., Deutsche Post AG's DHL unit, and other competitors.

"The big parcel companies have a ton of organizational baggage that makes it difficult for them to adapt and evolve to meet the demands of residential e-commerce delivery," says Pandion investor Julian Counihan, a partner at Schematic Ventures, of competitors FedEx and UPS. "Year after year, they can't handle the volume." Meanwhile, the online shopping orders keep coming. —*Spencer Soper*

THE BOTTOM LINE Pandion is building a middle-mile delivery operation, then relying on other carriers to get a crush of e-commerce packages into mailboxes.

▼ Global funding for supply chain and logistics companies



The Temptation of Covid-Tracing Data

● Singapore has passed a law allowing police to access info gathered to contain the pandemic in certain cases

In the early months of the pandemic, Singapore's TraceTogether app was held up as a model for other nations looking to use mobile technology to fight the coronavirus. The government encouraged people to download the software, which uses Bluetooth sensors in phones to notify users if they've been in contact with someone who's tested positive. To stem concerns about privacy and security, it published the source code and promised strict limits on data use. Developers from around the world pitched in to hone and debug the app in real time.

While initial uptake was sluggish, a government minister said in January that TraceTogether was used by about 78% of Singapore's residents, or about 4.2 million people. But that same month, Singapore became an example of how many people's fears about such apps would be realized. Authorities disclosed that police had used TraceTogether's data in a murder investigation, only months after the government had vowed it would be used only for Covid-19 containment.

Police in Singapore have wide latitude to use data in investigations, but the government issued a rare apology. Instead of backing down, though, the city state's legislature then codified law enforcement's ability to tap into such data in investigations in seven categories of serious crime, including murder, rape, and drug trafficking.

"These are extraordinary times and exceptional circumstances," Minister Vivian Balakrishnan said this month in Parliament, adding that data would be "properly safeguarded and used only for the appropriate purposes." TraceTogether data is automatically purged after 25 days, and the whole program will be retired once the pandemic is over.

The World Health Organization issued guidelines to governments in May urging them not

"Singapore is saying to other governments, with a wink and a nod, that we've done it and you can do it, too"

SUHAIMI ABDULLAH/GETTY IMAGES. DATA: CB INSIGHTS

to "impose unnecessary burdens, for example infringements on privacy," when collecting critical data to monitor the virus. But tension over data-hungry contact-tracing apps hasn't dissipated.

In South Korea, one private-sector contact-tracing app provided the exact location of every place of business or home visited by a positive case. Government workers are able to review hundreds of hours of surveillance camera footage and go through mobile phone and credit card transactions to track people down.

In China a digital website reported in December that hackers were able to breach Beijing's system for tracking Covid test data and obtain government ID numbers and sell them online; such ID numbers are used to gain access to a person's records.

Other countries are seeking to put limits on how data is used. The Supreme Court of Israel has banned the country's intelligence agency from using technology to track Covid cases, and Australian lawmakers passed a law forbidding the use of contact tracing for any other purpose.

By moving in the other direction, Singapore is effectively giving other governments permission to follow, says Phil Robertson, the deputy director in Asia for Human Rights Watch. "Singapore is saying to other governments, with a wink and a nod, that we've done it and you can do it, too," he says.

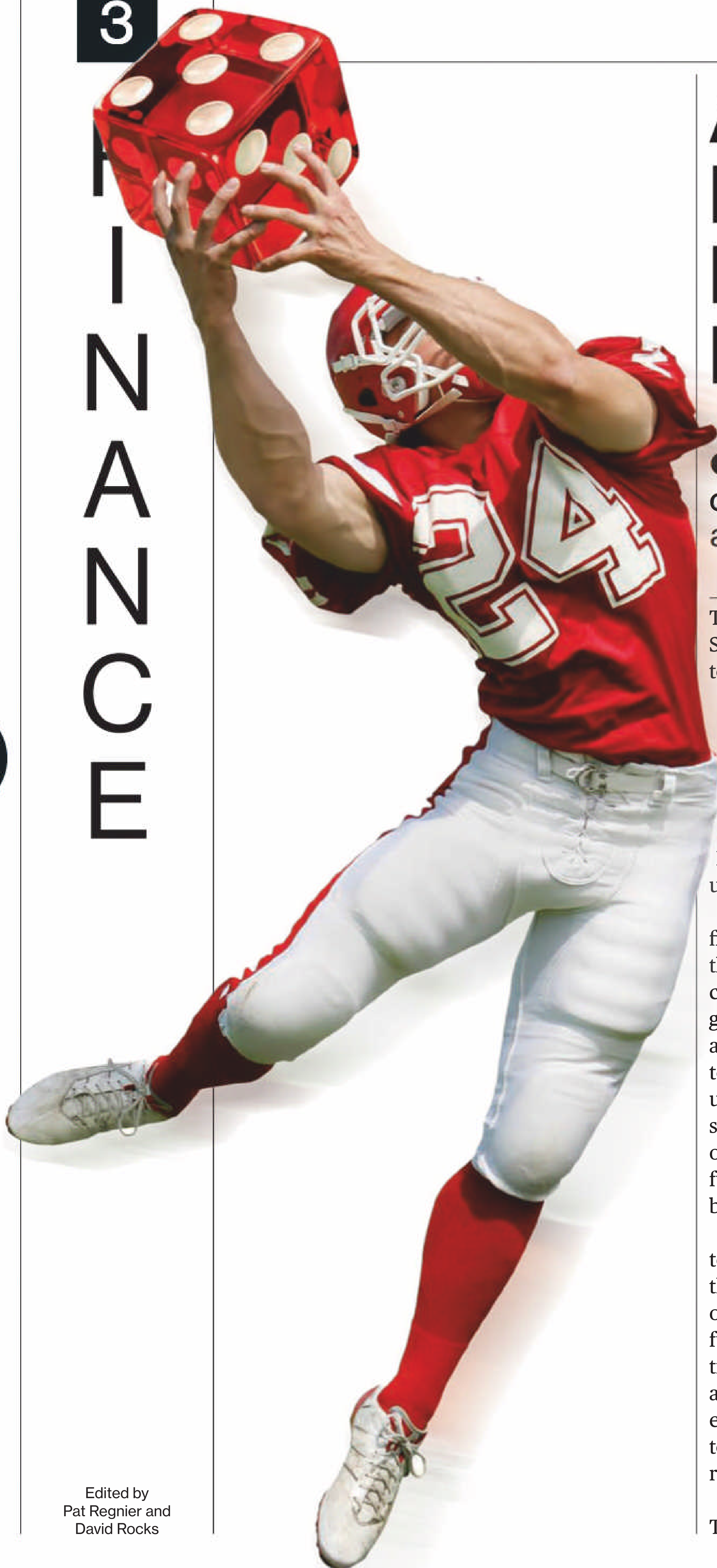
One risk to the approach is that people will stop using contact-tracing apps altogether. "Is this one of the laws of unintended consequences, where it reduces the usage rate and could be worse for society?" says Troy Hunt, an information security expert and the creator of the data breach aggregation service Have I Been Pwned.

Some Singaporeans have expressed anger and voiced doubts about data from the app being necessary for police investigations. "The government is using Covid-19 as an excuse to put in place social engineering and public surveillance platforms and policies that ordinarily would never have been considered nor publicly palatable," wrote Andy Wong, a 27-year-old freelance defense writer and risk analyst, on LinkedIn. "I wonder how many sane foreigners will want to work in a country like that."

Harish Pillay, a software developer who volunteered to help address privacy and transparency concerns around the app last year, says he's disappointed. "It's less than ideal to have specific instances where the TraceTogether data could be accessed," he says. "This will be a tarnished gold standard." —*Jamie Tarabay, with Yoolim Lee, Philip J. Heijmans, and Joyce Koh*

THE BOTTOM LINE Singapore is allowing law enforcement to access Covid-tracing data for serious crimes, leading to concerns other governments will do the same.

▲ A police officer patrols Singapore's Orchard Road shopping district



A Sports Betting Futures Market?

● The proposal to create contracts on games faces a high regulatory hurdle

The futures market is often referred to as Wall Street's casino. Now, in a twist, there's a proposal to let casinos start trading futures.

The marriage of the gambling industry and high finance is being pushed by a cryptocurrency exchange and a Washington lawyer. Hoping to grab a piece of the billions of dollars flowing into the U.S. sports-betting industry, they've designed futures contracts based on National Football League games and are petitioning regulators to bless them.

That could be challenging: Congress banned financial instruments involving gaming in 2010. But the promoters argue that the futures, tied to the outcome of a football game, have nothing to do with gambling. Instead, they're marketing the contracts as risk management tools for legal sportsbooks, akin to any other financial derivative a business might use to offset potential losses or protect against price swings. They're essentially asking regulators to think of casino operators as farmers, but instead of using futures as insurance against a bad crop they might be trying to hedge a Tampa Bay Buccaneers win.

Trading in the football futures would be limited to licensed sportsbooks, vendors, and companies that agree to help set prices and take the other side of trades as market makers. Individuals and hedge funds that may just want to speculate on the contracts would be barred from the market. "This is not a substitute for gaming," says Thomas Chippas, chief executive officer of ErisX, the exchange that wants to list the contracts. "There is underlying economic risk that is being hedged."

ErisX formally asked the Commodity Futures Trading Commission in mid-December to approve

Edited by Pat Regnier and David Rocks

PHOTO ILLUSTRATION BY 731. PLAYER: GETTY IMAGES. DIE: SHUTTERSTOCK

the futures, setting off a 90-day waiting period so that the agency could seek comments from the public. The exchange and its partner, attorney Jeff Ifrah, have spent several months meeting with the agency's commissioners and making their case with help from a well-connected CFTC lobbying firm, Delta Strategy Group. If the CFTC assents to their proposal, they would like to quickly offer futures for professional basketball and baseball as well.

The CFTC is treading carefully. It's asked interested parties to weigh in on a series of questions, including whether the futures "are contrary to the public interest"; whether they could be used to influence the outcome of a sporting event; and if the products would fall under the ban on gaming contracts. If the agency signs off, some critics say the regulator, which was established mainly to police agricultural commodities and protect farmers, would be entering into territory it knows little about.

It could also in essence be putting a government stamp of approval on the gambling industry. Even if individual investors are never allowed to trade such futures, giving gaming companies the ability to transfer some of their risk would allow casinos to accept more—and larger—wagers. "The only winner under this type of proposal are the casinos themselves," says Les Bernal, national director of the Washington advocacy group Stop Predatory Gambling. "It's going to lead to citizens losing billions of dollars more money than they already are losing."

The CFTC's "approval is highly unlikely," says Patrick McCarty, who as a Senate Agriculture Committee aide helped draft the derivatives provisions in the 2010 law that barred gaming contracts and now runs his own government affairs firm. He also notes that the CFTC should be wary of setting a precedent that could put it in the position of doing an end run around gambling regulation, which is the responsibility of the states. "It's like opening a door that the commission doesn't want to go through."

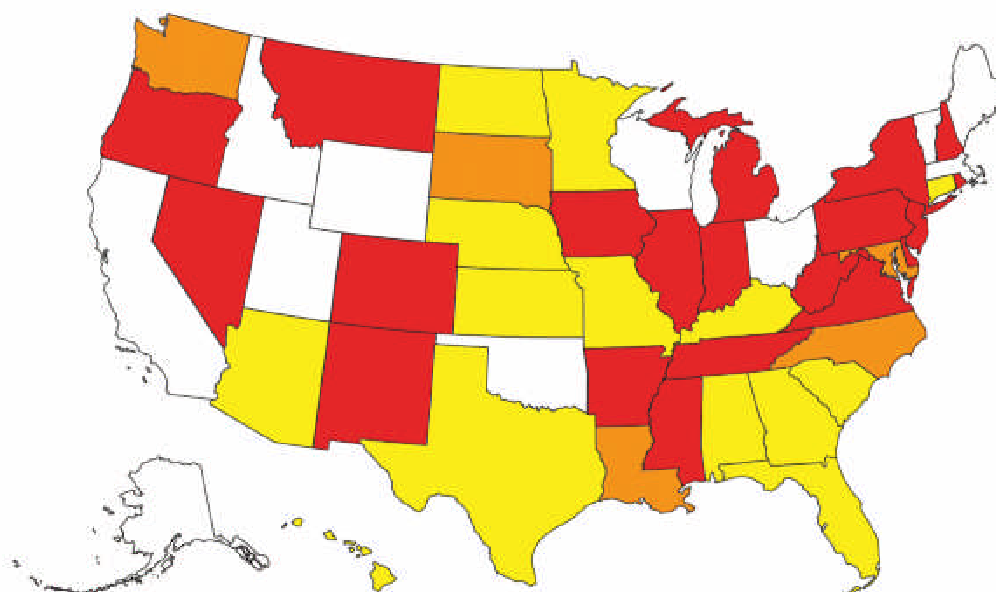
Another potential hurdle is the sports leagues themselves. In comments to the CFTC, both the NFL and the National Basketball Association were lukewarm on the prospect, saying the agency should take its time studying the issue. "We want to work with the sports leagues to make sure their concerns are addressed," Ifrah says.

The CFTC's decision is likely to be closely watched not only in the gaming world but also on Wall Street, where gambling is a favorite pastime of traders. Gaming is seen as a big business opportunity as well. Betting on individual sporting events, which was legalized by the Supreme Court in 2018, now accounts for an estimated $1.4 billion in annual revenue in the U.S., and data firm H2 Gambling Capital predicts that may double soon. Twenty-five states and the District of Columbia now allow sports wagering, and more are considering legalizing it.

"The numbers in this space are enormous," says Chippas of ErisX. His company was brought into the venture after its lobbyists at Delta Strategy introduced the company to Ifrah. A criminal defense attorney who's also developed an expertise in gaming law, Ifrah came up with the idea for the contracts and launched a business called RSBIX to design and market them. The lawyer says he's never placed a bet himself.

Sports Betting

■ Legal and live ■ Legal, not yet live ■ Legislation pre-filed or introduced in 2021*
□ No legislation in 2021 to date



MAP INCLUDES BETTING ACTIVITIES OFFERED THROUGH RETAIL AND/OR ONLINE SPORTSBOOKS. LEGAL STATUSES AS OF FEB. 2.
*INCLUDES SCHEDULED VOTER REFERENDUMS. DATA: AMERICAN GAMING ASSOCIATION

In its application, ErisX is seeking approval for three different types of contracts on NFL games, each mirroring a common type of bet. One is based on the so-called moneyline, a wager on the outright winner of the game. Another contract takes into account the point spread for the favored team. And the third is on the "over/under," or the total points scored. The futures are designed to help solve a problem in sports betting that's cropped up because it's legal only in individual states. That can result in the local team drawing most of the wagers, setting up a sportsbook for an imbalance that could potentially lead to a big loss.

The problem is particularly acute, the futures advocates say, with high-profile events such as the Super Bowl. In its CFTC application, ErisX cited reports of Rhode Island- and New Jersey-licensed sportsbooks losing millions on the 2019 game between the New England Patriots and the Los Angeles Rams, which the Patriots won, 13-3, ▶

◀ because of uneven betting. The disparity, ErisX and Ifrah say, could be eased by the gaming company buying or selling futures contracts on games it's concerned about. Sportsbooks make money charging fees to bettors, so they try to stay as neutral as possible in the wagers they accept.

The trades would work like this: A casino in Pennsylvania, say, that's getting too many bets on the Philadelphia Eagles against the Patriots is nervous that an Eagles win will force it to pay out much more than it's taken in. The casino goes to the exchange and sells contracts based on the game, taking a position that the Patriots will win. The buyer on the other side could be a sportsbook in New Hampshire with the opposite problem.

Once a sportsbook makes a request to buy or sell, it will go to a central order book where other casinos, vendors, and market makers could see the offer and agree to the trade. From that point on the futures can be bought and sold freely by any of the allowed market participants before the game starts.

One company that's agreed to be involved as a market maker—helping set prices and agreeing to take the other side of trades—is Susquehanna International Group. One of the largest options traders in the world, it also owns a sports betting business in Ireland, though that's not involved in the U.S. futures effort. "It's such a novel concept that addresses this need when sportsbooks have reached their limits," says David Pollard, head of strategic planning for Susquehanna. *—Robert Schmidt and Ben Bain*

THE BOTTOM LINE Futures could be a way to let legal sportsbooks even out their exposure to game outcomes, but they might also lead to even more wagering.

● One of the simplest ways to buy Bitcoin also has a quirk that could lead to bigger losses

Many investors racing to get in on Bitcoin's big rally have bet on the cryptocurrency through investment trusts rather than buying the coins themselves. These fundlike trusts have some advantages: Their shares can be bought and sold through ordinary brokerages without the need to set up digital wallets or move money to a crypto exchange. And some institutional investors, barred by the rules of their funds from holding Bitcoin directly, have also turned to trusts. Cathie Wood, for example, has made the Grayscale Bitcoin Trust the fourth-largest holding in her Ark Next Generation Internet ETF.

But the market value of the trusts can swing way above or below the value of the Bitcoin they hold, adding a new element of risk for an already volatile investment. Take the $25 billion Grayscale trust. Demand was so relentless in December that the trust's price soared 40% above its net asset value—that is, the market value of all the Bitcoin it holds. At the top, investors essentially were indirectly paying $14,000 for the equivalent of $10,000 in Bitcoin. That's bad enough. But when Bitcoin falls, the value of trusts like Grayscale could sink below that of their holdings, further amplifying investor losses.

"It doesn't take a whole lot of selling pressure"

If Grayscale were an exchange-traded fund, it would have specialized traders known as authorized participants who work behind the scenes to make sure this dislocation doesn't exist. When prices for an ETF's shares get out of whack with the underlying holdings, these arbitragers push them back in line through a process that relies on the ETF's ability to issue and redeem its own shares to balance supply and demand. But while it's possible for a crypto trust to issue new shares, it has no ability to redeem them—a key reason the trust's prices stray from the value of Bitcoin. "There is no arbitrage mechanism to keep the price of the shares closely linked to the value of the underlying cryptocurrency assets," says Teddy Fusaro, president of Bitwise Asset Management, which also runs cryptocurrency trusts.

When investors want to get out of a Bitcoin fund, they have to find someone else in the market willing to buy their shares. That's not a problem when Bitcoin is hot, and in fact traders have mostly been

PHOTO ILLUSTRATION BY 731. EMOJIS: APPLE, FRIJNS; BANKTRACK

willing to overpay. But the dislocation can go both ways. "What might be a premium—and a pretty significant premium at one point—can quickly reverse and become a sizable discount when people begin selling, and it doesn't take a whole lot of selling pressure given that you don't have that pressure release valve," says Ben Johnson, Morningstar Inc.'s global director of ETF research.

Grayscale's price-to-NAV gap has narrowed recently, as Bitcoin pulled back from a record above $40,000 per coin to around $35,000. It never turned negative. But if it did, an investor who wanted out of the trust would be selling a share for less than the cost of the Bitcoin it represents. And the fund doesn't have to fall into a discount to potentially exacerbate losses—a narrowing of the premium could have a similar effect.

Demand for crypto exposure sent $3 billion to Grayscale Investments' products in the fourth quarter, the bulk of which was absorbed by Grayscale Bitcoin Trust, the company said last month. Meanwhile, the Bitwise 10 Crypto Index Fund has already gathered more than $700 million in assets after its mid-December debut, according to data compiled by Bloomberg.

As Bitcoin has boomed, Grayscale has tried to keep pace with demand by issuing more shares. Yet even as it sold shares to push the total to 684 million, from 278 million a year ago and just 174 million at the height of 2017's mania, it wasn't enough to keep the price from swelling above its underlying value. And now the massive issuance has the potential to exacerbate a supply-demand imbalance in the event of a selloff.

Grayscale Chief Executive Officer Michael Sonnenshein says he doesn't anticipate that the Bitcoin trust's price would sink meaningfully below that of its holdings in such a scenario. Grayscale Bitcoin Trust's lone instance of a discount occurred in March 2017. "In the five-plus years that this product has been trading in the public market, Bitcoin has gone through no shortages of bubbles and bursts," Sonnenshein says. "The demand for access for Bitcoin through a titled security has remained a very, very popular means."

James Seyffart of Bloomberg Intelligence says a meaningful discount would likely attract bargain hunters. Even without the traditional arbitrage, that natural demand for shares would eventually realign prices, he says. Before that happened, though, traders who bought in when Bitcoin was high and fund share prices were even higher could go through a lot of pain. —*Katherine Greifeld*

THE BOTTOM LINE Trusts that trade on the market like stocks can offer exposure to Bitcoin, but their share prices don't always match the underlying value.

Cutting Off the Cash Pipeline

● Environmentalists are stepping up pressure on banks that finance fossil fuel producers

Johan Frijns will tell you that on his best days, he takes to the streets in the morning in jeans and a T-shirt to protest climate change, then in the afternoon dons a suit to visit a bank, where he tells executives they must do more to combat global warming.

For the better part of two decades, Frijns has sought to rein in carbon emissions by hitting fossil fuel producers where it hurts most: their cash pipeline. The way to do that, the 55-year-old Dutchman says, is pressing lenders to cut off funding to coal, oil, gas, and industrial polluters. "Banks have great leverage over their clients," says Frijns, a founder of BankTrack, a nonprofit that focuses on the role the finance industry plays in climate change.

Frijns is a pioneer of a fast-growing environmental movement insisting that without restricting the flow of cash to fossil fuel producers, there's little chance the world community can meet the climate goals of the 2015 Paris Agreement. And he's had some notable successes, forcing bankers to recognize that lending to oil explorers, arranging share offerings for coal miners, or underwriting bonds for pipeline operators makes them complicit in global warming. After pressure from BankTrack and others, Dutch bank ING Groep NV and France's Crédit Agricole SA stopped financing some coal projects.

● Frijns

But for the people whose fortunes depend on providing that money, it's tough to walk away. In the four years after the Paris accord, major banks arranged $2.7 trillion in financing for legacy energy companies, according to a report co-authored by BankTrack. Fees those clients paid to the top 12 global financial houses doubled last year, to $4.2 billion, consulting firm Coalition Development Ltd. estimates. "If you keep funding fossil fuels, you're building up a climate problem," says Louise Rouse, a former banking lawyer who advises environmental groups such as Greenpeace.

Rouse compares today's financing of traditional energy to the complex mortgage-backed ▶

◀ securities that banks cobbled together 15 years ago. Just as lenders helped inflate the bubble that triggered the 2008 global financial crisis, she says, the money they provide to oil and gas producers today is a primary cause of global warming. “You will have increased the systemic climate risk of not meeting the Paris goals,” she says.

BankTrack has been joined by multiple organizations such as Reclaim Finance and BankFWD (founded by members of the Rockefeller family) that are pursuing similar goals. Brayden King, a professor at the Kellogg School of Management in Evanston, Ill., who studies how activists influence corporations, cautions that the groups must coordinate their actions, targeting all the major banks to ensure they maximize their clout. “Otherwise energy clients will take their business elsewhere,” he says. “It will just be money changing hands. The climate problem will remain the same.”

Although many climate advocates focus on divestiture campaigns, restrictions on financing have a more profound environmental impact, says Theodor Cojoianu, an assistant professor at Queen’s University Belfast. Selling shares of fossil fuel producers puts downward pressure on the stock price—which can complicate getting loans—but targeting the banks that lend to them or help sell their stocks and bonds has a more immediate effect, making it harder for them to fund exploration or develop oil and gas fields. “Banks have more of an enabling role,” Cojoianu says.

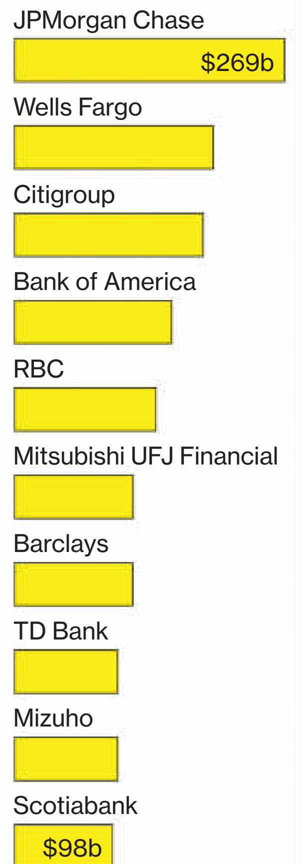
Some banks have restricted their fossil fuel financing, but these moves have been limited to controversial projects such as Arctic drilling and tar sands, as well as coal, an industry already in rapid decline. More recently, banks such as Barclays Plc and Morgan Stanley have said they’ll calculate their carbon footprints and set timelines for zeroing out their own greenhouse gas emissions and those of the projects they finance. There’s nothing wrong with zero-emissions targets, Frijns says, but they typically lack detail and the goals are too far in the future. “Net-zero is the new ‘world peace,’” he says. “Everybody loves it. How can you be against banks or anyone declaring a net-zero target by 2050? But they are meaningless.”

Frijns, who got his start in activism by campaigning against nuclear weapons as a teen, says the focus on the coronavirus pandemic over the past year has set back efforts to fight global warming. A major global climate summit in Scotland was delayed, activists had no opportunity to confront bank executives at their annual meetings, and talk of a green economic recovery petered out. “We lost a precious year,” he says. “What would have been good enough two years ago is certainly not good enough now.”

Even so, Frijns has become more optimistic since the inauguration of Joe Biden. The new U.S. president’s revocation of the Keystone XL pipeline license, for instance, will spur lenders to more closely examine the potential profits or losses from energy projects and avoid those that appear too controversial, Frijns says. “That,” he says, “will make banks more hesitant to fund fossil fuels.” —*Saijel Kishan*

THE BOTTOM LINE Since the Paris accord, top banks have arranged $2.7 trillion in funding to fossil fuel companies, which paid them $4.2 billion in fees last year.

▼ Financing extended to the fossil fuel industry from 2016 to 2019



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A Tiny Town's XL Hopes

● Biden's cancellation of a controversial oil pipeline shocks Alberta's Oyen, where the arrival of construction crews bolstered businesses

On the snowy prairies of western Canada, a tiny town is grappling with the fallout from the 12-year saga of the world's most controversial oil pipeline.

On his first day as U.S. president, Joe Biden signed an executive order rescinding TC Energy Corp.'s permission to build the $8 billion Keystone XL. The 1,210-mile pipeline was designed to carry more than 800,000 barrels a day of Canadian oil sands crude to refineries in the U.S. when it entered service in 2023. It was also supposed to create about 13,000 union jobs.

Biden's decision may have fallen hardest on the eastern Alberta farming town of Oyen, where work on the project was already under way and local businesses were reaping the rewards. Even though Biden had pledged during his campaign to cancel Keystone XL, the news still came as a shock to the town's mayor, Doug Jones. "I did not expect to see that in the first hundred days," he says.

In recent months, Oyen had been buzzing with activity. Its population of 922 more than doubled with the arrival of about 1,000 workers. Some rented rooms in local homes, others bunked at so-called man camps. All together, they injected as much as C$4 million ($3.1 million) of extra spending into the local economy every month, Jones figures, helping counteract the drag from the pandemic.

Debmart Cafe & Convenience on Main Street, a popular spot for sandwiches and eggs Benedict, was reeling from Covid-19 restrictions in March, before the pipeline crews arrived. "We had to lay everyone off when it first came into effect that they shut everything down," says owner Deb Schiebelbein, adding that business had "at least doubled" since the pipeline workers came.

The staff at Debmart would prepare dinners for workers that they would pick up after their shifts. The cafe also changed its schedule to take advantage of the increased demand. "We opened Sundays to accommodate the pipeliners, and they supported us really well," Schiebelbein says. Biden's decision to kill Keystone XL "wasn't pleasant, but there really isn't too much a person can say."

The president's move could bring down the curtain on a long-running drama that's come to symbolize the clash between environmentalists and the oil industry. Green groups and celebrities including Mark Ruffalo and Daryl Hannah campaigned against the pipeline, arguing it would pollute rivers and indigenous lands and worsen climate change by spurring further development of Canada's high-carbon-emitting oil sands.

The Canadian oil industry, which for years has had to contend with a pipeline shortage that's depressed local oil prices, countered that Keystone XL was the safest and cleanest way to deliver oil to the Gulf Coast refineries that are equipped to handle heavy crude. The alternative would be to have it travel on rail cars, which can explode into massive fireballs in an accident.

Edited by Cristina Lindblad

PHOTOGRAPH BY IAN WILLMS FOR BLOOMBERG BUSINESSWEEK

◀ Oyen's Main Street

TC Energy tried to tamp down opposition to the project by signing labor agreements with unions in the U.S., pledging to power the pipeline with 100% renewable energy and offering to sell a C$1 billion stake in the line to a coalition of Canadian indigenous communities. But those measures weren't enough. "It's devastating," says Travis Meguinis, chief executive officer of Natural Law Energy Inc., an indigenous-owned company that sought to invest in the pipeline. "The communities were looking for hundreds of millions of dollars coming in."

Within a day of Biden's decision, TC Energy announced that work on the pipeline had been suspended and that 1,000 people would be let go on both sides of the border. But in Oyen, hope remains that the project can be revived. Workers staying in a local camp next to the town were boarding buses to head to a work site on the morning of Jan. 23. Site Resource Group, a subcontractor that employs as many as 60 people to perform Covid disinfection and other site management work for the project, is conducting "business as usual," says Senior Vice President Roger Didychuck. The company hasn't reduced its workforce as it waits for instructions, he says. "We are just working as normal." Biden's announcement was a "shock," he says. "We thought there would be some negotiation, and maybe there still is."

Keystone XL has died before only to be revived. President Barack Obama rejected a permit application in 2015, but that decision was reversed more than a year later when the more fossil-fuel-friendly Donald Trump assumed the presidency. Construction work began in Canada last spring, jump-started by C$1.5 billion in investment from Alberta's government.

Alberta Premier Jason Kenney called Biden's decision an "insult" and demanded that Canadian Prime Minister Justin Trudeau retaliate with trade sanctions if the U.S. doesn't negotiate. Trudeau, eager to reset relations with the U.S. after a strained relationship with Trump, expressed "disappointment" but said little more. The province is contemplating legal action, Kenney said at a press conference.

This time, the cancellation could be the final blow. Oil pipelines face increased opposition from environmentalists and the communities they pass through. Energy Transfer LP's infamous Dakota Access pipeline, which became operational in 2017 following a monthslong standoff with indigenous groups, is at risk of getting shutdown as a result of a recent U.S. court decision. Michigan is trying to shut Enbridge Inc.'s Line 5, claiming its passage under the Straits of Mackinac threatens the Great Lakes.

Investors are also shunning the oil sands as they reduce support for the dirtiest forms of fossil fuel. In the latest such move, the New York State Common Retirement Fund put eight Canadian oil sands companies on notice to either transition away from hydrocarbons or face investment restrictions.

Still, Canada's oil producers have reason for optimism. Construction on two other pipelines is under way, and they're scheduled to enter service in the next two years. Combined, they'd provide more than enough export capacity for oil sands producers, with some room to accommodate increased production volumes over the coming decade.

● Projection of number of union jobs created by the Keystone XL pipeline

13K

Pipeline projects have come to Oyen before, including the first Keystone pipeline, which was put into service in 2010. Based on that experience, some townspeople had already expected the economic stimulus to be fleeting. "It's not going to add long-term jobs, just a little bump," says Richard Woods, the owner of the local Ace Hardware store. He says he was getting as many as 120 customers a day coming in to buy everything from tools to phone chargers last year, compared with about 100 during normal times. "I don't think the town has changed." *—Robert Tuttle, with Kevin Orland*

THE BOTTOM LINE The economic stimulus provided by the $8 billion Keystone XL pipeline may prove more fleeting than anticipated if the project cannot be revived.

The Biden Doctrine

● Members of the president's inner circle have spent the past few years trying to devise a foreign policy that better serves the middle class

Joe Biden has followed the path of many American presidents in bringing his own foreign policy brand into office. His "foreign policy for the middle class" is less pithy than Donald Trump's "America First." But for a world trying to gauge the U.S.'s new leadership—and an electorate with an uneasy relationship with globalization and other disruptive economic forces—it may be just as consequential.

Biden's promise to the world is reengagement, whether on issues from which the U.S. has been absent, such as climate change, or in multilateral institutions his predecessor sought to blow up, such as the World Health Organization. But national security adviser Jake Sullivan and other senior aides are also making it clear that doesn't portend a return to a pre-Trump model.

The big idea is that since the end of World War II, Washington has gradually shifted from policies that fostered middle-class prosperity to ones that furthered the interests of multinational corporations and investors. That, of course, is the same economic grievance that Trump harnessed to win the presidency in 2016—the elites sold us out. The consequences of that perceived betrayal are by now familiar: rising inequality, stagnant median household incomes, and employment shocks caused by the rise of China and technological change.

In the wake of Trump's victory, some graduates of the Obama administration including Sullivan embraced the idea that U.S. policymakers had failed for too long to acknowledge the fallout from globalization. As Trump unleashed his trade wars, jeopardizing long-standing international alliances in the name of the American worker, the Obama graduates were teaming up with centrist Republican policy veterans to devise an alternative.

Among the efforts was the establishment of a bipartisan task force under the auspices of the Carnegie Endowment for International Peace, a Washington, D.C., think tank where Obama's former commerce secretary, Penny Pritzker, chairs the board of trustees. The stated goal when it convened in 2018: come up with ideas for a foreign policy that works better for the middle class.

At the helm were two people now in senior roles in the Biden administration: Salman Ahmed, a member of Obama's National Security Council who's been brought in to oversee the State Department's policy-planning function, and Sullivan, who advised Biden on national security matters when he was vice president.

The group laid out their recommendations in a 90-page report released in September. Among other things, it called for the drafting of a "national competitiveness strategy" to coordinate both public and private investment and stay ahead of China. Another suggestion: broadening the scope of international trade negotiations to address issues such as currency swings and tax incentives that spur companies to shift production offshore. One overarching theme was the need for greater coordination between foreign and domestic policy so the U.S. does a better job of equipping workers with the skills they need to adapt to big shifts in the labor market. In some cases that means international priorities taking a back seat to domestic ones, an idea the Biden administration has endorsed early on.

"We have to put ourselves in a position of strength to be able to deal with the challenges we face around the world," from the "great power" battle with China to nuclear proliferation, Sullivan told a Jan. 29 U.S. Institute for Peace forum in which he repeatedly emphasized the need for a focus on domestic problems.

What a foreign policy for the middle class will mean in practice remains an open question. Through spokespeople, both Sullivan and Ahmed declined requests for interviews. But other members of the Carnegie task force insist that what the Biden administration is pursuing is more than just a reframing of past internationalist policies or a relabeling of Trump's "America First."

For the report, researchers traveled to Colorado, Nebraska, and Ohio to sound out middle-class Americans on topics ranging from defense spending and foreign aid to trade and tariffs. What they heard was neither great enthusiasm for Trump's brand of protectionism nor the slavish devotion to free markets that came before, says task-force member Tom Wyler, who served as Pritzker's top international economic adviser at the Commerce Department and now works for her investment firm, PSP Partners LLC. That means the world ought to be ready for a U.S. that has a sharper view of its own economic interests, Wyler says. "I don't think you are going to see this administration trade off the bread-and-butter economic issues for strategic priorities," he says.

Also emerging from the task force's work was a recognition of past missteps. In hindsight the proper U.S. response 30 years ago to globalization

"I don't think you are going to see this administration trade off the bread-and-butter economic issues for strategic priorities"

● Sullivan

ILLUSTRATION BY PATRIK MOLLWING. SULLIVAN: CAROLYN KASTER/AP PHOTO

fueled by China's rise, the growth of the internet, and the rapid decline in transportation costs would have been a congressionally mandated flood of public investment in education, infrastructure, and R&D, says task force member Christopher Smart, an alumnus of the Obama National Security Council who's now chief global strategist at investment bank Barings. "Is that a realistic scenario of what could have happened? Probably not," he says. "But it's probably what should have happened." So why not make it happen now, as Biden has proposed?

A preview of Biden's approach could be found in the documents accompanying a "Buy American" executive order the president signed on Jan. 25. The decree itself did little more than close loopholes that allow exemptions from rules requiring federal departments to buy U.S.-made products. But the press release also noted the administration was "committed to working with partners and allies to modernize international trade rules—including those related to government procurement—to make sure all countries can use their taxpayer dollars to spur investment."

That was an acknowledgment that U.S. trading partners have long argued "Buy American" provisions violate international trade rules. It also could be read as a preamble to a broader discussion about subsidies, an issue that's sure to come to the fore as governments search for ways to boost domestic production of medical equipment and pharmaceuticals.

A Biden administration looking to change the rules of engagement may be able to find common ground with European allies with their own middle classes to appease. French President Emanuel Macron, for one, faces 2022 elections and needs a more durable way to respond to the economic anxieties articulated by the Yellow Vest protesters.

Some progressives seeking a broader remake of U.S. policy and institutions such as the World Trade Organization worry Biden will focus too much on wooing allies alienated by Trump. "I hope it won't just be that—four years of soothing people's ruffled feathers," says Thea Lee, head of the progressive Economic Policy Institute. Then again, Lee adds, the crises Biden inherited from Trump offer an opportunity. "It certainly creates the space for building something new." —*Shawn Donnan*

THE BOTTOM LINE Biden's goal of putting middle-class interests at the center of American foreign policy sounds good on paper but may be tricky to deliver on.

Wage Authority

● Arindrajit Dube's research cemented a new understanding on the effects of minimum wages

As a 16-year-old kid flipping burgers at a Seattle McDonald's in 1989, Arindrajit Dube was earning the state minimum wage of $3.85 an hour. "I remember feeling privileged that I was going to go on to college, while there were many older workers working at that wage," he recalls.

He still thinks about the minimum wage, only now it's from his perch at the University of Massachusetts at Amherst, where he's possibly the world's leading authority on its economic effects. Dube's research is guaranteed to get a bigger audience as Democrats in Congress attempt to make good on President Biden's pledge to raise the federal wage floor to $15 an hour by 2025.

To cut to the chase, Dube (doo-BAY') thinks it's a good idea. "My reading of the evidence is that those risks are probably not very high," he says, alluding to the argument that high wage floors destroy jobs by causing employers to make do with fewer workers or, in extreme cases, to close their doors. "There's also a lot of rewards—lowering poverty." ▶

◀ David Neumark, an economist at the University of California at Irvine who's emerged as Dube's No. 1 intellectual foe, says that if reducing poverty is the objective, it would be better to raise the earned-income tax credit, which is for low- and moderate-income workers.

Neumark's view is shared by conservatives in Congress and trade groups such as the National Restaurant Association. But the consensus in the economics profession has shifted away from them in recent years. In 1978, 90% of respondents to a survey of members of the American Economic Association (AEA) agreed that minimum wages substantially reduce employment among low-wage workers. By 2015, only 26% of top economists surveyed by the University of Chicago Booth School of Business's Initiative on Global Markets concurred that raising the floor to $15 by 2020 would "substantially" lower employment. (An IGM survey released on Feb. 2 found 45% nevertheless agreed that a $15 minimum "would lower employment for low-wage workers in many states.")

Dube was an undergraduate at Stanford in 1994 when David Card and Alan Krueger published the paper that shattered conventional wisdom on minimum wages. They compared fast-food jobs in New Jersey, which raised the state minimum wage in 1992 to $5.05 an hour, with those in neighboring counties of Pennsylvania, which stayed at $4.25, and found no employment effects from the hike.

Dube, who went on to earn a doctorate in economics from the University of Chicago, has built on Card and Krueger's work by studying a broader set of data: all border counties in the U.S. where the minimum wage changed on one side of the state border but not on the other. This produces stronger evidence than the old approach of simply looking at effects on employment within one state or in the nation as a whole. Dube's approach has since been applied to studying other questions, such as the employment impact of state changes in collective bargaining rights.

"It is something that is taught to graduate students in economics. It is part of the toolkit," says Ben Zipperer, an economist at the Economic Policy Institute who studied under Dube at UMass and has published papers with him. "I'm trying not to fawn too much, but he is exceedingly smart and very creative, and he tries to answer big questions."

There's been a lot of low-quality research both for and against raising the minimum wage, often sponsored by groups with a stake in the matter, including labor unions and employers. Dube's work, in contrast, has passed muster with the editors and anonymous peer reviewers at two of the profession's most prestigious journals, Harvard's *Quarterly Journal of Economics* and the AEA's *American Economic Review*. "It would not appear in these journals if it didn't strongly move the needle," Massachusetts Institute of Technology economist David Autor wrote in an email.

One theory for why minimum wage hikes don't cause much, if any, job loss is that employers pay low-wage workers less than they're worth when they can, so those workers are still worth keeping on the payroll when their wages are forced higher. Still, is $15 an hour—as specified in the Raise the Wage Act, which passed the House of Representatives in 2019—too high? It would more than double the current federal floor of $7.25 and be about two-thirds of the U.S. median wage in 2025, Dube estimates. The bite would be harder in parts of the country where median wages are lower and in low-wage sectors such as restaurants and hospitality. Says Neumark: "I can see the argument that $7.25 is too low. I don't think it should be $15 in Alabama."

Dube responds that "one has to be honest about not knowing what would be the impact in every place." But he points to 2019 research by Anna Godoey and Michael Reich of the University of California at Berkeley, who found that increases in state minimums didn't hurt employment even in low-wage counties where the new floor equaled 82% of the prevailing median wage. And even if a high minimum wage does kill some jobs—as many studies, though not Dube's, show it would—it can still be worthwhile if it raises incomes of low-wage families overall, he says. Some experts say that as with free trade, which helps more people than it hurts, any losers could be made whole with government assistance.

Economists view changes in minimum wages as "natural experiments" that illuminate how the price of labor affects supply and demand. Dube calls a recent research project he did for the Treasury of the U.K.—where a higher floor is popular even among the ruling Conservatives—"one of the most fulfilling experiences for me." In the U.K., he says, "it's just more seen as a more technocratic question. It's not seen as an ideological question." —*Peter Coy*

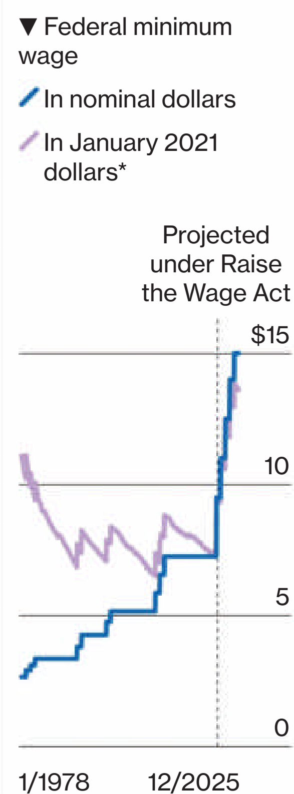
THE BOTTOM LINE Dube, an economist at the University of Massachusetts, says he found that even substantial increases in minimum wages don't destroy jobs.

◀ Dube

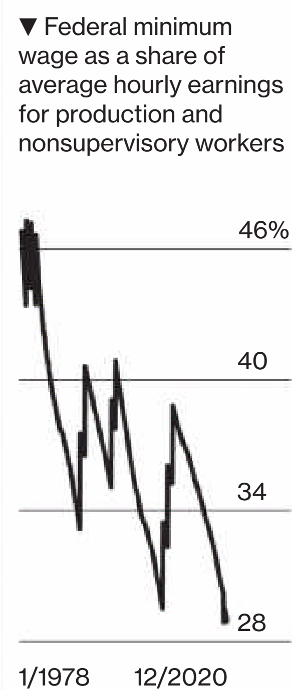
▼ Federal minimum wage

In nominal dollars

In January 2021 dollars*



▼ Federal minimum wage as a share of average hourly earnings for production and nonsupervisory workers



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Priority Mail

● The beleaguered U.S. Postal Service needs a champion. Enter Joe Biden

George Washington believed mail service would play a key part in shaping the national consciousness. Woodrow Wilson's administration pioneered airmail. Franklin Roosevelt thought of post offices as hallowed public spaces. He helped design six in upstate New York towns; you can still buy stamps at most of them.

Donald Trump, on the other hand, called the U.S. Postal Service "a joke," vetoed billions of dollars in aid to the agency just as its employees were being ravaged by Covid-19, and falsely accused postal workers of seeking to corrupt the electoral process by selling mail-in ballots.

So you can imagine the relief among the rank and file at the USPS on Jan. 20, when Trump exited the White House and was replaced by Joe Biden. President Biden expressed admiration and support for the long-neglected USPS before the election and is likely to be its strongest supporter in decades. And if ever there was a federal agency in need of a champion, it's the Postal Service, which suffered a net loss of $9 billion last year as it struggled with pandemic-related absences and delivery delays, and faces the continuing threat of dwindling mail volume.

Edited by Amanda Kolson Hurley

PHOTO ILLUSTRATION BY 731; PHOTO: ALAMY. DATA: USPS

In addition, the USPS found itself stewing in controversy after its Republican-dominated Board of Governors hired Louis DeJoy, a major Trump fundraiser, in May 2020 as the nation's 75th postmaster general. DeJoy's early efforts to impose efficiency on the USPS in the midst of the pandemic resulted in widespread mail delays and led Democrats to accuse him of conspiring to slow ballot delivery on behalf of the White House by also removing mailboxes and sorting machines. It didn't matter that the second two initiatives had been in the works before DeJoy's arrival.

While concerns about his allegiances dominated the headlines, the Biden campaign offered some concrete, if less noticed, proposals to help the Postal Service. It called for emergency financial relief. It also advocated maintaining six-day-a-week mail delivery and eliminating a requirement that the agency prefund its future retiree health benefits every year, which effectively drove it into insolvency as overall mail volume fell. Prefunding accounted for about half of the USPS's 2020 losses.

Shortly after taking office, Biden issued an executive order calling for the electrification of the Postal Service's more than 230,000 trucks, vans, and other vehicles as part of his plan to address climate change. Presumably, his administration has a plan to cover the cost of replacing the aging fleet, estimated to be more than $5 billion. The USPS doesn't have that kind of money.

As with much of his overall agenda, the majority of what Biden hopes to achieve on postal issues depends on congressional cooperation. Although DeJoy's detractors would prefer otherwise, the president can't hire and fire the postmaster general. That's up to the nine members of the Board of Governors, who are appointed by the president, subject to Senate confirmation. Four of the current six appointees are Republicans. Biden has the opportunity to tilt the board against DeJoy by filling three vacant positions with governors of his own.

There's no indication that Biden has DeJoy's ouster in mind. When asked about it at a White House briefing on Jan. 25, spokeswoman Jen Psaki said, "We all love the mailman and the mailwoman. I don't have anything for you on it." Postal worker unions aren't calling for DeJoy to go, either. They're waiting for him to release a 10-year plan for the USPS that he's been working on. "The jury's out," says Jim Sauber, chief of staff for the National Association of Letter Carriers and a member of the Biden transition team on the USPS.

What should be encouraging for Biden is that there was bipartisan support in the House in the waning days of the Obama administration for a postal reform bill that included doing away with prefunding by integrating retired postal workers into Medicare, something the USPS has long supported. The Trump administration opposed getting rid of prefunding. Democratic and Republican House leaders say they're hoping to get postal reform moving again. "We need to help the Postal Service buy some time to create a new business model," says Representative Gerry Connolly, a Democrat from Virginia. (The USPS Fairness Act, introduced in both houses of Congress in early February, would take a step toward that by eliminating prefunding.)

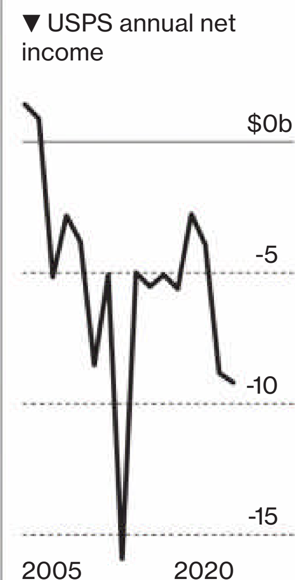
Union leaders also see an opening for the passage of similar legislation in the Senate now that Michigan Democrat Gary Peters is chairman of the Homeland Security Committee, replacing Republican Ron Johnson of Wisconsin, whom they describe as an obstacle to such efforts. "He was against any postal reform," says Paul Hogrogian, president of the National Postal Mail Handlers Union. A spokesman for Johnson declined to comment.

Unions would also like to see Biden make good on his pledge of support for a direct cash infusion enabling the agency to hire more workers and reverse the Covid-related decline in service. Mark Dimondstein, president of the American Postal Workers Union, laments that almost 20,000 USPS employees a day, out of a 644,000-person workforce, have been in quarantine because they'd either tested positive for Covid-19 or been exposed to somebody infected. "The pandemic has had a huge toll," he says. "A lot of sickness, far too much death."

At the same time, the USPS has struggled with what Satish Jindel, president of ShipMatrix, a developer of software that enables customers to track their shipping operations, describes as a record number of parcels during the holiday season, followed by a record number of returns. He lauds the Postal Service for delivering almost 95% on time during the last week of the December rush. The same can't be said for first-class and marketing mail, better known to most people as the junkier variety. "Service right now is worse than it's been in at least 25 years," says Michael Plunkett, president of the Association for Postal Commerce, an organization representing banks, insurance companies, and other large users of these mail classes. A USPS spokesman says the agency's performance has improved in recent weeks as it's brought aboard more full-time employees and paid more overtime.

However, the pandemic has also highlighted the importance of the USPS. Its package volume rose 18% in 2020 as sequestered Americans did more online shopping. In the midst of the crisis, the service also transported 135 million ballots ▶

▼ USPS annual net income



◀ swiftly from state election boards to voters and back to the election boards, which should put to rest fears that DeJoy was in Trump's control.

None of this went unnoticed by the millennials who put "Save the Post Office" signs in their windows. Progressive groups popular with this age group, such as the Democratic Socialists of America and Black Lives Matter, also voiced support for a postal rescue plan last year. In New York, young people on the street applauded puzzled but appreciative mail carriers on Nov. 7 when Biden won Pennsylvania, clinching the election.

In short, the president might be able to keep his party's left flank happy and burnish his bipartisan credentials by shepherding a postal reform bill through Congress. No wonder he's taken such an interest in the post office. —*Devin Leonard*

THE BOTTOM LINE More than the ouster of controversial head DeJoy, the USPS sorely needs long-term reform. If anyone can push that through Congress, it's Biden.

The EU's Vaccine Omnishambles

● The bloc lurches from one misstep to another in its efforts to secure shots

When drugmaker AstraZeneca Plc told the European Union on Jan. 22 it would slash expected deliveries of its Covid-19 vaccine to the bloc because of production problems, EU officials, already pressured over their faltering vaccination program, were blindsided. Suspecting the Anglo-Swedish company of favoring the U.K. and alleging breach of contract, they demanded that AstraZeneca reallocate vaccines from the U.K. to the EU. The company refused and denied violating its agreement with the bloc. For days, neither side would back down.

Finally, on Jan. 31, European Commission President Ursula von der Leyen announced that Astra would deliver 9 million additional vaccine doses to the bloc in the first quarter. But by that point, her side had escalated the argument by threatening to impose export controls on vaccine supplies, prompting the World Health Organization to warn against "vaccine nationalism."

Although the spat is over (for now), it remains an apt symbol of a vaccination rollout that's been dysfunctional from the beginning. The EU has weathered a multitude of crises over the past two decades, from Brexit to migration. Yet the failure to inoculate its citizens swiftly against the virus cuts to the heart of the European dilemma. Not for the first time, the EU is confronted with the question: What is its purpose, if 27 countries working together are less effective than when governments go it alone?

After almost a year of lockdowns to fight a pandemic that hit Europe harder than much of the rest of the world, the EU's seeming inability to do more to come out the other side is stark. As of Feb. 3 its

governments had administered just 3 doses of vaccine per 100 people, far behind the 15.2 per 100 in the U.K. and 10.3 per 100 in the U.S. The feeble pace has dire consequences for fatalities and the speed of economic recovery.

Privately, EU officials and diplomats worry that the bloc has failed in its prime obligation–to protect its citizens–and fear the corrosive effect that could have in the long run. "The political risks for the EU are enormous," says Guntram Wolff, director of the Brussels-based policy group Bruegel. "But we should be clear: Many EU countries would have fared much worse if they had to negotiate with pharma companies on their own."

Negotiating contracts is supposed to be what the EU excels at. In reality, the bloc was behind

ILLUSTRATION BY KATI SZILÁGYI

the U.K. and the U.S. in signing deals for vaccines and in getting regulatory approval to use them. Unforeseen pharmaceutical plant slowdowns, plus member states' inconsistent approach to delivery, have further slowed distribution. To hear EU officials, there was no single misstep but rather a succession of events that caused the crisis.

Almost a year ago, when Covid-19 was declared a pandemic and cases were mounting in Europe, governments including Germany's and France's took unilateral action to safeguard protective equipment and close national borders. That left a bitter taste and fed resentment across the continent. So in June, despite grumbling in several capitals, EU governments chose to cooperate on vaccine procurement so their collective economic and political heft would give them an advantage in both price and securing shots. They also hoped it would prevent the bloc's smaller countries from being left behind or, worse, turning to Russia or China to find vaccines.

As recently as Jan. 8 the commission boasted of securing as many as 2.3 billion doses that would not only serve its own citizens but could also be sent to neighboring nations outside the bloc. Now it's facing a shortfall, which German Health Minister Jens Spahn said on Jan. 28 could last an additional 10 weeks. Chancellor Angela Merkel convened a virtual meeting of German state leaders and company representatives on Feb. 1 to discuss vaccine supplies. At a news conference that day, Merkel promised all Germans will receive a vaccine by the end of September.

Rather than "Europe's moment," as von der Leyen described the rollout in December, officials in Brussels talk about complacency and overconfidence that the EU's relative size would ensure success. A health official in one member state says the EU's relatively inflexible vaccine budget had reduced its negotiating power. While some countries have thrown money at the problem, the commission was careful to negotiate on price, a practice that some in Brussels see as having sent it to the back of the line.

That rigidity—coupled with some countries' intention to circumvent the joint process from the outset—got the program off to a bad start, says the health official, who spoke on the condition of anonymity because of the sensitivity of discussions.

The European Medicines Agency, unlike its counterparts in the U.K. and the U.S., didn't use emergency authorization to speed vaccine approval. By yearend, as the U.K. stepped up its vaccination program, having approved the BioNTech-Pfizer shot three weeks before the bloc, the EU was already well behind. Then in January, Pfizer Inc., from which the bloc had the option to buy 600 million doses, said it would delay supplies to readjust its production. That prompted a group of northern EU states to warn of "severe concern" about the credibility of the bloc's vaccination program. The standoff with AstraZeneca took things to a new level. And the European Commission fumbled again on Jan. 29, when it announced it would introduce controls on vaccine exports from the EU to Northern Ireland, a sensitive issue after the Brexit agreement ensured an open Irish border following decades of violence. The move provoked anger and an abrupt U-turn by the commission.

The whole saga could boost populist politicians whose euroskeptic vigor had recently waned. In January, Hungary became the first EU country to greenlight a Russian vaccine before it was approved by the European regulator. Czech Prime Minister Andrej Babis said he could do something similar, having earlier slammed Pfizer for delays.

Domestic political pressure is growing on governments. Some have to cancel planned vaccinations and maintain public restrictions with no end in sight. The Netherlands saw its worst riots in four decades against a government curfew. Christophe Castaner, head of President Emmanuel Macron's party in the National Assembly, told *Le Parisien* newspaper there was a risk of "civil disobedience" in France, too.

Nationalist leader Marine Le Pen called France "the laughing stock of the developed world" for the slow start of its vaccination campaign, while the far-right Alternative for Germany (AfD) party said the responsibility for procuring doses should never have been handed to the EU. Referring to the bloc's "supposed" vaccine strategy, Sylvia Limmer, AfD health spokeswoman in the European Parliament, said "it shows that with Brexit the British have done everything right."

The EU's plight is embarrassing for its leadership, coming so soon after signing a post-Brexit trade deal with the U.K. following years of insisting Britain would be handicapped by leaving the club. Plans to tighten rules on the export of vaccines produced in the EU may help alleviate the shortage there but at the risk of stoking protectionism. Export curbs could disrupt vaccine supply chains as billions of people wait to be inoculated, giving virus mutations more time to spread and potentially render the available shots less effective. —*Ian Wishart, Alberto Nardelli, and Arne Delfs, with Dara Doyle, Nikos Chrysoloras, Viktoria Dendrinou, and Naomi Kresge*

THE BOTTOM LINE The EU lags the U.K. and the U.S. in vaccinations as officials fight drugmakers for supplies and threaten export controls, eroding confidence in its strategy.

● Extra vaccine doses AstraZeneca agreed to give the EU in the first quarter

9m

A Five-Point Plan to Stop the Next Pandemic

The fight against Covid isn’t over, but we’re already learning lessons for the next epidemiological crisis—and the one after that

By Robert Langreth

Illustrations by Book Jackson

In January 2017, a lengthy proposal showed up at the offices of the Biomedical Advanced Research and Development Authority in Washington. Running 112 pages, the document described a strategy for stopping future pandemics. It outlined a number of vaccine technologies to pursue, including messenger RNA and adenovirus vectors, and recommended that a team of 180 scientists, doctors, and other experts be created to carry out the plan. There were intricate technical details, an org chart, and an estimated cost: $595 million over 10 years.

Congress created Barda, a division of the U.S. Department of Health and Human Services, in 2006 for precisely this kind of thing. It's charged with developing and procuring drugs and vaccines, and ensuring that the country is researching countermeasures to combat bioterrorism and chemical warfare, as well as pandemic influenza and other emerging infectious threats. The agency has historically been small, though, and the proposal, which came from the pharmaceutical company GlaxoSmithKline Plc, would have entailed one of its more ambitious efforts. Following the massive 2014 Ebola outbreak in West Africa, which killed more than 11,000 people, Glaxo researchers wanted to identify viruses likely to cause major epidemics and tackle several of them at once. "The idea was to just make vaccines against all the viruses," says Moncef Slaoui, who was then chairman of the company's vaccines unit and later served as chief science adviser to the Trump administration's Operation Warp Speed.

Glaxo owned an underutilized lab and a decommissioned biotech plant in Rockville, Md., and it was already relocating vaccine researchers there as part of a corporate reorganization. Under its Barda proposal, the company would have provided scientific staff and facilities at the Rockville site while government agencies and nonprofits funded vaccine development for multiple "platform" technologies through early human trials and manufacturing. That way, if an outbreak happened, Glaxo would have prototype vaccines ready for final-stage trials.

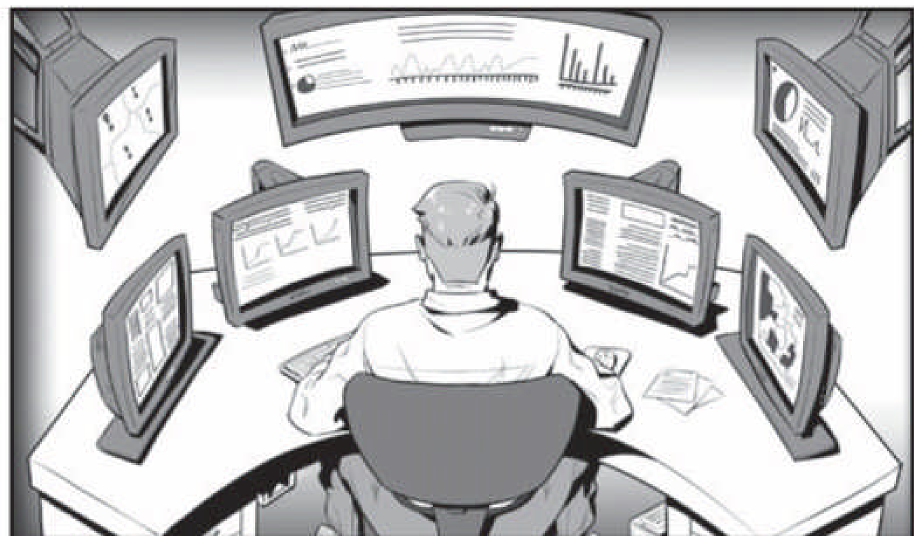
A team from the company spent months refining the proposal, according to a person familiar with the effort, and had reason to believe it might get funded. Barda officials met with Glaxo scientists on multiple occasions, toured the Rockville facility, and urged the company to submit a formal proposal, the person recalls. After it was submitted, Barda quietly considered it for several months. Finally, in late 2017, the agency suggested that Glaxo come up with a scaled-down plan focused mainly on influenza. That proposal never got funded either, leaving the world without a key weapon against emerging viruses when the pathogen that causes Covid-19 was discovered.

Vaccines have since been developed using mRNA and adenovirus vector approaches similar to those originally suggested by Glaxo. Many of the vaccines benefited from grants from Barda during the pandemic and from government-sponsored basic research beforehand. Still, the failure to put more extensive infrastructure in place ahead of time was a lost opportunity to build up capacity that could be bolstering its vaccine supply right now. It was a failure, even a refusal, to fully plan ahead—a blunder that ranks with the White House decision to disband the dedicated pandemic response unit at the National Security Council in May 2018 and the inability of the Centers for Disease Control and Prevention to quickly develop a Covid test for wide distribution.

In late 2019 every infectious disease expert knew something like the novel coronavirus was coming sooner or later, just as they know today that Covid won't be the last pandemic. As depressing as the current situation is, though, the next one—and there will be a next one—doesn't have to be this bad. Shortly before his inauguration, President Biden proposed spending $20 billion to speed up vaccination rollouts. That's a start. But a complete plan—one that can protect the U.S. from mass death, catastrophic economic damage, and (let's hope) incompetent political leaders who squander the public's trust—will have to be more comprehensive. It will likely involve at least five separate areas of research and investment. Most of all, it will require careful preparation.

1. Pathogen surveillance

The world can't eliminate emerging diseases. Too many people live near animals, and there's too much international air travel. In the 21st century alone, humanity has contended with outbreaks of SARS in 2003, H1N1 in 2009, MERS in 2012, Ebola in 2014, and now Covid. Candidates to sicken the world in the



future include highly virulent filoviruses, which include the Ebola and Marburg viruses; rapidly spreading mosquito-borne flaviviruses, such as those that cause Zika and dengue fever; and bat-borne paramyxoviruses, like Nipah and Hendra.

All of these are scary. Marburg and Ebola can lead to severe vomiting, diarrhea, and bleeding; Hendra and Nipah, to deadly brain swelling. More worrisome still, we tend to wait for outbreaks to kill a few dozen people before we do anything about them. "Our current strategy is we really do let them happen," says Peter Daszak, a veteran virus hunter at EcoHealth Alliance in New York, a nonprofit research group. Daszak suggests we approach emerging viruses the way we approach terrorist networks: Track them so we can intervene before they can wreak havoc.

Daszak, who's spent years looking for bat coronaviruses in China and elsewhere, estimates there are about 1.7 million ▶

◀ unknown mammal viruses, many of which could spill over into humans with just a few mutations. He and his collaborators calculate that it would cost a little more than $1 billion to identify two-thirds of these pathogens by sampling wild animal populations around the world. Doing this would give scientists clues about which viruses pose the greatest risk to humans, allowing communities situated in potential hot spots to focus on reducing spillover risk and helping governments and research institutions allocate resources for further study.

If we had a better handle on what was happening pathogenically, we could work to identify the outbreaks that have the most potential to become severe, says Caitlin Rivers, an epidemiologist at the Johns Hopkins Center for Health Security. Imagine a kind of National Weather Service for pandemics that would predict the course of emerging pathogens. These official forecasts would be more authoritative than the hodgepodge of competing disease models out there now, making it easier for governments to undertake potentially unpopular mitigation measures such as closing borders or ordering lockdowns before an outbreak takes hold.

During the Covid pandemic, the opposite happened. In late February, right before its hospitals were overrun, Milan's city government unveiled a campaign called "Milan does not stop," which encouraged people to visit tourist attractions and go out to dinner. In the U.S. many local leaders hesitated before imposing harsh social distancing measures. Had restrictions come only one week earlier, according to research from Columbia, 32,000 lives would have been saved by early May. "It's about giving decision-makers enough confidence so they feel comfortable acting," Rivers says. And an epidemic forecasting center would be a relative bargain, costing the U.S. only $100 million to $150 million a year, she estimates. The Biden administration is planning to create one.

2. Repairing and augmenting the WHO

Pandemic surveillance and response, almost by definition, are global efforts, which means it's time to consider a new global partnership to oversee them. The World Health Organization's structural shortcomings have been well documented. The main international body charged with fighting disease, it's been criticized by the U.S. and others for being overly deferential to China and for being slow to declare the outbreak a global emergency. The agency responds that it has to remain diplomatic while collecting information and that it can't force member states to reply to it. Still, the spat led the U.S. to announce last year that it was withdrawing, further weakening the body at a key moment.

This dispute, like so many aspects of the Covid catastrophe, was predictable. The current pandemic response system relies on transparency. Governments are supposed to alert the international community at the first sign of danger. But of course leaders, worried about damaging their national economies or their personal political prospects, often clam up at the crucial moment and withhold data the rest of the world needs. China was slow to admit the magnitude of the problem in Wuhan early last year and didn't immediately let international health experts into the city to assess the threat. In the U.S., President Trump confronted the looming crisis by dismissing it, repeatedly assuring Americans that Covid would simply go away. "One day, it's like a miracle, it will disappear," he said on Feb. 27, just as the virus was taking off.

Thomas Bollyky, who heads the global health program at the Council on Foreign Relations, points out that none of this is new. "This is a repeated problem," he says. China was slow to acknowledge the SARS outbreak in 2003, and in 2014 officials in West Africa took months to recognize that mysterious illnesses in remote areas were being caused by the Ebola virus, allowing it to travel from rural areas, where it probably could have been contained, to cities. In a recent report, Bollyky and his colleagues recommended developing a system that bypasses central government bureaucrats and monitors anonymized data, such as rising cases of unexplained pneumonia, gathered directly from hospitals around the world. It was a locally run project, the Seattle Flu Study, that first spotted community spread of Covid in the U.S.

In January an independent panel convened by the WHO blasted the current epidemic alert system as "slow, cumbersome, and indecisive." In theory the WHO, which Biden has said the U.S. will rejoin, could be given more teeth. But some argue that the world might need a new coalition of countries to more effectively coordinate response. Richard Hatchett, chief executive officer for the Coalition for Epidemic Preparedness Innovations (CEPI), an organization that's

worked to accelerate the development of Covid vaccines since it started up in 2017, has suggested an alliance committed to a less cautious approach—a "biological NATO" to defend the world against developing pathogens. This group could help countries respond much more rapidly to future threats. "It's not part of the world against any other part of the world, but the world against the viruses," Hatchett says.

A muscular global health coalition could further provide funding to eliminate "wet markets," where wild animals are sold for food, and to discourage jungle deforestation, which

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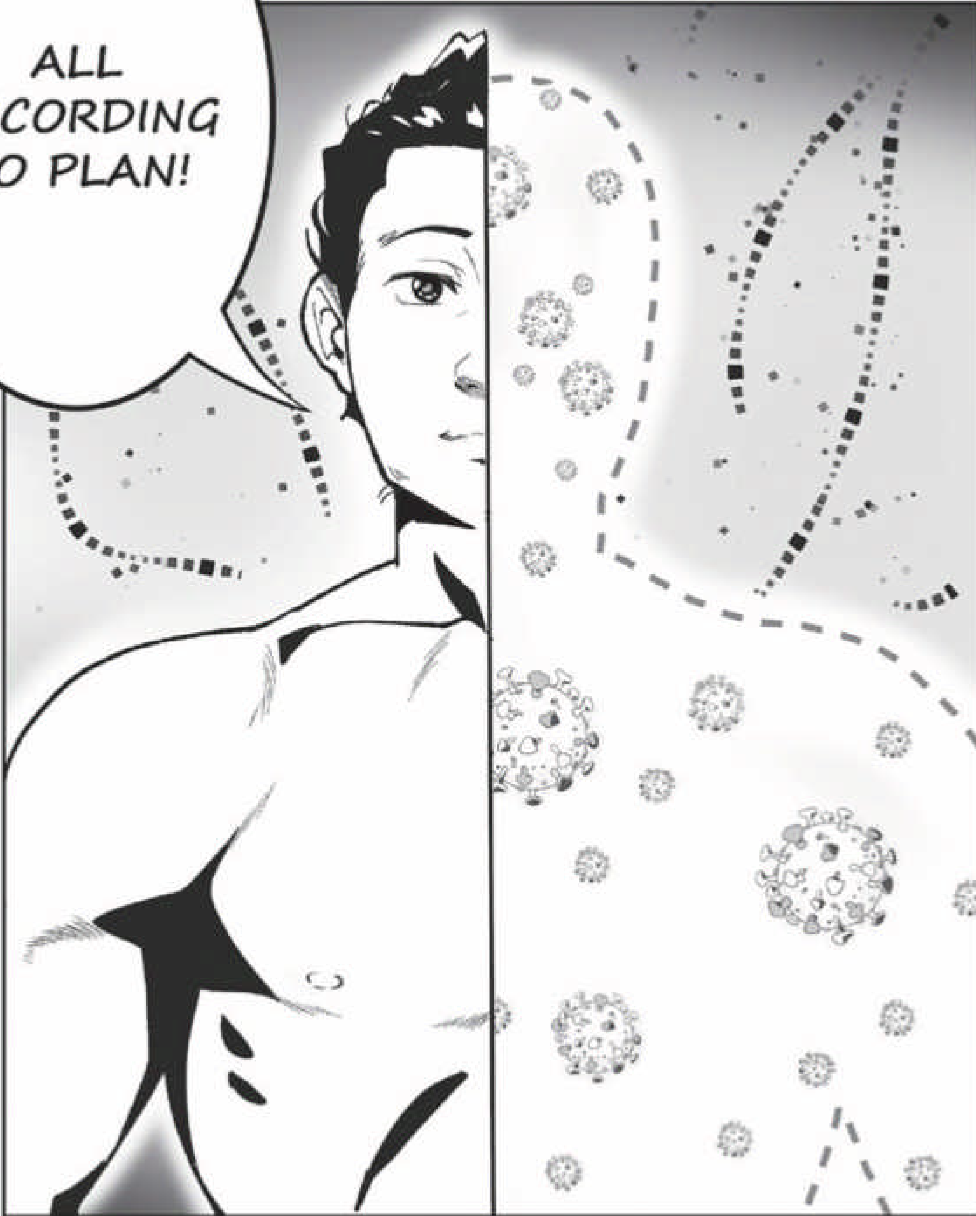
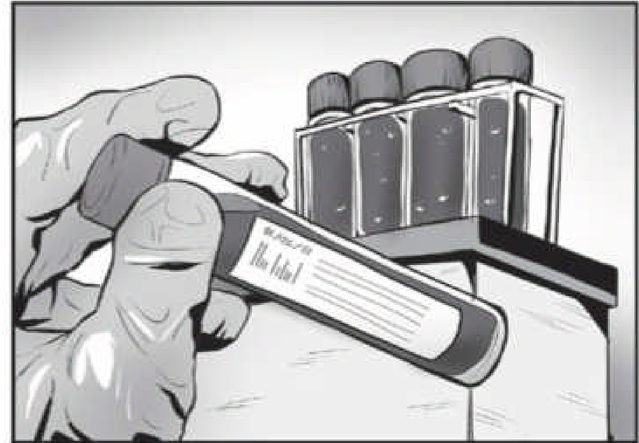
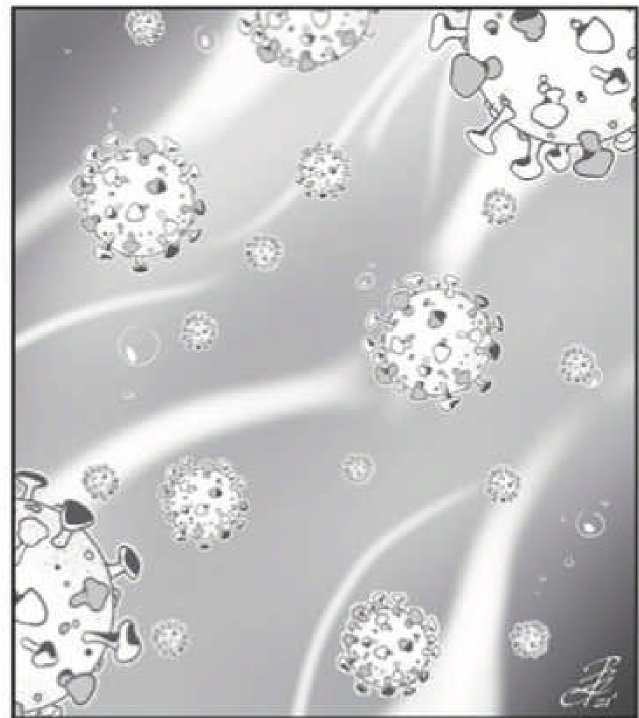






pushes animals (and the viruses they carry) into closer proximity with people. And it could help train more field workers in far-flung places instead of relying on the current ad hoc system, in which a mix of nonprofits, universities, and volunteers, along with the WHO, addresses emerging threats. “Infectious diseases are like wildfires. You need to stomp them out when they are containable,” says Anne Rimoin, an epidemiologist at UCLA. “In both cases, time is of the essence.”

Rimoin has worked on Ebola for years in the Democratic Republic of Congo. There, the megacity of Kinshasa abuts the world’s second-largest rainforest, which teems with virus-laden animals. She’s been trying to build up an infrastructure to respond to outbreaks, relying mostly on individual private donors. Sometimes she scrounges for basic gear herself, tracking down donated lab equipment in the U.S. then checking dozens of extra bags on her flights to Africa.

3. Genetic sequencing

Tracking and tracing a virus has typically been thought of as a labor-intensive process that involves building lists of patient contacts and then calling those people one at a time to see who else might have become infected. Gene sequencing, by contrast, offers the tantalizing possibility of tracking a virus’s spread with molecular precision. Frequent, intensive viral sequencing would help answer questions such as how widely a given strain spreads within a community like a school and whether the strain might mutate to become resistant to existing vaccines.

Thanks to the ubiquity of high-speed gene-sequencing machines, it costs only $50 or so to sequence a virus’s whole genome. This information provides clues for contact tracers about the pathogen’s path and allows the large-scale tracking of mutations. Unfortunately, in the U.S. only about 3 in 1,000 Covid patients have had their virus samples sequenced. And much of the work has been done in academic labs, which are removed from the front-line facilities that have access to detailed patient data and do the day-to-day contact tracing.

One of the current leaders in virus sequencing is the U.K.; it’s processed more than 200,000 samples, about 5% of its caseload. That helped Britain catch the B.1.1.7 variant, which epidemiologists say could be more transmissible. Because it was found in dozens of countries, it’s expected to become the dominant strain in the U.S. The lack of virus sequencing in the country “is a huge failing of our public-health system,” says Marc Lipsitch, an epidemiologist at Harvard. “Hopefully, this will be a wake-up call.”

Biden has recognized the problem, announcing plans to drastically build up sequencing capacity and choosing as ▶

◀ his science advisor Eric Lander, a renowned genomics expert with the Broad Institute of MIT and Harvard.

4. Developing more vaccines, faster

Vaccines have been the most spectacular success story so far in the current pandemic. There are already two highly effective options on the U.S. market, and a third vaccine from Johnson & Johnson could be cleared within weeks, after the company reported Phase III results on Jan. 29 showing that it generated strong protection against severe Covid. Yet there's clear opportunity for improvement. "We need to have strategies that allow us to move even faster," says David Ho, who leads the Aaron Diamond AIDS Research Center at Columbia. Ho estimates we could have easily shaved four to five months from the drug and vaccine timeline had more preparation taken place.

Early investment in mRNA technology by the U.S. government helped Moderna Inc. bring its vaccine candidate to human trials in a record 66 days. But it still required more than four months of Phase I and Phase II trials to confirm safety and find the right dose before the crucial Phase III trial could begin in late July. There's no available shortcut around this final stage, which focuses on efficacy in humans, but Moderna could have tested candidates for known coronaviruses ahead of time, which might have allowed it to start a large Phase III trial months earlier, according to CEO Stéphane Bancel. "Fall would have looked so different if we had a vaccine in July," he says.

Bancel figures it would cost $200 million to $300 million to bring prototype mRNA vaccines for the 10 most worrisome virus classes through early human trials, so that with a few tweaks, they'd be ready for large-scale testing. It might cost another $1 billion or $2 billion to maintain a spare manufacturing plant along with a stockpile of raw materials for millions of doses. In January, in a small start toward this goal, Moderna announced that it's begun work on a vaccine for the Nipah virus, which has killed hundreds in multiple outbreaks in Asia since 1999.

Bancel's proposal is similar to the concept Glaxo tried to sell Barda on back in 2017. A spokeswoman for the Department of Health and Human Services says that at the time, Barda's funding from Congress was focused on defending against influenza and biological, chemical, and radiological weapons; it's now soliciting proposals for coronavirus countermeasures, including vaccines. Some people also saw the proposal as too tightly linked to one company and in competition with groups such as CEPI, which has backing from the Bill & Melinda Gates Foundation and others to develop vaccines against emerging threats. Glaxo declined to go into detail on why it couldn't attract funding, but in a statement it said it's committed to pandemic-related research efforts.

One tantalizing area for future investment: vaccines and drugs that offer protection against multiple viruses. The existing Covid vaccines spur antibodies against the unique spike protein the virus uses to enter cells. Researchers could instead create a shot that triggers an immune response against the stem of these spikes, which varies much less between strains, allowing protection against numerous Covid-like illnesses at once, according to Vineet Menachery, a coronavirus specialist at the University of Texas Medical Branch at Galveston. It's tricky and it might not work, the potential payoff would be immense. In November the National Institutes of Health announced plans to fund research into broad-acting coronavirus vaccines.

Something similar should be done with viral drugs, says Ralph Baric, a coronavirus researcher at the University of North Carolina did crucial research before the pandemic showing that remdesivir, an antiviral developed by Gilead Sciences Inc. to fight Ebola, was promising against coronaviruses. Remdesivir got cleared for the U.S. market on May 1 in part because it had already been tested extensively in patients during a 2018 outbreak in the DRC, so only Phase III trials targeting Covid were required. But remdesivir must be administered through an IV, which has limited its use to hospitalized patients. Merck & Co. is working on a coronavirus drug that could be taken as a pill, but unlike Gilead's medicine, it hadn't yet started Phase I trials at the start of the pandemic, putting it on a much slower path. Efficacy trial results are expected by April.

5. Ironing out distribution and logistics

Getting tests and vaccines to people isn't rocket science. It's not even regular science. But adapting logistics in a medical system as large and complicated as that of the U.S. can take months of advance planning and coordination, and databases must be developed to keep track of everything. Not enough

of that work happened in 2020, as the Trump administration insisted on having state governments handle testing, acquire and distribute personal protective equipment, and implement vaccine distribution protocols.

This has arguably been, in retrospect, the most unfortunate and most easily avoided failure. "A national and international crisis needs the full intervention of the federal government," says Peter Hotez, a vaccine researcher and dean of the National School of Tropical Medicine at Baylor College of Medicine in Houston. "It's one of the major reasons we've lost 400,000 American lives, because of this bizarre insistence."

Biden's plan to have the federal government set up mobile clinics and community vaccination centers in gymnasiums and stadiums could spur things along. (It probably should have been the plan from the beginning.) But once we're through the immediate crisis, the U.S. needs to take stock of its supply chains for basic drugs, equipment, and testing supplies—and then to provide incentives for companies to create more capacity where it's needed. "Our federal government has no idea what supply chains are vulnerable," says Julie Swann, a health-systems expert at North Carolina State University. When Hurricane Maria slammed into Puerto Rico in 2017, it shut down power to one of the biggest U.S. makers of saline IV bags, exacerbating an existing shortage of an essential medical item. This year, to name one of many examples, a shortage of plastic pipette tips needed for automated laboratory machines slowed down Covid testing, forcing labs into a constant scramble for supplies.

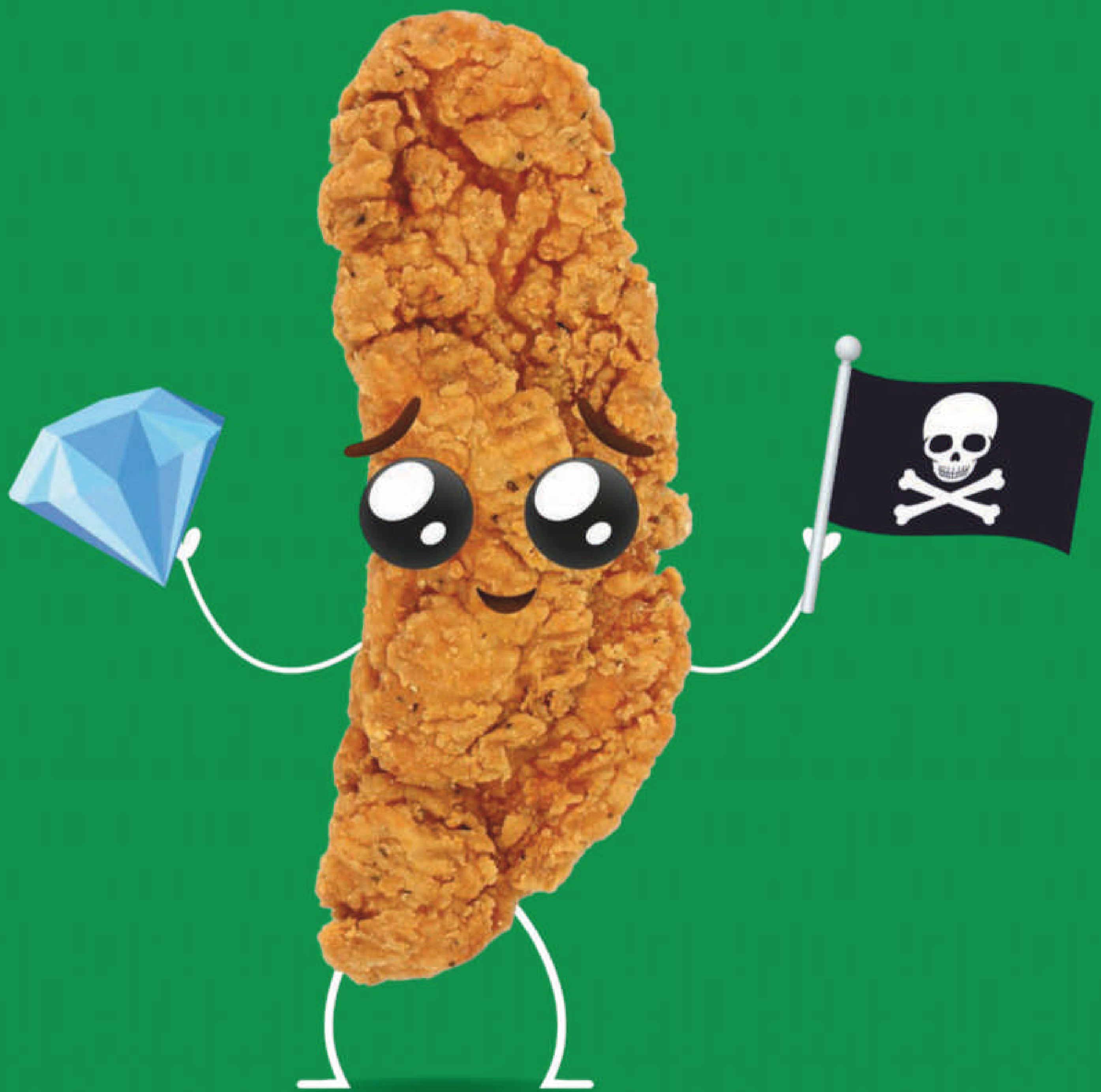
Not only do we have no effective way to count basic medical staples, but we're also unable to keep proper track of public-health data on patients and testing capacity; it's all logged in a hodgepodge of outdated and often incompatible federal, state, and local computer systems. Not knowing where outbreaks are worst makes it difficult to identify where to send supplies. "We're flying blind," Swann says. State databases need "more integration so we know in real time where our inventory is."

During the current crisis, all of this has been harder than it needed to be. That's because pandemic response requires foresight, something that was in short supply the past few years. "Nobody ever expected a thing like this," Trump said on March 24, in one of his many false statements about the virus. Many experts had, in fact, been predicting a pandemic for years, but they couldn't persuade anyone to do enough about it.

Slaoui, the former Operation Warp Speed adviser, says policymakers seem to care about fighting epidemics only shortly after they've happened. "When the outbreak is there, every government is all over you as an industry," he says. "And then when the outbreak dissolves, everybody looks the other way."

That's what happened in too much of the world after SARS, MERS, and Ebola. With 2 million dead worldwide and a year's worth of economic devastation, it should be harder to look the other way now. B —*With James Paton and Riley Griffin*

Well, That Was Weird



Tendies. GameStop. Silver. SPACs. 🚀🚀🚀
What. The. Hell.
A sane person's guide to a bonkers stonks market

By Pat Regnier

There's been a rebellion in the stock market, in case you hadn't noticed. The Battle of GameStop, the stampede of the meme stocks, and the rage against Robinhood were as transfixing as the bursting of the dot-com bubble—only this time the action was focused on a handful of companies associated with 1990s culture, and this time everything was going up. Thanks to traders talking it up on social media, the stock of GameStop Corp., the unprofitable mall retailer of video games, climbed as much as 1,745% from the start of the year. The AMC movie theater chain peaked at a gain of 839%; BlackBerry and Nokia, which once made very popular phones people strapped to their belts, spiked 279% and 68%, respectively; and Koss (headphone maker), Build-a-Bear Workshop (chain of stores that…you know what they do), Tootsie Roll Industries (yes, that Tootsie Roll), and, for some reason, silver all shot up.

The past two weeks broke a lot of people's brains re: how Wall Street works. One money manager told Bloomberg News that GameStop was his "most-hated stock of all time." Also, a lot of well-compensated hedge fund managers lost huge sums because they'd been betting on the stocks mentioned above falling. And the frenzy was all caused by an extremely online crowd that Doug Henwood, writing in the leftist publication *Jacobin*, wryly called "the wrong kind of people. They don't live in Greenwich in houses with twenty-car garages."

Instead, they came from the frequently profane Reddit message board WallStreetBets, where posters talk about stocks and often band together to try to move prices. It has its own insider language: "stonks" for stocks and "tendies" for gains, because chicken tenders are a reward for being good (and because it's funny). Lots of WSB posters don't buy stocks directly but instead use options, which allow them to take big positions for a relatively small amount of money, a form of leverage that amplifies potential gains as well as risks. They also like to go after the so-called shorts, investors who bet against stocks. The idea is that by pushing up a highly shorted stock, the WSB crowd can "squeeze" shorts into protecting themselves by buying the stock themselves, triggering a (temporary) upward spiral.

WSB's campaign for GameStop gained steam early on with an investment case made by a poster named DeepF---ingValue, who in offline life, Reuters reported, is a chartered financial analyst who used to work at an insurance company. It can be hard, sifting through the memes, to tell when the Redditors are glomming onto a stock because they truly like the business, or because they think they can manipulate the shares, or because they think it would be hilarious to mess with some hedge funds. Like so many movements that have bubbled up from social media, *New York Times* tech and media writer John Herrman observed, the GameStop push was sort of a joke until it wasn't.

And it got political, in ways that have been hard to make sense of in the heat of the moment. What else would bring together the likes of tech-bro idol Elon Musk—who fanned the rally by tweeting "Gamestonk!!"—and progressive U.S. Representative Alexandria Ocasio-Cortez? On Jan. 28, Robinhood Markets, the zero-commission trading platform that's been the gateway to the market for many young investors, restricted buying in GameStop and other popular Reddit stocks. "This is unacceptable," AOC tweeted. She called for hearings into why retail investors were blocked "while hedge funds are freely able to trade stocks as they see fit."

Robinhood later said it had to cut off buying temporarily because the overwhelming demand for those volatile stocks was causing its clearinghouse—a behind-the-scenes organization that makes sure buyers and sellers actually get their stocks and cash—to demand higher deposits. The trading platform eased the restrictions after furiously raising more money. "We didn't want to stop people from buying stocks, and we certainly weren't trying to help hedge funds," the company said in an email to customers.

Still, it was a bad look for a company whose stated mission is to "democratize finance." Robinhood makes options trading on smartphones easy and nudges users into setting up margin accounts so they can speculate on stock with borrowed money. The GameStop raid showed what tools like that could do. "Until GameStop, it seemed to be much harder to borrow money, speculate, and collude if you weren't on Wall Street," wrote Matt Stoller in his economics newsletter *Big*. At a key moment, Robinhood and other discount brokers realized they couldn't really keep the playing field level.

But this rebellion was hardly a revolution. Let's say it plainly: A lot of small investors who jump onto GameStop and the other meme stocks are going to get badly hurt. Some already have been. If you bought GameStop at its peak, you were down 73% as of Feb. 3. Honestly, buy an index fund instead—you'd have made an annual 13.5% if you held on to an S&P 500 tracker for the past decade. And be on guard against market bulls speaking the language of populists.

Before GameStop, the culture of finance was already entering its latest imperial phase, spreading out beyond practitioners and into the consciousness of ordinary savers and working people for the first time since the 2008 real estate collapse. In the interregnum between that crisis and the pandemic, most people were happy to ignore the markets even as they climbed. Cash was still being plowed into stocks, and there was plenty to be earned by big asset managers, but it was an increasingly bureaucratic affair: Human resources departments set up 401(k)s, chunks of paychecks got directed to broadly diversified funds, and Vanguard Group, Fidelity Investments, or BlackRock collected a tiny toll.

Circumstances obviously changed in 2020. The pandemic and the sheer boredom of lockdown, excitement about new technologies, free stock trading—all that and more began to pull people in. It's hard to put your finger on what triggers market exuberance, but once it gets going it can create what the economist Robert Shiller has described as a feedback loop. Markets do well enough that people start to pay attention, and they start to talk about it and experiment with investing. ▶

PHOTO ILLUSTRATION BY 731; PHOTOS: SHUTTERSTOCK (4); ROCKET: FACEBOOK

◀ (The 1960s and 1990s bull markets saw fads for investment clubs, or slow-motion subreddits.) That demand helps push up prices, investors become more confident, and even more people pay even more attention to the market. And so on.

The media is a big part of this, Shiller has noted, and it’s not just Redditors and people like Dave Portnoy, the inexplicably influential founder of Barstool Sports, egging on day traders, but normie journalists who can’t help but cover the GameStop story. Telling you to stick to index funds and not to get your head turned by the 1,745% gains we just told you about is like telling you not to think of a purple hippo. Once your attention is captured, you’re in the feedback loop.

GameStop may have left short-selling hedge funds wheezing. (No sympathy: This is the business they chose.) But in general the popularization of markets works beautifully for the financial industry. The serious money in finance comes from the opposite of shorting—the “long” bets that prices will keep going up. Investors’ willingness to go long is what really fuels the profits that investment banks earn helping companies sell their stocks. It’s the long bet that sells mutual funds and ETFs and cryptocurrency trading apps. And it’s the thrill of the long bet that helps separate everyday investors from their money and rake it into the pockets of Wall Street’s horde of intermediaries.

Look around, and you’ll see a flowering of products and complicated financial structures designed to help you go long. For example, there are special purpose acquisition companies, or SPACs, which raised more money from investors in 2020 than in all previous years combined. Also known as blank checks, they’re public companies with no business except to buy another business. Sometimes they find one that’s hot enough, like Virgin Galactic Holdings Inc. or DraftKings Inc., that the price shoots to the moon. The SPAC maestro behind the Virgin deal, Chamath Palihapitiya, has been outspoken in his support of the Redditors. “Instead of having ‘idea dinners’ or quiet whispered conversations amongst hedge funds in the Hamptons, these kids have the courage to do it transparently in a forum,” he said on CNBC.

Blank-check deals are complex, and it’s not easy to figure out what an ordinary shareholder gets out of them. That’s one of the hallmarks of exuberant times: New investments demand increasingly steep learning curves, because increasingly confident and curious investors are willing to endure the difficulties—or at least overlook them. On SPACs, suffice it to say this: They’re very good deals for the people who start them, who come away with a lot of cheaply acquired stock in a public company. They tend to work out less well for investors who buy in after the SPAC’s initial public offering and hang on after a merger. On average, those investors have lost money, according to a working paper by law professors Michael Klausner and Michael Ohlrogge and consultant Emily Ruan.

Sure, some SPAC promoters might be very adept at finding great deals and helping the companies they acquire grow. But SPAC combinations are likely to get less and less attractive as the bull market stampedes on. WeWork, whose IPO flamed out spectacularly last year, is now looking at going public via a merger with a SPAC, according to Bloomberg News.

Now consider something more mundane: the return of active fund management. In the 1990s stockpickers who filled their portfolios with tech companies regularly found themselves on the cover of magazines. I can recall going to an art show in Brooklyn and seeing portraits of managers from the Janus funds—a joke of some kind, but one that banked on familiarity. Very few of the stars of that era lasted, because very few stars ever do.

According to the S&P Dow Jones Indices, most U.S. stock funds that ranked in the top half of returns from June 2010 to June 2015 failed to replicate that feat in the following five years. In fact, a fund was more likely to close or change its investment style—likely a sign of defeat—than it was to remain in the top half.

Those long odds persuaded a lot of people to stick to index funds, which tend to beat active managers and have gotten so cheap you have to squint to see the expense ratio. For years this passive money was the main source of asset inflows in the fund industry. Yet now stars are back, this time led by Cathie Wood, who’s invested her Ark exchange-traded funds in Tesla Inc., internet stocks, and even some Bitcoin. You can buy T-shirts with her picture and the words “In Cathie We Trust” on Etsy. Compared with the old days of active-fund dominance, her funds are less expensive—about 0.75% of assets per year—but they’re still many times more costly than indexing can be.

Wood is doing incredibly well, and basically has been since 2017. (Over the past five years her main fund has beaten the mighty S&P 500 by an annualized 40 percentage points.) But in her wake is a new wave of actively managed ETFs, as well as thematic funds, which are technically indexes but are so tailored to their creators’ investment theses that they might as well be active. Who knows which of these funds will prove to be winners in the five years ahead?

Crypto’s rise has benefited from some of the same faddish dynamics. A number of well-known advocates of Bitcoin and other cryptocurrencies have been tweeting their solidarity with the Redditors against Wall Street. That’s a bit rich. Professional money managers going on television to praise the virtues of the Bitcoin they just bought are now a familiar sight. The denizens of WSB are upfront enough to actually say that they’re “pumping” their favorite stocks. On Wall Street this kind of behavior is more politely known as “talking your book.”

Take the complexity of SPACs and multiply that by 100 and you have cryptocurrency markets. Yes, the blockchain means that in some sense everything about Bitcoin is out in the open. But first, enjoy learning what a blockchain is. Go read about Satoshi Nakamoto, Bitcoin mining, the halving, and the forks. Again, there’s plenty of appetite now for learning/overlooking these novel financial concepts. Still, you could spend weeks

learning the mechanics and still come away without a satisfying answer to the question: How do you put a value on this thing? And what are the forces driving demand in the cryptocurrency markets—a web of regulated exchanges, offshore trading platforms, and some very murky companies? How much are the ups and downs of Bitcoin the result of manipulation by the big "whale" investors who control the vast majority of the tokens?

In any case, Wall Street is already well embedded in crypto. There are investment trusts offering exposure to it, for a nice fee, and various money managers have tried—so far without success—to get regulators to bless a Bitcoin ETF. That figures, since there are already ETFs for SPACs, and there are brokers selling clients leveraged bets linked to the performance of hot ETFs. It's boxes inside of boxes in wrappers that make the price tags hard to read.

Robinhood is a different kind of middleman. Unlike a lot of Wall Street, Robinhood doesn't make its money by standing between you and the market and taking a fee off the top. But it's still an intermediary—in this case, a psychological intermediary. It's standing between you and the market with fun software. A Robinhood spokeswoman says they designed their app to make investing "more familiar and less daunting" to encourage people to "take control of their finances." Startup discount brokerages are similar to media companies now. Like Twitter and YouTube, they need to grab your attention and drive engagement. But their goal isn't to push ads to you, it's to get you to trade. Even though they charge you no commission, they do get paid for it.

How? As Annie Massa and Sarah Ponczek recently explained in a *Bloomberg Businessweek* cover story, Robinhood earns most of its revenue from a common industry practice called payment for order flow. That is, when you buy or sell a stock or an option, they send the order to be executed by an outside trading firm that pays Robinhood. These companies pay because they can earn small profits on the "spreads" between what buyers are willing to pay and what sellers are willing to take for a security. (Robinhood, like all brokers, is required to seek the best possible trade execution for its customers, and it spreads trades among firms.) These little gains add up when trades are done in the millions, and the more trading there is, the better it is for these market makers. They don't really care if it's up or down.

So the fight over GameStop was partly just a fight between different parts of the Wall Street establishment. Shorts got squeezed, but some giant high-speed trading firms behind the scenes no doubt did quite well as a result of all the retail trading and volatility. "It's not David vs. Goliath," wrote Alexis Goldstein in her *Markets Weekly* newsletter. "It's Goliath vs. Goliath, with David as a fig leaf."

And all along, professionals long and short have been following the signals from retail traders and trying to get ahead of—or stoke—the momentum. Senator Elizabeth Warren, a Democrat from Massachusetts, said on CNN that it's still unclear what was really moving GameStop's stock and that there was likely "big money on both sides." She called for the U.S. Securities and Exchange Commission to investigate possible stock manipulation.

All of this frenetic investment activity might be a cause for optimism if it seemed connected to a healthier economy. But the stock market and asset prices have been inflating and enriching the world's wealthiest even as most people have faced greater job instability and slow wage growth. So far the sudden enthusiasm for GameStop's stock hasn't done much for the company itself, much less for the employees behind the counters. To the traders go the tendies.

A higher share price could be an opportunity to sell more stock and get some cash to reinvest in the company's business. Some other popular meme stocks, such as American Airlines Group Inc. and AMC Entertainment Holdings Inc., have recently taken steps to sell new shares, Bloomberg has reported, in what are known as at-the-market programs. GameStop may yet try something like that, but it could be tricky to step into a market where shares are $65 one day, $347 a few days later, and $90 a few days after that.

As Henwood, the writer in *Jacobin*, has pointed out, surprisingly little of what happens in the stock market is about raising money for companies to make real-world productive investments. Prior to the pandemic, corporations seemed short of ideas for what to do with their cash and often forked it over to their shareholders (and their stock-option-paid executives) by buying back their own stock. Perhaps they've been looking at financially strained U.S. households and concluded there's not enough demand to spark growth.

One telling moment in the Battle of GameStop was delivered by veteran hedge fund manager Leon Cooperman in an interview on CNBC. "The reason the market is doing what it's doing," he said, "is people are sitting at home getting their checks from the government, basically trading for no commissions and no interest rates." Lots of people on Wall Street believe the retail trading boom has been fueled by pandemic stimulus and enhanced unemployment checks dropping into Robinhood accounts. Some of that's happened, no question—there's plenty of talk on WSB about how to spend the "stimmy." But more of the money has gone into buying groceries, covering the rent, and paying down debt.

There's been a lot of cheap money floating around in the past decade, thanks to low interest rates and Federal Reserve policy. Much of that has gone into financial assets, jacking up the wealth of those who own them. Cooperman, to be fair, sees the problem there: "Eighty percent of the stock is owned by 20% of the people," he said. (The reality is actually more extreme than that, with the richest 10% holding 84% of equity wealth, according to economist Edward Wolff.) No, you can't day-trade away economic inequality. But one of many changes wrought by the pandemic is that it's shown how aggressive government spending to put cash in ordinary Americans' pockets can do a lot of good. What if there was an economy where households relied less on wealth trickling down from asset owners? That would be something for Wall Street to be nervous about. Ⓑ

SHERROCK COMPETES AT THE WORLD CHAMPIONSHIP IN DECEMBER 2019

The pandemic has forced

PRO DARTS SOBERS UP

the rolling bacchanal to hit pause. But when it returns, it'll have a new star to spread the joy

By Amos Barshad

The first thing I saw as I walked up to the Motorpoint Arena in Nottingham, England, was an angry old man having his packet of Sainsbury's Butter Mintoes confiscated by security. The first thing I heard was a woman shouting, "Oh, f--- off, Lucy." It was February 2020. Inside were Waldos and Oompa-Loompas and jungle explorers and pageant queens and lederhosen guys and old-timey jockeys. There were hula hoop lads and men in full-body orange safety cones and a few dudes who looked like they maybe saw a movie about Hawaii once and have always wanted to go. There was a young woman dressed as an old woman of the lives-in-a-shoe variety, who fully committed to the bit by clutching her back and shuffling every time she went to get a pint. All that's required to fit in at a darts tournament, really, is to dress up as...anything.

What was very important was the drinking. Darts is a surprisingly good spectator sport because everyone's in the same boat: half-pissed, looking at close-ups on giant screens of the dartboard. (It's far too small for anyone to see what's happening on it.) Barry Hearn, chairman of the Professional Darts Corp., says, "It's the only sport in the world that's not visible to the naked eye! You have no idea what's going on! You tip a beer in your ear while watching the screen. It's a great life!" The PDC claims that at darts' World Championship, fans average almost five 20-ounce pints per person per day. The tournament lasts a little more than two weeks.

For all the drunken camaraderie, there's a touch of class warfare. At Motorpoint, the people in the nosebleeds chant, "Boring, boring tables!" at the folks in the higher-priced floor seats. The floor-seaters chant back, "We pay your benefits!" Eventually, everyone chants in unison, "If you love the darts, stand up!" Short of growing up with the sport, you'll never not find it bizarre. But in person, even for an outsider, it's immediately compelling. You know that thrilling tension that pops when you're in a basement and your buddy Ricky shouts, "I'm gonna flip this bottle cap onto the head of the tiger statue your mom got from Laos," and everyone stops what they're doing to see if Ricky can actually do it? That feeling, pumped up, is darts.

The competition at Motorpoint was the domain of the sport's dozen or so elite Premier League players; the top dog was a scary, bald Dutchman, Michael van Gerwen, an absolute bulldozer on the board, who won just under £1.3 million ($1.7 million) during the 2019 season. He's currently ranked No. 2 in the world. But on this night the PDC had granted a special "challenger" spot to Fallon Sherrock. No challenger had ever won a game in "Prem" competition, but the chance to see her try had led to a sellout of the 10,000-seat arena. "The place was rammed," Hearn says.

Sherrock got the invitation based on her performance at the World Championship a month prior at Ally Pally (actual name: Alexandra Palace) in London. Her opponent was Ted Evetts, a highly touted young player. Before every dart she threw in training, at her home in sleepy Milton Keynes, Sherrock, now 26, willed herself into in-match tension: "I was thinking, mentally, '*This* is

ALLY PALLY

PREVIOUS SPREAD: STEVEN PASTON/PA/ALAMY; THIS SPREAD FROM LEFT: PA/ALAMY; PHOTOGRAPH BY SOPHIE GREEN FOR BLOOMBERG BUSINESSWEEK

to put pressure on Ted. *This* is to take a leg against Ted. *This* is to win.' " In sensible glasses and a pink shirt, in front of 3,000 costumed and joyfully beery fans, she actualized the vision and became the first woman to beat a man on the sport's grandest stage.

"One minute I'm your average person playing darts," she says. "No one knows about me, really, and I'm a massive underdog to everyone else. And then the next moment"—boom. Fawning coverage poured in, from the shouty tabloids to *Good Morning Britain* to Sarah Jessica Parker's Instagram. In the next round, facing Mensur Suljovic, then ranked 11th, Sherrock won again.

Players start with 501 points and race to zero, three darts at a time. Each score you hit is subtracted from your total. To finish, you have to hit your exact remaining score; naturally it's the trickiest bit of the game. Against Suljovic, Sherrock needed 50 points to win. Cinematically enough, that meant the inner ring of the bull's-eye. She smashed a dart in the very center of the board, pumped her fists lightly, and briefly cupped a hand over her mouth. Her two victories had won her £25,000.

She lost the next match, which eliminated her from the tournament. But by that point she was already being called Queen of the Palace. Quickly, the PDC and Sherrock scrambled into an impromptu mutual-exploitation situation. She happily signed up for showcase events, and the PDC happily watched its ticket sales for the events spike.

At Motorpoint, little clusters of friends, men and women, wore pink shirts and eyeglasses and blond wigs to pay homage to their new icon. They sang a variation on an old holiday staple: "Walking along, singing a song, walking in a Sherrock wonderland!"

By the time Sherrock arrived on stage, to Katy Perry's 2010 banger *Last Friday Night (T.G.I.F.)*, the crowd was primed. When it was her turn: squeals of delight. When her competitor, Glen Durrant, was up: boos that, on misses, turned to screams of euphoria. It was a strange sound, kind of a "booooooooaaaaaaaaah!!!" I heard, "Go on, Fallon!" I heard, "F--- off, Durrant!"

Durrant and Sherrock tied, and she won £3,500. When she clinched the draw, there was an explosion of sound. At the press conference afterward, Durrant noted, "I've never heard a noise like this in darts." Sherrock, beaming with an easy charm and crystal-clear star power, said, "I feel like I just play my best games on these big stages. I get all the adrenaline, and I thrive in it. I just love every minute of it."

In normal times the PDC sold more than half a million tickets a year and handed out over £14 million in prize money. According to a 2019 financial statement, the organization took in

HEARN IN LONDON

£37 million in total sales. Phil "The Power" Taylor, the greatest darts player of all time, made more than £7 million in his career, not counting his sponsorship work for a leading ladder manufacturer. The PDC's TV ratings reliably peak during the World Championship. In recent holiday seasons, darts on Sky Sports in the U.K. has regularly come in second only to soccer. Hearn says, "It slaughters golf, tennis, cricket. Slaughters 'em."

Darts has been a televised sport since the 1970s. One might have assumed it had maxed out its business potential. But its promoters keep pushing beyond traditional bases of support in the U.K., Germany, Scandinavia, and Australia. They're looking at growing markets in Brazil, China, India, Japan, and the U.S., where the DAZN network streams 60 darts nights a year. In the U.S. the biggest obstacle for darts is the glut of existing televised sports. But like niche entities such as poker and esports, darts carries itself as an eternal expansionist. "Darts stands on a precipice," the *Guardian* wrote a few years back, "contemplating the perils and the profits of its own new world."

That was before Sherrock became an international name. A question since then has been what effect her success will have on the sport. Despite fan enthusiasm for her, the PDC hasn't seemed inclined to nurture her talents. "We run a gender-neutral sport," says Hearn. "There's no real difference between a man and a woman playing darts." And weeks after her performance at Nottingham, Covid-19 shut down world sports. In an instant the PDC was no longer thinking about capitalizing on momentum or new frontiers. It was thinking about simply hanging on.

The day after Nottingham, I met Hearn in London at the gaudy bar in the Waldorf Hilton; he was in a pinstripe suit and grinning. He was raised in East London in the 1950s by a mother who cleaned houses and a father who drove buses. Despite decades of gilded success in sports such as boxing and lawn bowling with his company, Matchroom Sport Ltd., he still plays the working-class yobbo. "I never got that chip off my shoulder," he says. "I never really liked people with posh accents. But that's OK. Therapy's helping." He's rich, and he's management, but it behooves him to act the schmuck trying to make a few bucks.

The businessman-showman hybrid is a familiar role, one that's made World Wrestling Entertainment Inc.'s Vince McMahon and Ultimate Fighting Championship's Dana White rich and famous. Hearn is well aware of the limitations of his sports, which is why he's good at blowing them up. He knows the game of darts isn't gripping to the casual fan, so he built a ▶

◀ strange little bacchanal around it.

In 2014 the Scottish Football Association invited Hearn to give a motivational speech. He took the opportunity to berate leaders for the organization's financial failures. "Even if you're useless, I want to see you acting like you're good," he said, according to the BBC. "I can sell live fishing. Live fishing! I'm good, and you're not good enough. What's gone wrong here in Scotland?" Everything from Hearn's personal branding to the atmosphere inside the arenas to the way darts is broadcast on TV is part of one big, chunky sales job. It doesn't have to be subtle or smooth to work.

Hearn got into darts only in the early 1990s, a time when the World Championship was held in a smoke-filled pub called the Circus Tavern in Essex County, just east of London. The PDC, which was started in 1992, first brought Hearn in to negotiate TV deals; in 2001, it made him chairman. In inventing the lager-fueled gimmickry that defines darts today, he relegated an older, more traditional league—the British Darts Organisation—to also-ran status. "I have no trouble with the BDO," he says. "I'm sad for them that they're so useless with anything remotely to do with commercial exploitation."

The positive appraisal of "exploitation" is key to Hearn's success. In 2019, Matchroom put on a sequel to a much-maligned 2018 boxing match between YouTube personalities KSI and Logan Paul. This was a contest between nonathletes; according to Matchroom, more than 1.2 million people purchased the fight on Pay-Per-View. (After a draw in the first match, KSI won the second in a split decision.) "Being good is absolutely fundamental in sport," Hearn says, "but being famous is where you make your money."

Which brings up Sherrock. "I'd seen Fallon Sherrock's name on a few amateur events," he says. "But she'd never won any money. And all of a sudden she's in this ridiculous cauldron." Then she beat Evetts, and the "f---ing world went mad," he says. "And I told my people, 'F---ing put her in the World Series.'" (Many darts competitions have similar-sounding names. The World Series, which was supposed to be held last year in New York, is separate from the World Championship. The PDC selects who gets in, though the players are usually the highest ranked.)

Of Sherrock, Hearn says, "To be cruel, she's a novelty at the moment, you know? Now you've got to follow that up with performances. Looking at her career realistically, I say, 'You've got nine months.' In that nine months, maybe she can get to half a million pounds. Worst case. The best case is, f---, you're real. So get yourself a carer for your child, and go do eight-hours-a-day practice like the men do."

Sherrock has a 6-year-old autistic son, whom she raises alone. In 2019 she told the *Sun*: "Looking after Rory is a full-time job in itself. I get my family to help when I'm playing darts, and when he's in bed is the only time I get to practice." Also: "He loves the fact that I play darts. He's really proud of me."

The PDC has never actively cultivated the women's game. Sherrock landed at the World Championship by winning a women's-only qualifier. Deta Hedman, one of the greatest female players of all time, says Sherrock's success will not change much at all. "Barry might give one or two more opportunities [to women]," she says, "but not too many more."

Matthew Porter, chief executive officer of the PDC since 2008, has always been patient about the growth of darts, maybe because it's always exceeded expectations. "There's no such thing as a darts fan," he says. "It's not like you follow your team because you're from that town. We've had to grow the concept of a darts fan. Now, most people who attend professional darts events in Europe—they don't play darts."

The PDC seems to be taking the same measured approach with growth opportunities that Sherrock's success provided. "We know there are barriers to entry," says Porter. "It's hugely male-skewed, and that's probably because of its background as a bar sport." Hearn says, "If you try to look into a crystal ball and say, 'Where are we all going to be in 10 years' time?' Well, hopefully, going to the darts to watch men and women on a level platform. How exciting would that be?"

"You're working to make sure that happens?" I ask.

"Well—we're not," he says, smiling. "This is the secret. We're going to maintain opportunities. We'll give spots on key events. But we don't wanna be patronizing, or put 'em in because they're beautiful or because it's fashionable."

Late last month, Hearn said the PDC is planning to add Sherrock to some major international events once the pandemic "subsides." He added, "Covid could not have come at a worse time for Fallon Sherrock and her emerging career. It has been a big, backward step in terms of changing her life, with a hard pathway ahead."

The PDC has gone about 10 months selling almost no tickets, and it's expecting to go two more, says a spokesperson. Hearn says 2020's gate proceeds are down £7 million but says the PDC has managed to suffer only a 25% profit loss during the pandemic and hasn't lost any sponsorships. "A profit is still a profit in these troubled times," he says. "As ever, my glass is half full."

The lockdown has created opportunities, too. Last April, the PDC returned with the Home Tour, in which

"Being good is absolutely fundamental in sport, but being famous is where you make

your money's

PRICE AT LAST MONTH'S WORLD CHAMPIONSHIP

PHOTOGRAPH BY SOPHIE GREEEN FOR BLOOMBERG BUSINESSWEEK

players competed from their houses by broadcasting their play. Viewers could watch live on DAZN or the Sky Sports app. Technically, darts was the first sport in the world to come back from its coronavirus-mandated shuttering. The Home Tour was a stopgap measure, with players doubling as their own production staff and reporting their scores. One match was called off because of poor Wi-Fi. But in the shambling spirit of the sport, the tour kind of worked.

A few months later, as PDC competitor BDO headed to liquidation, the PDC brought back in-person darts, just without fans. Sherrock used lockdown to amass a TikTok following and compete in a parallel livestreamed darts tournament, put on by the agency that represents her, where she continued to beat men. But she didn't have live opportunities to recapture the magic of last winter's run, and she failed to nab one of the two women's qualifier spots for the 2021 World Championship. Other women filled the void: One of the most exciting moments of the runup came when Mikuru "The Miracle" Suzuki almost beat Gerwyn "The Ice Man" Price, the world's No. 1, at the Grand Slam of Darts in November in Coventry.

At the end of December, despite the pandemic, the World Championship was back on at Ally Pally. The players and PDC staff were in a modified bubble, allowed to move only from their nearby hotel to the venue. The first night, 500 spectators were let in. On the second night, with a variant of the virus fueling a surge in Covid cases, new restrictions went into effect. The tournament continued. Media were allowed in, but fans were not.

On Jan. 3, after weeks of competition, the World Championship was whittled down to two players: Price and Gary "The Flying Scotsman" Anderson went head-to-head for £500,000 in prize money. I attended the final. Stripped of all pageantry, the action was even more surreal. Within the blue-carpeted, faux-regal Ally Pally, it suggested the strange solemnity of the ceremonial rites of a well-to-do cult. Some showmanship would have been nice. Perhaps the half a mil could have been here, in cash, spilling out of suitcases?

It helped that Price's performance was insane. His every muscle was clenched; every success was greeted with a scream. I have "daaaah!" and "waaahh woooah!" and "plaaaaaaaah-hhheee" written in my notes. Price has the vibe of a video game villain—specifically, Wario—while Anderson's is more of a lapsed punk rocker turned kindly accountant.

Price was dominant and went up big. And then, as he got closer to clinching, he kept blowing chances. I was still just watching two men throwing darts in a cavernous mansion in creepy silence. But it was riveting. Price was so close to glory and clearly rattled by the specter of success.

He fluttered his lips and turned away from the board, seeking clarity. Another chance came. All he needed was 10 points. Bang, there it was. The money, the glory, was his. The PDC had done it, too. With a pandemic peaking, it completed its signature event. "Boooooah!" the Ice Man screamed in glee. "Boooah!" Ⓑ

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One Thing That $92 Million Can Buy

How a Sandro Botticelli portrait from the 15th century realized an almost 7,000% return

By James Tarmy

PURSUITS

Portrait of a Young Man Holding a Roundel before its Sotheby's auction

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Aston Martin's road map starts with the DBX

February 8, 2021

Edited by James Gaddy

Businessweek.com

In the lead-up to its auction in New York, Sotheby's sent a 15th century painting by the early Italian Renaissance artist Sandro Botticelli on a world tour, traveling from New York to Dubai, London, and Los Angeles in an effort to drum up interest.

While the painting was in London, a group of dealers, collectors, and curators who'd gathered to admire it got to talking: Was the "in excess of $80 million" estimate reasonable for an exquisitely preserved portrait of a beautiful young man in a sumptuous mauve doublet? Opinions varied to such a degree that an informal wager began. Everyone wrote down their bet on a piece of paper; the furthest from the correct price would have to buy the rest of them dinner.

It was a fun idea at first, "but now it's become a real problem," says Jorge Coll, co-chief executive officer of the old masters gallery Colnaghi, founded in London in the 18th century. "More people have joined the bet, and now the guy who's lost is going to have to pay for an expensive dinner."

Portrait of a Young Man Holding a Roundel eventually hammered on Jan. 28 for $80 million. Auction house fees brought the total to $92.2 million. When this Botticelli was last available, almost 40 years ago, it sold to the real estate billionaire Sheldon Solow for about $1.3 million. The auction yielded his private foundation (Solow died in November) an almost 7,000% return. The highest public sale of the artist's work prior to this was in 2013, when a small painting of the Madonna sold for $10.4 million.

Coll and his friends weren't the only ones speculating about the estimate. Most experts couldn't agree on what it was worth, because Sotheby's valuation was without precedent. "No Botticelli has sold for anything like this," said the dealer Patrick Matthiesen before the sale started. "I think the price for this picture should be $30 million to $50 million. Having said that, I don't dispute for a minute that it could clear [$80 million] in a moment."

"It's the same emotion as when you're listening to your national anthem. How can you value that?"

But some dealers argued there actually was a precedent—it just had nothing to do with Botticelli. The benchmark for the portrait's sale, the argument goes, had been set by other artists—including Jeff Koons's *Rabbit* ($91 million at Christie's in 2019), a painting of a skull by Jean-Michel Basquiat ($110.5 million at Sotheby's in 2017), and, most significantly, a painting of Jesus Christ by Leonardo da Vinci.

When *Salvator Mundi* sold for $450 million at Christie's New York in 2017, it became easily the most expensive painting to ever sell at auction. More than that, though, it was a lesson to art dealers everywhere: A select group of very, very wealthy people are willing to pay for the best—or at least, the best-available—example of an artist's work, assuming of course the artist is famous. The only question, then, is how convincingly sellers can make the case.

"The people at Christie's who created the [promotional] video for *Salvator Mundi* should have won an Oscar," Coll says. The video in question, *The Last da Vinci: The World Is Watching*, is a four-minute film that shows rapid-fire clips of people of every age, race, and class staring at the picture, often weeping—the actual work of art is never shown. "They took the painting out of the equation," Coll says. "When you look at something like that, it's the same emotion as when you're listening to your national anthem. How can you value that?"

Christopher Apostle, head of old master paintings at Sotheby's, has a slightly different explanation for the Botticelli's evaluation, but it still comes back to the notion that so-called masterpieces are in a class unto themselves. "I didn't sort of think, 'Oh, I can make this into a cultural phenomenon,'" he says, adding that the Leonardo sale was proof of nothing more than "at auction, sometimes things happen."

Instead, Apostle says, "you've got to look at the whole panoply of what a masterpiece is, and I don't think there's a difference between a masterpiece by Basquiat or Rembrandt or Botticelli." In other words, *Young Man Holding a Roundel* shouldn't be valued against other Botticellis; rather, it should be valued as the best possible version of a work of art by a superstar artist. "I've always felt that this was a picture that's in its own category," Apostle says. "I looked at Picasso and Basquiat as much as I did any other old master."

That might sound like hype, but there's almost unanimous consensus that this Botticelli is, in fact, the finest portrait still in private hands. "Without any doubt it's the best old master painting to come to market in the last 10 years, and for me, past 20 years," says Fabrizio Moretti, founder of the Moretti Gallery in London. "I deal in this period, and it's so rare to find a painting [like this] in great condition."

Most recently, Carlo Orsi, a dealer from Milan, brought another Botticelli portrait to the 2019 Frieze Masters art fair in London. Valued at about $30 million, the work "was a very well-known portrait, full of history," Orsi says, but he notes that the Spanish government had it listed as a work of cultural interest, meaning it couldn't leave the country for long. Given

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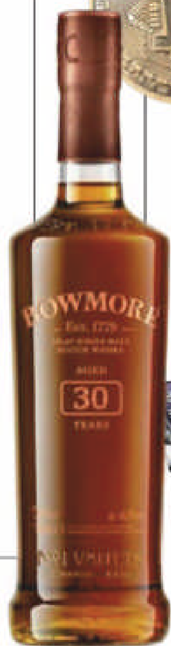

391

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29

Ferrari F8 Tributos

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1,028

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The timepiece preferred by U.S. presidents—Joe Biden wore one in steel to his inauguration—is also available in 18-karat white gold with diamonds.
From $16,050

325

Birkin bags

Not that you can actually buy this many ever, but just trying to could bump you to the front of the line.
From $9,850 each

1

Private island

End your spree with this 257-acre property in the lower Exuma Cays of the Bahamas. It includes a 1,700-square-foot main house, three guest houses, utility buildings, and staff accommodations. *$35 million*

the painting's temporary export license, he says, the price was suppressed. It failed to find a buyer.

Despite that setback, Orsi stridently supports the valuation of *Young Man Holding a Roundel*. "If you want another one like this, you could steal it from a museum," he says, "but there aren't any others."

It's an argument that surely resonated with the work's buyer, whose identity is still unknown as of press time, though art world whispers suggest it could be a Russian oligarch. During the bidding, Sotheby's auctioneer Oliver Barker, set up in the house's streaming-audience-only stage set, opened at $70 million. Only two bidders–both on the phone to auction house specialists–stepped up to the plate; one seemed to back down after a single bid. It still took four minutes for the hammer to fall as Barker attempted to coax the collector back into the fray. The total certainly was "in excess of $80 million," as Sotheby's predicted, but not much more than that.

This wasn't great news for Coll, who'd bet that it would sell for $200 million and is now on the hook for a very expensive meal. "It's going to be 10 people at a good restaurant," he says. "At one point I was thinking I should bid for the painting, because it's going to be cheaper than the dinner." Still, he says, it could be worse. "If it went unsold, I would still have to pay, and we'd have nothing to celebrate. Because if the old masters world can still produce $100 million sales, that makes me happy." Ⓑ

Let Me Be Your Guinea Pig

Thousands of cruising enthusiasts are volunteering to be the first ones back on the boat. *By Fran Golden*

When Royal Caribbean International announced it was looking for volunteers to help test its post-pandemic health and safety protocols, Melody Wiggins was among the first to sign up.

"No matter where [they] want me to be, I'm there," says Wiggins, 58, a life coach from Southern California who calls the 4,180-passenger *Anthem of the Seas* her "home away from home." After she fell in love with cruising in 2018, she's been on 16 voyages—several of them on the *Anthem*. Her obsession is a straightforward romance with ocean views, sunrises at sea, and the smell of salt breezes. "I miss all of that," she says.

Since February 2020, when an outbreak on the *Diamond Princess* led to at least 700 positive Covid-19 cases and 12 deaths among passengers and crew, the cruise industry has been unable to prove that it can keep its customers safe. (All the major lines—Royal, Carnival Corp., Norwegian Cruise Line Holdings Ltd., and their many subsidiaries—have been sitting idle in the U.S. since March.)

Bent Martini, chairman and chief operating officer of Hurtigruten Ltd., a European cruise line, stepped down in August after an outbreak on one of its ships in Norway. Four months later, a ship in SeaDream Yacht Club's fleet left Barbados on a trip meant to validate its increased safety protocols, including regular testing, but had to turn back after seven out of 53 passengers tested positive.

Nevertheless, Royal Caribbean's call for volunteers in November received 100,000 signatures in the first week. An additional 150,000 have jumped on board since then, all of them willing and eager to stare down the coronavirus for the chance to get back out on the water.

These so-called test cruises are one in a series of requirements from the U.S. Centers for Disease Control and Prevention before lines can resume commercial operations, an activity the agency has designated a "very high level of Covid-19" risk. Companies that succeed can get back to making money—Royal Caribbean's most recent earnings call showed a $1.3 billion loss in the third quarter of 2020. So far, it's the only one that's asked for volunteers.

Before the CDC approves any test cruises, the agency needs buy-in from ports and local health authorities. It also must publish technical instructions for the ships to follow. After that, cruise lines will need to give 30-day written notice of their plans. Royal Caribbean and its competitors have so far suspended sailings through April—an indication of how long this process might take. A CDC spokesperson said the criteria

GETTY IMAGES

to measure these trials' success were still being determined.

Whenever the test cruises happen, they'll encompass a handful of "simulated voyages" inspecting best practices for social distancing as well as quarantine and evacuation procedures. Royal Caribbean hasn't yet disclosed whether the itineraries will consist only of drills or if the ships will even leave the port. Spokesman Rob Zeiger, who left his post on Jan. 29, expects them to combine dockside testing in Florida with a visit to Perfect Day at CocoCay, Royal's $200 million private island in the Bahamas.

Even with so many unknowns, fans are itching to be let on board. Nancy Price Towner, a retiree from Galveston, Texas, who has 16 sailings booked for this year beginning in May, frames her desire almost in terms of civic duty. "This is not a vacation," she says. "I see this as a job. We must do all we can to help cruise lines get back to what they do best, providing a respite from the everyday world."

For Deborah Marino-Ramos, 58, a registered nurse from New Rochelle, N.Y., who had 20 cruises booked for 2020—all canceled—the test sailings are an opportunity to be part of Royal Caribbean's history. "I don't want to do it with another cruise line. I just want to do it with Royal," she says. "I trust they are not going to have a problem and ruin their industry."

Richard Fain, chairman and chief executive officer of parent Royal Caribbean Group, has offered few assurances. He's told travel agents that eliminating the virus is impossible on a cruise ship. The goal, he says, is to make ships safer than guests' hometowns and quickly contain any outbreaks that inevitably occur. Just as on dry land, testing will be key. Rapid PCR tests will be available at both the pier and on board each ship to identify and isolate sick passengers.

Some of Royal's biggest fans are offering their medical training services. Pam Merkin, 66, a registered nurse from Houston who's sailed with Royal 34 times, says she volunteered because "I believe with my medical background I could give useful feedback regarding cleaning and PPE protocol."

New York nurse Marino-Ramos also has firsthand knowledge on her side. She was on a ship in the Caribbean when New Rochelle was cited as a pandemic hot spot. "My husband and I looked at each other and knew we felt safer on the ship than going back home," she says. Now she expects test cruises to include social distancing, mask-wearing, ordering food from smart devices, and other measures. "It's what we have done all around in our town, but on a ship."

Matt Hochberg, 38, a cruise industry reporter who closely follows Royal on his unofficial Royal Caribbean Blog, thinks the whole gambit could be a mirage and wonders if the company's move was an elaborate publicity stunt. Instead of citizen volunteers, he suspects that the line will populate its test cruises primarily with land-based Royal employees and travel agents—the same friendly audience typically on shakedown cruises for new ships. And yet, Hochberg volunteered anyway. "I signed up immediately," he says. "I figured, why not?" (Michael Bayley, president and CEO of Royal Caribbean International, says the company's sign-up program stemmed from high demand that was coming in over social media and email.)

David Chipping, 64, is also taking the opportunity with a dose of nonchalance. A business executive with residences in Miami and London who's been on more than 150 Royal cruises, he says he'd even play-act in a simulation. "I wanted to do anything I could to assist them in a return to the seas," he says of his decision to sign up. "If I am asked to drink at a bar and be that difficult cruiser, then I will. They need to test procedures under both controlled and 'normal' circumstances. I am very versatile." Ⓑ

INSIDER INGREDIENT

COBANERO SAUCE
This intense *recado* is especially popular for braising pork in Cobán. In a large skillet, roast 2 pounds of tomatoes over medium heat until soft and partially charred. Repeat the process with 10 tomatillos, 4 garlic cloves, and 2 large halved onions. Add charred ingredients and ¼ cup cobanero chile flakes to a blender and puree until smooth. Makes about 1 quart.

In a large pot, heat a little vegetable oil. Add sauce; cook over high heat, stirring until thickened, about 5 minutes. Season with salt. Add meat, vegetables, or other stew ingredients; simmer until fully cooked.

Sweet Heat

Cobanero chiles from Guatemala can no longer be ignored. *By Kate Krader Photograph by Naila Ruechel*

The spice rack is getting a refresh across the U.S. as home cooks spend more time in their kitchen. Sales of McCormick & Co., one of the world's largest purveyors of seasoning blends, rose 5% in 2020 compared with 2019, to $5.6 billion.

This renewed focus on culinary basics has driven interest in cobaneros, the chiles from in and around the city of Cobán in central Guatemala. The burnished red flakes can be used in a wide range of dishes; they add a bright fruitiness and tantalizing spiciness unlike the straightforward, one-dimensional heat of standard crushed red pepper.

The history of the cobanero dates to the early agrarian societies of the preclassic Mayan era around 2000 B.C. "Other chiles that aren't as good have become better known," says Ethan Frisch, co-founder of spice importer Burlap & Barrel. Unlike habaneros, which are grown across Latin America and the U.S., cobaneros are primarily harvested in the geographically isolated highland rainforest. This area, and Guatemala as a whole, has yet to get its culinary due abroad.

Frisch, however, says the cobanero's time is now. He started importing them to the U.S. in 2018, and the $8 bottles are routinely among his company's top-five sellers. He gets his supply from a farmer named Don Amilcar in Cobán. (Amilcar's daughter Meyllin Perreira uses the chiles to make a terrific all-purpose sauce; see recipe above.) "I originally went to see him for cardamom," Frisch says. But he loved the homegrown chiles so much, he brought back 20 pounds of them in a duffel bag. "They sold out immediately."

Although cobaneros are sometimes smoked, Burlap & Barrel's are sun-dried, which brings out warm, toasty notes. Connie Chung, chef and co-owner of the fast-casual Chinese restaurant Milu in New York, uses them to give flavorful heat to her vibrant chile crisp sauce, which she sells in jars and spoons over fried chicken nuggets. "I hate spicy food that's just spicy and nothing else," she says. "This brings fruitiness and smokiness, too." Robert Valle started working with them when he was the executive chef at Diner in Brooklyn, N.Y., adding them to bean dishes. Now he's become adept at using them to replace Thai chiles and in Italian food at home. "They're supremely adaptable for different cuisines," he says.

At Majka Pizzeria & Bakery in Sacramento, chef and owner Chutharat Sae Tong sprinkles the chile flakes on several pizzas, including one with corn, lime, and cilantro. She's experimenting with cobanero in a citrus pound cake and other desserts. "It's got definite spice," she says. "But it's forgivable. It doesn't scar you." Ⓑ

A Cool, Dry Place

The Brigg umbrella is jolly good protection, whatever the precipitation

Photograph by Naila Ruechel

The life span of the typical umbrella is tragically short. It's limited to opening, blocking raindrops, and closing—before being left in a cab after one to three uses. But a good one can survive many seasons of inclement weather. At the very top end of the market are the handmade umbrellas from England's Swaine Adeney Brigg, which have shielded the heads of kings and queens, prime ministers, and thousands of well-coiffed imitators since the company's founding in the 19th century. The silk-canopied £925 ($1,264) Malacca Prince of Wales is so named because, yes, it's used by the prince himself and is arguably the most iconic of them all.

THE COMPETITION

• James Smith & Son's handmade City umbrella (£204) also has a handle made of Malacca, a light and resilient wood, and is draped with Italian nylon.

• Created from one continuous piece of cherry wood, Pickett's £395 umbrella is wind-tested to speeds up to 27 mph.

• A fashionable look regardless of weather, Francesco Maglia's €520 version has a handle finished in leather.

THE CASE

Everything in the Prince of Wales umbrella—from its solid-silver nose cap to its stained beechwood shaft—is assembled by hand at Brigg's factory in Norfolk. Ribs can be made up to 27 inches. (It can take as long as eight weeks from order to delivery.) Nylon is the most common canopy material today, but silk has a better look and feel and is the traditional choice. When closed, the Brigg has a willow-thin profile that's easy to miss, so if you're spending this much on an umbrella, spring for a collar engraved with your name: This is one you'd like to have returned. *£925; swaineadeney brigg.com*

The $180,000 DBX is Aston Martin's first SUV

COURTESY ASTON MARTIN

The Road Map Out of Limbo

Aston Martin, one of the last of the old-school luxury brands to release an SUV, can turn its fortunes around with the DBX

By Hannah Elliott

In some ways, those intending to buy the $180,000 Aston Martin DBX SUV are more fortunate than those who paid the $682,000 deposit required for its $3 million Valkyrie.

For one, DBX owners have already started receiving their vehicles, far sooner than folks who signed up for the Valkyrie. Aston Martin has yet to deliver even one of the supercars, which it introduced in 2017, though it says shipments may start later this year. There are other things to love about the DBX as well: distinctive exterior styling that takes cues from the elegant Vantage; quality interior materials and technologies on par with Audi, BMW, and Porsche; and the manufacturer's promise that other powerful variants are still to come.

They can't arrive soon enough. The Gaydon, England-based manufacturer is forging the most delicate period of its 106-year history right now, facing steep declines in sales and dwindling cash flow as its new majority owner, Lawrence Stroll, tries to fashion it into a British version of Ferrari NV, complete with a Formula One team.

The company has placed its future stability on the broad shoulders of the DBX, its first SUV. Aston is one of the last heritage luxury brands to release one. Last year, pickup trucks and SUVs accounted for almost 80% of all vehicle sales in North America; that number is expected to rise in 2021 and beyond.

By 2023, Stroll says, Aston will be selling 14,000 vehicles a year, double its output from 2019. At least half of those sales, presumably, will be DBXs, designed to satisfy consumer

appetites and, most specifically, to appeal to women. According to the company, as of 2019–the last year for which data is available–only 4% of the 85,000 cars it's ever sold went to female owners–a weak statistic that must change if Aston Martin wants to remain viable.

The DBX made its debut in 2019, though coronavirus constraints postponed sales until late last year. Specs-wise it remains the same as then: A 542-horsepower V-8 engine is borrowed from the handsome DB11 coupe and hits 62 mph in 4.5 seconds, respectably mid-pack among its peers, such as the BMW X5 and Porsche Cayenne SUVs. Top speed exceeds 180 mph.

But a recent week of test-driving in the hills of West Hollywood, over the broad expanse of Beverly Drive and the curves around Highland Park, revealed some important new information.

First, the DBX looks like the happy medium between a Jaguar F-Pace and a Lamborghini Urus; it's more chiseled than the Jag but softer than the $218,000 Italian.

The SUV's most distinctive feature is the wide "DB" grille–horizontal slats stretch across the entire front like a sideways pinstripe. Venting channels, carved like hockey sticks into the bottom of the frameless doors, help elongate the look along the sides. Small air vents that look like snake nostrils on the hood and a high and tight rear end, complete with a tiny spoiler, accentuate a sporty stance.

Inside, Aston Martin has put more apparent care into the cabin components than it has in any vehicle in years. Everything feels weighty and well-made: The seats are trimmed in sumptuous leather sourced from longtime partner Bridge of Weir; an 80% wool fabric is also available to cover the five seats.

The sweeping panoramic roof allows sunlight to drench the cabin and command console, which is covered entirely in leather and defined by a 10.25-inch screen at the center; a second, 12.3-inch screen serves as the instrument panel. (Neither screen is touch-sensitive–that and the abysmal 15 mpg combined fuel efficiency are the vehicle's two missteps.) Apple CarPlay comes standard, as does a 360-degree camera system and ambient lighting that offers 64 different colors in two zones.

The DBX has 54 cubic feet of storage space with the rear seats folded; sumptuous leather covers almost every available surface—with the exception of the 10.25-inch screen on the console and a 12.3-inch one that serves as the instrument panel

Kudos also for a set of creative, practical extras for drivers on the go: A Pet Pack ($3,400) includes a portable washer for dogs, while a Snow Pack ($2,165) provides a roof-mounted ski rack, snow chains, and (joy!) boot warmers. The Event Pack ($33,700) borrows from the Rolls-Royce Cullinan playbook with a fold-down bench built into the rear bumper, a modular picnic hamper, and umbrella storage (umbrellas not included). Even for those who can't or won't choose these more expensive options, the class-leading head- and legroom, ergonomic sport seats, dual lifting armrests, and 54 cubic feet of storage space with the rear seats folded make the DBX a pleasantly livable daily driver.

Oh, yes–the driving. That is, after all, what Aston Martin's other cars do considerably well. With an almost 5,000-pound hulk and a chassis that gives it a truck-tall ride height, the DBX will never be mistaken for a sports car. But behind the steering wheel you'll find punchy torque, nimble steering, eager rear-wheel drive, and firmly balanced brakes that honor the Aston Martin reputation.

Adaptive air suspension, anti-roll control, electronic adaptive dampers, descent control, and even a system that raises and lowers ride height by almost 2 inches–for when you want to go off-road–make driving the DBX over any terrain feel smooth and confidence-boosting.

Better still, Aston Martin has hinted it will soon offer a high-performance "AMR" variant with more power and a more aggressive suspension. Here's hoping the automaker will prioritize those extra DBXs in the production line ahead of the already outdated Valkyrie.

If the company can find its way out of its other issues, financial and logistical, the product will carry it just fine. The DBX, as it turns out, might just be the road atlas Aston Martin so desperately needs. Ⓑ

Attacking Elon Musk's Freedom of Mouth

By Joe Nocera

Gregory Wochos et al v. Tesla Inc. et al

Case #17-CV-05828

● Other suits? In its 2020 annual report, Tesla cites seven cases filed over its 2016 acquisition of SolarCity Corp. and nine class actions and six derivative suits filed over Musk's tweet. Yet another lawsuit claims the CEO's stock-based compensation is an example of "corporate waste" and "unjust enrichment." A trial is set for this summer.

● Can plaintiffs still get money from securities class action settlements? Yes. Data from Stanford Law School show that just in the Southern District of New York, plaintiffs have recovered more than $104 billion in 2,584 settlements since the 1995 law went into effect. Still, 2,768 cases have been dismissed. So it's doable, but not easy.

ILLUSTRATION BY GEORGE WYLESOL

❶ THE ORIGIN In 2017, Gregory Wochos, a clinical neuropsychologist in Wisconsin, owned a very pricey stock: Tesla. The company was losing hundreds of millions of dollars every quarter, but Wochos and other investors believed fervently that Chief Executive Officer Elon Musk was on the verge of producing an electric car for the masses. Indeed, the Model 3 was already in production. Musk–and Tesla–promised the world that the company would soon churn out 5,000 a week. No wonder the stock was up 84% in the first nine months of 2017!

❷ THE SUIT Uh-oh. On Oct. 2, Tesla reported that it had manufactured only 260 Model 3s in the third quarter of the year. It blamed the problem on "production bottlenecks." The stock dropped 3.91%. Within days, Wochos filed a class action in the U.S. District Court for the Northern District of California against Tesla, Musk, and two other top executives at the company, alleging that they'd made "materially false and misleading statements." In other words, Wochos was suing Musk–Elon Musk!–for (allegedly) exaggerating.

❸ THE ISSUE It used to be a snap for plaintiffs' lawyers to extract money from a company when its stock dropped suddenly. But in 1995, Congress passed a "safe harbor" law that allowed companies leeway to make forward-looking statements–even if they turned out to be wrong–as long as the statements included cautionary language. Thus, Wochos's lawsuit revolved around a simple question: Had Tesla and Musk–Elon Musk!–been cautious enough?

❹ THE OUTCOME Are you sitting down? In August 2018, less than three weeks after Musk sent a now infamous tweet claiming he had the funding to take Tesla private, U.S. District Judge Charles Breyer ruled that Musk and Tesla had been cautious enough. "Federal securities laws do not punish companies for failing to achieve their targets," he wrote. Wochos refiled but lost again. On Jan. 26, 2021, the suit ended with the 9th Circuit Court of Appeals agreeing with Breyer. As for Wochos, let's hope he held onto his stock. Since that little glitch in late 2017, Tesla is up more than 1,000%. Ⓑ —*Nocera is a columnist for Bloomberg Opinion*

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